Appendix I Road Safety Audit

DEPARTMENT OF STATE GROWTH

MAY 2020

HOBART CITY DEAL SOUTHERN PROJECTS SUB-PROJECT 1: SOUTHERN OUTLET TRANSIT LANE

CONCEPT STAGE ROAD SAFETY AUDIT

Question today
Imagine tomorrow
Create for the future

Hobart City Deal
Southern Projects
Sub-Project 1: Southern Outlet Transit Lane
Concept Stage
Road Safety Audit

Department of State Growth

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REV	DATE	DETAILS
A	30/04/2020	Draft Preliminary Issue
B	19/05/2020	Final Issue Road Safety Audit

	NAME	DATE	SIGNATURE
Prepared by:	s 36 [redacted]	12/05/2020	s 36 [redacted]
Reviewed by:	s 36 [redacted]	14/05/2020	
Approved by:	s 36 [redacted]	19/05/2020	

TABLE OF CONTENTS

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ABBREVIATIONS

RSA	Road Safety Audit
TGSI	Tactile Ground Surface Indicator
DDA	Disability Discrimination Act
CAR	Corrective Action Report
SSA	Safe Systems Assessment

1 INTRODUCTION

A Concept Design Stage Road Safety Audit (RSA) of the proposed additional transit lane on the Southern Outlet between Olinda Grove and Macquarie Street in Hobart was conducted at the request of the Department of State Growth.

1.1 AUDIT PROCESS AND TEAM DETAILS

The audit has been carried out following the procedures set out in Austroads Guide to Road Safety – Part 6: Managing Road Safety Audits and Part 6A: Implementing Road Safety Audits. The audit covers physical features of the project which may affect road user safety and it has sought to identify potential safety hazards.

However, the auditors point out that no guarantee can be made that every deficiency has been identified. Further, if all the recommendations made within this report were to be followed, this would not guarantee that the site is 'safe'; rather, adoption of the recommendations should improve the level of safety of the facility.

Members of the road safety audit team were:

- Con Iliopoulos, Lead/Senior Road Safety Auditor;
- Chris Hamond, Senior Road Safety Auditor;
- Lander Chy, Road Safety Auditor; and
- Ross Mannering, Senior Road Safety Auditor.

All road safety auditors are accredited road safety auditors under the VicRoads prequalification scheme and independent of the project design team.

A day time site inspection was conducted by Ross Mannering during daylight hours on Tuesday 7th April 2020 at 8:15am, where the weather conditions were dry and clear. Traffic conditions were considered normal. An evening/night time inspection was undertaken by Ross Mannering at 7:30pm on Monday 6th April 2020. Weather conditions were dry and clear. Video footage was captured during each site inspection and has been subsequently reviewed by the rest of the audit team in the preparation of this Audit.

While it may do so from time to time, the purpose of this report is not to point out compliance with standards.

1.2 CLASSIFICATIONS OF RECOMMENDATIONS

As outlined in Austroads Guide to Road Safety Part 6: Road Safety Audits and Part 6A: Implementing Road Safety Audits 2019, in order to provide guidance regarding whether or not recommendations need to be resolved, the project manager should consider the:

- Likelihood that the identified problem will result in harm;
- Severity of that harm;
- Effectiveness of a remedy in reducing the harm;
- The designers response to the audit; and
- Cost of remedying the problem (there may be several options for treatment).

Four tables (Tables 4.1-4.4) within the Austroads Guide to Road Safety Part 6A: Implementing Road Safety Audits 2019 summarise the frequency, severity, resulting risk and treatment approach. These are reproduced in the following four tables.

Table 1.1 Likelihood of crash

FREQUENCY	DESCRIPTION
Frequent	Once or more per week
Probable	Once or more per year (but less than once per week)
Occasional	Once every five to ten years
Improbable	Less often than once every ten years

Table 1.2 Likely Consequence of a Crash

SEVERITY	DESCRIPTION	EXAMPLE
Catastrophic	Likely multiple deaths	— High speed, multi vehicle crash on Freeway — Car runs into a crowded bus stop — Bus and petrol tanker collide — Collapse of a bridge or major tunnel
Serious	Likely death or serious injury	— High or medium speed vehicle/vehicle collision — High or medium speed collision with a fixed roadside object — Pedestrian or cyclist struck by car
Minor	Likely minor injury	— Some low speed vehicle collisions — Cyclists fall from a bicycle at low speed — Left turn rear end crash in a slip lane
Limited	Likely trivial injury or property damage only	— Some low speed vehicle collisions — Pedestrian walks into an object — Car reverses into a post

Table 1.3 Resulting Level of Risk

SEVERITY	FREQUENT	PROBABLE	OCCASIONAL	IMPROBABLE
Catastrophic	Intolerable	Intolerable	Intolerable	High
Serious	Intolerable	Intolerable	High	Medium
Minor	Intolerable	High	Medium	Low
Limited	High	Medium	Low	Low

Table 1.4 Treatment Approach

RISK	SUGGESTED TREATMENT APPROACH
Intolerable	Must be corrected
High	Should be corrected or the risk significantly reduced, even if the treatment costs are high
Medium	Should be corrected or the risk significantly reduced, if the treatment costs are moderate, but not high
Low	Should be corrected or the risk reduced, if the treatment cost is low

1.3 RESPONDING TO THE AUDIT

An RSA is a formal process. The audit report documents the audit team's identified safety concerns and recommendations (if requested by the client), to improve the safety of the design. This must be responded to by the client (or the designer) with a written response to each audit finding or recommendation. The response document must be signed by a representative of the client. This response document, for example, may be a 'corrective action report' (CAR).

Audit recommendations are not mandatory. In the event of a crash, the audit documentation may be sought by representatives of an injured person. It is important that audit recommendations are given due consideration. If it is not possible to adopt a recommendation (for example, due to high cost implications), is there another effective way of partly addressing the problem or can a solution be staged over time? Reasons for not accepting findings and recommendations should be adequately documented.

1.4 IMPLEMENTING THE AGREED CHANGES

Once the Road Safety Audit – Findings and Recommendations Report (See Section 5) has been finalised, the agreed actions need to be implemented. The designer has to develop design changes that address the safety concerns. If one is at the pre-opening stage, the actions need to be implemented as soon as possible on site. Temporary warning, delineation or other treatment may be needed until the agreed solution is implemented.

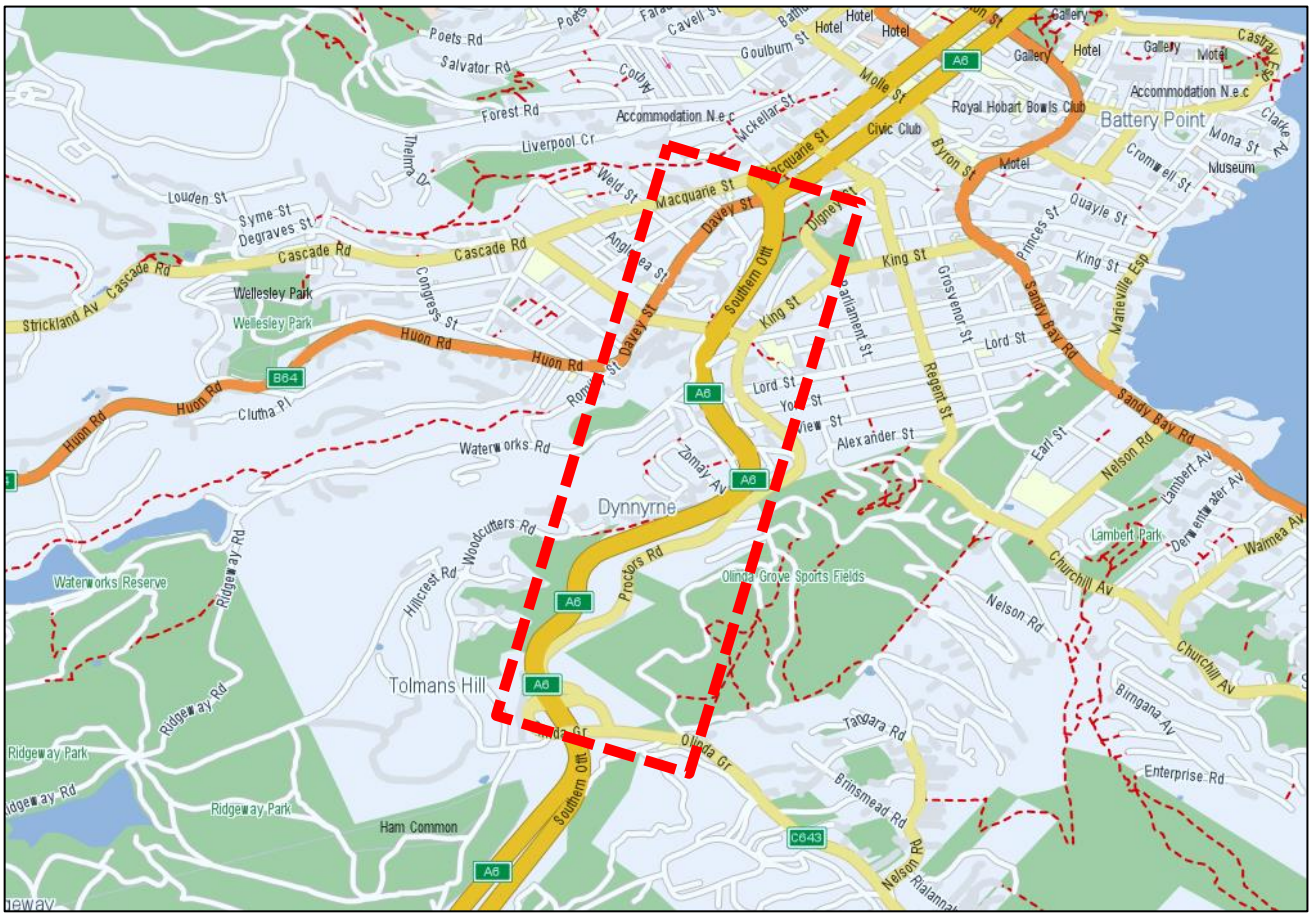
Actions taken should be recorded (for example, description of work, by whom and when). This is to fully close out the road safety audit finding as well as to factually record what works were completed. Reasons for any variations from the proposed action must also be set out in writing.

2 SITE DETAILS

2.1 SOUTHERN OUTLET – OLINDA GROVE TO MACQUARIE STREET

The investigation area extends along the Southern Outlet from Olinda Grove, north towards Macquarie Street. Overall the investigation area covers a distance of approximately 2.9km and includes both the northbound and southbound carriageways of the Southern Outlet.

The following figure shows the location of the intersection.



Source: *www.street-directory.com.au*

Figure 2.1 Site Location

Along the identified investigation area, the Southern Outlet primarily has a posted speed limit of 80km/h apart from the northern end near the Davey Street intersection where it is reduced to 50km/h.

3 PROJECT INFORMATION AND SCOPE OF AUDIT

3.1 PROVIDED AND REVIEWED DOCUMENTS

The following material was supplied and referenced during the audit process:

- Southern Outlet Bus Lane Roll Plot – Sheets 1 – 3 (Drawing No.'s HB19415-CIV-DRG-0001-3 Rev C) prepared by Pitt & Sherry dated 31/01/20
- Southern Outlet – Typical Cross Sections – Sheets 1 – 5 (Drawing No.'s HB19415-S-CIV-DRG-10101-5 Rev A) prepared by Pitt & Sherry

A copy of these plans are included within Appendix A to this audit.

3.2 PROPOSED WORKS AND SCOPE OF AUDIT

Information provided to WSP shows that it is proposed to provide an additional transit lane along the Southern Outlet in Hobart, between Olinda Grove and Macquarie Street. This includes road widening and modifications to the existing central median barrier.

The scope of this concept design stage road safety audit is to assess the proposed 50% concept design. Although the audit may cover light poles from a positioning/hazard perspective, it does not cover electrical/ illuminance aspects of the lighting design. Similarly, although pedestrian features may be covered, this is not a formal DDA assessment.

3.3 PROJECT DETAILS

The proposed works include the following:

- Provision of an additional bus transit lane on the northbound side of the Southern Outlet
- Provision of indented bus stops
- Widening of the carriageway
- Translation of the alignment and location of the central dividing concrete barrier
- Retaining works along the outer side of the carriageway
- Modifications to the alignment and curvature of the left turn slip lane at the Davey Street intersection.

4 CRASH STATISTICS

Further to the inspection of the site historical crash statistic data has been reviewed for the investigation area of the Southern Outlet. This data has been sourced from the openly available Australian Government database (data.gov.au) with the information initially sourced from State Growth Tasmania.

Crash data available is from the period from 2004 – 2014 and whilst it is noted that the data may be slightly dated, it is considered that outputs of this data may be representative of issues and critical areas that still exist within the investigation area.

The available data showed a total of 259 reported crashes occurred along the subject section of the Southern Outlet within the above specified time period. This is shown in Figure 4.1 below with the number of crashes per year shown in Table 4.1 adjacent. Within the data tables, categories marked * indicate the occurrence of a fatal crash, whilst categories marked ** indicate the occurrence of a serious injury crash.

Figure 4.1 Southern Outlet Crash Locations 2004-2014

Table 4.1 Crashes Per Year

YEAR	NO. ACCIDENTS.
2004*,**	32
2005	19
2006**	26
2007**	32
2008	20
2009	22
2010	21
2011	17
2012	22
2013	30
2014	18~
Total	**259**

~Incomplete survey year.

With regards to the preceding output crash locations, it appears that within the investigation area minor grouping of crashes generally occurs near bends in the road and at intersection locations. There appear to be less crashes identified on straight sections of road. These locations for crashes are in line with expectations as these areas typically result in increased likelihood in vehicle speed variations, movement between lanes, or the opportunities for opposing vehicle conflicts, thereby creating greater opportunity for conflicts to occur.

In addition to the above, this data has also been reviewed to determine if there are any other factors that may be contributing to crashes along the investigation area of the Southern Outlet that may be worth considering for treatment within the proposed concept plans. Conditions and outputs that have been investigated include:

- Crash severity;
- Crash type;
- Light conditions;
- Control at accident location; and
- Vehicle type involved in crash.

Key statistics for each of these areas of investigation are in the following tables with key outputs and figures included within Appendix B.

Table 4.2 Accident Severity

SEVERITY	NO.	%
Fatal	1	0.4%
Serious	3	1.2%
Property Damage Only	195	75.3%
Other	60	23.2%

Table 4.3 Vehicle Type in Crash

VEHICLE TYPE	NO.	%
Light Vehicle**	238	91.9%
Motorcycle**	8	3.1%
Heavy Vehicle	11	4.2%
Bicycle*	2	0.8%

Table 4.4 Light Conditions

LIGHT CONDITIONS	NO.	%
Daylight*,**	179	69.1%
Darkness (street lights)	42	16.2%
Darkness (no street lights)**	21	8.1%
Dawn or Dusk	16	6.2%
Not stated	1	0.4%

Table 4.5 Traffic Control at Crash

CONTROL	NO.	%
Not controlled*,**	188	74.3%
Other**	5	2.0%
Traffic signals**	51	20.2%
Give way	9	3.6%

Table 4.6 Crash Type

DCA CODE	ACCIDENT TYPE	NO.	%
100 – 109	Pedestrian	0	0.0%
110 -119	Vehicle from adjacent direction	9	3.5%
120 – 129**	Vehicle from Opposing Direction	18	7.1%
130 – 139**	Vehicle from Same Direction	124	48.6%
140 - 149	Manoeuvring	0	0.0%
150 – 159	Overtaking	10	3.9%
160 – 169	On Path	11	4.3%
170 – 179*,**	Off Path On Straight	27	10.6%
180 – 189	Off Path On Curve	51	20.0%
190 - 199	Passenger and Miscellaneous	5	2.0%

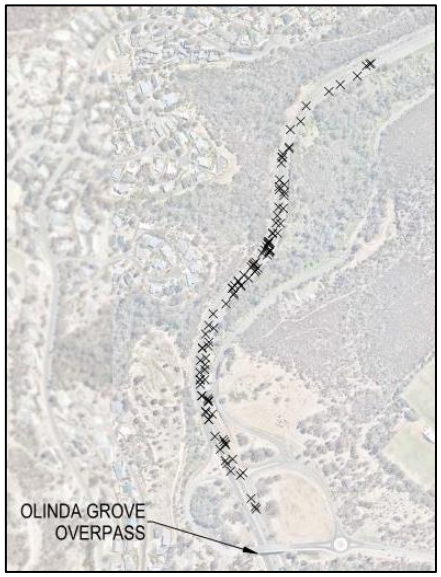
5 ROAD SAFETY AUDIT – FINDINGS AND RECOMMENDATIONS

The following table sets out the findings and recommendations of the Road Safety Audit. Any photographs relating to respective items are provided within Appendix C.

Table 5.1 Audit Findings

ITEM	AUDIT FINDINGS	AUDIT RECOMMENDATIONS	FREQUENCY	SEVERITY	RISK	CLIENT RESPONSE	
						ACCEPT YES/NO	REASONS/COMMENTS
1.	**Crash Data Findings**						
1.1.	Crash data indicates approximately 30% of crashes occur in the evening or at night with these crashes occurring both in areas with and without lights. This may indicate an underlying issue with insufficient lighting along the Southern Outlet.	Undertake a detailed review of lighting along the Southern Outlet and confirm it meets current Australian Standards.	-	-	To Note	Yes	Noted. The concept design is limited to widening works to create space for a transit lane in the northbound. It is not intended as an overall upgrade project of the Southern Outlet. Currently no lighting is provided in this section of the Southern Outlet and is therefore not proposed in the concept design.
1.2.	Crash data indicates approximately one third of night time crashes occur in a location with no street lighting.	Undertake a detailed inspection of lighting along the Southern Outlet and confirm if additional lighting is required.	-	-	To Note	Yes	Noted. The concept design is limited to widening works to create space for a transit lane in the northbound. It is not intended as an overall upgrade project of the Southern Outlet. Currently no lighting is provided in this section of the Southern Outlet and is therefore not proposed in the concept design.

ITEM	AUDIT FINDINGS	AUDIT RECOMMENDATIONS	FREQUENCY	SEVERITY	RISK	CLIENT RESPONSE	
						ACCEPT YES/NO	REASONS/COMMENTS
1.3.	Almost 50% of accidents involve vehicles travelling in the same direction (rear end). This may be a result of several contributing factors such as: — The current speed limit along the section of Southern Outlet could be too high and influencing these crashes. — Corner radii and resultant sightlines may be insufficient to provide adequate awareness for vehicles to slow down. — Existing road grades may be influencing the ability of vehicles to adequately stop.	Consideration could be given to reducing speed limit along the identified section of the Southern Outlet. Corner radii and sightlines also to be reviewed.	-	-	To Note	Yes	Noted. The concept design is limited to widening works to create space for a transit lane in the northbound. It is not intended as an overall upgrade project of the Southern Outlet. Geometric and Sight distance departures are included in the Concept Design report for the Department of State Growth's consideration. These are existing issues and have not been rectified in the Concept Design. The concept design is on a like-for-like basis as these significant upgrades have significant cost implications.
1.4.	30% of crashes involve a vehicle travelling off the road either on a bend or straight. This may indicate that the current speed limit along the section of Southern Outlet is too high influencing these crashes.	Consideration to be given to reducing speed limit along the identified section of the Southern Outlet.	-	-	To Note	Yes	Noted. The concept design is limited to widening works to create space for a transit lane in the northbound. It is not intended as an overall upgrade project of the Southern Outlet. Geometric and Sight distance departures and commentary regarding reducing the posted speed limit have been included in the Concept Design report for the Department of State Growth's consideration. These are existing issues and have not been rectified in the Concept Design. The concept design is on a like-for-like basis as these significant upgrades have significant cost implications.

ITEM	AUDIT FINDINGS	AUDIT RECOMMENDATIONS	FREQUENCY	SEVERITY	RISK	CLIENT RESPONSE	
						ACCEPT YES/NO	REASONS/COMMENTS
1.5.	Approximately 40% of the crashes occur within 700m of the Olinda Grove overpass.  This section of road accommodates a number of bends which given the volume of crashes may indicate that the current radii and change between bends is causing difficulty for drivers.	Consider if there is opportunity to improve bend radii through modifications within the concept plans.	-	-	To Note.	Yes	Noted. The concept design is limited to widening works to create space for a transit lane in the northbound. It is not intended as an overall upgrade project of the Southern Outlet. Geometric and Sight distance departures are included in the Concept Design report for the Department of State Growth's consideration. These are existing issues and have not been rectified in the Concept Design. The concept design is on a like-for-like basis as these significant upgrades have significant cost implications.

ITEM	AUDIT FINDINGS	AUDIT RECOMMENDATIONS	FREQUENCY	SEVERITY	RISK	CLIENT RESPONSE	
						ACCEPT YES/NO	REASONS/COMMENTS
2.	**Existing Conditions - Southbound**						
2.1.	The traffic signals on the approach to the Southern Outlet only turn red when a pedestrian presses the button to cross which is reasonably infrequent. Sight distance on the approach to the crossing is also relatively poor. The combination of these two factors creates potential for pedestrian crashes due to drivers travelling through the red light	Pedestrian crossing should be upgraded to provide improved pedestrian safety. This could be undertaken in the form of upgrading the pedestrian crossing to a raised treatment, or via the provision of a grade separated pedestrian crossing. Additional signage prior to the crossing should also be introduced to warn drivers of the approaching crossing.	Occasional	Serious	High	Yes	A raised treatment would be undesirable here given the high volume of heavy vehicles, including trucks and buses. Concept design has been adjusted to improve safety where possible. Issue captured in the risk register for further consideration during detailed design.
2.2.	Drivers turning right from Davey Street onto the Southern Outlet are required to give way to Southern Outlet traffic soon after passing through the signalised intersection. The need to give way is relatively unexpected and may result in drivers turning into the Southern Outlet traffic stream without giving way resulting in a crash	Consider changing the phasing and cycle of the intersection such that left turning vehicles stop at the lights and give-way to the right turning movement. Alternatively, intersection could undergo further re-design to allow right turn to operate as a merge treatment rather than a give way.	Probable	Serious	Intolerable	Yes	Signal timing change to be considered as part of traffic operational analysis and modeling during detailed design.

ITEM	AUDIT FINDINGS	AUDIT RECOMMENDATIONS	FREQUENCY	SEVERITY	RISK	CLIENT RESPONSE	
						ACCEPT YES/NO	REASONS/COMMENTS
2.3.	The Tensioned Wire Rope Safety Barrier (TWRSB) in the median between Davey Street and the commencement of the concrete median barrier is located behind barrier kerb. An errant vehicle may vault the TWRSB into the opposing traffic lane due to the presence of the barrier kerb	Replace TWRSB and barrier kerb median with concrete safety barrier. Alternatively consideration could be given to investigating the removal of barrier kerb to remove the potential hazard it can pose.	Improbable	Catastrophic	High	Yes	Noted. The concept design is limited to widening works to create space for a transit lane in the northbound. It is not intended as an overall upgrade project of the Southern Outlet. There is no work proposed at this location at this time.
2.4.	Steel box beam safety barrier forms part of the transition from TWRSB to concrete barrier in the median south of Lynton Avenue Overpass. The box beam arrangement may result in an errant southbound vehicle being launched in the event of an impact	Replace arrangement with a crash cushion	Improbable	Serious	Medium	Yes	Noted. The concept design is limited to widening works to create space for a transit lane in the northbound. It is not intended as an overall upgrade project of the Southern Outlet. There is no work proposed at this location at this time.
2.5.	The safety barrier approach to the Lynton Avenue Overpass may not have sufficient stiffness to prevent an errant vehicle from colliding with the concrete parapet	Upgrade connection to provide double nested w-beam or thrie beam connection	Improbable	Serious	Medium	Yes	Noted. The concept design is limited to widening works to create space for a transit lane in the northbound. It is not intended as an overall upgrade project of the Southern Outlet. There is no work proposed at this location at this time.
2.6.	The safety barrier on the Lynton Avenue Overpass may not be sufficient for the high traffic volumes and percentage of heavy vehicles that use the road which may result in large vehicles breaking through the barrier	Upgrade safety barrier in accordance with AS5100	Improbable	Serious	Medium	Yes	Noted. The concept design is limited to widening works to create space for a transit lane in the northbound. It is not intended as an overall upgrade project of the Southern Outlet. There is no work proposed at this location at this time.

ITEM	AUDIT FINDINGS	AUDIT RECOMMENDATIONS	FREQUENCY	SEVERITY	RISK	CLIENT RESPONSE	
						ACCEPT YES/NO	REASONS/COMMENTS
2.7.	Between Lynton Avenue Overpass and the start of the concrete safety barrier on the left hand side there are numerous trees within the deflection zone of the barrier which may increase the severity of a run off road crash	Trim or remove trees if possible.	Improbable	Serious	Medium	Yes	There is no work proposed at this location at this time. The Department of State Growth to address maintenance issue outside of the project.
2.8.	South of Lynton Avenue Overpass there is a gap between two sections of w-beam safety barrier on the left hand side. There is a retaining wall between these two sections of safety barrier which has a right angle bend along its length. A vehicle which runs off the road may impact the right angle section of retaining wall. There is also a residential building located within close proximity to the retaining wall and based on the cross section of the retaining wall it is unlikely that it has been designed for vehicle impact which could result in an errant vehicle colliding with the residential building	Install concrete safety barrier between sections of w-beam	Improbable	Serious	Medium	Yes	Noted. The concept design is limited to widening works to create space for a transit lane in the northbound. It is not intended as an overall upgrade project of the Southern Outlet. There is no work proposed at this location at this time.
2.9.	There is a pull-over area on the left hand side just before the start of the concrete safety barrier. The connection of the w-beam safety barrier to the concrete barrier is inadequate to prevent an errant vehicle colliding with the end of the concrete barrier	Taper concrete safety barrier on departure side or install crash cushion	Occasional	Serious	High	Yes	Noted. The concept design is limited to widening works to create space for a transit lane in the northbound. It is not intended as an overall upgrade project of the Southern Outlet. There is no work proposed at this location at this time.

ITEM	AUDIT FINDINGS	AUDIT RECOMMENDATIONS	FREQUENCY	SEVERITY	RISK	CLIENT RESPONSE	
						ACCEPT YES/NO	REASONS/COMMENTS
2.10.	Vehicles re-joining the road from the pull-over area need to accelerate on a steep grade and from an unsealed surface. This may result in an exiting vehicle being involved in a rear end collision	Seal pull-over area	Probable	Minor	High	Yes	Agreed, note added to drawing.
2.11.	There are several horizontal curves between Lynton Avenue Overpass and Olinda Grove which have inadequate stopping sight distance which may result in a driver impacting an object on the road	Widen shoulders to increase sight distance	Probable	Limited	Medium	Yes	Noted. The concept design is limited to widening works to create space for a transit lane in the northbound. It is not intended as an overall upgrade project of the Southern Outlet. Geometric and Sight distance departures are included in the Concept Design Report for the Department of State Growth's consideration. These are existing issues and have not been rectified in the Concept Design. The concept design is on a like-for-like basis as these significant upgrades have significant cost implications.
2.12.	There is a tourist sign located just prior to the Olinda Grove Interchange that is partially obscured by vegetation	Trim vegetation	-	-	To Note.	Yes	Noted.

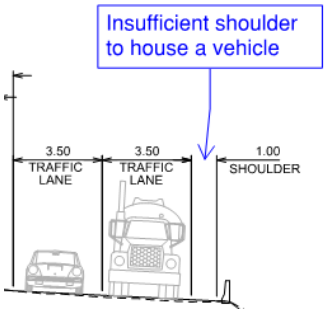
ITEM	AUDIT FINDINGS	AUDIT RECOMMENDATIONS	FREQUENCY	SEVERITY	RISK	CLIENT RESPONSE	
						ACCEPT YES/NO	REASONS/COMMENTS
3.	**Existing Conditions - Northbound**						
3.1.	The Olinda Grove On Ramp is too short for the operating speed of the road which may result in drivers being involved in side swipe or rear end collisions	Extension of the on ramp to be considered. This could be facilitated in the form of modifying the existing line marking to allow for lane widening onto the existing 2.0m shoulder.	Occasional	Minor	Medium	Yes	The existing lane is 3.0m wide at CH270. Therefore following Figure 11.6 in AGRD4C the acceleration distance is 70m. The end of merge is CH450, therefore there is 180m of taper (250m total). The existing Curve A is radius 26m which has a speed of approx 30km/h. For 30km/h to 80km/h, AGRD4C required 210m acceleration distance and 150m taper(360m total). Currently the total distance is 250m. Extending the on-ramp 110m will shift the start of the bus lane to the north.
3.2.	Steep grade over long distance may result in brakes of heavy vehicles overheating and failing resulting in rear end or run off road crashes	Consider providing truck arrestor bay	-	-	To Note:	Yes	An additional pull-over bay is provided.
3.3.	There are several horizontal curves between Olinda Grove Interchange and Lynton Avenue Overpass which have inadequate stopping sight distance which may result in a driver impacting an object on the road	Widen shoulders to increase sight distance	Probable	Limited	Medium	Yes	Noted. The concept design is limited to widening works to create space for a transit lane in the northbound. It is not intended as an overall upgrade project of the Southern Outlet. Geometric and Sight distance departures are included in the Concept Design Report for the Department of State Growth's consideration. These are existing issues and have not been rectified in the Concept Design. The concept design is on a like-for-like basis as these significant upgrades have significant cost implications.
3.4.	A slippery when wet sign is partially obscured by vegetation	Trim vegetation	-	-	To Note.	Yes	Vegetation should be maintained/remediated in construction
3.5.	There is a TasWater advertising sign located on a tight right hand curve. The sign is distracting from the driving task which at this location is relatively demanding	Relocate or remove sign	-	-	To Note.	Yes	Noted. To be resolved in future stages of design under consultation with Taswater and DSG

ITEM	AUDIT FINDINGS	AUDIT RECOMMENDATIONS	FREQUENCY	SEVERITY	RISK	CLIENT RESPONSE	
						ACCEPT YES/NO	REASONS/COMMENTS
3.6.	There are large rocks and gabion baskets which have been placed close to the road on the outside of a horizontal curve to assist with rock fall protection from cutting behind. The rocks and gabion baskets are within the run off area for an errant vehicle and would increase the severity of a run off road crash	Install safety barrier	Occasional	Serious	High	Yes	Noted. The concept design is limited to widening works to create space for a transit lane in the northbound. It is not intended as an overall upgrade project of the Southern Outlet. Currently there is no barrier provided on the western side of the road (cut side).
3.7.	There are exposed rock cuttings adjacent to the road which are a hazard to an errant vehicle	Install safety barrier	Occasional	Minor	Medium	Yes	As above.
3.8.	South of the pedestrian underpass there is a retaining wall and fence located close to the edge of shoulder which would increase the severity of a run off road crash	Install concrete safety barrier	Occasional	Serious	High	Yes	Barrier in design to be continuous through this area
3.9.	There is a steel box beam safety barrier near the pedestrian underpass. The box beam is inadequate to protect an errant vehicle from entering the space near the entrance to the pedestrian underpass	Install concrete safety barrier	Occasional	Serious	High	Yes	Barrier in design to be continuous through this area
3.10.	North of the pedestrian underpass there are retaining walls and fences located close to the edge of shoulder which would increase the severity of a run off road crash	Install concrete safety barrier	Occasional	Serious	High	Yes	Barrier in design to be continuous through this area

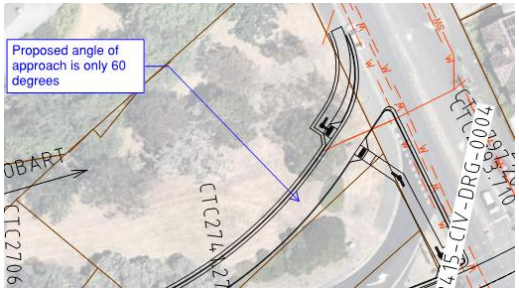
ITEM	AUDIT FINDINGS	AUDIT RECOMMENDATIONS	FREQUENCY	SEVERITY	RISK	CLIENT RESPONSE	
						ACCEPT YES/NO	REASONS/COMMENTS
3.11.	There is a steel box beam safety barrier on the approach to the concrete safety barrier south of Lynton Avenue Overpass. The interaction of the barrier kerb, box beam barrier and transition on the concrete barrier may result in an errant vehicle being launched in the event of a collision	Upgrade connection to provide double nested w-beam or thrie beam connection	Occasional	Serious	High	Yes	Noted. The concept design is limited to widening works to create space for a transit lane in the northbound. It is not intended as an overall upgrade project of the Southern Outlet. There is no work proposed at this location at this time.
3.12.	There are multiple roadside signs between Lynton Avenue Overpass and Davey Street which are obscured by vegetation or have poor illuminance	Trim or remove vegetation. Replace signs with poor illuminance.	-	-	To Note.	Yes	Vegetation should be maintained/remediated in construction
3.13.	Other than the provision of pram ramps, no formal pedestrian crossing facilities exist at the Davey Street and Southern Outlet intersection for the slip lanes located on the south-west and north-west corners. Sightlines on the northern side of the intersection are also compromised. This may lead to potential vehicle and pedestrian collisions.	Provide formal pedestrian priority (zebra crossing) treatment with signage. Consideration to be given to installation of raised safety platform.	Probable	Serious	Intolerable	Yes	Intersection is being upgraded

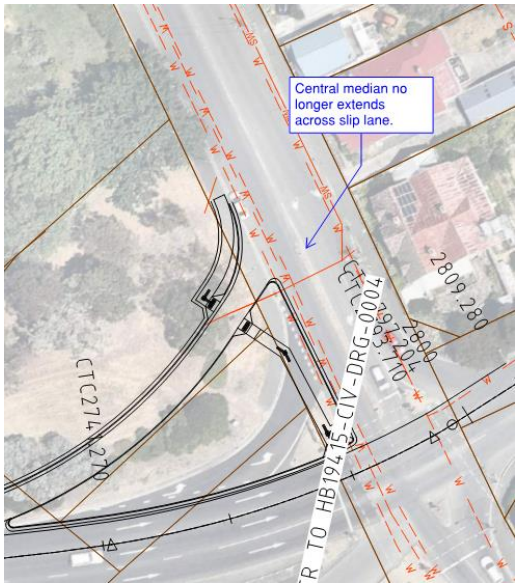
ITEM	AUDIT FINDINGS	AUDIT RECOMMENDATIONS	FREQUENCY	SEVERITY	RISK	CLIENT RESPONSE	
						ACCEPT YES/NO	REASONS/COMMENTS
3.14.	Bushland directly interfacing with the northbound side of the Southern Outlet may allow for an increased likelihood of wildlife travelling onto the road creating obstructions to vehicle leading to potential accidents. Existing evidence of roadkill indicates that this may be a frequent occurrence. Inspection of the site indicated that between the nightime and day time visits, wildlife was hit along a section of the road indicating the possiblility of this occuring.	Provide warning signage that wildlife may enter the road reserve in order to alert drivers to be aware. Alternatively create a barrier to prevent wildlife accessing the road	Occasional	Minor	Medium	Yes	Signage to be reviewed in future stages of design
3.15.	Rockfall netting alongside the western side of the carriageway indicates that there are issues with rock stability in the area that may result in rock falls onto the carriageway, causing accidents.	Ensure regular maintenance of netting and other preventative measures to ensure that the likelihood of rockfalls is minimised.	-	-	To Note.	Yes	Noted. Concept design maintains existing western kerb line (like-for-like).

ITEM	AUDIT FINDINGS	AUDIT RECOMMENDATIONS	FREQUENCY	SEVERITY	RISK	CLIENT RESPONSE	
						ACCEPT YES/NO	REASONS/COMMENTS
3.16.	The existing left turn slip lane from the Southern Outlet onto Davey Street has an approach angle of about 50^0. Austroads Guide to Road Design Part 4A indicates that the angle of alignment at a slip lane should be between 70^0 - 90^0 to ensure that vehicles are positioned such that drivers are provided with a safe and convenient observation angle to vehicles approaching from their right. Provision of an alignment outside of this range may lead to impeded sight lines resulting in vehicle accidents.	Realign the slip lane to meet Austroads requirements.	Occasional	Serious	High	Yes	Intersection is being upgraded

ITEM	AUDIT FINDINGS	AUDIT RECOMMENDATIONS	FREQUENCY	SEVERITY	RISK	CLIENT RESPONSE	
						ACCEPT YES/NO	REASONS/COMMENTS
4.	**Concept Design - Southbound**						
4.1.	Shoulder is shown to have a reduced width that would be inadequate to house a broken-down vehicle between chainage marker 720 and 1180. This may result in an increased likelihood of rear end crashes if vehicles stop on the shoulder. 	Widen shoulder or if not possible, consider the provision of additional signage through this area warning of reduced shoulder.	Probable	Serious	Intolerable	Yes	Noted. The concept design is limited to widening works to create space for a transit lane in the northbound. It is not intended as an overall upgrade project of the Southern Outlet. The existing shoulder is less than 1m in this section. This has been increased to 1.0m. Increasing the shoulder to 3.0-4.0m will have a significant impact on cost.
4.2.	Plans do not show the provision of any lane widening around curves to account for heavy vehicle movement. As per Austroads Guide to Road Design Part 3, allowance needs to be made for lane widening for semi-trailers for bends of 600m radii or less. Plans show a number of corners with radii less than 200m which would require at least 0.3m widening per lane. Lack of widening may result in heavy vehicles encroaching on adjacent lanes when navigating corners.	Provide lane widening around bends in accordance with Austroads Guidelines.	Probable	Serious	Intolerable	Yes	Agreed. Lane widening to be applied in future stages of design.

ITEM	AUDIT FINDINGS	AUDIT RECOMMENDATIONS	FREQUENCY	SEVERITY	RISK	CLIENT RESPONSE	
						ACCEPT YES/NO	REASONS/COMMENTS
5.	**Concept Design – Northbound**						
5.1.	There is insufficient separation between the end of the Olinda Grove On Ramp and the start of the bus lane which may result in side swipe crashes	Lengthen on ramp as recommended in existing conditions findings and provide 3 seconds of travel time separation between the end of the on ramp and the start of the bus lane	Occasional	Minor	Medium	Yes	Beginning of the bus lane to be reviewed in future stages of the design.
5.2.	Providing bus lane closer to rock cuttings may increase the potential for rocks falling from batters to encroach onto the road	Provide rockfall protection	-	-	To Note.	Yes	The existing kerb and lane line are retained, providing a like-for-like condition.
5.3.	Barrier kerb may result in errant vehicles becoming airborne at 80km/h	Replace barrier kerb with mountable kerb	Improbable	Catastrophic	High	Yes	Kerb can be replaced with alternative kerb type. To be determined during detailed design.
5.4.	Plans do not show the provision of any lane widening around curves to account for heavy vehicle movement. As per Austroads Guide to Road Design Part 3, allowance needs to be made for lane widening for semi-trailers for bends of 600m radii or less. Plans show a number of corners with radii less than 200m which would require at least 0.3m widening per lane. Lack of widening may result in heavy vehicles encroaching on adjacent lanes when navigating corners.	Provide lane widening around bends in accordance with Austroads Guidelines.	Probable	Serious	Intolerable	Yes	Agreed. Lane widening to be applied in future stages of design.

ITEM	AUDIT FINDINGS	AUDIT RECOMMENDATIONS	FREQUENCY	SEVERITY	RISK	CLIENT RESPONSE	
						ACCEPT YES/NO	REASONS/COMMENTS
5.5.	The angle of approach for the left turn slip lane onto Davey Street from the Southern Outlet northbound (CH2760) is approximately 60^0. Austroads Guide to Road Design Part 4A indicates that the angle of alignment at a slip lane should be between 70^0 - 90^0 to ensure that vehicles are positioned such that drivers are provided with a safe and convenient observation angle to vehicles approaching from their right. Provision of an alignment outside of this range may lead to impeded sight lines result in vehicle accidents. 	Re-align the slip lane to meet Austroads design requirements.	Occasional	Serious	High	Yes	Agreed. Concept Design updated.

5.6.	Due to the new alignment for the left turn slip lane from the Southern Outlet onto Davey Street (CH2760), the central median along Davey Street no longer fully extends across the front of the slip lane. This may provide vehicles the opportunity to turn right from the slip lane onto Davey Street eastbound and may potentially create conflicts for other vehicles.  	Extend the central median across the front of the modified slip lane alignment to enforce the left turn movement.	Probable	Minor	High	Yes	Agreed. Noted in Concept Design Report.

ITEM	AUDIT FINDINGS	AUDIT RECOMMENDATIONS	FREQUENCY	SEVERITY	RISK	CLIENT RESPONSE	
						ACCEPT YES/NO	REASONS/COMMENTS
6.	**General Findings**						
6.1.	At slip lanes, drivers tend to focus towards oncoming vehicles from their right, potentially leading them to miss pedestrians from their left.	Consideration to be given to the upgrade of all pedestrian crossings at slip lanes to ensure adequate awareness is provided to vehicles. Ensure alignment of slip lanes is also in accordance with Austroads Guidelines (70^0 – 90^0).	-	-	To Note.	Yes	Noted. See responses to 5.5
6.2.	Currently at the northbound slip lane from the Southern Outlet to Davey Street a light pole is provided to light the slip lane and pedestrian crossing. With the realignment of this slip lane this pole appears to be removed.	Ensure that lighting of the slip lane is provided in accordance with Australian Standards.	-	-	To Note.	Yes	Lighting to be replaced on like-for-like basis.
6.3.	In some locations, annotations on plans were slightly obscured/difficult to read.	Ensure clarity of plans and that all annotation is clear and legible.	-	-	To Note.	Yes	Noted.

6 CONCLUSION

This Road Safety Audit report has been conducted in accordance with the audit process specified within Austroads Guide to Road Safety Part 6: Road Safety Audit (2019). The site has been inspected and the audit has been carried out for the purposes of identifying any features which could be altered or removed to improve the safety of the proposal works across the three sites.

The identified issues have been noted in this report and these findings and recommendations are put forward for consideration by the Client and any authorities.

Auditors:

s 36

7 LIMITATION STATEMENT

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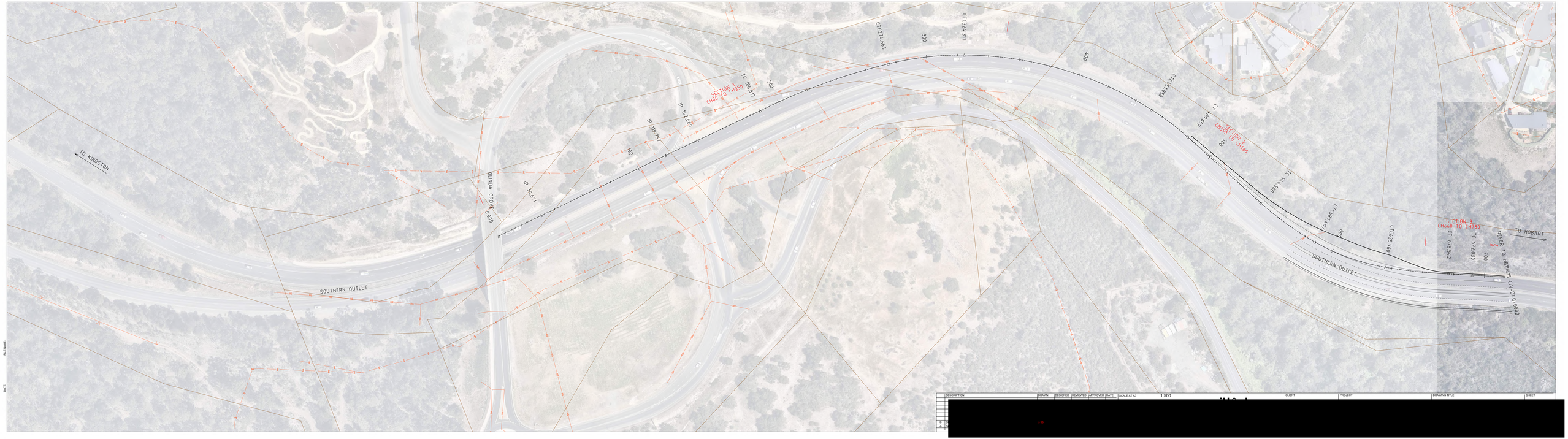
APPENDIX A

REVIEWED CONCEPT PLANS



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CLIENT

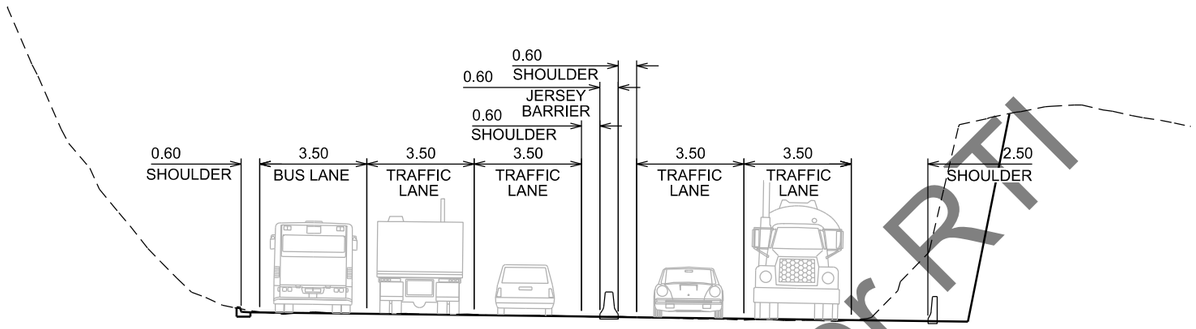
PROJECT

DRAWING TITLE

SHEET

FILE NAME:

DATE:



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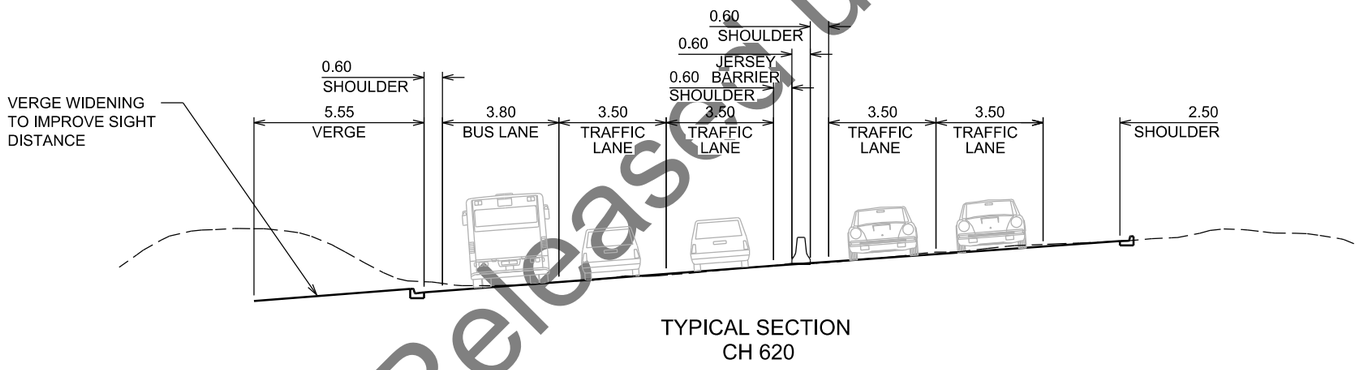

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SOUTHERN OUTLET
TYPICAL SECTIONS - SHEET 1

SHEET
01

DRAWING No.
HB19415-S-CIV-DRG-10101

REV
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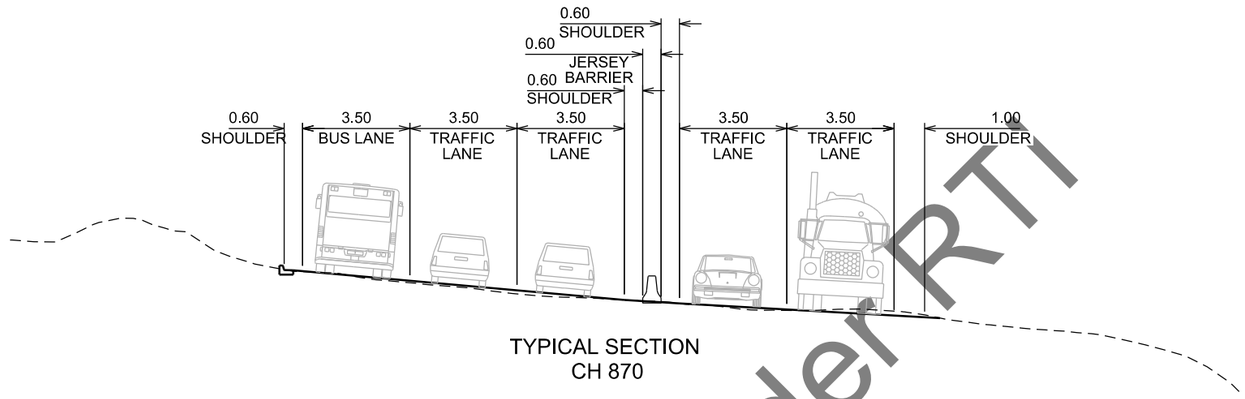

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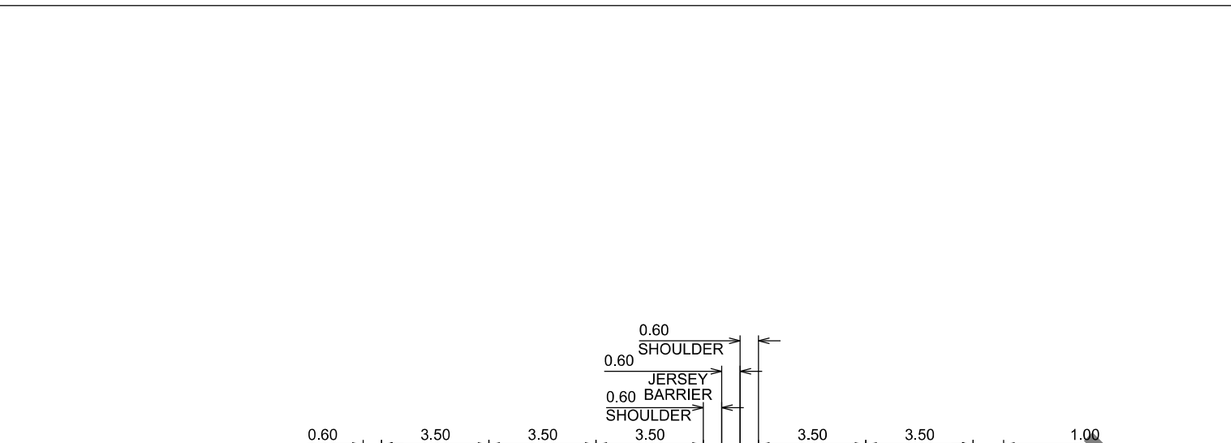

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STATUS
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SOUTHERN OUTLET
TYPICAL SECTIONS - SHEET 2

SHEET
02

DRAWING No.
HB19415-S-CIV-DRG-10102

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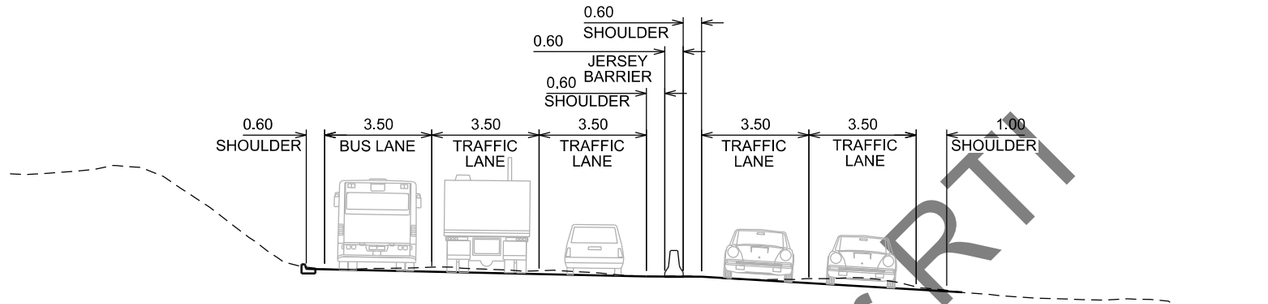

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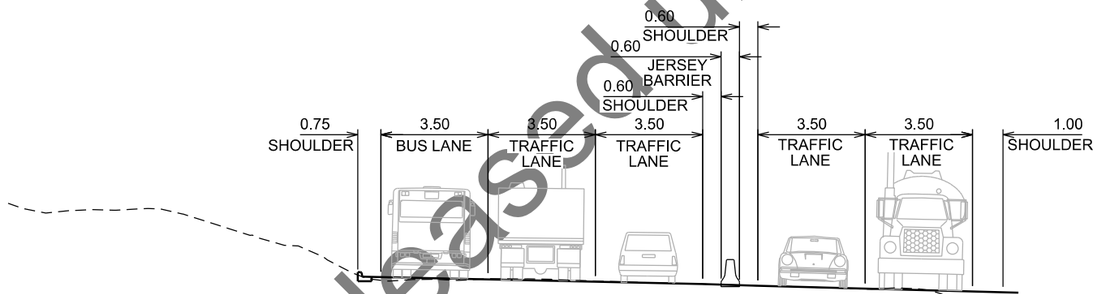

TYPICAL SECTION
CH 1000

*EARTHWORKS INTERFACE/WALL SOLUTION
TO BE DETERMINED FOLLOWING GEOTECHNICAL
INVESTIGATION

FILE NAME:

DATE:

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STATUS
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SOUTHERN OUTLET
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SHEET
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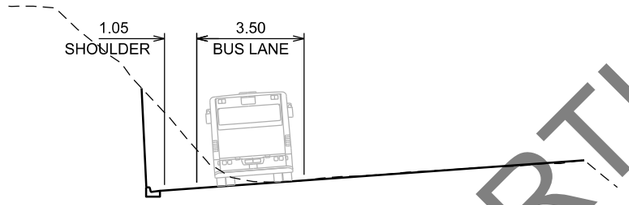

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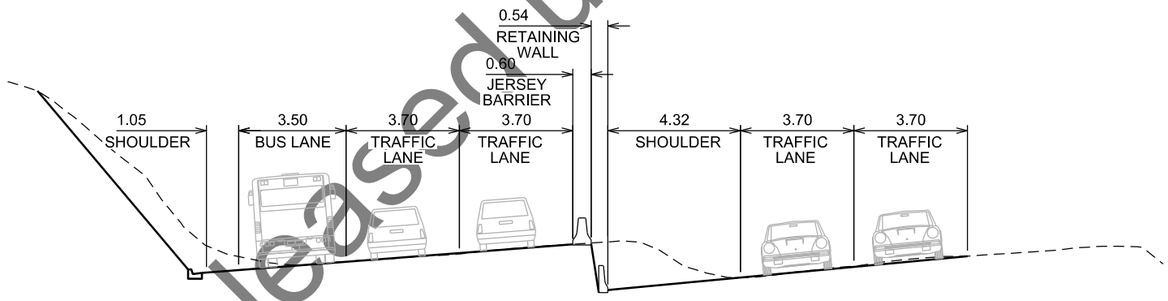

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SHEET
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HB19415-S-CIV-DRG-10104

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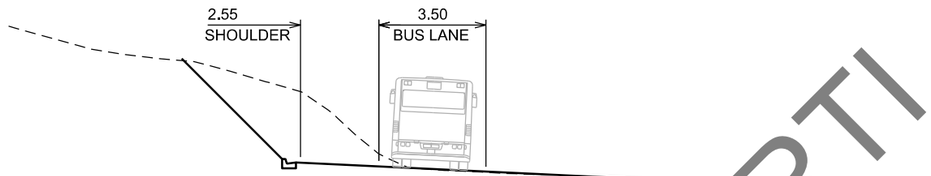

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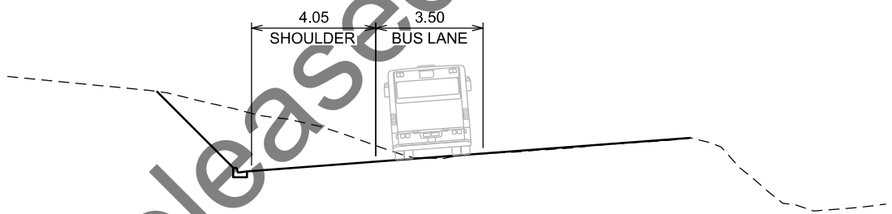

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TYPICAL SECTIONS - SHEET 5

DRAWING No.
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SHEET
05

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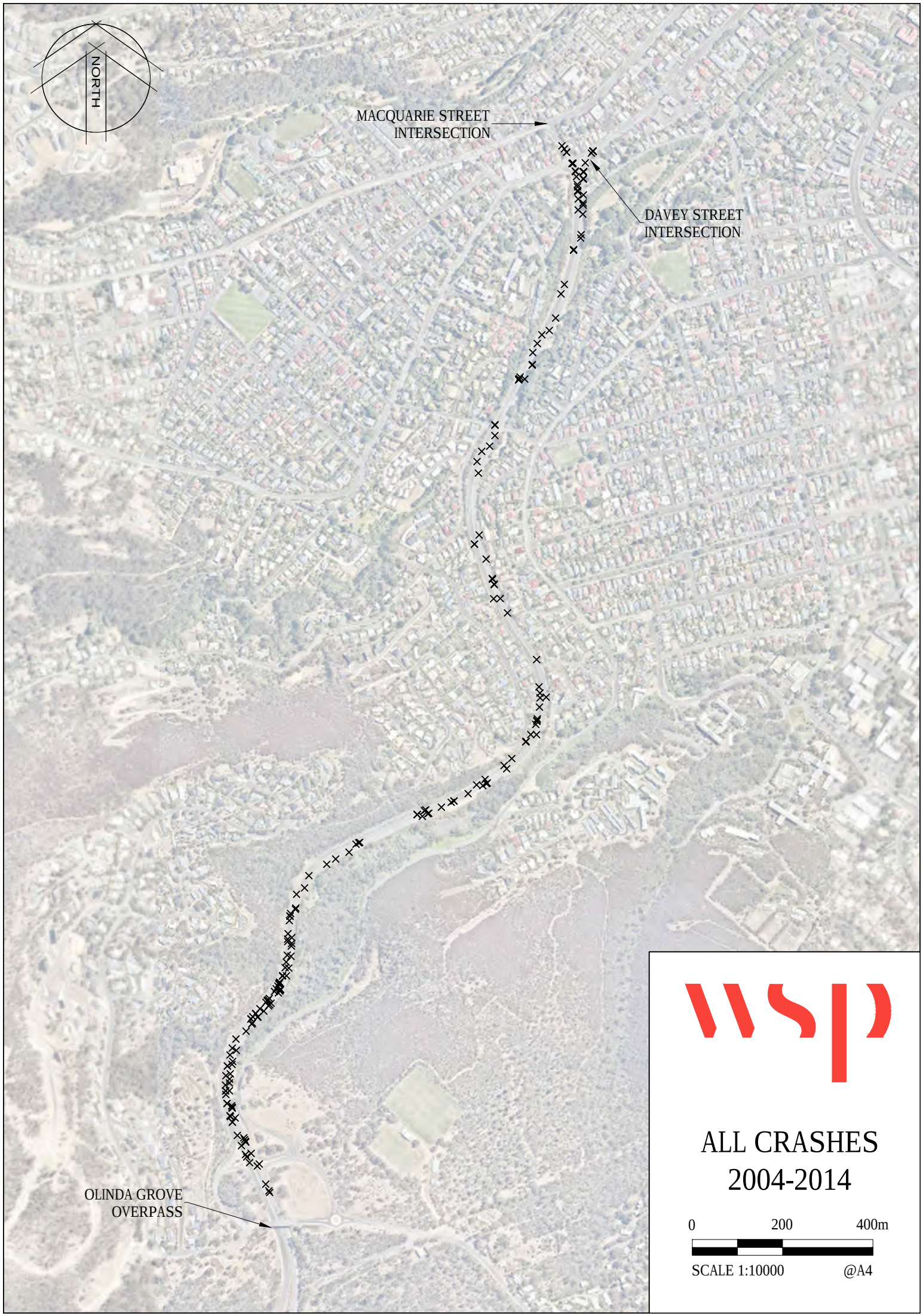
A

APPENDIX B

CRASH STATISTICS OUTPUTS


NORTH
MACQUARIE STREET
INTERSECTION
DAVEY STREET
INTERSECTION
OLINDA GROVE
OVERPASS
wsp
ALL CRASHES
2004-2014
0
200
400m
SCALE 1:10000
@A4

wsp

CRASHES 2004

0 200 400m

SCALE 1:10000 @A4

wsp

CRASHES 2005

0 200 400m

SCALE 1:10000 @A4

wsp

CRASHES 2006

0 200 400m

SCALE 1:10000 @A4

wsp

CRASHES 2007

0 200 400m

SCALE 1:10000 @A4

wsp

CRASHES 2008

0 200 400m

SCALE 1:10000 @A4

wsp

CRASHES 2009

0 200 400m

SCALE 1:10000 @A4

wsp

CRASHES 2010

0 200 400m

SCALE 1:10000 @A4

wsp

CRASHES 2011

0 200 400m

SCALE 1:10000 @A4

wsp

CRASHES 2012

0 200 400m

SCALE 1:10000 @A4

wsp

CRASHES 2013

0 200 400m

SCALE 1:10000 @A4

wsp

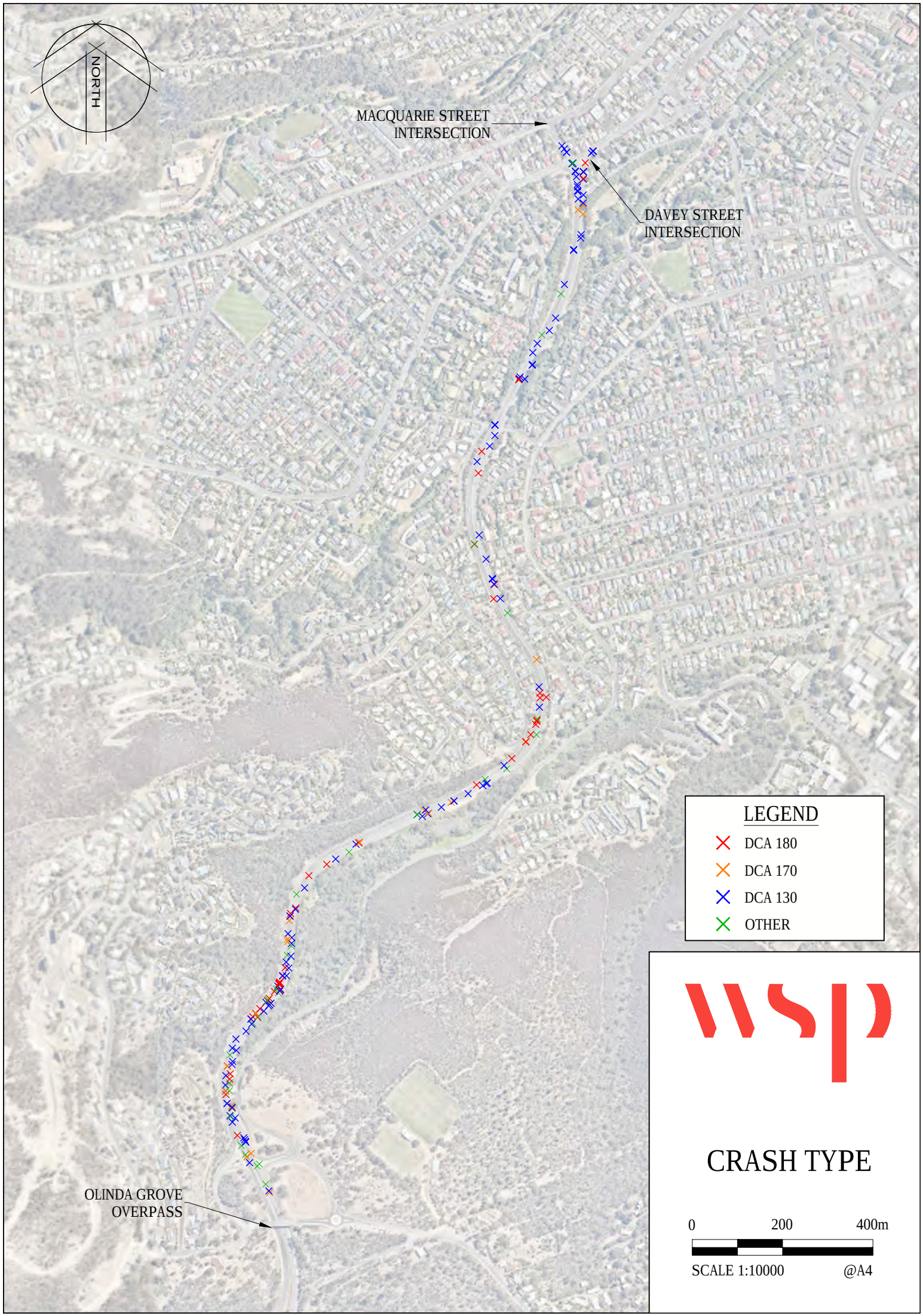
CRASHES 2014

0 200 400m

SCALE 1:10000 @A4


NORTH
MACQUARIE STREET
INTERSECTION
DAVEY STREET
INTERSECTION
OLINDA GROVE
OVERPASS
LEGEND
FATALITY
SERIOUS INJURY
PROPERTY DAMAGE
OTHER
wsp
CRASH SEVERITY
0
200
400m
SCALE 1:10000
@A4


NORTH
MACQUARIE STREET
INTERSECTION
DAVEY STREET
INTERSECTION
OLINDA GROVE
OVERPASS
LEGEND
DARK (LIGHTS)
DARK (NO LIGHTS)
DUSK/DAWN
DAYLIGHT
wsp
LIGHT
CONDITIONS
0
200
400m
SCALE 1:10000
@A4


NORTH
MACQUARIE STREET
INTERSECTION
DAVEY STREET
INTERSECTION
OLINDA GROVE
OVERPASS
LEGEND
DCA 180
DCA 170
DCA 130
OTHER
wsp
CRASH TYPE
0
200
400m
SCALE 1:10000
@A4


NORTH
MACQUARIE STREET
INTERSECTION
DAVEY STREET
INTERSECTION
OLINDA GROVE
OVERPASS
LEGEND
BICYCLE
HEAVY VEHICLE
MOTORCYCLE
LIGHT VEHICLE
wsp
VEHICLE TYPE
INVOLVED
0
200
400m
SCALE 1:10000
@A4

APPENDIX C

AUDIT SITE PHOTOS

APPENDIX C-1
EXISTING CONDITIONS SOUTHBOUND

Item 2.1

Figure C.1 Davey Street Pedestrian Crossing

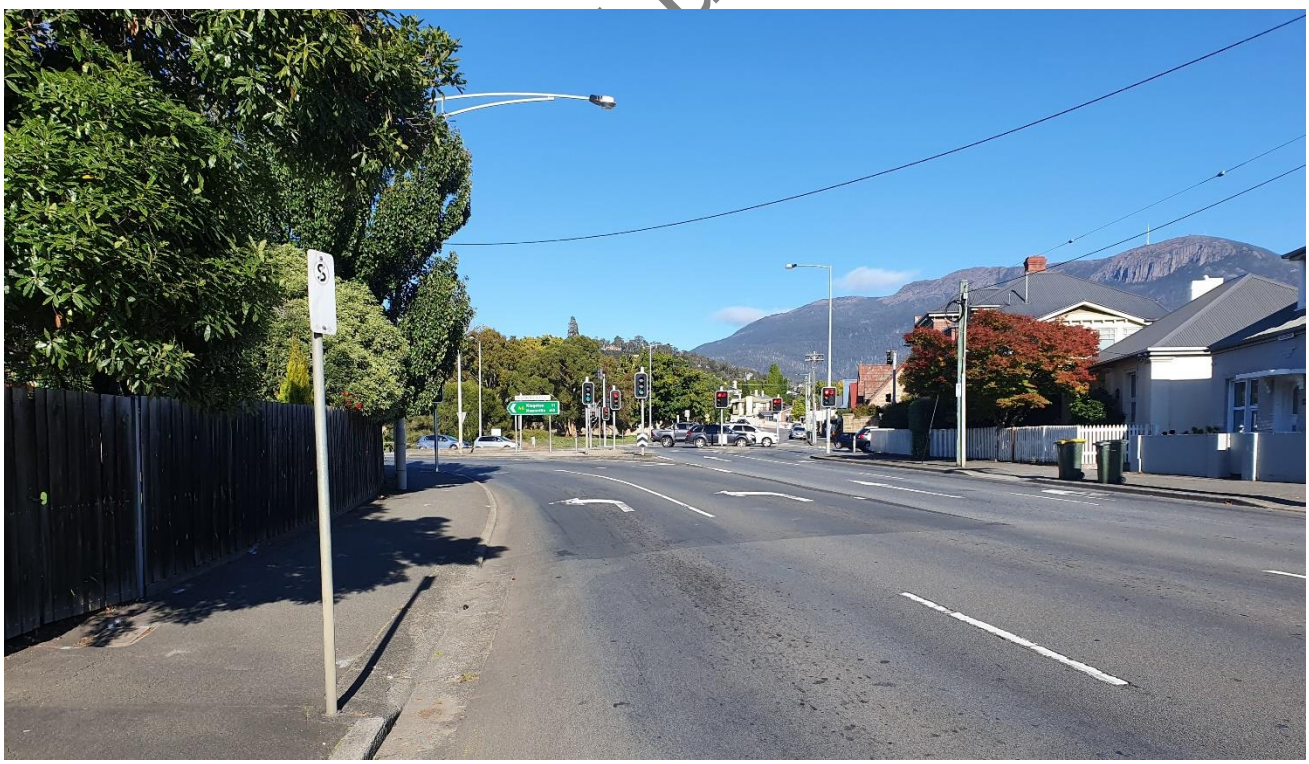


Figure C.2 Davey Street Pedestrian Crossing

Figure C.3 Davey Street Pedestrian Crossing

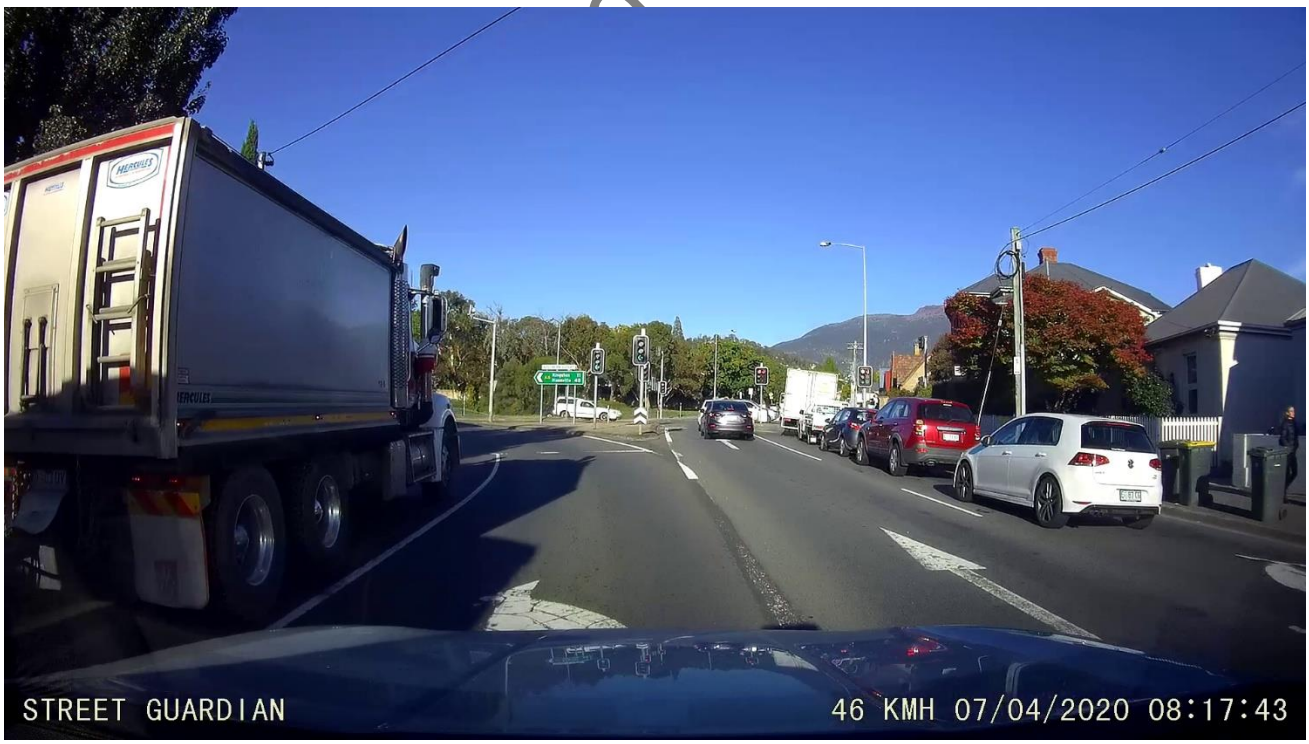


Figure C.4 Davey Street Pedestrian Crossing

Item 2.2

Figure C.5 Davey Street Lane Merge

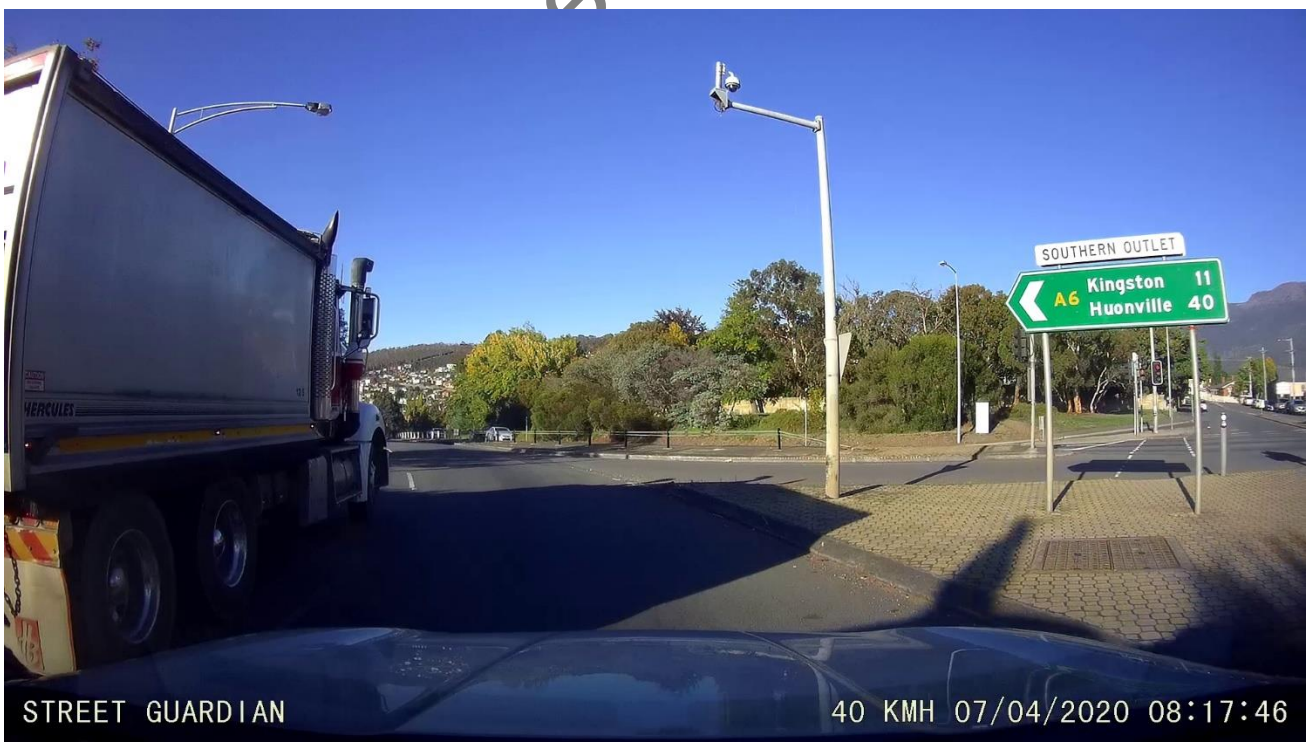


Figure C.6 Davey Street Lane Merge

Item 2.3

Figure C.7 Wire Rope Barrier and Kerb

Item 2.4

Figure C.8 Barrier End Terminal

Item 2.5

Figure C.9 Safety Barrier

Figure C.10 Safety Barrier

Item 2.6

Figure C.11 Safety Barrier End Terminal

Item 2.7

Figure C.12 Safety Barrier and Trees to remove

Item 2.8

Figure C.13 Safety Barrier Gap

Item 2.9

Figure C.14 Safety Barrier End Terminal Near Pull-Over Area

Item 2.10

Figure C.15 Pull-Over Area

Item 2.12

Figure C.16 Obscured Sign

APPENDIX C-2
EXISTING CONDITIONS NORTHTHBOUND

Item 3.1

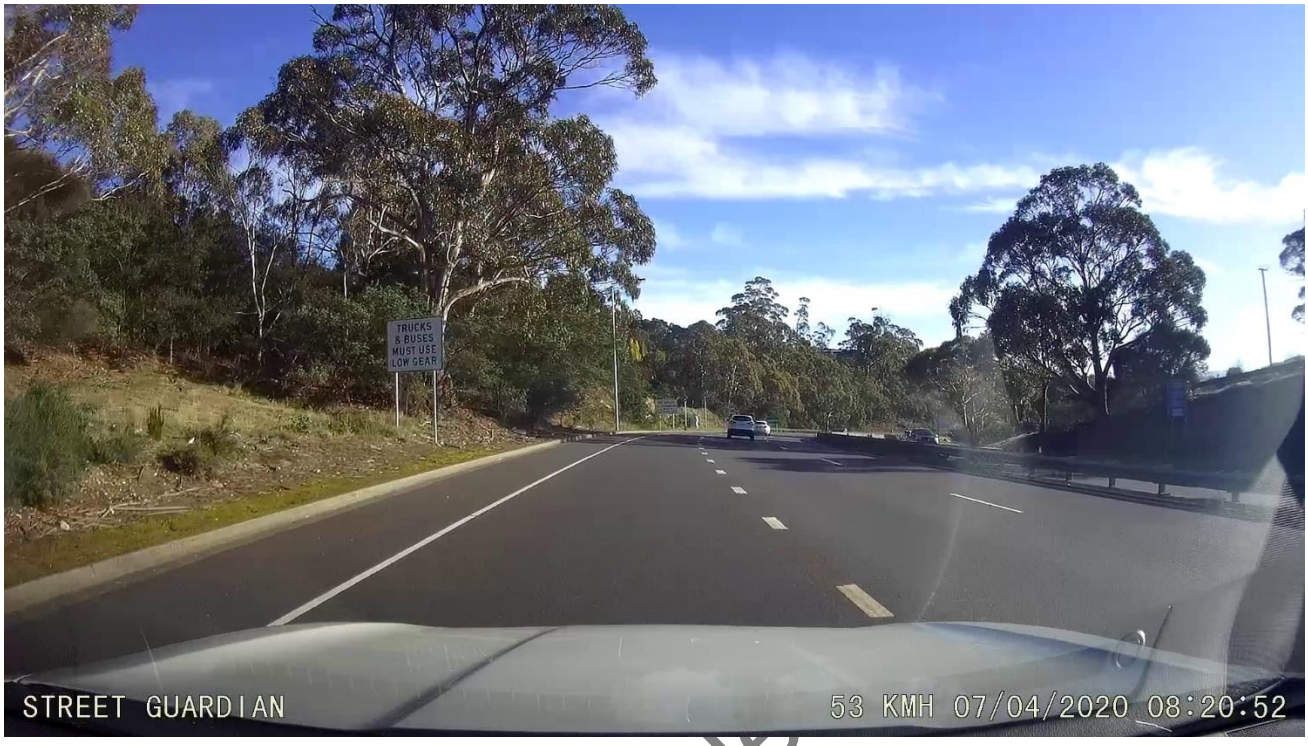


Figure C.17 Northbound Merge from Olinda Grove

Item 3.4

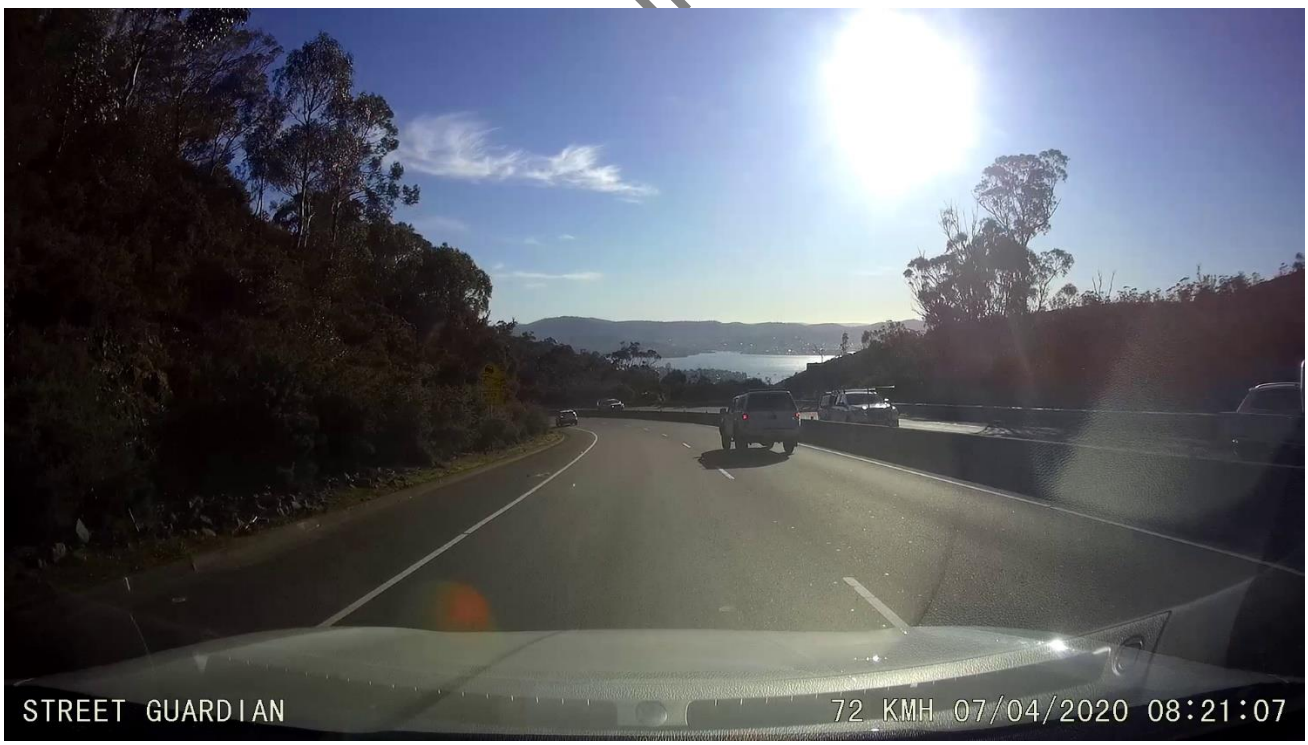


Figure C.18 Obscured Sign

Item 3.5

Figure C.19 Sign

Item 3.6

Figure C.20 Rocks in clear zone

Item 3.7

Figure C.21 Rocky Outcrop

Item 3.8

Figure C.22 Retaining Wall in Crash Zone

Item 3.9

Figure C.23 Safety Barrier

Item 3.10

Figure C.24 Wall in Crash Zone

Item 3.11

Figure C.25 Safety Barrier

Item 3.12

Figure C.26 Obscured Signs

Item 3.13

Figure C.27 Davey Street Uncontrolled Pedestrian Crossing

Figure C.28 Davey Street Uncontrolled Pedestrian Crossing

Item 3.14

Figure C.29 Impacted Wildlife – Comparison between night and day inspection

Appendix J Heritage Impact Assessment

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Heritage Impact Assessment

Hobart Transport Vision Southern Projects

HOBART TASMANIA

s 36 [redacted]

For WSP Australia

September 2020

This document was written by s 36 .

Unless otherwise stated, the north point (or approximate) of aerial photographs, maps and plans is to the top of the page.

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Contents

1. INTRODUCTION

This document has been commissioned by WSP Australia as part of the Hobart Transport Vision Southern Projects – Macquarie/Davey Upgrades and Fifth Lane Southern Outlet to consider the possible heritage impacts arising from a range of proposed upgrades including widening/reconfiguration of the Southern Outlet, possible reconfigurations of Davey and Macquarie Street and two 'park and ride' parking areas at Kingston/Huntingfield.

The background and brief for this project is drawn from the *Request for Tender, by Department of State Growth, for Supply of Consultant Service for Hobart Transport Vision Southern Projects* (RFT Number 3112), issued 31/8/2019. The response to the brief included the following project proposal and understanding of task:

Ahead of the design phase:

1. Review of the Tasmanian Government provided historic heritage assessment and any consequent statutory heritage requirements arising from such [included here as Attachment A].
2. Familiarisation survey of any identified heritage sites.
3. Provision of conservation policy to address any statutory heritage requirements as identified in (1).

During the design phase:

4. Liaison with the project design team and any other relevant stakeholders during the design place.
5. Preliminary review of design concept(s) to assess likely compliance with any statutory heritage requirements and conservation policy.

Post design

6. Undertake a historic heritage impact assessment of the preferred design against any statutory heritage requirements and the conservation policies. If required, formulate mitigation strategies/recommendations to manage any identified heritage impacts.

Steps 1-3 of this project was provided ahead the design phase in the document *Heritage Management Strategy, Hobart Transport Vision Southern Projects* – Praxis Environment, February 2020. The current document is to be read in conjunction with that document. Since that time there has been consultation with the design team in the design development and review process consistent with Steps 4 and 5. The current document provides the culmination of all heritage input into the project as a heritage impact assessment, as per Step 6.

The project methodology, introduction to the survey corridor and a detailed analysis of the applicable statutory heritage requirements and their possible consequences formed part of the heritage management strategy. That document also provided a series of recommendations to the design team as to how to seek to avoid heritage impact in the process. This document introduces the penultimate/final plans for the proposal and considers possible heritage impact

2. THE PROPOSED UPGRADE WORKS

The proposed works are detailed on the Pitt and Sherry drawing set for Hobart Southern Projects SP01, SP02 and SP03 (Preliminary), Revision B, as per the following schedule:

DRAWING SCHEDULE - HOBART VISION PROJECT

PROJECT DRAWING NO.	DRAWING TITLE
GENERAL	
HB19415-S-CIV-DRG-00001	COVER SHEET
HB19415-S-CIV-DRG-00002	DRAWING SCHEDULE
HB19415-S-CIV-DRG-00003	ALIGNMENT KEY PLAN
HB19415-S-CIV-DRG-00004	COMPUTER FILE LISTING
HB19415-S-CIV-DRG-00005	LEGEND AND GENERAL NOTES
SP1 SOUTHERN OUTLET - TYPICAL SECTIONS	
HB19415-S-CIV-DRG-10101	TYPICAL SECTIONS - SHEET 1
HB19415-S-CIV-DRG-10102	TYPICAL SECTIONS - SHEET 2
HB19415-S-CIV-DRG-10103	TYPICAL SECTIONS - SHEET 3
HB19415-S-CIV-DRG-10104	TYPICAL SECTIONS - SHEET 4
HB19415-S-CIV-DRG-10105	TYPICAL SECTIONS - SHEET 5
HB19415-S-CIV-DRG-10106	TYPICAL SECTIONS - SHEET 6
SP1 SOUTHERN OUTLET - ALIGNMENT PLANS	
HB19415-S-CIV-DRG-11001	ALIGNMENT PLANS - SHEET 1
HB19415-S-CIV-DRG-11002	ALIGNMENT PLANS - SHEET 2
HB19415-S-CIV-DRG-11003	ALIGNMENT PLANS - SHEET 3
HB19415-S-CIV-DRG-11004	ALIGNMENT PLANS - SHEET 4
HB19415-S-CIV-DRG-11005	ALIGNMENT PLANS - SHEET 5
HB19415-S-CIV-DRG-11006	ALIGNMENT PLANS - SHEET 6
HB19415-S-CIV-DRG-11007	ALIGNMENT PLANS - SHEET 7
HB19415-S-CIV-DRG-11008	ALIGNMENT PLANS - SHEET 8
HB19415-S-CIV-DRG-11009	ALIGNMENT PLANS - SHEET 9
HB19415-S-CIV-DRG-11010	ALIGNMENT PLANS - SHEET 10
HB19415-S-CIV-DRG-11011	ALIGNMENT PLANS - SHEET 11
HB19415-S-CIV-DRG-11012	ALIGNMENT PLANS - SHEET 12
HB19415-S-CIV-DRG-11013	ALIGNMENT PLANS - SHEET 13
HB19415-S-CIV-DRG-11014	ALIGNMENT PLANS - SHEET 14
HB19415-S-CIV-DRG-11015	ALIGNMENT PLANS - SHEET 15
HB19415-S-CIV-DRG-11016	ALIGNMENT PLANS - SHEET 16
SP1 SOUTHERN OUTLET - ROLL PLOTS	
HB19415-S-CIV-DRG-11101	ROLL PLOTS - SHEET 1
HB19415-S-CIV-DRG-11102	ROLL PLOTS - SHEET 2
HB19415-S-CIV-DRG-11103	ROLL PLOTS - SHEET 3
SP2 MACQUARIE STREET/DAVEY STREET - TYPICAL SECTIONS	
HB19415-S-CIV-DRG-20101	ALIGNMENT PLANS - SHEET 1
HB19415-S-CIV-DRG-20102	ALIGNMENT PLANS - SHEET 2
HB19415-S-CIV-DRG-20103	ALIGNMENT PLANS - SHEET 3
HB19415-S-CIV-DRG-20104	ALIGNMENT PLANS - SHEET 4
HB19415-S-CIV-DRG-20105	ALIGNMENT PLANS - SHEET 5
HB19415-S-CIV-DRG-20106	ALIGNMENT PLANS - SHEET 6
SP2 MACQUARIE STREET/DAVEY STREET - ALIGNMENT PLANS	
HB19415-S-CIV-DRG-21001	ALIGNMENT PLANS - SHEET 1
HB19415-S-CIV-DRG-21002	ALIGNMENT PLANS - SHEET 2
HB19415-S-CIV-DRG-21003	ALIGNMENT PLANS - SHEET 3
HB19415-S-CIV-DRG-21004	ALIGNMENT PLANS - SHEET 4
HB19415-S-CIV-DRG-21005	ALIGNMENT PLANS - SHEET 5
HB19415-S-CIV-DRG-21006	ALIGNMENT PLANS - SHEET 6
HB19415-S-CIV-DRG-21007	ALIGNMENT PLANS - SHEET 7
HB19415-S-CIV-DRG-21008	ALIGNMENT PLANS - SHEET 8
HB19415-S-CIV-DRG-21009	ALIGNMENT PLANS - SHEET 9
HB19415-S-CIV-DRG-21010	ALIGNMENT PLANS - SHEET 10
HB19415-S-CIV-DRG-21011	ALIGNMENT PLANS - SHEET 11
HB19415-S-CIV-DRG-21012	ALIGNMENT PLANS - SHEET 12
HB19415-S-CIV-DRG-21013	ALIGNMENT PLANS - SHEET 13
HB19415-S-CIV-DRG-21014	ALIGNMENT PLANS - SHEET 14
HB19415-S-CIV-DRG-21015	ALIGNMENT PLANS - SHEET 15
HB19415-S-CIV-DRG-21016	ALIGNMENT PLANS - SHEET 16
HB19415-S-CIV-DRG-21017	ALIGNMENT PLANS - SHEET 17
SP2 MACQUARIE/DAVEY STREET - ROLL PLOTS	
HB19415-S-CIV-DRG-21101	ROLL PLOTS - SHEET 1
HB19415-S-CIV-DRG-21102	ROLL PLOTS - SHEET 2
HB19415-S-CIV-DRG-21103	ROLL PLOTS - SHEET 3
SP3 BROWNS ROAD - ALIGNMENT PLANS	
HB19415-S-CIV-DRG-31001	ALIGNMENT PLANS - SHEET 1
HB19415-S-CIV-DRG-31002	ALIGNMENT PLANS - SHEET 2
HB19415-S-CIV-DRG-31003	ALIGNMENT PLANS - SHEET 3
HB19415-S-CIV-DRG-31101	TURNING PATHS
SP3 HUNTINGFIELD AVENUE - ALIGNMENT PLANS	
HB19415-S-CIV-DRG-41001	ALIGNMENT PLANS - SHEET 1
HB19415-S-CIV-DRG-41101	TURNING PATHS

These have been used in the current assessment to consider possible heritage impacts and statutory heritage triggers as identified in the heritage management strategy.

This assessment has approached the project in three sections, that of:

- Southern Outlet
- Macquarie and Davey Streets
- Browns Road and Huntingfield park and ride areas.

The structure of the consideration of possible heritage impact will be based upon individual drawings, with Section 3 considering sheet-by-sheet the possibly of heritage impact.

3. CONSIDERATION OF POSSIBLE HERITAGE IMPACT

The following tables consider the possibility of heritage impact arising from the proposed works program. This has been arranged in a 'drawing by drawing' order as per the schedule above. Each drawing was considered in relation to the location/extent of the places affected by statutory heritage considerations as per Section 2 of the heritage management strategy in order to understand whether any works are proposed within those affected areas.

Southern Outlet			
Drawing Title	**Statutory heritage requirements in works area**	**Possible impact**	**Mitigation strategies required**
Alignment Plan Sheet 1	None	None	No
Alignment Plan Sheet 2	None	None	No
Alignment Plan Sheet 3	None	None	No
Alignment Plan Sheet 4	None	None	No
Alignment Plan Sheet 5	None	None	No
Alignment Plan Sheet 6	None	None	No
Alignment Plan Sheet 7	None	None	No
Alignment Plan Sheet 8	None	None	No

Alignment Plan Sheet 9	None	None	No
Alignment Plan Sheet 10	16 and 18 Dynnyrne Road are within the SB7 Heritage Precinct under the Hobart Interim Planning Scheme 2015. Works are proposed to the retaining wall on the Southern Outlet edge of those properties.	Unlikely if limited to realignment of modern retaining walls and no impact upon any significant built structures, key garden features or curtilage.	Depending on scope, it is possible that these works may be considered as 'minor upgrades' by or on behalf of a 'State government' of infrastructure such as roads, footpaths (including widening, making or placing or kerbs, gutters, footpaths, traffic control devices etc.) and may be exempt from requiring planning approval by virtue of Part E.13.4 of the scheme. However if these constituted 'major' works (e.g. structures) they are likely to require an application for assessment against Part E.13.8 to consider impact against the Performance Criteria of that Part and in relation to the statements of significance for the precinct. Whilst a Development Application may be likely to be required for these works in order to address Clause E.13.8. (Heritage Precinct provision) in the scheme, it is considered unlikely that the realignment of modern rear retaining walls would result in unreasonable impact upon the heritage values of the precinct, this would need to be considered in more detail and on a case by case basis via a discretionary DA if required.
Alignment Plan Sheet 11	6, 8, 8A and 12 Dynnyrne Road are within the SB7 Heritage Precinct under the Hobart Interim Planning Scheme 2015. Works are proposed to the retaining wall on the Southern Outlet edge of those properties.		
Alignment Plan Sheet 12	None	None	No
Alignment Plan Sheet 13	None	None	No

Alignment Plan Sheet 14	None	None	No
Alignment Plan Sheet 15	None	None	No
Alignment Plan Sheet 16 (works limited to the 'bubble' area).	None	None	No

Davey and Macquarie Streets			
Drawing Title	**Statutory heritage requirements in works area**	**Possible impact**	**Mitigation strategies required**
Macquarie Street Bus Lane, Roll Plot Sheet 1	The proposed bus stop relocations, bus boarders etc. and the proposed signalised intersection on the junction of Salamanca Place and Davey Street are within an Area of Archaeological Potential under the Hobart Interim Planning Scheme 2015. These works are also partially within various Heritage Precincts as per the HIPS15.	It is likely that any associated excavation would be minor and shallow and most likely only involve the excavation of recent road/footpath paving and base as well as modern kerbing/guttering. It is likely that the road reserve is already substantially disturbed from decades of roadworks and services and such minor excavations are not considered to have a high likelihood of disturbing significant archaeological remains.	It is likely that works in these areas relating to 'minor upgrades' by or on behalf of a 'State government' of infrastructure such as roads, footpaths (including widening, making or placing or kerbs, gutters, footpaths, traffic control devices etc.) that are within the Hobart Interim Planning Scheme jurisdiction would be exempt from requiring planning approval by virtue of Part E.13.4 of the scheme. In either case it is considered unlikely that any mitigation strategies will be required.
Macquarie Street Bus Lane, Roll Plot Sheet 2	No works are proposed on the titles of places listed on the Tasmanian Heritage Register or as Heritage Places under the HIPS15, nor are any works proposed in close proximity to any Significant Trees as included on the HIPS15. No works are proposed to any place affected by the areas included as Heritage Places or a Place of Archaeological Potential under the Sullivans Cove Planning Scheme 1997.		
New bus stop shelter adjacent to St Davids	Whilst bus boarders are depicted on the plans assessed here, it has been advised that a pedestrian shelter will also be installed at this location. It is assumed that this will be of a	If such shelters are of a similar tenor to those already precedented in Davey/Macquarie Streets, then these are unlikely to have any major adverse visual/heritage impact. In the	None required.

Park, Davey Street.	similar tenor to those to be removed further eastward along Davey Street. This location of this shelter is in the H1 Heritage Precinct. Clause E.13.4 of the HIPS15 exempts the following works from requiring a development application: *(m). minor infrastructure within a road reservation, park, playground or outdoor recreation facility such as, playground equipment,* ***seating and shelters****, public art, telephone booths, post boxes, bike racks, fire hydrants, drinking fountains, rubbish bins, traffic control devices and markings, and the like incidental to the function of that road reservation, park , playground or outdoor recreational facility;* Note that demolition of the existing shelters in front of the former St Marys Hospital are within the Sullivans Cove planning jurisdiction and that demolition may require a development application by virtue of Clause 24.4.2 of the *Sullivans Cove Planning Scheme 1997* – being *development* of *public transport infrastructure* within *public open space* which is Discretionary under that scheme.	current case it is considered beneficial that the shelters be removed from the front of the former St Marys Hospital and reinstalled in the proposed location – which is a more open space backdropped by St Davids Park – i.e. the visual impact upon significant nearby heritage buildings will be less in the proposed location. This is considered an acceptable heritage outcome. As per above, it is likely that any associated excavation would be minor and shallow and most likely only involve the excavation of recent footpath paving and base as well as modern kerbing/guttering. It is likely that the road reserve is already substantially disturbed from decades of roadworks and services and such minor excavations are not considered to have a high likelihood of disturbing significant archaeological remains.	

Park and Ride Areas			
Drawing Title	**Statutory heritage requirements in works area**	**Possible impact**	**Mitigation strategies required**
Hobart Southern Projects Park and Ride Browns Road Sheet 1	None	None	No
Hobart Southern Projects Park and Ride Browns Road Sheet 2	None	None	No
Hobart Southern Projects Park and Ride Browns Road Sheet 3	None	None	No
Hobart Southern Projects Park and Ride Browns Road Sheet 4	None	None	No
Hobart Southern Projects Park and Ride Browns Road Turning Paths	None	None	No
Hobart Southern Projects Park and Ride Huntingfield Road Sheet 1	None	None	No
Hobart Southern Projects Park and Ride Huntingfield Road Turning Paths	None	None	No

4. RECOMMENDATIONS

The above analysis of the proposal has identified that two aspects of the proposal may require consideration against statutory heritage provisions - namely of the Hobart Interim Planning Scheme 2015, against Clauses E.13.8 (Heritage Precinct provisions), and E.13 4 (Places of Archaeological Potential) – namely:

- Any works to the retaining walls on the properties 6, 8, 8A, 12, 16 and 18 Dynnyrne Road may require a development application by virtue of Clause E.13.8 of the Hobart Interim Planning Scheme 2015 as those retaining walls *may* be within a Heritage Precinct as defined on Table E.13.2 of the scheme – unless those works are confirmed by the planning authority as being eligible for exemption under Clause E.13.4 as they constitute to 'minor upgrades' by or on behalf of a 'State government' of infrastructure such as roads, footpaths (including widening, making or placing or kerbs, gutters, footpaths, traffic control devices etc.). Should subdivision be a part of any acquisition or process relating to those works, then a development application for subdivision would be required for assessment against Clause E.13.8.3 (subdivision of places within a heritage precinct). Consultation with the permit authority must occur once precise specifications for those walls (and any associated proposed property acquisition) are finalised.
    - In any case, it is considered unlikely that any minor realignment of those modern retaining walls on the back of properties within the heritage precinct would result in detriment to the values of the precinct, provided these retain the major buildings and landscape tenor of those places.

- It is likely that any excavation, realignment of kerbing, rearrangement of lanes, bus boarders, erection of signage etc. within the Area of Archaeological Potential as defined in Table E.13.4 of the HIPS15 and within the Heritage Precincts as defined on Table E.13.2 of the scheme would be exempt from planning approval as they would likely constitute 'minor upgrades' by or on behalf of a 'State government' of infrastructure such as roads, footpaths (including widening, making or placing or kerbs, gutters, footpaths, traffic control devices etc.. Confirmation should be sought from the planning authority as to the applicability of that exemption.
    - In any case, it is considered unlikely that the expected minor excavation associated with these works and essential road infrastructure would cause detriment to the archaeological values of the area or heritage values of the precinct(s).

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