

Benchmark Infrastructure Costing - Result Application

Result Application Mt Atkinson and
Tarneit

Cardno Project Reference: V181544



Prepared for
Victorian Planning Authority

12 April 2019

Document Information

Prepared for Victorian Planning Authority
Project Name Result Application Mt Atkinson and Tarneit
File Reference V181544 Mt Atkinson Tarneit Costings D04.docx
Job Reference V181544
Date 12 April 2019

Contact Information

Cardno Victoria Pty Ltd
Trading as Cardno
ABN 47 106 610 913

Level 4
501 Swanston Street
Melbourne
Victoria 3000 Australia

Telephone: (03) 8415 7777
Facsimile: (03) 8415 7788
International: +61 3 8415 7777

victoria@cardno.com.au
www.cardno.com

Document Control

Version	Date	Author	Author Initials	Reviewer	Reviewer Initials
D01	06/06/18	Viraj Abeykoon	VA	Cristian Pascual	CP
D02	17/07/18	Viraj Abeykoon	VA		
D03	22/03/19	Cindy Mendoza	CM	Stephen Howe	SH
D04	12/04/19	Viraj Abeykoon	VA		

DRAFT

© Cardno. Copyright in the whole and every part of this document belongs to Cardno and may not be used, sold, transferred, copied or reproduced in whole or in part in any manner or form or in or on any media to any person other than by agreement with Cardno.

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

Disclaimer

Cardno have made a number of assumptions for the extraction and use of the underlying data as outlined within this document. Cardno as far as practicable have included sufficient units and rates to provide budget-costing data only, Cardno assumes no liability for losses incurred through changes to quantities or increases in construction costs or overheads. The values and quantities included within this document are not intended for use in construction pricing and do not constitute a Bill of Quantities.

Functional layouts provided for all civil components are for information only and shall not be used for space proofing / boundary extents. The final arrangement of all civil components is subject to detailed design by qualified people or organisations after appropriate due diligence investigations relevant to specific sites and project scope.

DRAFT

Table of Contents

1	Introduction	6
2	Results and Discussion	7
2.1	Methodology and Assumptions	7
2.1.1	Intersections	7
2.1.2	Culvert Crossing	7
2.1.3	Bridges	8
2.2	Results of Estimations	9

Appendices

- Appendix A** Reference Material
Appendix B Detailed Cost Sheets

Tables

Table 2-1	Cost Estimates	9
-----------	----------------	---

Figures

Figure 2-1	Indicative location of BR-03	8
------------	------------------------------	---

1 Introduction

Cardno was initially engaged by the Victorian Planning Authority (VPA) to undertake an assessment of infrastructure costings for a series of non-standard infrastructure items (based on the findings of the Benchmark Costings report) within the Mt Atkinson & Tarneit Plains PSP. These were used to inform the exhibited ICP document.

The list of nominated non-standard infrastructure items prepared for the exhibited ICP with the noteworthy elements of each are outlined below; Refer to Appendix A for reference drawings for infrastructure items with concept designs.

Intersections IT-01 and IT-02

- > Costing is based on the intersection functional layout prepared by Traffix Group. Revision C, 09 May 2017;
- > Both intersections have a skewed layout. IT-01 is a combination of a signalised intersection and a roundabout.

Intersections IT-03, IT-04, IT-14 and IT-16

- > Costing is based on the intersection functional layouts prepared by Cardno as part of a previous VPA contract. Revision 2, 13 February 2017;
- > Presence of a high-pressure gas transmission pipeline that requires the use of a protection slab to be constructed for IT-03, IT-04 and IT-14.

Culvert Crossing CU-01

- > Riding Boundary Road Culvert crossing over Skeleton Creek with no concept information available.

Bridges BR-02 and BR-03

- > Pedestrian and cyclist bridge BR-02 spanning across Melbourne Ballarat Rail corridor;
- > Level crossing upgrade for BR-03 to add automated pedestrian gates.

Submissions were received from Melton City Council and Mt Atkinson Holdings. The detailed recommendations from Cardno's analysis of stakeholder feedback is provided in Cardno report 'Stakeholder Comments Review Mt Atkinson Tarneit Plains ICP' (version D02, 13.12.2018).

Cardno then updated this costing report based on the feedback received. The costings produced are based on the rates and lump sums recommended as part of the Review of Benchmark infrastructure Costings project by Cardno (version D06, 14.03.2019). The D06 version of the benchmark report accommodates recommendations from the stakeholder engagement process unique to the benchmark project. Where gaps in available cost data were identified, they were supplemented with Cardno's internal costing rates.

As part of the updating process, intersections IT-05, IT-06, IT-07, IT-08, IT-09, IT-10, IT-11, IT-12, IT-13 and IT-15 were costed based on the bespoke ICP drawings (the exhibited ICP applied benchmark template costs for these intersections). Additionally, the estimate for culvert crossing CU-01 has been re-calculated to correct some observed quantity/ rate error. Based on the feedback received, bridge crossing BR-02 was also redesigned and re-costed due to constructability issues for the original VPA supplied ICP design being noted by a stakeholder.

A number of assumptions were adopted in order to apply the rates from the Review of Benchmark costing project and to produce the final costing data for these infrastructure elements. These assumptions and the final costs are outlined in subsequent sections of the report. For detailed extractions of the quantities and rates refer to Appendix B.

2 Results and Discussion

2.1 Methodology and Assumptions

The following methodology and assumptions were adopted in producing the cost estimates for the nominated infrastructure items.

2.1.1 Intersections

The estimates for the intersections were produced by extracting certain quantities from the CAD drawings provided by the VPA and adopting quantities from the Benchmark Infrastructure costing project for the remaining items. Quantities that were extracted from the VPA provided CAD drawings included;

- > Pavement areas (including concrete medians);
- > Footpath and Shared use path areas;
- > Kerb Lengths;
- > Landscaping areas.

For the items listed below, quantities were adopted from similar intersections priced within the Benchmark infrastructure costing project.

- > Drainage pits and drainage pipes;
- > Regulatory signage;
- > Tactile pavers.

For intersections IT-03, IT-04, IT-14 and IT-16 the presence of a high-pressure gas transmission line running adjacent to Hopkins Road required the provision for cost of a protection slab. This item was estimated as a lump sum.

The following assumptions were adopted in providing the cost estimates:

1. Pavement depths for the tiers of road are; 715mm for Primary Arterial, 635mm for Secondary Arterial, 535mm for Connector and Heritage Streets;
2. Subsurface drains are provided underneath all kerbs and road edges;
3. Intersection legs outside the scope of the Precinct Structure Plan were excluded from the costing. This resulted in a number of 4 legged intersections being costed as 3 legged intersections;
4. For the purpose of estimating, a constant 2m depth for the high-pressure gas line was adopted. A protection slab design that was 3m wide and 125mm thick along with a 300mm layer of stabilised sand between the asset and the slab was adopted.

2.1.2 Culvert Crossing

The Riding Boundary Road culvert crossing over Skeleton Creek did not have a concept design at the time of writing of this report. When attempting to identify if sizing had been undertaken as part of Melbourne Water's Drainage schemes it was uncovered that obtaining this information could take about 4 weeks. Due to the timeframe requirements of the project, this approach was not adopted.

Due to the above restrictions, a similar culvert crossing downstream of the area was identified. Upon undertaking a site inspection, the culvert crossing downstream was identified to be a 3 cell 3.0m X 3.0m box culvert system. For very high-level estimating purposes, it was assumed that a similar box culvert system will be suitable upstream for the crossing. If in the future it is identified that the crossing is part of a Melbourne Water drainage scheme and with more detailed information becoming available, new estimates may be required to be undertaken accordingly. The span of the culvert crossing was adopted to be 23 culvert units long (each 1.22m in length) with an overall span of 27.6m.

The cost for this culvert crossing has been updated in response to submissions to correct a few errors, however using the same scope specified above.

2.1.3 Bridges

Two infrastructure projects have been included to prepare cost estimates; namely BR-02 and BR-03. BR-02 is a shared pedestrian and cyclist bridge comprising a single span bridge which will be constructed across the Melbourne Ballarat Rail Corridor. In the exhibited documents this item was costed based on a concept design prepared by SMEC (supplied to Cardno by the VPA). However, during the stakeholder feedback process it was noted that there were constructability issues surrounding the SMEC design. In response to submissions Cardno structural engineers have prepared a new concept design for the pedestrian bridge and have costed it accordingly.

The proposed pedestrian bridge over the railway reserve has been designed using AS5100:2017. The bridge is designed for pedestrian and cycling traffic only, no vehicular loading has been allowed for. The current design does satisfy Austroads guidelines for “shared path” status. The steel truss work has been incorporated to act as both a structural member and as the frame work for anti-throw screens.

The steel truss frame has the advantage of both spanning the required distance for the railway reserve and being pre-fabricated offsite. This can allow for shorter on-site construction time and avoid temporary scaffolding/propping in the reserve. The truss formation also allows for the concrete deck to be constructed of precast planks or be poured in-situ using permanent formwork and no propping. The bridge deck and ramps are supported by reinforced concrete abutments and columns, on in-situ pile caps and bored piers. No geotechnical advice has been provided, however it is expected basalt will be encountered at depth in the Rockbank area.

Costing for the project was carried out using Rawlinson Construction Handbook 2019, manufacturers and similar past projects Cardno have been involved with.

BR-03 involves an upgrade to the crossing to include automated pedestrian crossings at the level crossing of Hopkins Road and the Melbourne Ballarat Rail Corridor. The indicative location of BR-03 is depicted in figure 2-1 below. Concept designs by SMEC for a similar project were provided by VPA for BR-03. Cost estimates have been developed with the following assumed design components:

- > The project would be delivered as a Design and Construct package;
- > Rates for BR-03 were adapted from works by other consultants who had previous experience in similar projects. P90 rates are not provided for the infrastructure item BR-03;
- > Due to presence of vehicle boom gates in the existing crossing at BR-03, it was assumed that no additional work will be required to obtain power to the automated gates.
- > BR-02 and BR-03 locations were assumed not to be cultural or other heritage sensitive sites;
- > BR-02 and BR-03 locations were assumed not to be flora and fauna sensitive sites;

Figure 2-1 Indicative location of BR-03 (Hopkins and Ballarat Rail Corridor level crossing)



2.2 Results of Estimations

Results of the estimation process (rounded up to the nearest thousand) are outlined in Table 2-1 below. Refer to Appendix A for the reference material and to Appendix B for full price extraction data and quantities. The P50 Estimates and P90 Estimates denote that there is a 50% chance and 90% chance respectively of meeting the total actual project cost. Please refer to the Benchmark Infrastructure Costing report for details of the Monte-Carlo statistical analysis utilised to produce the recommended rates for P50 and P90 estimates.

P90 costs estimates are provided for the culvert crossing by applying a 15% escalation to the P50 (median) rates. This is due to a statistical analysis not being conducted to identify P90 rates as there was an insufficient amount of background data available for culverts. A 15% escalation was deemed sufficient as this was the typical difference between P50 & P90 estimates for bridges noted during the benchmark process (further details are specified in the benchmark report).

P90 rates are also not provided for the infrastructure item BR-03. P90 rates are not provided for BR-03 as no statistical analyses have been conducted for rail crossing infrastructure previously.

Table 2-1 Cost Estimates

Project	Description	Reference material	P50 Estimate(\$)	P90 Estimate(\$)
IT-01	Combination of signalised intersection between Hopkins Road/ East-West Connector Road and 3 legged roundabout.	V170524-CI-DG-3000	8,295,000	9,310,000
IT-02	Signalised intersection between Hopkins Road/ East-West Connector Road	V170524-CI-DG-3001	5,259,000	5,936,000
IT-03	Signalised intersection- Hopkins Road/Greigs Road. Construction of primary arterial to secondary arterial 3 way signalised intersection (interim treatment).	CG151009-TR-DG-2803	4,464,000	4,972,000
IT-04	Signalised intersection- Hopkins Road/East-West boulevard connector Road. Construction of primary arterial to boulevard connector 3 way signalised intersection (interim treatment).	CG151009-TR-DG-2804	4,274,000	4,765,000
IT-05	Signalised intersection Greigs Road/ East-West Connector Road	CG151009-TR-DG-2805	2,979,000	3,372,000
IT-06	Construction of 4 way signalised secondary roads intersection	CG151009-TR-DG-2806	3,614,000	4,059,000
IT-07	Construction of secondary road to boulevard connector 4 way signalised intersection	CG151009-TR-DG-2807	2,884,000	3,270,000
IT-08	Construction of secondary road to boulevard connector 4 way signalised intersection	CG151009-TR-DG-2808	3,030,000	3,428,000
IT-09	Construction of secondary road to boulevard connector 4 way signalised intersection	CG151009-TR-DG-2809	3,481,000	4,042,000
IT-10	Construction of secondary road to boulevard connector 4 way signalised intersection	CG151009-TR-DG-2810	3,627,000	4,088,000
IT-11	Construction of secondary road to boulevard connector 4 way signalised intersection	CG151009-TR-DG-2811	4,483,000	5,052,000
IT-12	Construction of 4 way signalised secondary roads intersection	CG151009-TR-DG-2812	4,332,000	4,859,000

IT-13	Construction of secondary road to boulevard connector 4 way signalised intersection	CG151009-TR-DG-2813	4,264,000	4,818,000
IT-14	Signalised intersection- Riding Boundary Road/ Hopkins Road. Construction of primary arterial to secondary arterial 3 way signalised intersection (interim treatment).	CG151009-TR-DG-2814	4,361,000	4,857,000
IT-15	Construction of secondary road to boulevard connector 4 way signalised intersection	CG151009-TR-DG-2815	3,202,000	3,627,000
IT-16	Signalised intersection- Hopkins Road/East west Connector Road. Construction of primary arterial to Connector 3 way signalised intersection (interim treatment).	CG151009-TR-DG-2816	4,777,000	5,329,000
Non-Standard Culvert				
CU-01	Culvert crossing on Riding Boundary road crossing Skeleton Creek	N/A	1,018,000	1,171,000
Non-Standard Bridges				
BR-02	Shared pedestrian and cyclist bridge across Melbourne Ballarat rail corridor	V181544-ST-001	4,508,000	5,184,000
BR-03	Level crossing upgrade at the intersection of Hopkins Road and Melbourne Ballarat rail corridor	V170524-CI-DG-3008	913,000	1,005,000

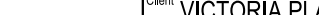
Result Application Mt Atkinson and
Tarneit

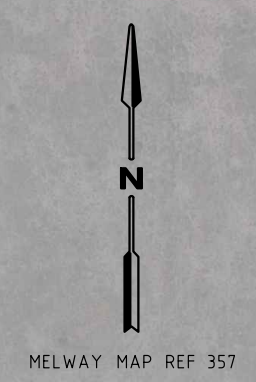
APPENDIX

A

REFERENCE MATERIAL



		© 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.		0102040 1:2000 @ A3 WARNING BEWARE OF UNDERGROUND SERVICES THE LOCATIONS OF UNDERGROUND SERVICES SHOWN ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE.		 Cardno Shaping the Future 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		Drawn DesignedOTHERS Checked Authorised		Client ProjectM. ATKINSON AND TRANET PLAINS PSP COSTINGS HOPKINS ROAD/WESTERN FREEWAY CITY OF MELTON TitleINTERIM INTERSECTION LAYOUT IT-01 CONCEPT LAYOUT Status NOT TO BE USED FOR CONSTRUCTION PURPOSES Date01.06.2018 Scale1:2000 SizeA3 Drawing NumberV170524-CI-DG-3000 Revision1			
1	04.06.18	ISSUED FOR INFORMATION		NPV	CP								
Rev	Date	Description		Drawn	Appr.								



1. CONCEPT DESIGN BY TRAFFIX GROUP

[illegible]

CAD File: O:\DRATRAFF\2015\CG151009\04 Drawings\01 CAD\CG151009-TR-DG-2803.dgn

DATE PLOTTED: 12/04/2019 11:35:43 AM

BY: User:egan.cook



Rev	Date	Description	Drawn	Appr.
3	12.04.2019	VPA COMMENTS	EC	VA
2	13.02.2017	VPA COMMENTS	EC	TM
1	23.01.2017	ISSUED FOR INFORMATION	EC	TM

© 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.

0102040

1:2000 @ A3

WARNING

BEWARE OF UNDERGROUND SERVICES

THE LOCATIONS OF UNDERGROUND SERVICES SHOWN ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE.

- GENERAL NOTES:
- 1.BASE INFORMATION FROM VICMAP DATA.
 - 2.ALL DIMENSIONS TO FACE OF KERB AND CHANNEL U.N.O
 - 3.LOCAL ROAD - HOPKINS ROAD (SPEED ZONE 60KM/H)
LOCAL ROAD - GREIGS ROAD (SPEED ZONE 60KM/H)



Cardno

Shaping the Future

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

Drawn	E.COOK
Designed	C.BOWEN
Checked	C.SANSTOUPET
Authorised	T.McKINLEY

Client

VICTORIAN PLANNING AUTHORITY

Project

Mt ATKINSON AND TARNEIT PLAINS PSP
GREIGS ROAD / HOPKINS ROAD
CITY OF MELTON

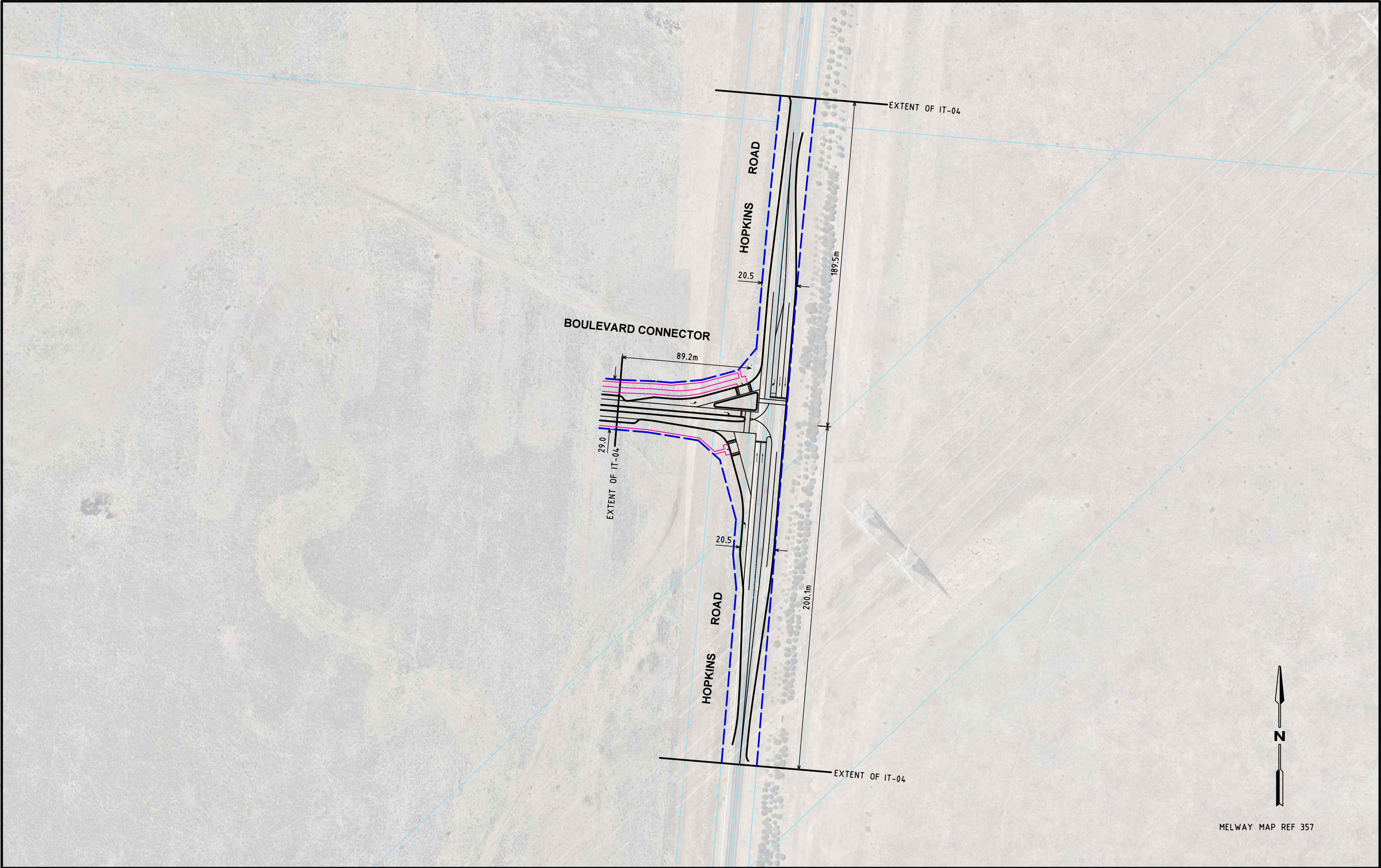
Status

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Date	23.01.2017	Scale	1:2000	Size	A3
Drawing Number	CG151009-TR-DG-2803			Revision	3

Title

INTERIM INTERSECTION LAYOUT
IT-03
CONCEPT LAYOUT



MELWAY MAP REF 357

Rev	Date	Description	Drawn	Appr.
3	12.04.2019	VPA COMMENTS	EC	VA
2	13.02.2017	VPA COMMENTS	EC	TM
1	23.01.2017	ISSUED FOR INFORMATION	EC	TM

© 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.

0 10 20 40
1:2000 @ A3

WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES SHOWN ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE.

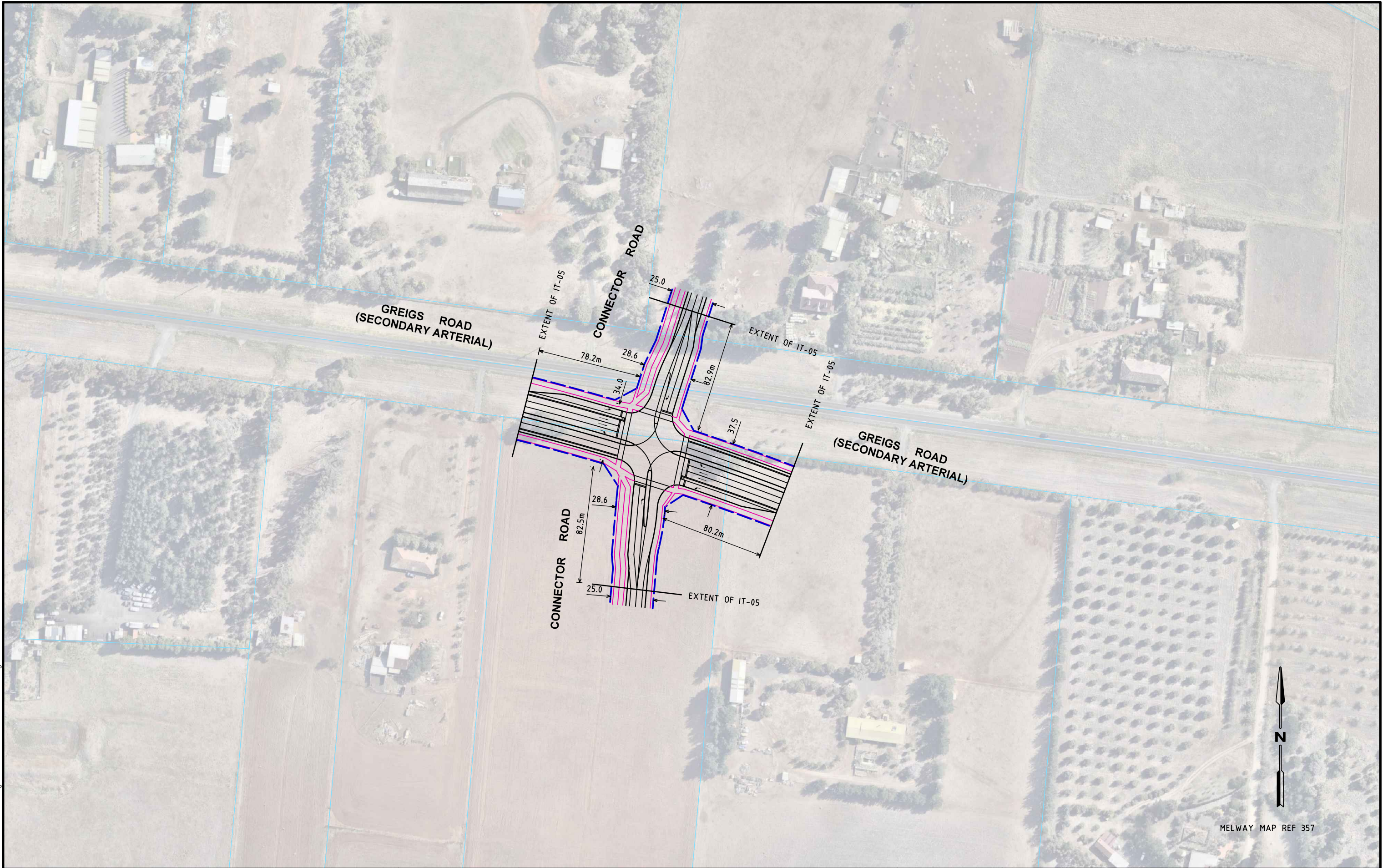
GENERAL NOTES:
1. BASE INFORMATION FROM VICMAP DATA.
2. ALL DIMENSIONS TO FACE OF KERB AND CHANNEL U.N.O
3. DECLARED ROAD - HOPKINS ROAD (SPEED ZONE 60KM/H)
LOCAL ROAD - BOULEVARD CONNECTOR (SPEED ZONE 50KM/H)


Cardno
Shaping the Future
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

Drawn	E.COOK
Designed	C.BOWEN
Checked	C.SANSTOUPET
Authorised	T.McKINLEY

Client	VICTORIAN PLANNING AUTHORITY
Project	Mt ATKINSON AND TARNEIT PLAINS PSP INDUSTRIAL CONNECTOR ROAD / HOPKINS ROAD CITY OF MELTON
Title	INTERIM INTERSECTION LAYOUT IT-04 CONCEPT LAYOUT

Status	PRELIMINARY NOT TO BE USED FOR CONSTRUCTION PURPOSES		
Date	23.01.2017	Scale	1:2000
Drawing Number	CG151009-TR-DG-2804		Revision
			3



Rev	Date	Description	Drawn	Appr.
2	12.04.2019	VPA COMMENTS	EC	VA
1	13.02.2017	ISSUED FOR INFORMATION	EC	TM

© 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.

0102040

1:2000 @ A3

WARNING

BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES SHOWN ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE.

- GENERAL NOTES:
- 1.BASE INFORMATION FROM VICMAP DATA.
 - 2.ALL DIMENSIONS TO FACE OF KERB AND CHANNEL U.N.O
 - 3.LOCAL ROAD - GREIGS ROAD (SPEED ZONE 60KM/H)
LOCAL ROAD - CONNECTOR ROAD (SPEED ZONE 50KM/H)



Cardno
Shaping the Future

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

Drawn	E.COOK
Designed	C.BOWEN
Checked	S.McKENZIE
Authorised	T.McKINLEY

Client	VICTORIAN PLANNING AUTHORITY		
Project	Mt ATKINSON AND TARNEIT PLAINS PSP GREIGS ROAD / CONNECTOR ROAD CITY OF MELTON		Status PRELIMINARY NOT TO BE USED FOR CONSTRUCTION PURPOSES
Title	INTERIM INTERSECTION LAYOUT IT-05 CONCEPT LAYOUT		Date 13.02.2017
			Scale 1:2000
			Size A3
	Drawing Number CG151009-TR-DG-2805		Revision 2



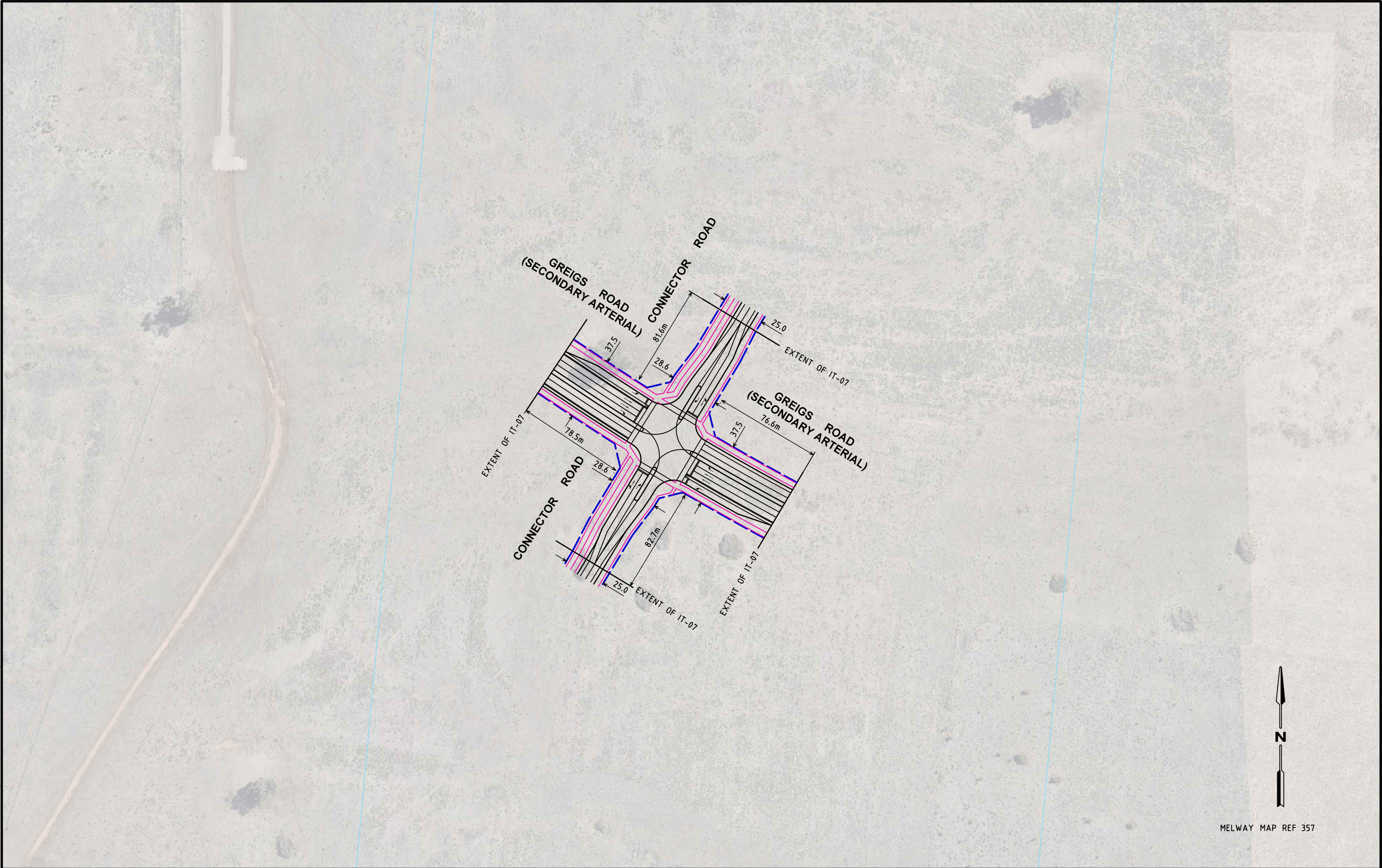
MELWAY MAP REF 357

				© 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.				0102040 1:2000 @ A3 WARNING BEWARE OF UNDERGROUND SERVICES THE LOCATIONS OF UNDERGROUND SERVICES SHOWN ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE DETERMINED ON SITE.				Cardno Shaping the Future ABN: 47 108 610 913 501 Swarston Street, Melbourne, VIC Australia 3000 Phone: (+61 3) 8415 7777 Fax: (+61 3) 8415 7788 Email: vltoria@cardno.com.au Web: www.cardno.com.au/victoria				Drawn E.COOK Designed C.BOWEN Checked S.McKENZIE Authorised T.McKINLEY		Client VICTORIAN PLANNING AUTHORITY Project Mt ATKINSON AND TARNET PLAINS PSP GREIGS RD / Mt ATKINSON RD / CONNECTOR RD CITY OF MELTON Title INTERIM INTERSECTION LAYOUT IT-06 CONCEPT LAYOUT						Status PRELIMINARY NOT TO BE USED FOR CONSTRUCTION PURPOSES Date 13.02.2017 Scale 1:2000 Size A3 Drawing Number CG151009-TR-DG-2806 Revision 2			
2 12.04.2019 VPA COMMENTS EC VA																											
1 13.02.2017 ISSUED FOR INFORMATION EC TM																											
Rev	Date	Description	Drawn	Appr.																							

CAD File: O:\DRATRAFF\2015\CG151009\04 Drawings\01 CAD\CG151009-TR-DG-2807.dgn

DATE PLOTTED: 12/04/2019 11:36:02 AM

BY: User:egan.cook



Rev	Date	Description	Drawn	Appr.
2	12.04.2019	VPA COMMENTS	EC	VA
1	13.02.2017	ISSUED FOR INFORMATION	EC	TM

© 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.

0102040

1:2000 @ A3

WARNING

BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES SHOWN ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE.

- GENERAL NOTES:
- 1.BASE INFORMATION FROM VICMAP DATA.
 - 2.ALL DIMENSIONS TO FACE OF KERB AND CHANNEL U.N.O
 - 3.LOCAL ROAD - GREIGS ROAD (SPEED ZONE 60KM/H)
LOCAL ROAD - CONNECTOR ROAD (SPEED ZONE 50KM/H)

Cardno

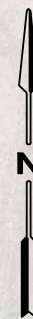
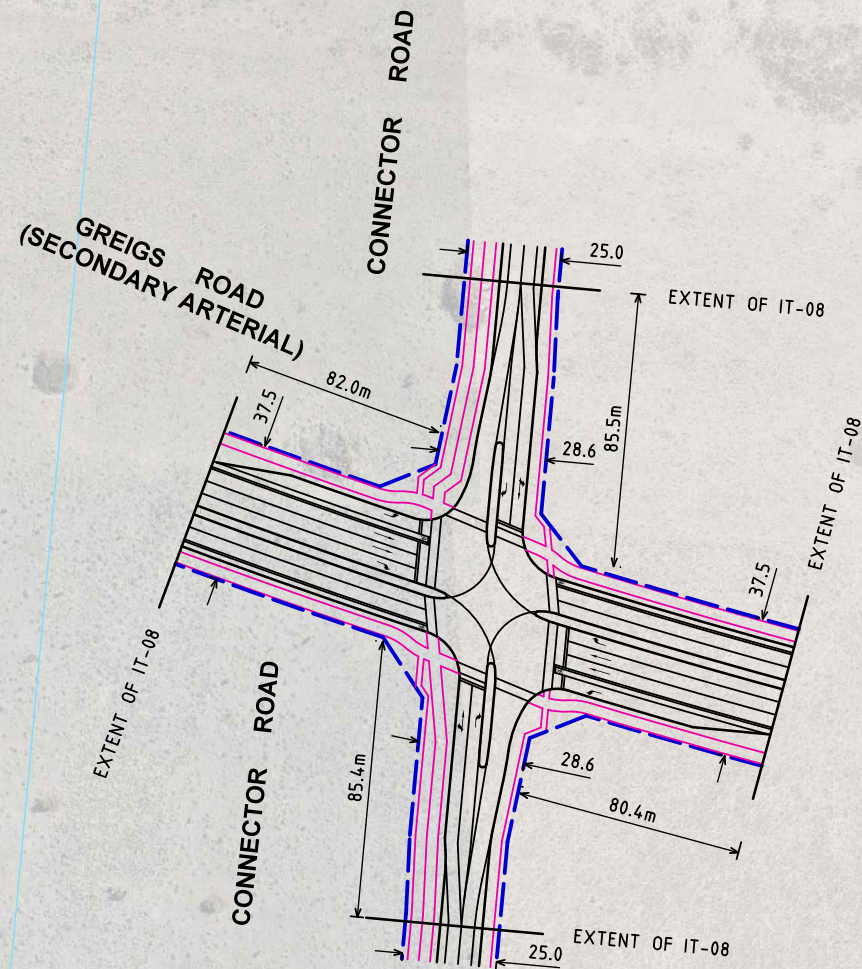
Shaping the Future

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

Drawn	E.COOK
Designed	C.BOWEN
Checked	S.McKENZIE
Authorised	T.McKINLEY

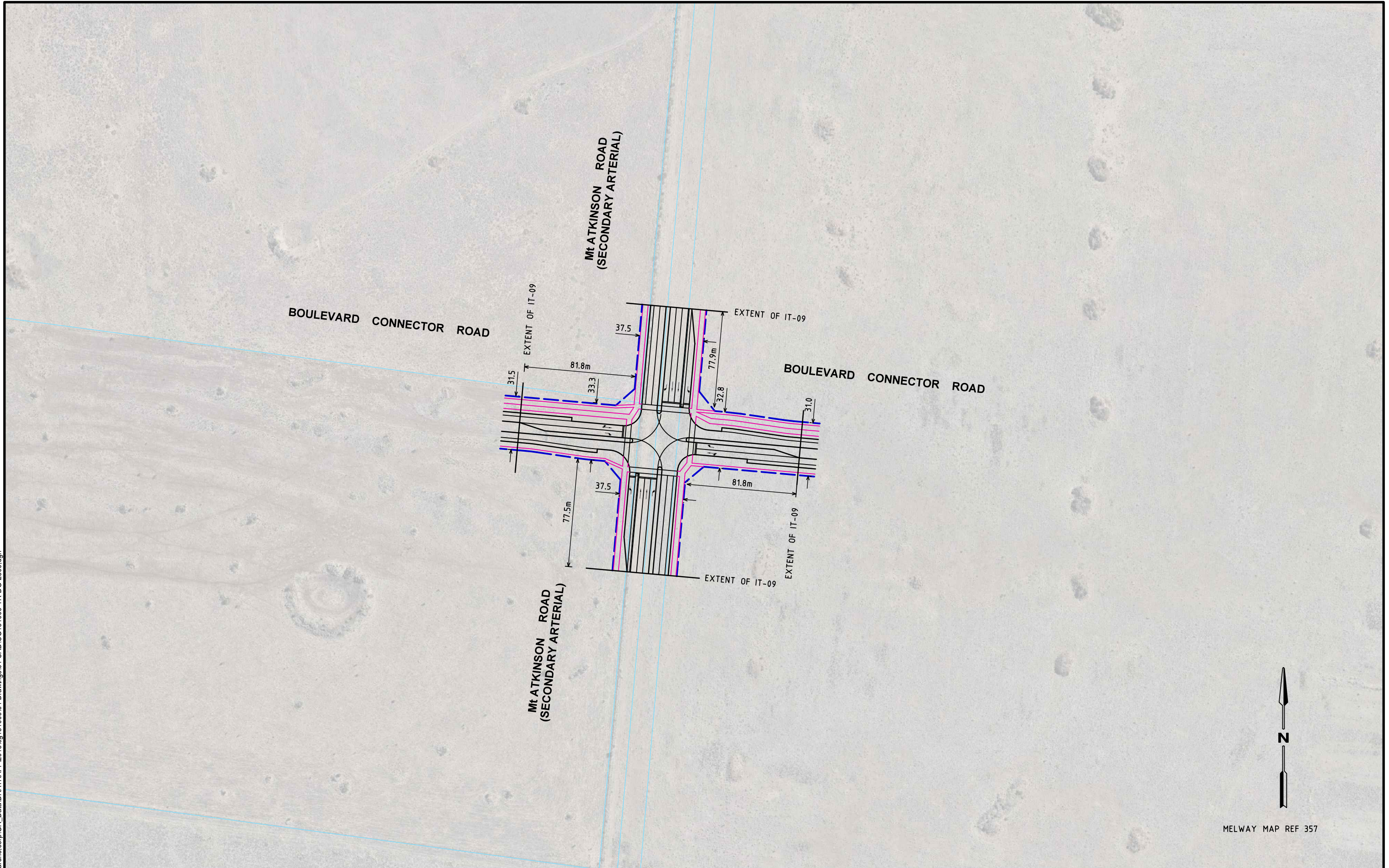
Client	VICTORIAN PLANNING AUTHORITY
Project	Mt ATKINSON AND TARNEIT PLAINS PSP GREIGS ROAD / CONNECTOR ROAD CITY OF MELTON
Title	INTERIM INTERSECTION LAYOUT IT-07 CONCEPT LAYOUT

Status	PRELIMINARY NOT TO BE USED FOR CONSTRUCTION PURPOSES		
Date	13.02.2017	Scale	1:2000
Drawing Number	CG151009-TR-DG-2807		Revision
			2



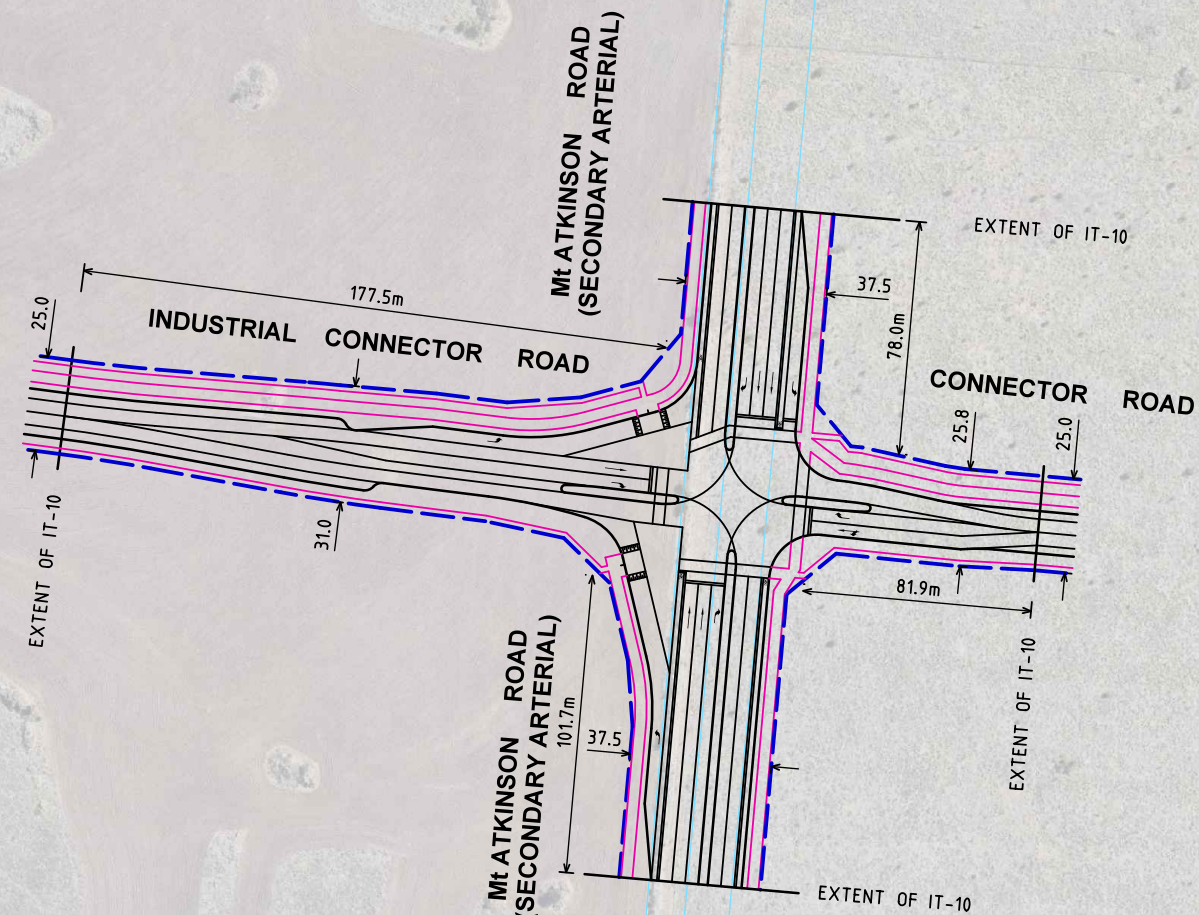
MELWAY MAP REF 357

[illegible]



MELWAY MAP REF 357

					© 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.		0102040 1:2000 @ A3 WARNING BEWARE OF UNDERGROUND SERVICES THE LOCATIONS OF UNDERGROUND SERVICES SHOWN ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE.		GENERAL NOTES: 1. BASE INFORMATION FROM VICMAP DATA. 2. ALL DIMENSIONS TO FACE OF KERB AND CHANNEL U.N.O 3. LOCAL ROAD - MI ATKINSONS ROAD (SPEED ZONE 60KM/H) 4. LOCAL ROAD - BOULEVARD CONNECTOR ROAD (SPEED ZONE 50KM/H)		 Cardno Shaping the Future ABN: 47 106 610 913 501 Swanston Street, Melbourne, VIC Australia 3000 Phone (+61 3) 8415 7777 Fax (+61 3) 8415 7788 Email: victorla@cardno.com.au Web: www.cardno.com.au/victoria		Drawn E.COOK Designed C.BOWEN Checked S.McKENZIE Authorised T.McKINLEY		Client VICTORIAN PLANNING AUTHORITY Project MI ATKINSON AND TARNEIT PLAINS PSP MI ATKINSON ROAD / BOULEVARD CONNECTOR ROAD CITY OF MELTON Title INTERIM INTERSECTION LAYOUT IT-09 CONCEPT LAYOUT				Status PRELIMINARY NOT TO BE USED FOR CONSTRUCTION PURPOSES Date 10.02.2017 Scale 1:2000 Size A3 Drawing Number CG151009-TR-DG-2809 Revision 2	
2	12.04.2019	VPA COMMENTS	EC	VA																
1	10.02.2017	ISSUED FOR INFORMATION	EC	TM																
Rev	Date	Description	Drawn	Appr.																



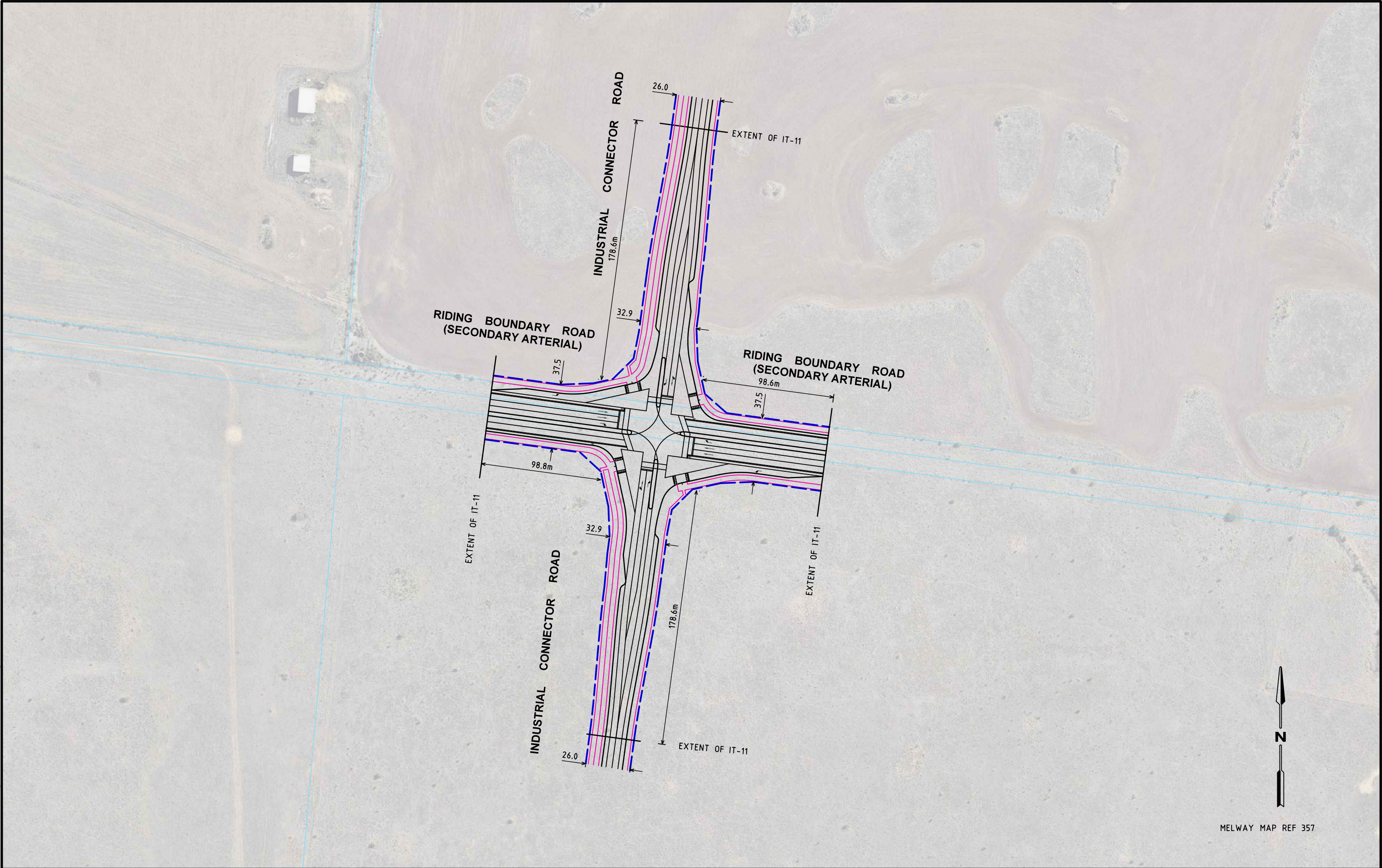
MELWAY MAP REF 357

[illegible]

CAD File: O:\DRATRAFF\2015\CG151009\04 Drawings\01 CAD\CG151009-TR-DG-2811.dgn

DATE PLOTTED: 12/04/2019 11:36:12 AM

BY: User:egan.cook



Rev	Date	Description	Drawn	Appr.
2	12.04.2019	VPA COMMENTS	EC	VA
1	13.02.2017	ISSUED FOR INFORMATION	EC	TM

© 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.

0102040

1:2000 @ A3

WARNING

BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES SHOWN ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE.

- GENERAL NOTES:
- 1.BASE INFORMATION FROM VICMAP DATA.
 - 2.ALL DIMENSIONS TO FACE OF KERB AND CHANNEL U.N.O
 - 3.LOCAL ROAD - RIDING BOUNDARY ROAD (SPEED ZONE 60KM/H)
LOCAL ROAD - CONNECTOR ROAD (SPEED ZONE 50KM/H)

Cardno

Shaping the Future

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

Drawn	E.COOK
Designed	C.BOWEN
Checked	S.McKENZIE
Authorised	T.McKINLEY

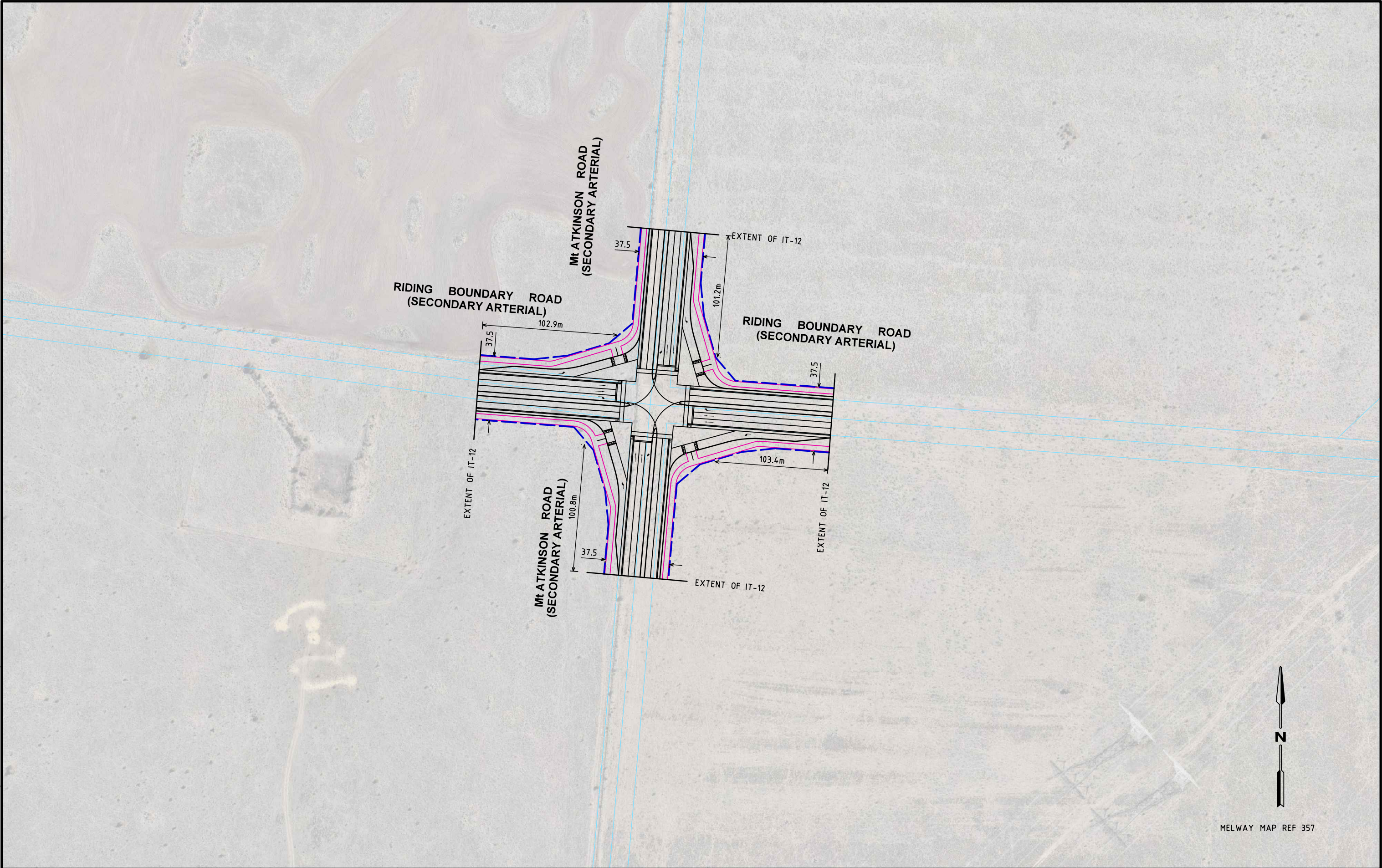
Client	VICTORIAN PLANNING AUTHORITY
Project	Mt ATKINSON AND TARNEIT PLAINS PSP RIDING BOUNDARY RD / INDUSTRIAL CONNECTOR RD CITY OF MELTON
Title	INTERIM INTERSECTION LAYOUT IT-11 CONCEPT LAYOUT

Status	PRELIMINARY NOT TO BE USED FOR CONSTRUCTION PURPOSES		
Date	13.02.2017	Scale	1:2000
Drawing Number	CG151009-TR-DG-2811		Revision
			2

CAD File: C:\ORATRAFF\2015\CG151009\04 Drawings\01 CAD\CG151009-TR-DG-2812.dgn

BY: User:egan.cook

DATE PLOTTED: 12/04/2019 11:36:16 AM



Rev	Date	Description	Drawn	Appr.
2	12.04.2019	VPA COMMENTS	EC	VA
1	13.02.2017	ISSUED FOR INFORMATION	EC	TM

© 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.

0102040

1:2000 @ A3

WARNING

BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES SHOWN ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE.

- GENERAL NOTES:
- 1.BASE INFORMATION FROM VICMAP DATA.
 - 2.ALL DIMENSIONS TO FACE OF KERB AND CHANNEL U.N.O
 - 3.LOCAL ROAD - RIDING BOUNDARY ROAD (SPEED ZONE 60KM/H)
LOCAL ROAD - Mt ATKINSONS ROAD (SPEED ZONE 60KM/H)



Cardno
Shaping the Future

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

Drawn	E.COOK
Designed	C.BOWEN
Checked	S.McKENZIE
Authorised	T.McKINLEY

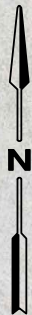
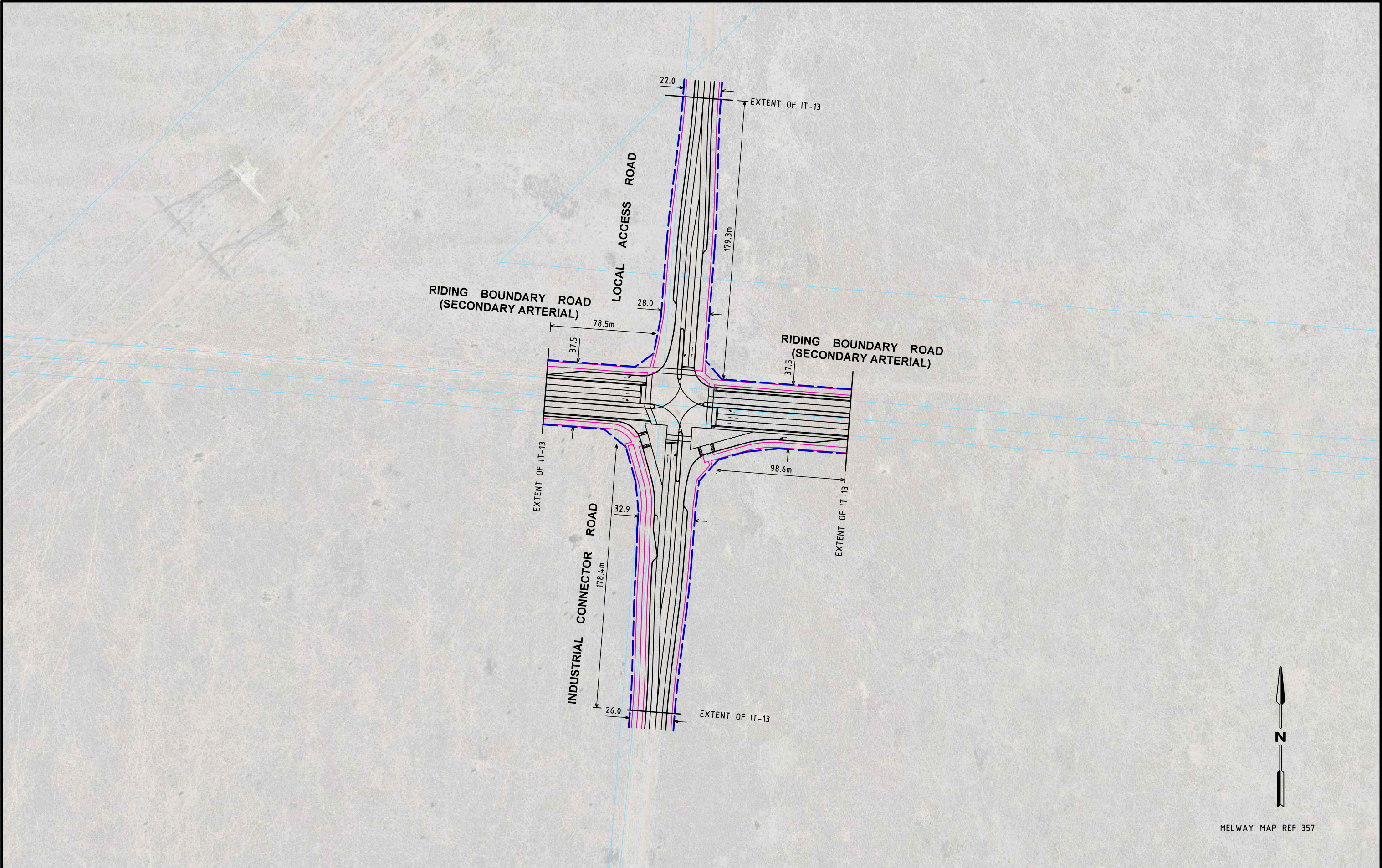
Client	VICTORIAN PLANNING AUTHORITY
Project	Mt ATKINSON AND TARNEIT PLAINS PSP RIDING BOUNDARY ROAD / Mt ATKINSONS ROAD CITY OF MELTON
Title	INTERIM INTERSECTION LAYOUT IT-12 CONCEPT LAYOUT

Status	PRELIMINARY NOT TO BE USED FOR CONSTRUCTION PURPOSES		
Date	13.02.2017	Scale	1:2000
Drawing Number	CG151009-TR-DG-2812		Revision
			2

CAD File: O:\DRATRAFF\2015\CG151009\04 Drawings\01 CAD\CG151009-TR-DG-2813.dgn

DATE PLOTTED: 12/04/2019 11:36:19 AM

BY: User:egan.cook



MELWAY MAP REF 357

Rev	Date	Description	Drawn	Appr.
2	12.04.2019	VPA COMMENTS	EC	VA
1	13.02.2017	ISSUED FOR INFORMATION	EC	TM

© 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.

0 10 20 40
1:2000 @ A3

WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES SHOWN ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE.

- GENERAL NOTES:
- 1.BASE INFORMATION FROM VICMAP DATA.
 - 2.ALL DIMENSIONS TO FACE OF KERB AND CHANNEL U.N.O
 - 3.LOCAL ROAD - RIDING BOUNDARY ROAD (SPEED ZONE 60KM/H)
LOCAL ROAD - INDUSTRIAL CONNECTOR ROAD (SPEED ZONE 50KM/H)
LOCAL ROAD - LOCAL ACCESS ROAD (SPEED ZONE 50KM/H)



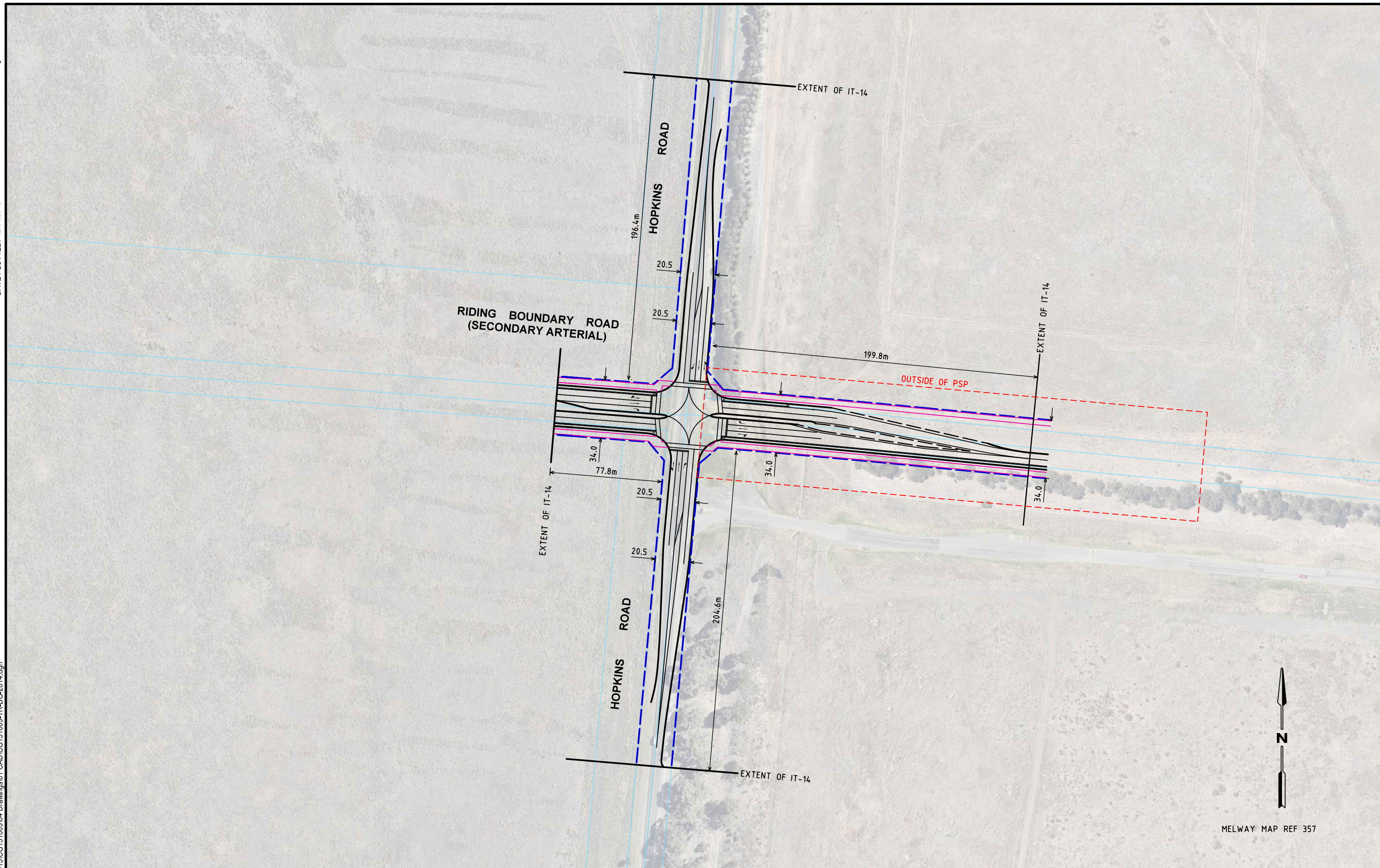
Cardno
Shaping the Future

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

Drawn	E.COOK
Designed	C.BOWEN
Checked	S.McKENZIE
Authorised	T.McKINLEY

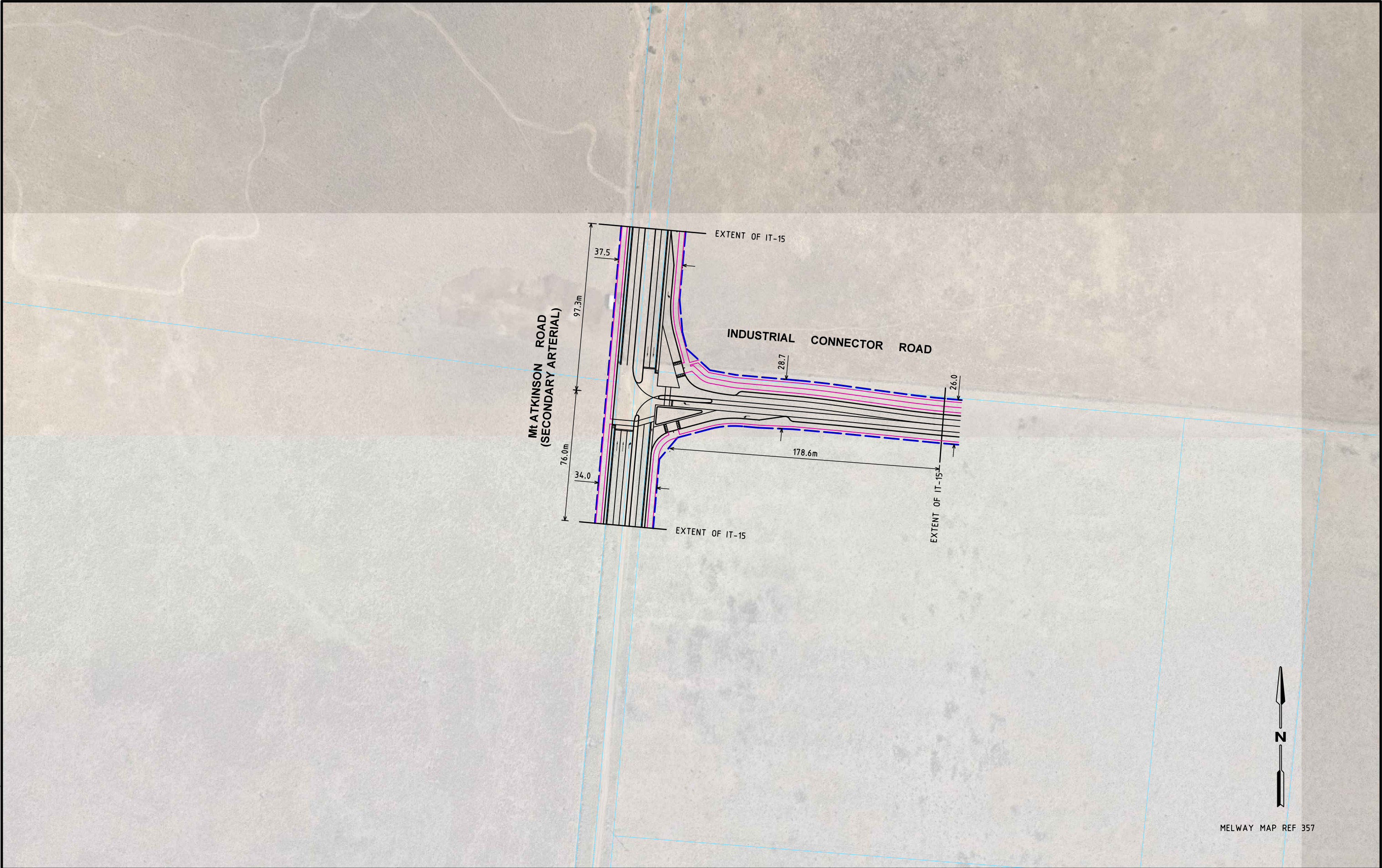
Client	VICTORIAN PLANNING AUTHORITY
Project	Mt ATKINSON AND TARNEIT PLAINS PSP RIDING BOUNDARY ROAD / IND. CONNECTOR ROAD / LOCAL ACCESS ROAD - CITY OF MELTON
Title	INTERIM INTERSECTION LAYOUT IT-13 CONCEPT LAYOUT

Status	PRELIMINARY NOT TO BE USED FOR CONSTRUCTION PURPOSES		
Date	13.02.2017	Scale	1:2000
Drawing Number	CG151009-TR-DG-2813		Revision
			2



		© Cardno Limited All Rights Reserved.		 1:2000 @ A3		GENERAL NOTES: 1. BASE INFORMATION FROM VICMAP DATA. 2. ALL DIMENSIONS TO FACE OF KERB AND CHANNEL U.N.O 3. DECLARED ROAD - HOPKINS ROAD (SPEED ZONE 60KM/H) LOCAL ROAD - RIDING BOUNDARY ROAD (SPEED ZONE 50KM/H)		 Cardno Shaping the Future 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		Client E.COOK Designed C.BOWEN Checked S.McKENZIE Authorised T.McKINLEY		Client VICTORIAN PLANNING AUTHORITY Project MT ATKINSON AND TARNEIT PLAINS PSP RIDING BOUNDARY ROAD / HOPKINS ROAD CITY OF MELTON Title INTERIM INTERSECTION LAYOUT IT-14 CONCEPT LAYOUT		Status PRELIMINARY NOT TO BE USED FOR CONSTRUCTION PURPOSES Date 13.02.2017 Scale 1:2000 Size A3 Drawing Number CG151009-TR-DG-2814 Revision 2	
2 12.04.2019 VPA COMMENTS EC VA		1 13.02.2017 ISSUED FOR INFORMATION EC TM		Rev Date Description Drawn Appr.											

CAD File: O:\DRATRAFF\2015\CG151009\04 Drawings\01 CAD\CG151009-TR-DG-2815.dgn
DATE PLOTTED: 12/04/2019 11:35:51 AM
BY: User:egan.cook



Rev	Date	Description	Drawn	Appr.
2	12.04.2019	VPA COMMENTS	EC	VA
1	13.02.2017	ISSUED FOR INFORMATION	EC	TM

© 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.

0 10 20 40
1:2000 @ A3

WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES SHOWN ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE.

GENERAL NOTES:
1. BASE INFORMATION FROM VICMAP DATA.
2. ALL DIMENSIONS TO FACE OF KERB AND CHANNEL U.N.O
3. LOCAL ROAD - MT ATKINSON ROAD (SPEED ZONE 60KM/H)
LOCAL ROAD - INDUSTRIAL CONNECTOR ROAD (SPEED ZONE 50KM/H)



Cardno
Shaping the Future

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

Drawn	E.COOK
Designed	C.BOWEN
Checked	S.McKENZIE
Authorised	T.McKINLEY

Client	VICTORIAN PLANNING AUTHORITY
Project	MT ATKINSON AND TARNEIT PLAINS PSP MT ATKINSON ROAD / INDUSTRIAL CONNECTOR ROAD CITY OF MELTON
Title	INTERIM INTERSECTION LAYOUT IT-15 CONCEPT LAYOUT

Status	PRELIMINARY NOT TO BE USED FOR CONSTRUCTION PURPOSES		
Date	13.02.2017	Scale	1:2000
Drawing Number	CG151009-TR-DG-2815		Revision
			2

CAD File: C:\DRATRAFF\2015\CG151009\04 Drawings\01 CAD\CG151009-TR-DG-2816.dgn

DATE PLOTTED: 12/04/2019 11:36:27 AM

BY: User:egan.cook



Rev	Date	Description	Drawn	Appr.
2	12.04.2019	VPA COMMENTS	EC	VA
1	13.02.2017	ISSUED FOR INFORMATION	EC	TM

© 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.

0102040

1:2000 @ A3

WARNING

BEWARE OF UNDERGROUND SERVICES

THE LOCATIONS OF UNDERGROUND SERVICES SHOWN ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE.

- GENERAL NOTES:
- 1.BASE INFORMATION FROM VICMAP DATA.
 - 2.ALL DIMENSIONS TO FACE OF KERB AND CHANNEL U.N.O
 - 3.DECLARED ROAD - HOPKINS ROAD (SPEED ZONE 60KM/H)
LOCAL ROAD - CONNECTOR ROAD (SPEED ZONE 50KM/H)

Cardno

Shaping the Future

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

Drawn	E.COOK
Designed	C.BOWEN
Checked	S.McKENZIE
Authorised	T.McKINLEY

Client	VICTORIAN PLANNING AUTHORITY
Project	Mt ATKINSON AND TARNEIT PLAINS PSP INDUSTRIAL CONNECTOR ROAD / HOPKINS ROAD CITY OF MELTON
Title	INTERIM INTERSECTION LAYOUT IT-16 CONCEPT LAYOUT

Status	PRELIMINARY NOT TO BE USED FOR CONSTRUCTION PURPOSES		
Date	13.02.2017	Scale	1:2000
Drawing Number	CG151009-TR-DG-2816		Revision
			2



DRAFT CONCEPT PLAN
THIS DRAFT PLAN HAS BEEN PREPARED
TO SHOW A CONCEPT FOR DISCUSSIONS
PURPOSES ONLY AND HAS NO FORMAL
OR OFFICIAL STATUS

BEARING 46000 BEARING

4600

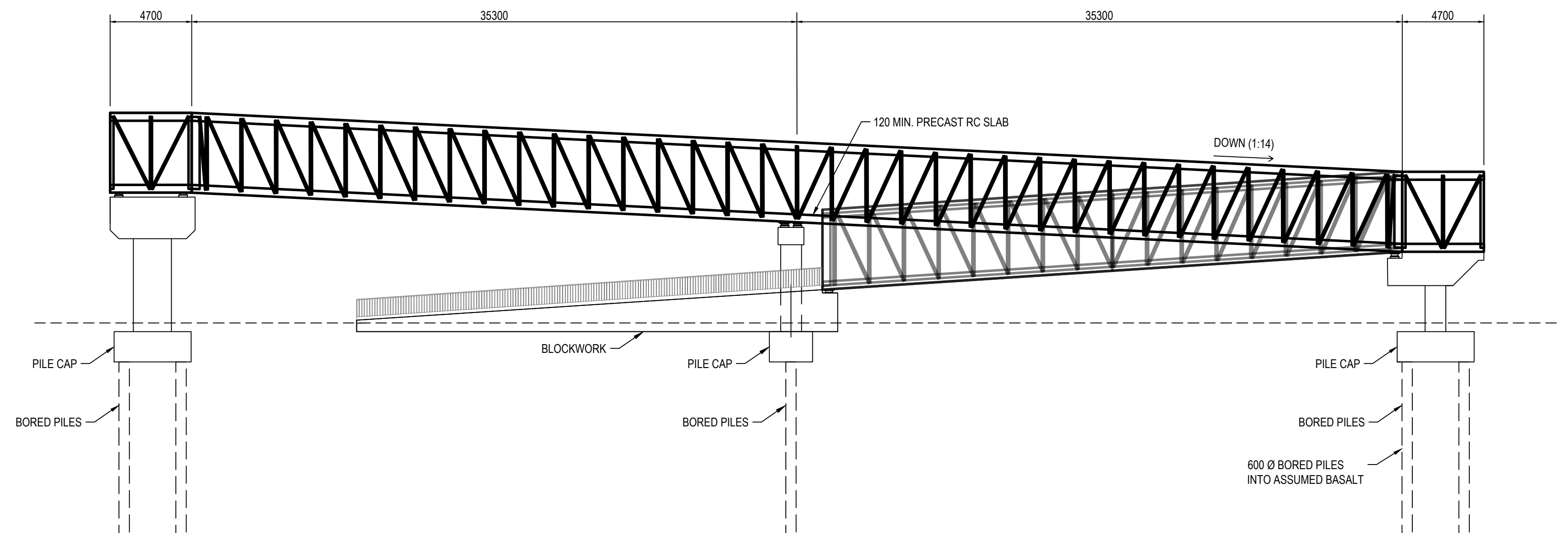
ABUTMENT

RAIL CORRIDOR

PILE CAP

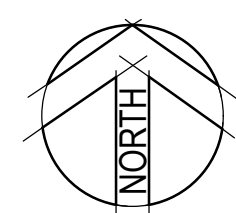
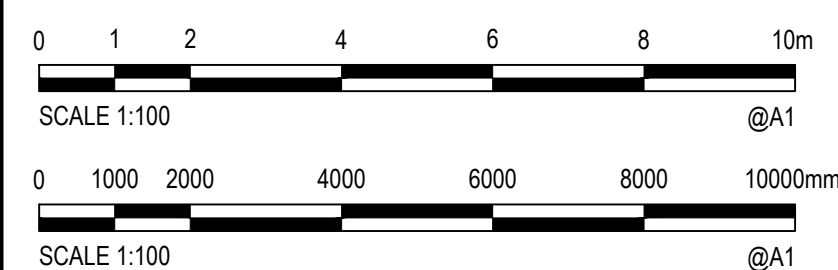
BORED PILES

SECTION 1
NTS



SECTION 2
NTS -

1	22.03.2019	PRELIMINARY ISSUE			T.M.	P.S.
Rev.	Date	Description		Des.	Verif.	Appd.



© 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.



Cardno Victoria Pty Ltd | ABN 47 106 610 913
Level 4, 501 Swanston Street
Melbourne VIC 3000
Tel: 03 8415 7777 Fax: 03 8415 7788
Web: www.cardno.com.au

Drawn D.N.	Date 22.03.19
Checked T.M.	Date 22.03.19
Designed T.M.	Date 22.03.19
Verified P.S.	Date 22.03.19
Approved	Date
J.R.	22.03.19

Client	VICTORIA PLANNING AUTHORITY
Project	MT ATKINSON AND TRANEIT PLAINS PSP COSTING BRIDGE ACROSS MELBOURNE BALLRAT RAIL CITY OF MELTON
Title	PEDESTRIAN BRIDGE OVER RAIL RESERVE BR-02

Status		PRELIMINARY	
NOT TO BE USED FOR CONSTRUCTION PURPOSES			
		Scale NTS	Size A1
Drawing Number V181544-ST-001			Revision 1



1. CONCEPT DESIGN BY SMEC.

Result Application Mt Atkinson and
Tarneit

APPENDIX

B

DETAILED COST SHEETS

Appendix C	
Description:	INTERSECTION - Primary - Connector Intersection
Civil Component Number:	IT-01

Group	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)
Siteworks and Earthworks	Site Preparation	22560	m2	3.68	83020.80	4.96	111897.60
	Earthworks	11445	m3	34.07	389931.15	40.52	463751.40
Road Pavement	Primary Arterial Pavement	16007	m2	169.62	2715107.34	186.26	2981463.82
	Secondary Arterial Pavement	0	m2	127.01	0.00	133.78	0.00
	Connector Arterial Pavement	0	m2	105.15	0.00	112.44	0.00
	Subgrade Preparation (20% of Pave Area)	3201	m2	14.22	45523.91	16.16	51734.62
	Pavement Rehab	0	m2	51.58	0.00	59.32	0.00
	Pavement Other	0	m2	0.00	0.00	0.00	0.00
Concrete Works	Kerb and Channel	2500	m	54.81	137038.70	60.90	152265.23
	Cycle Path	0	m2	76.59	0.00	91.94	0.00
	SUP/ Footpath	0	m2	63.51	0.00	73.63	0.00
	Traffic Concrete Island	3305	m2	77.60	256468.00	84.07	277851.35
Drainage	Drainage Pipe 300mm CR Bfilled	0	m	179.85	0.00	197.96	0.00
	Drainage Pipe 375mm CR Bfilled	348	m	259.10	90166.80	282.96	98470.08
	Drainage Pipe 450mm CR Bfilled	895	m	299.43	267989.85	334.33	299225.35
	Drainage Pipe 525mm CR Bfilled	0	m	403.86	0.00	448.03	0.00
	Drainage - pits	56	No.	2565.39	143661.84	2806.10	157141.60
	Drainage - Sub-soil drainage	2600	m	33.88	88088.00	43.40	112840.00
	Drainage Culvert	0	No.	0.00	0.00	0.00	0.00
Traffic	Traffic Signals (all inclusive)	3	Item	109730.28	329190.84	128786.34	386359.02
Landscape	Tree Planting	119	No.	303.34	36097.46	363.01	43198.19
	Landscaping	3042	m2	21.61	65737.62	25.16	76536.72
	Topsoil Seeding	3042	m2	7.21	21932.82	8.44	25674.48
Street Lighting	Street Lighting (all Inclusive)	0	m	216.34	0.00	225.67	0.00
	Street Lighting - Intersections	6	Item/ Per Leg	48468.93	290813.58	55617.74	333706.44
	Regulatory Signage	26	Item	338.43	8799.18	380.39	9890.14
Misc	Linemarking	16007	m2 of Pavement	3.11	49781.77	4.09	65468.63
	Landscape maintenance	2	Item	71344.66	142689.32	88131.43	176262.86
	Tactile Pavers (Hazard only)	48	Item	292.43	14036.64	319.78	15349.44
Other	High pressure gas protection slab and relocation of other services	1	Item	141500.00	141500.00	141500.00	141500.00
	Demolition of existing pavements	8485	m2	65.00	551525.00	71.50	606677.50
	Tie-ins to existing pavements	16	m	205.00	3280.00	205.00	3280.00
Delivery	Council Fees	1	%	3.25	190852.37	3.25	214192.70
	VicRoads Fees	1	%	1.00	58723.81	1.00	65905.44
	Traffic Management	1	%	5.00	293619.03	5.00	329527.22
	Environmental Management	1	%	0.50	29361.90	0.50	32952.72
	Surveying and Design	1	%	5.00	293619.03	5.00	329527.22
	Supervision and Project management	1	%	9.00	528514.26	9.00	593149.00
	Site Establishment	1	%	2.50	146809.52	2.50	164763.61
	Contingency	1	%	15.00	880857.09	15.00	988581.67
Total	Excluding Delivery				5,872,381		6,590,544
	Including Delivery				8,294,738		9,309,144

Appendix C	
Description:	INTERSECTION - Primary - Connector Intersection
Civil Component Number:	IT-02

Group	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)
Siteworks and Earthworks	Site Preparation	15000	m2	3.68	55200.00	4.96	74400.00
	Earthworks	7090	m3	34.07	241556.30	40.52	287286.80
Road Pavement	Primary Arterial Pavement	9916	m2	169.62	1681951.92	186.26	1846954.16
	Secondary Arterial Pavement	0	m2	127.01	0.00	133.78	0.00
	Connector Arterial Pavement		m2	105.15	0.00	112.44	0.00
	Subgrade Preparation (20% of Pave Area)	1983	m2	14.22	28201.10	16.16	32048.51
	Pavement Rehab	0	m2	51.58	0.00	59.32	0.00
	Pavement Other	0	m2	0.00	0.00	0.00	0.00
Concrete Works	Kerb and Channel	1363	m	54.81	74729.65	60.90	83032.95
	Cycle Path	0	m2	76.59	0.00	91.94	0.00
	SUP/ Footpath	0	m2	63.51	0.00	73.63	0.00
	Traffic Concrete Island	1370	m2	77.60	106312.00	84.07	115175.90
Drainage	Drainage Pipe 300mm CR Bfilled	0	m	179.85	0.00	197.96	0.00
	Drainage Pipe 375mm CR Bfilled	205	m	259.10	53115.50	282.96	58006.80
	Drainage Pipe 450mm CR Bfilled	540	m	299.43	161692.20	334.33	180538.20
	Drainage Pipe 525mm CR Bfilled	0	m	403.86	0.00	448.03	0.00
	Drainage - pits	25	No.	2565.39	64134.75	2806.10	70152.50
	Drainage - Sub-soil drainage	5145	m	33.88	174312.60	43.40	223293.00
	Drainage Culvert	0	No.	0.00	0.00	0.00	0.00
Traffic	Traffic Signals (all inclusive)	3	Item	109730.28	329190.84	128786.34	386359.02
Landscape	Tree Planting	37	No.	303.34	11223.58	363.01	13431.37
	Landscaping	3772	m2	21.61	81512.92	25.16	94903.52
	Topsoil Seeding	3772	m2	7.21	27196.12	8.44	31835.68
Street Lighting	Street Lighting (all Inclusive)	0	m	216.34	0.00	225.67	0.00
	Street Lighting - Intersections	3	Item/ Per Leg	48468.93	145406.79	55617.74	166853.22
	Regulatory Signage	6	Item	338.43	2030.58	380.39	2282.34
Misc	Linemarking	9916	m2 of Pavement	3.11	30838.76	4.09	40556.44
	Landscape maintenance	1	Item	71344.66	71344.66	88131.43	88131.43
	Tactile Pavers (Hazard only)	18	Item	292.43	5263.74	319.78	5756.04
Other	High pressure gas protection slab and relocation of other services	1	Item	141500.00	141500.00	141500.00	141500.00
	Demolition of existing pavements	3630	m2	65.00	235950.00	71.50	259545.00
Delivery							
	Council Fees	1	%	3.25	120986.58	3.25	136566.39
	VicRoads Fees	1	%	1.00	37226.64	1.00	42020.43
	Traffic Management	1	%	5.00	186133.20	5.00	210102.14
	Environmental Management	1	%	0.50	18613.32	0.50	21010.21
	Surveying and Design	1	%	5.00	186133.20	5.00	210102.14
	Supervision and Project management	1	%	9.00	335039.76	9.00	378183.86
	Site Establishment	1	%	2.50	93066.60	2.50	105051.07
	Contingency	1	%	15.00	558399.60	15.00	630306.43
Total	Excluding Delivery				3,722,664		4,202,043
	Including Delivery				5,258,263		5,935,386

Appendix C	
Description:	INTERSECTION - Primary -Secondary T Intersection
Civil Component Number:	IT-03

Group	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)
Siteworks and Earthworks	Site Preparation	12149	m2	3.68	44708.32	4.96	60259.04
	Earthworks	5633	m3	34.07	191916.31	40.52	228249.16
Road Pavement	Primary Arterial Pavement	6789	m2	169.62	1151550.18	186.26	1264519.14
	Secondary Arterial Pavement	0	m2	127.01	0.00	133.78	0.00
	Connector Arterial Pavement	0	m2	105.15	0.00	112.44	0.00
	Subgrade Preparation (20% of Pave Area)	1358	m2	14.22	19307.92	16.16	21942.05
	Pavement Rehab	0	m2	51.58	0.00	59.32	0.00
	Pavement Other	0	m2	0.00	0.00	0.00	0.00
Concrete Works	Kerb and Channel	1119	m	54.81	61310.56	60.90	68122.85
	Cycle Path	0	m2	76.59	0.00	91.94	0.00
	SUP/ Footpath	533	m2	63.51	33852.74	73.63	39247.00
	Traffic Concrete Island	1354	m2	77.60	105104.61	84.07	113867.85
Drainage	Drainage Pipe 300mm CR Bfilled	0	m	179.85	0.00	197.96	0.00
	Drainage Pipe 375mm CR Bfilled	195	m	259.10	50524.50	282.96	55177.20
	Drainage Pipe 450mm CR Bfilled	580	m	299.43	173669.40	334.33	193911.40
	Drainage Pipe 525mm CR Bfilled	0	m	403.86	0.00	448.03	0.00
	Drainage - pits	32	No.	2565.39	82092.48	2806.10	89795.20
	Drainage - Sub-soil drainage	1197	m	33.88	40540.87	43.40	51932.52
	Drainage Culvert	0	No.	0.00	0.00	0.00	0.00
Traffic	Traffic Signals (all inclusive)	3	Item	109730.28	329190.84	128786.34	386359.02
Landscape	Tree Planting	6	No.	303.34	1820.04	363.01	2178.06
	Landscaping	261	m2	21.61	5641.94	25.16	6568.77
	Topsoil Seeding	261	m2	7.21	1882.39	8.44	2203.52
Street Lighting	Street Lighting (all Inclusive)	0	m	216.34	0.00	225.67	0.00
	Street Lighting - Intersections	3	Item/ Per Leg	48468.93	145406.79	55617.74	166853.22
Misc	Regulatory Signage	9	Item	338.43	3045.87	380.39	3423.51
	Linemarking	6789	m2 of Pavement	3.11	21113.79	4.09	27767.01
	Landscape maintenance	1	Item	71344.66	71344.66	88131.43	88131.43
	Tactile Pavers (Hazard only)	18	Item	292.43	5263.74	319.78	5756.04
Other	Demolition of existing pavements	3461	m2	65.00	224965.00	71.50	247461.50
	High pressure gas protection slab and relocation of other services	1	Item	391500.00	391500.00	391500.00	391500.00
	Tie-ins to existing pavements	22	m	205.00	4510.00	205.00	4510.00
Delivery	Council Fees	1	%	3.25	102708.55	3.25	114391.40
	VicRoads Fees	1	%	1.00	31602.63	1.00	35197.35
	Traffic Management	1	%	5.00	158013.15	5.00	175986.77
	Environmental Management	1	%	0.50	15801.31	0.50	17598.68
	Surveying and Design	1	%	5.00	158013.15	5.00	175986.77
	Supervision and Project management	1	%	9.00	284423.66	9.00	316776.19
	Site Establishment	1	%	2.50	79006.57	2.50	87993.39
	Contingency	1	%	15.00	474039.44	15.00	527960.32
Total	Excluding Delivery				3,160,263		3,519,735
	Including Delivery				4,463,871		4,971,626

Appendix C	
Description:	INTERSECTION - Primary - Connector T Intersection
Civil Component Number:	IT-04

Group	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)
Siteworks and Earthworks	Site Preparation	11371	m2	3.68	41845.28	4.96	56400.16
	Earthworks	5575	m3	34.07	189940.25	40.52	225899.00
Road Pavement	Primary Arterial Pavement	6493	m2	169.62	1101342.66	186.26	1209386.18
	Secondary Arterial Pavement	0	m2	127.01	0.00	133.78	0.00
	Connector Arterial Pavement	0	m2	105.15	0.00	112.44	0.00
	Subgrade Preparation (20% of Pave Area)	1299	m2	14.22	18466.09	16.16	20985.38
	Pavement Rehab	0	m2	51.58	0.00	59.32	0.00
	Pavement Other	0	m2	0.00	0.00	0.00	0.00
Concrete Works	Kerb and Channel	1222	m	54.81	66961.43	60.90	74401.58
	Cycle Path	237	m2	76.59	18123.03	91.94	21755.21
	SUP/ Footpath	228	m2	63.51	14479.64	73.63	16786.90
	Traffic Concrete Island	605	m2	77.60	46942.61	84.07	50856.52
Drainage	Drainage Pipe 300mm CR Bfilled	0	m	179.85	0.00	197.96	0.00
	Drainage Pipe 375mm CR Bfilled	205	m	259.10	53115.50	282.96	58006.80
	Drainage Pipe 450mm CR Bfilled	540	m	299.43	161692.20	334.33	180538.20
	Drainage Pipe 525mm CR Bfilled	0	m	403.86	0.00	448.03	0.00
	Drainage - pits	25	No.	2565.39	64134.75	2806.10	70152.50
	Drainage - Sub-soil drainage	1255	m	33.88	42509.27	43.40	54454.02
	Drainage Culvert	0	No.	0.00	0.00	0.00	0.00
Traffic	Traffic Signals (all inclusive)	3	Item	109730.28	329190.84	128786.34	386359.02
Landscape	Tree Planting	5	No.	303.34	1516.70	363.01	1815.05
	Landscaping	747	m2	21.61	16143.32	25.16	18795.27
	Topsoil Seeding	747	m2	7.21	5386.09	8.44	6304.93
Street Lighting	Street Lighting (all Inclusive)	0	m	216.34	0.00	225.67	0.00
	Street Lighting - Intersections	3	Item/ Per Leg	48468.93	145406.79	55617.74	166853.22
Misc	Regulatory Signage	6	Item	338.43	2030.58	380.39	2282.34
	Linemarking	6493	m2 of Pavement	3.11	20193.23	4.09	26556.37
	Landscape maintenance	1	Item	71344.66	71344.66	88131.43	88131.43
	Tactile Pavers (Hazard only)	18	Item	292.43	5263.74	319.78	5756.04
Other	Demolition of existing pavements	3282	m2	65.00	213330.00	71.50	234663.00
	High pressure gas protection slab and relocation of other services	1	Item	391500.00	391500.00	391500.00	391500.00
	Tie-ins to existing pavements	22	m	205.00	4510.00	205.00	4510.00
Delivery	Council Fees	1		3.25	98324.48	3.25	109627.35
	VicRoads Fees	1	%	1.00	30253.69	1.00	33731.49
	Traffic Management	1	%	5.00	151268.43	5.00	168657.46
	Environmental Management	1	%	0.50	15126.84	0.50	16865.75
	Surveying and Design	1	%	5.00	151268.43	5.00	168657.46
	Supervision and Project management	1	%	9.00	272283.18	9.00	303583.42
	Site Establishment	1	%	2.50	75634.22	2.50	84328.73
	Contingency	1	%	15.00	453805.30	15.00	505972.37
Total	Excluding Delivery				3,025,369		3,373,149
	Including Delivery				4,273,333		4,764,573

Appendix C	
Description:	INTERSECTION - Secondary - Connector Intersection
Civil Component Number:	IT-05

Group	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)
Siteworks and Earthworks	Site Preparation	9624	m2	3.68	35416.32	4.96	47735.04
	Earthworks	3409	m3	34.07	116144.63	40.52	138132.68
Road Pavement	Primary Arterial Pavement	0	m2	169.62	0.00	186.26	0.00
	Secondary Arterial Pavement	3069	m2	127.01	389846.83	133.78	410626.79
	Connector Arterial Pavement	2728	m2	105.15	286880.46	112.44	306769.75
	Subgrade Preparation (20% of Pave Area)	1160	m2	14.22	16488.70	16.16	18738.22
	Pavement Rehab	0	m2	51.58	0.00	59.32	0.00
	Pavement Other	0	m2	0.00	0.00	0.00	0.00
Concrete Works	Kerb and Channel	947	m	54.81	51905.07	60.90	57672.30
	Cycle Path	1262	m2	76.59	96636.33	91.94	116003.97
	SUP/ Footpath	366	m2	63.51	23261.59	73.63	26968.21
	Traffic Concrete Island	284	m2	77.60	22038.40	84.07	23875.88
Drainage	Drainage Pipe 300mm CR Bfilled	0	m	179.85	0.00	197.96	0.00
	Drainage Pipe 375mm CR Bfilled	170	m	259.10	44047.00	282.96	48103.20
	Drainage Pipe 450mm CR Bfilled	325	m	299.43	97314.75	334.33	108657.25
	Drainage Pipe 525mm CR Bfilled	0	m	403.86	0.00	448.03	0.00
	Drainage - pits	28	No.	2565.39	71830.92	2806.10	78570.80
	Drainage - Sub-soil drainage	947	m	33.88	32084.36	43.40	41099.80
	Drainage Culvert	0	No.	0.00	0.00	0.00	0.00
Traffic	Traffic Signals (all inclusive)	4	Item	109730.28	438921.12	128786.34	515145.36
Landscape	Tree Planting	30	No.	303.34	9100.20	363.01	10890.30
	Landscaping	1847	m2	21.61	39913.67	25.16	46470.52
	Topsoil Seeding	1847	m2	7.21	13316.87	8.44	15588.68
Street Lighting	Street Lighting (all Inclusive)	0	m	216.34	0.00	225.67	0.00
	Street Lighting - Intersections	4	Item/ Per Leg	48468.93	193875.72	55617.74	222470.96
Misc	Regulatory Signage	10	Item	338.43	3384.30	380.39	3803.90
	Linemarking	5798	m2 of Pavement	3.11	18030.90	4.09	23712.66
	Landscape maintenance	1	Item	71344.66	71344.66	88131.43	88131.43
	Tactile Pavers (Hazard only)	24	Item	292.43	7018.32	319.78	7674.72
Other	Adjust existing power pole height	2	Item	15000.00	30000.00	15000.00	30000.00
		0		0.00		0.00	
		0		0.00		0.00	
Delivery	Council Fees	1	%	3.25	68536.04	3.25	77572.38
	VicRoads Fees	1	%	1.00	21088.01	1.00	23868.42
	Traffic Management	1	%	5.00	105440.06	5.00	119342.12
	Environmental Management	1	%	0.50	10544.01	0.50	11934.21
	Surveying and Design	1	%	5.00	105440.06	5.00	119342.12
	Supervision and Project management	1	%	9.00	189792.10	9.00	214815.82
	Site Establishment	1	%	2.50	52720.03	2.50	59671.06
	Contingency	1	%	15.00	316320.17	15.00	358026.36
Total	Excluding Delivery				2,108,801		2,386,842
	Including Delivery				2,978,682		3,371,415

Appendix C	
Description:	INTERSECTION - Secondary- Secondary Intersection
Civil Component Number:	IT-06

Group	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)
Siteworks and Earthworks	Site Preparation	12645	m2	3.68	46533.60	4.96	62719.20
	Earthworks	5127	m3	34.07	174676.89	40.52	207746.04
Road Pavement	Primary Arterial Pavement	0	m2	169.62	0.00	186.26	0.00
	Secondary Arterial Pavement	8074	m2	127.01	1025478.74	133.78	1080139.72
	Connector Arterial Pavement	0	m2	105.15	0.00	112.44	0.00
	Subgrade Preparation (20% of Pave Area)	1615	m2	14.22	22962.46	16.16	26095.17
	Pavement Rehab	0	m2	51.58	0.00	59.32	0.00
	Pavement Other	0	m2	0.00	0.00	0.00	0.00
Concrete Works	Kerb and Channel	1020	m	54.81	55906.20	60.90	62118.00
	Cycle Path	1535	m2	76.59	117549.44	91.94	141108.44
	SUP/ Footpath	183	m2	63.51	11618.54	73.63	13469.89
	Traffic Concrete Island	761	m2	77.60	59053.60	84.07	63977.27
Drainage	Drainage Pipe 300mm CR Bfilled	0	m	179.85	0.00	197.96	0.00
	Drainage Pipe 375mm CR Bfilled	140	m	259.10	36274.00	282.96	39614.40
	Drainage Pipe 450mm CR Bfilled	500	m	299.43	149715.00	334.33	167165.00
	Drainage Pipe 525mm CR Bfilled	0	m	403.86	0.00	448.03	0.00
	Drainage - pits	22	No.	2565.39	56438.58	2806.10	61734.20
	Drainage - Sub-soil drainage	1020	m	33.88	34557.60	43.40	44268.00
	Drainage Culvert	0	No.	0.00	0.00	0.00	0.00
Traffic	Traffic Signals (all inclusive)	4	Item	109730.28	438921.12	128786.34	515145.36
Landscape	Tree Planting	45	No.	303.34	13650.30	363.01	16335.45
	Landscaping	483	m2	21.61	10437.63	25.16	12152.28
	Topsoil Seeding	483	m2	7.21	3482.43	8.44	4076.52
Street Lighting	Street Lighting (all Inclusive)	0	m	216.34	0.00	225.67	0.00
	Street Lighting - Intersections	4	Item/ Per Leg	48468.93	193875.72	55617.74	222470.96
Misc	Regulatory Signage	10	Item	338.43	3384.30	380.39	3803.90
	Linemarking	8074	m2 of Pavement	3.11	25110.14	4.09	33022.66
	Landscape maintenance	1	Item	71344.66	71344.66	88131.43	88131.43
	Tactile Pavers (Hazard only)	24	Item	292.43	7018.32	319.78	7674.72
Other		0		0.00		0.00	
		0		0.00		0.00	
		0		0.00		0.00	
Delivery	Council Fees	1	%	3.25	83134.65	3.25	93371.48
	VicRoads Fees	1	%	1.00	25579.89	1.00	28729.69
	Traffic Management	1	%	5.00	127899.46	5.00	143648.43
	Environmental Management	1	%	0.50	12789.95	0.50	14364.84
	Surveying and Design	1	%	5.00	127899.46	5.00	143648.43
	Supervision and Project management	1	%	9.00	230219.03	9.00	258567.17
	Site Establishment	1	%	2.50	63949.73	2.50	71824.22
	Contingency	1	%	15.00	383698.39	15.00	430945.29
Total	Excluding Delivery				2,557,989		2,872,969
	Including Delivery				3,613,160		4,058,068

Appendix C	
Description:	INTERSECTION - Secondary - Connector Intersection
Civil Component Number:	IT-07

Group	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)
Siteworks and Earthworks	Site Preparation	9452	m2	3.68	34783.36	4.96	46881.92
	Earthworks	3349	m3	34.07	114100.43	40.52	135701.48
Road Pavement	Primary Arterial Pavement	0	m2	169.62	0.00	186.26	0.00
	Secondary Arterial Pavement	2980	m2	127.01	378491.55	133.78	398666.25
	Connector Arterial Pavement	2722	m2	105.15	286241.31	112.44	306086.28
	Subgrade Preparation (20% of Pave Area)	1140	m2	14.22	16217.15	16.16	18429.62
	Pavement Rehab	0	m2	51.58	0.00	59.32	0.00
	Pavement Other	0	m2	0.00	0.00	0.00	0.00
Concrete Works	Kerb and Channel	700	m	54.81	38367.00	60.90	42630.00
	Cycle Path	1219	m2	76.59	93341.37	91.94	112048.64
	SUP/ Footpath	373	m2	63.51	23677.80	73.63	27450.74
	Traffic Concrete Island	150	m2	77.60	11640.00	84.07	12610.50
Drainage	Drainage Pipe 300mm CR Bfilled	0	m	179.85	0.00	197.96	0.00
	Drainage Pipe 375mm CR Bfilled	200	m	259.10	51820.00	282.96	56592.00
	Drainage Pipe 450mm CR Bfilled	340	m	299.43	101806.20	334.33	113672.20
	Drainage Pipe 525mm CR Bfilled	0	m	403.86	0.00	448.03	0.00
	Drainage - pits	28	No.	2565.39	71830.92	2806.10	78570.80
	Drainage - Sub-soil drainage	700	m	33.88	23716.00	43.40	30380.00
	Drainage Culvert	0	No.	0.00	0.00	0.00	0.00
Traffic	Traffic Signals (all inclusive)	4	Item	109730.28	438921.12	128786.34	515145.36
Landscape	Tree Planting	36	No.	303.34	10920.24	363.01	13068.36
	Landscaping	1820	m2	21.61	39330.20	25.16	45791.20
	Topsoil Seeding	1820	m2	7.21	13122.20	8.44	15360.80
Street Lighting	Street Lighting (all Inclusive)	0	m	216.34	0.00	225.67	0.00
	Street Lighting - Intersections	4	Item/ Per Leg	48468.93	193875.72	55617.74	222470.96
Misc	Regulatory Signage	10	Item	338.43	3384.30	380.39	3803.90
	Linemarking	5702	m2 of Pavement	3.11	17733.94	4.09	23322.13
	Landscape maintenance	1	Item	71344.66	71344.66	88131.43	88131.43
	Tactile Pavers (Hazard only)	24	Item	292.43	7018.32	319.78	7674.72
Other		0		0.00		0.00	
		0		0.00		0.00	
		0		0.00		0.00	
Delivery	Council Fees	1	%	3.25	66354.72	3.25	75220.90
	VicRoads Fees	1	%	1.00	20416.84	1.00	23144.89
	Traffic Management	1	%	5.00	102084.19	5.00	115724.46
	Environmental Management	1	%	0.50	10208.42	0.50	11572.45
	Surveying and Design	1	%	5.00	102084.19	5.00	115724.46
	Supervision and Project management	1	%	9.00	183751.54	9.00	208304.04
	Site Establishment	1	%	2.50	51042.09	2.50	57862.23
	Contingency	1	%	15.00	306252.57	15.00	347173.39
Total	Excluding Delivery				2,041,684		2,314,489
	Including Delivery				2,883,878		3,269,216

Appendix C	
Description:	INTERSECTION - Secondary - Connector Intersection
Civil Component Number:	IT-08

Group	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)
Siteworks and Earthworks	Site Preparation	9919	m2	3.68	36501.92	4.96	49198.24
	Earthworks	3566	m3	34.07	121493.62	40.52	144494.32
Road Pavement	Primary Arterial Pavement	0	m2	169.62	0.00	186.26	0.00
	Secondary Arterial Pavement	4227	m2	127.01	536871.27	133.78	565488.06
	Connector Arterial Pavement	1840	m2	105.15	193476.00	112.44	206889.60
	Subgrade Preparation (20% of Pave Area)	1213	m2	14.22	17254.55	16.16	19608.54
	Pavement Rehab	0	m2	51.58	0.00	59.32	0.00
	Pavement Other	0	m2	0.00	0.00	0.00	0.00
Concrete Works	Kerb and Channel	672	m	54.81	36832.32	60.90	40924.80
	Cycle Path	1265	m2	76.59	96912.12	91.94	116335.04
	SUP/ Footpath	394	m2	63.51	25031.29	73.63	29019.89
	Traffic Concrete Island	145	m2	77.60	11252.00	84.07	12190.15
Drainage	Drainage Pipe 300mm CR Bfilled	0	m	179.85	0.00	197.96	0.00
	Drainage Pipe 375mm CR Bfilled	205	m	259.10	53115.50	282.96	58006.80
	Drainage Pipe 450mm CR Bfilled	330	m	299.43	98811.90	334.33	110328.90
	Drainage Pipe 525mm CR Bfilled	0	m	403.86	0.00	448.03	0.00
	Drainage - pits	28	No.	2565.39	71830.92	2806.10	78570.80
	Drainage - Sub-soil drainage	672	m	33.88	22767.36	43.40	29164.80
	Drainage Culvert	0	No.	0.00	0.00	0.00	0.00
Traffic	Traffic Signals (all inclusive)	4	Item	109730.28	438921.12	128786.34	515145.36
Landscape	Tree Planting	36	No.	303.34	10920.24	363.01	13068.36
	Landscaping	2725	m2	21.61	58887.25	25.16	68561.00
	Topsoil Seeding	2725	m2	7.21	19647.25	8.44	22999.00
Street Lighting	Street Lighting (all Inclusive)	0	m	216.34	0.00	225.67	0.00
	Street Lighting - Intersections	4	Item/ Per Leg	48468.93	193875.72	55617.74	222470.96
Misc	Regulatory Signage	10	Item	338.43	3384.30	380.39	3803.90
	Linemarking	6067	m2 of Pavement	3.11	18868.37	4.09	24814.03
	Landscape maintenance	1	Item	71344.66	71344.66	88131.43	88131.43
	Tactile Pavers (Hazard only)	24	Item	292.43	7018.32	319.78	7674.72
Other		0		0.00		0.00	
		0		0.00		0.00	
		0		0.00		0.00	
Delivery	Council Fees	1	%	3.25	69713.08	3.25	78873.88
	VicRoads Fees	1	%	1.00	21450.18	1.00	24268.89
	Traffic Management	1	%	5.00	107250.90	5.00	121344.44
	Environmental Management	1	%	0.50	10725.09	0.50	12134.44
	Surveying and Design	1	%	5.00	107250.90	5.00	121344.44
	Supervision and Project management	1	%	9.00	193051.62	9.00	218419.98
	Site Establishment	1	%	2.50	53625.45	2.50	60672.22
	Contingency	1	%	15.00	321752.70	15.00	364033.31
Total	Excluding Delivery				2,145,018		2,426,889
	Including Delivery				3,029,838		3,427,980

Appendix C	
Description:	INTERSECTION - Secondary - Connector Intersection
Civil Component Number:	IT-09

Group	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)
Siteworks and Earthworks	Site Preparation	100075	m2	3.68	368276.00	4.96	496372.00
	Earthworks	3540	m3	34.07	120607.80	40.52	143440.80
Road Pavement	Primary Arterial Pavement	0	m2	169.62	0.00	186.26	0.00
	Secondary Arterial Pavement	4042	m2	127.01	513345.19	133.78	540707.98
	Connector Arterial Pavement	1820	m2	105.15	191419.75	112.44	204690.79
	Subgrade Preparation (20% of Pave Area)	1172	m2	14.22	16672.14	16.16	18946.68
	Pavement Rehab	0	m2	51.58	0.00	59.32	0.00
	Pavement Other	0	m2	0.00	0.00	0.00	0.00
Concrete Works	Kerb and Channel	795	m	54.81	43573.95	60.90	48415.50
	Cycle Path	1206	m2	76.59	92345.89	91.94	110853.65
	SUP/ Footpath	377	m2	63.51	23943.27	73.63	27758.51
	Traffic Concrete Island	300	m2	77.60	23280.00	84.07	25221.00
Drainage	Drainage Pipe 300mm CR Bfilled		m	179.85	0.00	197.96	0.00
	Drainage Pipe 375mm CR Bfilled	220	m	259.10	57002.00	282.96	62251.20
	Drainage Pipe 450mm CR Bfilled	310	m	299.43	92823.30	334.33	103642.30
	Drainage Pipe 525mm CR Bfilled	0	m	403.86	0.00	448.03	0.00
	Drainage - pits	28	No.	2565.39	71830.92	2806.10	78570.80
	Drainage - Sub-soil drainage	795	m	33.88	26934.60	43.40	34503.00
	Drainage Culvert	0	No.	0.00	0.00	0.00	0.00
Traffic	Traffic Signals (all inclusive)	4	Item	109730.28	438921.12	128786.34	515145.36
Landscape	Tree Planting	36	No.	303.34	10920.24	363.01	13068.36
	Landscaping	2725	m2	21.61	58887.25	25.16	68561.00
	Topsoil Seeding	2725	m2	7.21	19647.25	8.44	22999.00
Street Lighting	Street Lighting (all Inclusive)	0	m	216.34	0.00	225.67	0.00
	Street Lighting - Intersections	4	Item/ Per Leg	48468.93	193875.72	55617.74	222470.96
Misc	Regulatory Signage	10	Item	338.43	3384.30	380.39	3803.90
	Linemarking	5862	m2 of Pavement	3.11	18231.49	4.09	23976.46
	Landscape maintenance	1	Item	71344.66	71344.66	88131.43	88131.43
	Tactile Pavers (Hazard only)	24	Item	292.43	7018.32	319.78	7674.72
Other		0		0.00		0.00	
		0		0.00		0.00	
		0		0.00		0.00	
Delivery	Council Fees	1	%	3.25	80089.27	3.25	92989.18
	VicRoads Fees	1	%	1.00	24642.85	1.00	28612.05
	Traffic Management	1	%	5.00	123214.26	5.00	143060.27
	Environmental Management	1	%	0.50	12321.43	0.50	14306.03
	Surveying and Design	1	%	5.00	123214.26	5.00	143060.27
	Supervision and Project management	1	%	9.00	221785.66	9.00	257508.49
	Site Establishment	1	%	2.50	61607.13	2.50	71530.13
	Contingency	1	%	15.00	369642.77	15.00	429180.81
Total	Excluding Delivery				2,464,285		2,861,205
	Including Delivery				3,480,803		4,041,453

Appendix C	
Description:	INTERSECTION - Secondary - Connector Intersection
Civil Component Number:	IT-10

Group	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)
Siteworks and Earthworks	Site Preparation	13960	m2	3.68	51372.80	4.96	69241.60
	Earthworks	4825	m3	34.07	164387.75	40.52	195509.00
Road Pavement	Primary Arterial Pavement	0	m2	169.62	0.00	186.26	0.00
	Secondary Arterial Pavement	4724	m2	127.01	600037.38	133.78	632021.11
	Connector Arterial Pavement	3411	m2	105.15	358715.26	112.44	383584.82
	Subgrade Preparation (20% of Pave Area)	1627	m2	14.22	23138.20	16.16	26294.89
	Pavement Rehab	0	m2	51.58	0.00	59.32	0.00
	Pavement Other	0	m2	0.00	0.00	0.00	0.00
Concrete Works	Kerb and Channel	1350	m	54.81	73993.50	60.90	82215.00
	Cycle Path	1600	m2	76.59	122544.00	91.94	147104.00
	SUP/ Footpath	652	m2	63.51	41408.52	73.63	48006.76
	Traffic Concrete Island	743	m2	77.60	57656.80	84.07	62464.01
Drainage	Drainage Pipe 300mm CR Bfilled	0	m	179.85	0.00	197.96	0.00
	Drainage Pipe 375mm CR Bfilled	174	m	259.10	45083.40	282.96	49235.04
	Drainage Pipe 450mm CR Bfilled	375	m	299.43	112286.25	334.33	125373.75
	Drainage Pipe 525mm CR Bfilled	0	m	403.86	0.00	448.03	0.00
	Drainage - pits	21	No.	2565.39	53873.19	2806.10	58928.10
	Drainage - Sub-soil drainage	0	m	33.88	0.00	43.40	0.00
	Drainage Culvert	0	No.	0.00	0.00	0.00	0.00
Traffic	Traffic Signals (all inclusive)	4	Item	109730.28	438921.12	128786.34	515145.36
Landscape	Tree Planting	48	No.	303.34	14560.32	363.01	17424.48
	Landscaping	3710	m2	21.61	80173.10	25.16	93343.60
	Topsoil Seeding	3710	m2	7.21	26749.10	8.44	31312.40
Street Lighting	Street Lighting (all Inclusive)	0	m	216.34	0.00	225.67	0.00
	Street Lighting - Intersections	4	Item/ Per Leg	48468.93	193875.72	55617.74	222470.96
Misc	Regulatory Signage	14	Item	338.43	4738.02	380.39	5325.46
	Linemarking	8136	m2 of Pavement	3.11	25302.32	4.09	33275.40
	Landscape maintenance	1	Item	71344.66	71344.66	88131.43	88131.43
	Tactile Pavers (Hazard only)	24	Item	292.43	7018.32	319.78	7674.72
Other		0		0.00		0.00	
		0		0.00		0.00	
		0		0.00		0.00	
Delivery	Council Fees	1	%	3.25	83433.34	3.25	94057.66
	VicRoads Fees	1	%	1.00	25671.80	1.00	28940.82
	Traffic Management	1	%	5.00	128358.99	5.00	144704.09
	Environmental Management	1	%	0.50	12835.90	0.50	14470.41
	Surveying and Design	1	%	5.00	128358.99	5.00	144704.09
	Supervision and Project management	1	%	9.00	231046.18	9.00	260467.37
	Site Establishment	1	%	2.50	64179.49	2.50	72352.05
	Contingency	1	%	15.00	385076.96	15.00	434112.28
Total	Excluding Delivery				2,567,180		2,894,082
	Including Delivery				3,626,141		4,087,891

Appendix C	
Description:	INTERSECTION - Secondary - Connector Intersection
Civil Component Number:	IT-11

Group	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)
Siteworks and Earthworks	Site Preparation	18421	m2	3.68	67789.28	4.96	91368.16
	Earthworks	6105	m3	34.07	207997.35	40.52	247374.60
Road Pavement	Primary Arterial Pavement	0	m2	169.62	0.00	186.26	0.00
	Secondary Arterial Pavement	5075	m2	127.01	644575.75	133.78	678933.50
	Connector Arterial Pavement	5526	m2	105.15	581058.90	112.44	621343.44
	Subgrade Preparation (20% of Pave Area)	2120	m2	14.22	30149.24	16.16	34262.43
	Pavement Rehab	0	m2	51.58	0.00	59.32	0.00
	Pavement Other	0	m2	0.00	0.00	0.00	0.00
Concrete Works	Kerb and Channel	1784	m	54.81	97781.04	60.90	108645.60
	Cycle Path	1938	m2	76.59	148405.28	91.94	178148.34
	SUP/ Footpath	926	m2	63.51	58829.48	73.63	68203.66
	Traffic Concrete Island	1212	m2	77.60	94051.20	84.07	101892.84
Drainage	Drainage Pipe 300mm CR Bfilled	0	m	179.85	0.00	197.96	0.00
	Drainage Pipe 375mm CR Bfilled	286	m	259.10	74102.60	282.96	80926.56
	Drainage Pipe 450mm CR Bfilled	507	m	299.43	151811.01	334.33	169505.31
	Drainage Pipe 525mm CR Bfilled	0	m	403.86	0.00	448.03	0.00
	Drainage - pits	32	No.	2565.39	82092.48	2806.10	89795.20
	Drainage - Sub-soil drainage	1784	m	33.88	60441.92	43.40	77425.60
	Drainage Culvert	0	No.	0.00	0.00	0.00	0.00
Traffic	Traffic Signals (all inclusive)	4	Item	109730.28	438921.12	128786.34	515145.36
Landscape	Tree Planting	56	No.	303.34	16987.04	363.01	20328.56
	Landscaping	3754	m2	21.61	81123.94	25.16	94450.64
	Topsoil Seeding	3754	m2	7.21	27066.34	8.44	31683.76
Street Lighting	Street Lighting (all Inclusive)	0	m	216.34	0.00	225.67	0.00
	Street Lighting - Intersections	4	Item/ Per Leg	48468.93	193875.72	55617.74	222470.96
Misc	Regulatory Signage	14	Item	338.43	4738.02	380.39	5325.46
	Linemarking	10601	m2 of Pavement	3.11	32969.11	4.09	43358.09
	Landscape maintenance	1	Item	71344.66	71344.66	88131.43	88131.43
	Tactile Pavers (Hazard only)	24	Item	292.43	7018.32	319.78	7674.72
Other		0		0.00		0.00	
		0		0.00		0.00	
		0		0.00		0.00	
Delivery	Council Fees	1	%	3.25	103126.72	3.25	116232.81
	VicRoads Fees	1	%	1.00	31731.30	1.00	35763.94
	Traffic Management	1	%	5.00	158656.49	5.00	178819.71
	Environmental Management	1	%	0.50	15865.65	0.50	17881.97
	Surveying and Design	1	%	5.00	158656.49	5.00	178819.71
	Supervision and Project management	1	%	9.00	285581.68	9.00	321875.48
	Site Establishment	1	%	2.50	79328.25	2.50	89409.86
	Contingency	1	%	15.00	475969.47	15.00	536459.13
Total	Excluding Delivery				3,173,130		3,576,394
	Including Delivery				4,482,046		5,051,657

Appendix C	
Description:	INTERSECTION - Secondary - Secondary Intersection
Civil Component Number:	IT-12

Group	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)
Siteworks and Earthworks	Site Preparation	15743	m2	3.68	57934.24	4.96	78085.28
	Earthworks	6264	m3	34.07	213414.48	40.52	253817.28
Road Pavement	Primary Arterial Pavement	0	m2	169.62	0.00	186.26	0.00
	Secondary Arterial Pavement	9865	m2	127.01	1252950.44	133.78	1319736.32
	Connector Arterial Pavement	0	m2	105.15	0.00	112.44	0.00
	Subgrade Preparation (20% of Pave Area)	1973	m2	14.22	28055.99	16.16	31883.60
	Pavement Rehab	0	m2	51.58	0.00	59.32	0.00
	Pavement Other	0	m2	0.00	0.00	0.00	0.00
Concrete Works	Kerb and Channel	1781	m	54.81	97616.61	60.90	108462.90
	Cycle Path	1968	m2	76.59	150693.29	91.94	180894.91
	SUP/ Footpath	0	m2	63.51	0.00	73.63	0.00
	Traffic Concrete Island	1221	m2	77.60	94749.60	84.07	102649.47
Drainage	Drainage Pipe 300mm CR Bfilled	0	m	179.85	0.00	197.96	0.00
	Drainage Pipe 375mm CR Bfilled	274	m	259.10	70993.40	282.96	77531.04
	Drainage Pipe 450mm CR Bfilled	400	m	299.43	119772.00	334.33	133732.00
	Drainage Pipe 525mm CR Bfilled	0	m	403.86	0.00	448.03	0.00
	Drainage - pits	32	No.	2565.39	82092.48	2806.10	89795.20
	Drainage - Sub-soil drainage	1781	m	33.88	60340.28	43.40	77295.40
	Drainage Culvert	0	No.	0.00	0.00	0.00	0.00
Traffic	Traffic Signals (all inclusive)	4	Item	109730.28	438921.12	128786.34	515145.36
Landscape	Tree Planting	48	No.	303.34	14560.32	363.01	17424.48
	Landscaping	2709	m2	21.61	58541.49	25.16	68158.44
	Topsoil Seeding	2709	m2	7.21	19531.89	8.44	22863.96
Street Lighting	Street Lighting (all Inclusive)	0	m	216.34	0.00	225.67	0.00
	Street Lighting - Intersections	4	Item/ Per Leg	48468.93	193875.72	55617.74	222470.96
Misc	Regulatory Signage	10	Item	338.43	3384.30	380.39	3803.90
	Linemarking	9865	m2 of Pavement	3.11	30680.07	4.09	40347.75
	Landscape maintenance	1	Item	71344.66	71344.66	88131.43	88131.43
	Tactile Pavers (Hazard only)	24	Item	292.43	7018.32	319.78	7674.72
Other		0		0.00		0.00	
		0		0.00		0.00	
		0		0.00		0.00	
Delivery	Council Fees	1	%	3.25	99660.30	3.25	111796.89
	VicRoads Fees	1	%	1.00	30664.71	1.00	34399.04
	Traffic Management	1	%	5.00	153323.53	5.00	171995.22
	Environmental Management	1	%	0.50	15332.35	0.50	17199.52
	Surveying and Design	1	%	5.00	153323.53	5.00	171995.22
	Supervision and Project management	1	%	9.00	275982.36	9.00	309591.40
	Site Establishment	1	%	2.50	76661.77	2.50	85997.61
	Contingency	1	%	15.00	459970.60	15.00	515985.66
Total	Excluding Delivery				3,066,471		3,439,904
	Including Delivery				4,331,390		4,858,865

Appendix C	
Description:	INTERSECTION - Secondary - Connector Intersection
Civil Component Number:	IT-13

Group	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)
Siteworks and Earthworks	Site Preparation	16567	m2	3.68	60966.56	4.96	82172.32
	Earthworks	5572	m3	34.07	189838.04	40.52	225777.44
Road Pavement	Primary Arterial Pavement	0	m2	169.62	0.00	186.26	0.00
	Secondary Arterial Pavement	3680	m2	127.01	467383.38	133.78	492296.26
	Connector Arterial Pavement	6046	m2	105.15	635756.56	112.44	679833.27
	Subgrade Preparation (20% of Pave Area)	1945	m2	14.22	27660.98	16.16	31434.69
	Pavement Rehab	0	m2	51.58	0.00	59.32	0.00
	Pavement Other	0	m2	0.00	0.00	0.00	0.00
Concrete Works	Kerb and Channel	2653	m	54.81	145410.93	60.90	161567.70
	Cycle Path	1397	m2	76.59	107023.78	91.94	128473.25
	SUP/ Footpath	949	m2	63.51	60261.43	73.63	69863.79
	Traffic Concrete Island	753	m2	77.60	58432.80	84.07	63304.71
Drainage	Drainage Pipe 300mm CR Bfilled	0	m	179.85	0.00	197.96	0.00
	Drainage Pipe 375mm CR Bfilled	270	m	259.10	69957.00	282.96	76399.20
	Drainage Pipe 450mm CR Bfilled	520	m	299.43	155703.60	334.33	173851.60
	Drainage Pipe 525mm CR Bfilled	0	m	403.86	0.00	448.03	0.00
	Drainage - pits	32	No.	2565.39	82092.48	2806.10	89795.20
	Drainage - Sub-soil drainage	2653	m	33.88	89883.64	43.40	115140.20
	Drainage Culvert	0	No.	0.00	0.00	0.00	0.00
Traffic	Traffic Signals (all inclusive)	4	Item	109730.28	438921.12	128786.34	515145.36
Landscape	Tree Planting	57	No.	303.34	17290.38	363.01	20691.57
	Landscaping	3618	m2	21.61	78184.98	25.16	91028.88
	Topsoil Seeding	3618	m2	7.21	26085.78	8.44	30535.92
Street Lighting	Street Lighting (all Inclusive)	0	m	216.34	0.00	225.67	0.00
	Street Lighting - Intersections	4	Item/ Per Leg	48468.93	193875.72	55617.74	222470.96
Misc	Regulatory Signage	14	Item	338.43	4738.02	380.39	5325.46
	Linemarking	9726	m2 of Pavement	3.11	30248.11	4.09	39779.67
	Landscape maintenance	1	Item	71344.66	71344.66	88131.43	88131.43
	Tactile Pavers (Hazard only)	24	Item	292.43	7018.32	319.78	7674.72
Other		0		0.00		0.00	
		0		0.00		0.00	
		0		0.00		0.00	
Delivery	Council Fees	1	%	3.25	98087.54	3.25	110847.54
	VicRoads Fees	1	%	1.00	30180.78	1.00	34106.94
	Traffic Management	1	%	5.00	150903.91	5.00	170534.68
	Environmental Management	1	%	0.50	15090.39	0.50	17053.47
	Surveying and Design	1	%	5.00	150903.91	5.00	170534.68
	Supervision and Project management	1	%	9.00	271627.04	9.00	306962.42
	Site Establishment	1	%	2.50	75451.96	2.50	85267.34
	Contingency	1	%	15.00	452711.74	15.00	511604.04
Total	Excluding Delivery				3,018,078		3,410,694
	Including Delivery				4,263,036		4,817,605

Appendix C	
Description:	INTERSECTION - Primary - Secondary T Intersection
Civil Component Number:	IT-14

Group	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)
Siteworks and Earthworks	Site Preparation	10556	m2	3.68	38846.08	4.96	52357.76
	Earthworks	4566	m3	34.07	155563.62	40.52	185014.32
Road Pavement	Primary Arterial Pavement	6708	m2	169.62	1137810.96	186.26	1249432.08
	Secondary Arterial Pavement		m2	127.01	0.00	133.78	0.00
	Connector Arterial Pavement	0	m2	105.15	0.00	112.44	0.00
	Subgrade Preparation (20% of Pave Area)	1342	m2	14.22	19077.55	16.16	21680.26
	Pavement Rehab	0	m2	51.58	0.00	59.32	0.00
	Pavement Other	0	m2	0.00	0.00	0.00	0.00
Concrete Works	Kerb and Channel	929	m	54.81	50894.37	60.90	56549.30
	Cycle Path	0	m2	76.59	0.00	91.94	0.00
	SUP/ Footpath	427	m2	63.51	27092.10	73.63	31409.09
	Traffic Concrete Island	72	m2	77.60	5587.20	84.07	6053.04
Drainage	Drainage Pipe 300mm CR Bfilled	0	m	179.85	0.00	197.96	0.00
	Drainage Pipe 375mm CR Bfilled	195	m	259.10	50524.50	282.96	55177.20
	Drainage Pipe 450mm CR Bfilled	580	m	299.43	173669.40	334.33	193911.40
	Drainage Pipe 525mm CR Bfilled	0	m	403.86	0.00	448.03	0.00
	Drainage - pits	32	No.	2565.39	82092.48	2806.10	89795.20
	Drainage - Sub-soil drainage	969	m	33.88	32814.81	43.40	42035.50
	Drainage Culvert	0	No.	0.00	0.00	0.00	0.00
Traffic	Traffic Signals (all inclusive)	3	Item	109730.28	329190.84	128786.34	386359.02
Landscape	Tree Planting	9	No.	303.34	2730.06	363.01	3267.09
	Landscaping	2317	m2	21.61	50070.37	25.16	58295.72
	Topsoil Seeding	2317	m2	7.21	16705.57	8.44	19555.48
Street Lighting	Street Lighting (all Inclusive)	0	m	216.34	0.00	225.67	0.00
	Street Lighting - Intersections	3	Item/ Per Leg	48468.93	145406.79	55617.74	166853.22
Misc	Regulatory Signage	9	Item	338.43	3045.87	380.39	3423.51
	Linemarking	6708	m2 of Pavement	3.11	20861.88	4.09	27435.72
	Landscape maintenance	1	Item	71344.66	71344.66	88131.43	88131.43
	Tactile Pavers (Hazard only)	18	Item	292.43	5263.74	319.78	5756.04
Other	Demolition of existing pavements	4192	m2	65.00	272480.00	71.50	299728.00
	High pressure gas protection slab and relocation of other services	1	Item	391500.00	391500.00	391500.00	391500.00
	Tie-ins to existing pavements	22	m	205.00	4510.00	205.00	4510.00
Delivery	Council Fees	1	%	3.25	100330.19	3.25	111742.49
	VicRoads Fees	1	%	1.00	30870.83	1.00	34382.30
	Traffic Management	1	%	5.00	154354.14	5.00	171911.52
	Environmental Management	1	%	0.50	15435.41	0.50	17191.15
	Surveying and Design	1	%	5.00	154354.14	5.00	171911.52
	Supervision and Project management	1	%	9.00	277837.46	9.00	309440.73
	Site Establishment	1	%	2.50	77177.07	2.50	85955.76
	Contingency	1	%	15.00	463062.43	15.00	515734.56
Total	Excluding Delivery				3,087,083		3,438,230
	Including Delivery				4,360,505		4,856,500

Appendix C	
Description:	INTERSECTION - Secondary - Connector Intersection
Civil Component Number:	IT-15

Group	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)
Siteworks and Earthworks	Site Preparation	11308	m2	3.68	41613.44	4.96	56087.68
	Earthworks	3808	m3	34.07	129738.56	40.52	154300.16
Road Pavement	Primary Arterial Pavement	0	m2	169.62	0.00	186.26	0.00
	Secondary Arterial Pavement	3795	m2	127.01	482006.06	133.78	507698.38
	Connector Arterial Pavement	2612	m2	105.15	274701.14	112.44	293746.04
	Subgrade Preparation (20% of Pave Area)	1281	m2	14.22	18222.91	16.16	20709.02
	Pavement Rehab	0	m2	51.58	0.00	59.32	0.00
	Pavement Other	0	m2	0.00	0.00	0.00	0.00
Concrete Works	Kerb and Channel	1140	m	54.81	62483.40	60.90	69426.00
	Cycle Path	1427	m2	76.59	109301.39	91.94	131207.33
	SUP/ Footpath	457	m2	63.51	29002.73	73.63	33624.17
	Traffic Concrete Island	550	m2	77.60	42680.00	84.07	46238.50
Drainage	Drainage Pipe 300mm CR Bfilled	0	m	179.85	0.00	197.96	0.00
	Drainage Pipe 375mm CR Bfilled	183	m	259.10	47415.30	282.96	51781.68
	Drainage Pipe 450mm CR Bfilled	360	m	299.43	107794.80	334.33	120358.80
	Drainage Pipe 525mm CR Bfilled	0	m	403.86	0.00	448.03	0.00
	Drainage - pits	22	No.	2565.39	56438.58	2806.10	61734.20
	Drainage - Sub-soil drainage	1140	m	33.88	38623.20	43.40	49476.00
	Drainage Culvert	0	No.	0.00	0.00	0.00	0.00
Traffic	Traffic Signals (all inclusive)	4	Item	109730.28	438921.12	128786.34	515145.36
Landscape	Tree Planting	42	No.	303.34	12740.28	363.01	15246.42
	Landscaping	2700	m2	21.61	58347.00	25.16	67932.00
	Topsoil Seeding	2700	m2	7.21	19467.00	8.44	22788.00
Street Lighting	Street Lighting (all Inclusive)	0	m	216.34	0.00	225.67	0.00
	Street Lighting - Intersections	4	Item/ Per Leg	48468.93	193875.72	55617.74	222470.96
Misc	Regulatory Signage	14	Item	338.43	4738.02	380.39	5325.46
	Linemarking	6407	m2 of Pavement	3.11	19927.31	4.09	26206.65
	Landscape maintenance	1	Item	71344.66	71344.66	88131.43	88131.43
	Tactile Pavers (Hazard only)	24	Item	292.43	7018.32	319.78	7674.72
Other		0		0		0	
		0		0		0	
		0		0		0	
		0		0		0	
Delivery	Council Fees	1	%	3.25	73658.03	3.25	83437.54
	VicRoads Fees	1	%	1.00	22664.01	1.00	25673.09
	Traffic Management	1	%	5.00	113320.05	5.00	128365.45
	Environmental Management	1	%	0.50	11332.00	0.50	12836.54
	Surveying and Design	1	%	5.00	113320.05	5.00	128365.45
	Supervision and Project management	1	%	9.00	203976.08	9.00	231057.81
	Site Establishment	1	%	2.50	56660.02	2.50	64182.72
	Contingency	1	%	15.00	339960.14	15.00	385096.34
Total	Excluding Delivery				2,266,401		2,567,309
	Including Delivery				3,201,291		3,626,324

Appendix C	
Description:	INTERSECTION - Primary - Connector T Intersection
Civil Component Number:	IT-16

Group	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)
Siteworks and Earthworks	Site Preparation	14832	m2	3.68	54581.76	4.96	73566.72
	Earthworks	5661	m3	34.07	192870.27	40.52	229383.72
Road Pavement	Primary Arterial Pavement	6161	m2	169.62	1045013.55	186.26	1147531.10
	Secondary Arterial Pavement	0	m2	127.01	0.00	133.78	0.00
	Connector Arterial Pavement	2347	m2	105.15	246818.60	112.44	263930.41
	Subgrade Preparation (20% of Pave Area)	1702	m2	14.22	24197.35	16.16	27498.53
	Pavement Rehab	0	m2	51.58	0.00	59.32	0.00
	Pavement Other	0	m2	0	0.00	0	0.00
Concrete Works	Kerb and Channel	1022	m	54.81	56008.69	60.9	62231.88
	Cycle Path	430	m2	76.59	32922.98	91.94	39521.33
	SUP/ Footpath	424	m2	63.51	26909.82	73.63	31197.77
	Traffic Concrete Island	527	m2	77.6	40873.47	84.07	44281.35
Drainage	Drainage Pipe 300mm CR Bfilled	0	m	179.85	0.00	197.96	0.00
	Drainage Pipe 375mm CR Bfilled	205	m	259.1	53115.50	282.96	58006.80
	Drainage Pipe 450mm CR Bfilled	540	m	299.43	161692.20	334.33	180538.20
	Drainage Pipe 525mm CR Bfilled	0	m	403.86	0.00	448.03	0.00
	Drainage - pits	25	No.	2565.39	64134.75	2806.1	70152.50
	Drainage - Sub-soil drainage	1062	m	33.88	35976.16	43.4	46085.16
	Drainage Culvert	0	No.	0	0.00	0	0.00
Traffic	Traffic Signals (all inclusive)	3	Item	109730.28	329190.84	128786.34	386359.02
Landscape	Tree Planting	17	No.	303.34	5156.78	363.01	6171.17
	Landscaping	4944	m2	21.61	106839.84	25.16	124391.04
	Topsoil Seeding	4944	m2	7.21	35646.24	8.44	41727.36
Street Lighting	Street Lighting (all Inclusive)	0	m	216.34	0.00	225.67	0.00
	Street Lighting - Intersections	3	Item/ Per Leg	48468.93	145406.79	55617.74	166853.22
Misc	Regulatory Signage	6	Item	338.43	2030.58	380.39	2282.34
	Linemarking	8508	m2 of Pavement	3.11	26460.53	4.09	34798.58
	Landscape maintenance	1	Item	71344.66	71344.66	88131.43	88131.43
	Tactile Pavers (Hazard only)	18	Item	292.43	5263.74	319.78	5756.04
Other	High pressure gas protection slab and relocation of other services	1	Item	391500.00	391500.00	391500.00	391500.00
	Demolition of existing pavements	3507	m2	65	227955.00	71.5	250750.50
		0		0.00		0.00	
Delivery	Council Fees	1	%	3.25	109912.08	3.25	122611.00
	VicRoads Fees	1	%	1.00	27624.55	1.00	37726.46
	Traffic Management	1	%	5.00	138122.76	5.00	188632.31
	Environmental Management	1	%	0.50	13812.28	0.50	18863.23
	Surveying and Design	1	%	5.00	138122.76	5.00	188632.31
	Supervision and Project management	1	%	9.00	248620.96	9.00	339538.16
	Site Establishment	1	%	2.50	69061.38	2.50	94316.15
	Contingency	1	%	15.00	414368.27	15.00	565896.93
Total	Excluding Delivery				3,381,910		3,772,646
	Including Delivery				4,776,948		5,328,863

Appendix C	
Description:	CULVERT- Mt Atkinson
Civil Component Number:	CU-01

	Sub Item	Qty	Unit	Rate (P50)	Amount (P50)	Rate (P90)	Amount (P90)
Sitework and Earthwork	Site preparation (Item)	600	Item	3.68	2208.00	4.23	2539.20
	Diversion works (item)	1	Item	15000.00	15000.00	17250.00	17250.00
	Waterway re-shaping	1	Item	12000.00	12000.00	13800.00	13800.00
	Stripping of topsoil (m2)	250	m2	3.90	975.00	4.49	1121.25
	Excavation (m3)	1150	m3	37.00	42550.00	42.55	48932.50
	Formation of batters (m3)	200	m3	15.00	3000.00	17.25	3450.00
Drainage Structure	Box culvert units 3000 x 3000 (No.)	69	No.	7000.00	483000.00	8050.00	555450.00
	Link slab 3000 x 3000 (No.)	0	No.	2469.00	0.00	2839.35	0.00
	Foundation slab 3000 x 3000 (200 mm)	300	m2	212.00	63600.00	243.80	73140.00
	Granular Bedding 150 mm thick crushed rock	300	m2	17.25	5175.00	19.84	5951.25
	Apron Slab (m2)	140	m2	220.25	30835.00	253.29	35460.25
	Wing wall (m2)	60	m2	700.00	42000.00	805.00	48300.00
	Headwall above culverts (m2)	18	m2	700.00	12600.00	805.00	14490.00
On Structure	Structural Fill (m3)	50	m3	75.00	3750.00	86.25	4312.50
	Vehicle Barrier	30	lm	70.00	2100.00	80.50	2415.00
	Signs (Item)	1	Item	1800.00	1800.00	2070.00	2070.00
Delivery	Council Fees	1	%	3.25	23419.27	3.25	26932.16
	VicRoads Fees	1	%	1.00	7205.93	1.00	8286.82
	Traffic management	1	%	5.00	36029.65	5.00	41434.10
	Environmental Management/ Creek Management	1	%	0.50	3602.97	0.50	4143.41
	Survey and Design	1	%	5.00	36029.65	5.00	41434.10
	Supervision and Project Mngement	1	%	9.00	64853.37	9.00	74581.38
	Site Establishment	1	%	2.50	18014.83	2.50	20717.05
	Contingency	1	%	15.00	108088.95	15.00	124302.29
Total (P50)	Total Estimate Without Delivery				\$720,593		\$828,682
	Total Estimate With Delivery				\$1,017,838		\$1,170,513

Appendix C	
Description:	BR05 Pedestrian Bridge Over Rail Reserve
Civil Component	BR-02

Group	Sub Item	Qty	Unit	Rate (P50)	Amount P(50)	Rate (P90)	Amount P(90)
Earthworks	Site Preparation	2718	m2	3.68	10002.24	4.23	11502.58
	Earthworks	15	m3	50.07	751.05	57.58	863.71
On-Structure Works	Retaining Walls, abutments, footings	1	Item	198720.51	198720.51	228528.58	228528.58
	Bridge Deck	1211.66	m2	380.00	460430.80	437.00	529495.42
	Steel Truss Over Railway	1	Item	315716.35	315716.35	363073.80	363073.80
	Steel Truss Ramps	211.8	l/m	6863.40	1453667.89	7892.91	1671718.07
	Guard Rails/ Balustrade	1	Item	24510.00	24510.00	28186.50	28186.50
	Transition Slab	0	No	1248.00	0.00	1435.20	0.00
Off Structure	Pedestrian Guard Rails/ Balustrade	0	m	187.10	0.00	215.17	0.00
	GREAT Terminal	0	No	8767.42	0.00	10082.53	0.00
	Off structure barrier	0	Item	1565.45	0.00	1800.27	0.00
Other	Lighting	1	Item	20000.00	20000.00	23000.00	23000.00
	Line-marking	1	Item	1000.00	1000.00	1150.00	1150.00
	Regulatory Signage	1	Item	10000.00	10000.00	11500.00	11500.00
	Maintenance of Works - 1 Year	1	Item	10000.00	10000.00	11500.00	11500.00
	Services Conduit on Bridge	1	Item	20000	20000	23000	23000
	Occupations Cost	2	Item	278600	557200	320390	640780
Delivery	Council Fees	1	%	3.25	100164.96	3.25	115189.71
	VicRoads Fees	1	%	1.00	30819.99	1.00	35442.99
	Traffic Management	1	%	5.00	154099.94	5.00	177214.93
	Environmental Management	1	%	0.50	15409.99	0.50	17721.49
	Surveying and Design	1	%	5.00	154099.94	5.00	177214.93
	Supervision and Project management	1	%	9.00	277379.90	9.00	318986.88
	Site Establishment	1	%	2.50	77049.97	2.50	88607.47
	Contingency	1	%	20.00	616399.77	20.00	708859.73
Total	Excluding Delivery				\$ 3,081,999		\$ 3,544,299
	Including Delivery				\$ 4,507,423		\$ 5,183,537

Appendix C	
Description:	BR03 Pedestrian Level Crossing at Rail Line
Civil Component	BR-03

Group	Sub Item	Qty	Unit	Rate (P50)	Amount P(50)	Rate (P90)	Amount P(90)
Site works, construction and materials	Site access	1	Item	50000.00	50000.00	55000.00	55000.00
	Crossing Construction/Materials	1	Item	500000.00	500000.00	550000.00	550000.00
	Testing and Commissioning	1	Item	70000.00	70000.00	77000.00	77000.00
Delivery	Surveying and Design	1	%	5.00	31000.00	5.00	34100.00
	Council Fees	1	%	3.25	20150.00	3.25	22165.00
	VicRoads Fees	1	%	1.00	6200.00	1.00	6820.00
	VicTrack Fees	1	%	1.00	6200.00	1.00	6820.00
	Traffic Management	1	%	5.00	31000.00	5.00	34100.00
	Environmental Management	1	%	0.50	3100.00	0.50	3410.00
	Supervision and Project management	1	%	9.00	55800.00	9.00	61380.00
	Site Establishment	1	%	2.50	15500.00	2.50	17050.00
	Contingency	1	%	20.00	124000.00	20.00	136400.00
Total	Excluding Delivery				\$ 620,000		\$ 682,000
	Including Delivery				\$ 912,950		\$ 1,004,245