

CLIENT:
HOMES TASMANIA

PROJECT:
SUBDIVISION OF 109 LOTS

ADDRESS:
33 ELDERSLIE ROAD, BRIGHTON

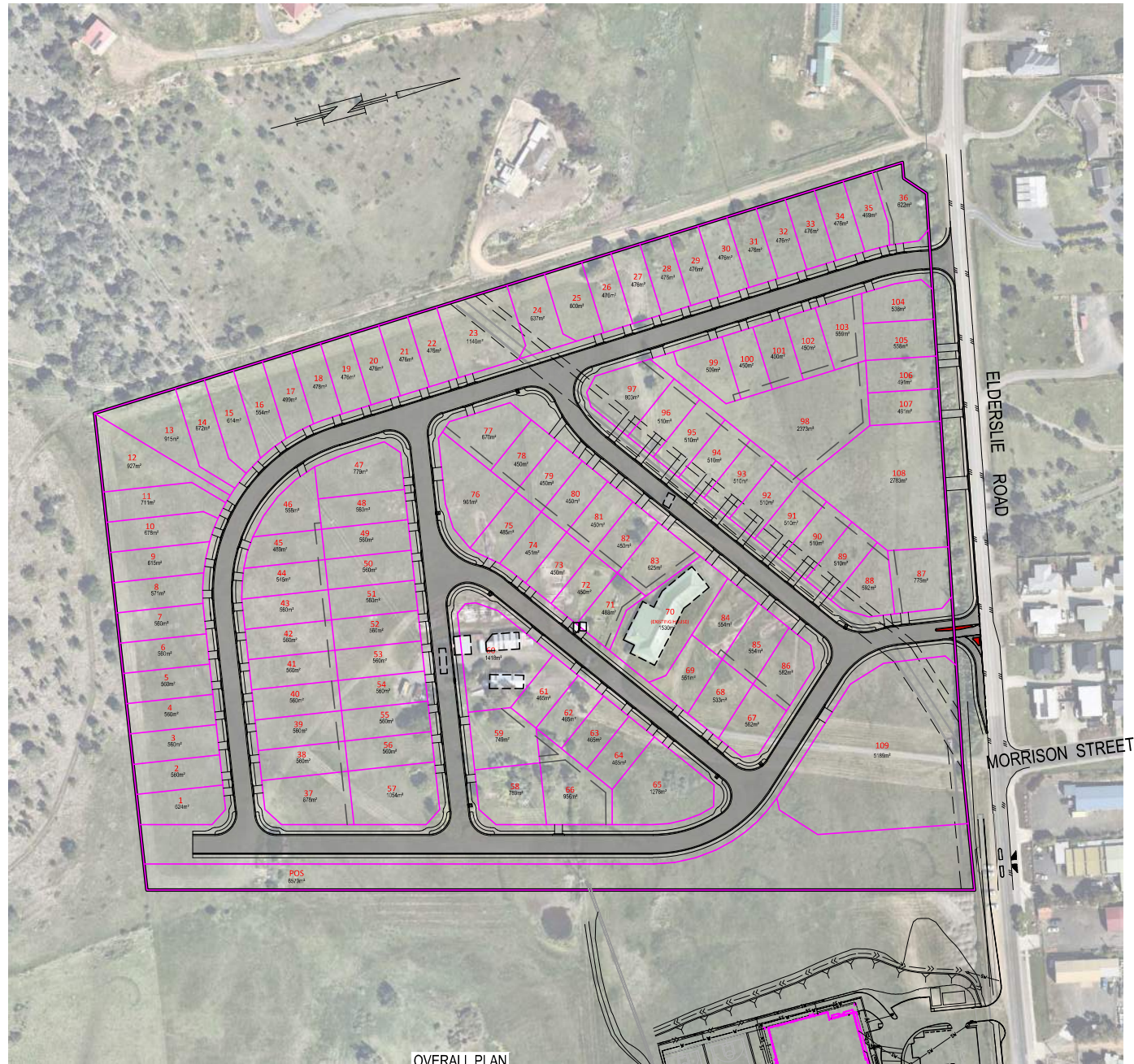
ISSUED FOR:
DEVELOPMENT APPLICATION

DRAWING LIST

DRAWING	TITLE	REV	DATE
1847-P01	OVERALL PLAN, NOTES & INDEX	G	05/03/2024
1847-P02	GENERAL ARRANGEMENT LAYOUT	E	02/10/2023
1847-P03	ROAD LAYOUT PLAN	C	02/10/2023
1847-P04	AERIAL IMAGE & CONTOUR PLAN	B	02/10/2023
1847-P10	BUILDING ENVELOPS & LOT DIMENSIONS	B	02/10/2023
1847-P20	CONCEPT STORMWATER SERVICING PLAN	C	05/03/2024
1847-P21	OVERALL STORMWATER PLAN	C	05/03/2024
1847-P30	CONCEPT SEWER SERVICING PLAN	B	31/01/2024
1847-P40	CONCEPT WATER SERVICING PLAN	B	31/01/2024
1847-P41	TASWATER WATER CROSSING DETAILS - SHEET 1	A	02/10/2023
1847-P42	TASWATER WATER CROSSING DETAILS - SHEET 2	A	02/10/2023
1847-P50	BUSHFIRE HAZARD MANAGEMENT PLAN	B	02/10/2023
1847-P60	LANDSCAPING INTENT PLAN	C	05/03/2024

GENERAL NOTES:

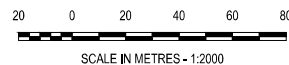
- THIS PLAN HAS BEEN PREPARED AS A PRELIMINARY DEVELOPMENT PROPOSAL PLAN TO COUNCIL AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE.
- LOT SIZE AND LAYOUT SUBJECT TO FINAL LAYOUT AND FINAL PLAN OF SURVEY.
- THIS PLAN SHOULD NOT BE USED FOR ANY OTHER PURPOSE APART FROM OBTAINING A PLANNING PERMIT.
- ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH IPWEA STANDARD DRAWINGS AND SPECIFICATIONS, (WSAA SEWERAGE CODE OF AUSTRALIA & WATER SUPPLY CODE OF AUSTRALIA) AND TO THE SATISFACTION OF COUNCIL'S DEVELOPMENT ENGINEER.
- NO TOP SOIL SHALL BE REMOVED FROM THE SITE WITHOUT THE CONSENT OF COUNCIL. TOP SOIL DISTURBED OR REMOVED AS A RESULT OF WORKS SHALL BE STOCK-PILED ON SITE AND LATER USED FOR REDRESSING ANY DISTURBED SURFACES.
- EXCAVATED AND IMPORTED MATERIAL USED AS FILL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION.
- CONTRACTOR TO OBTAIN CLEARANCES AND COORDINATE WORK WITH ALL RELEVANT AUTHORITIES PRIOR TO COMMENCEMENT.
- THESE DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNLESS ENDORSED 'FOR CONSTRUCTION' AND AUTHORISED FOR ISSUE ACCORDINGLY.
- EARTHWORKS SHALL BE IN ACCORDANCE WITH AS3798 "GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS"
- SITE SURVEY UNDERTAKEN BY WOOLCOTT SURVEYORS
- INFRASTRUCTURE LAYOUT IS CONCEPT ONLY AND MAY BE ALTERED DURING DETAILED DESIGN UPON APPROVAL OF THE DEVELOPMENT PROPOSAL
- FURTHER DETAILS AND NOTES TO BE PROVIDED IN FUTURE DETAILED ENGINEERING PLANS
- TASWATER SEWERAGE LOADS ARE ANTICIPATED TO BE ACCOMMODATED IN THEIR EXISTING INFRASTRUCTURE AND ARE AS FOLLOWS:
 - SEWER ET = 109
 - SEWER $Q_{dWf} = 0.57$ L/s
 - SEWER $Q_{pWf} = 2.32$ L/s
 - SEWER $Q_{pWf} = 5.89$ L/s
 - SEWER TO BE DISCHARGED TO TASWATER NETWORK VIA PUMP STATION AND RISING MAIN



OVERALL PLAN
SCALE 1:2000

PRELIMINARY - NOT FOR CONSTRUCTION

Rev No	Revision note	Date	Checked	Approved
E	ISSUED FOR DEVELOPMENT APPROVAL	02/10/2023	MM	MM
F	ADDRESSED RFL ISSUED FOR DEVELOPMENT APPROVAL	31/01/2024	MM	MM
G	COUNCIL RFL REQUESTED REDUCED OUTFLOW AND LANDSCAPING	05/03/2024	MM	MM



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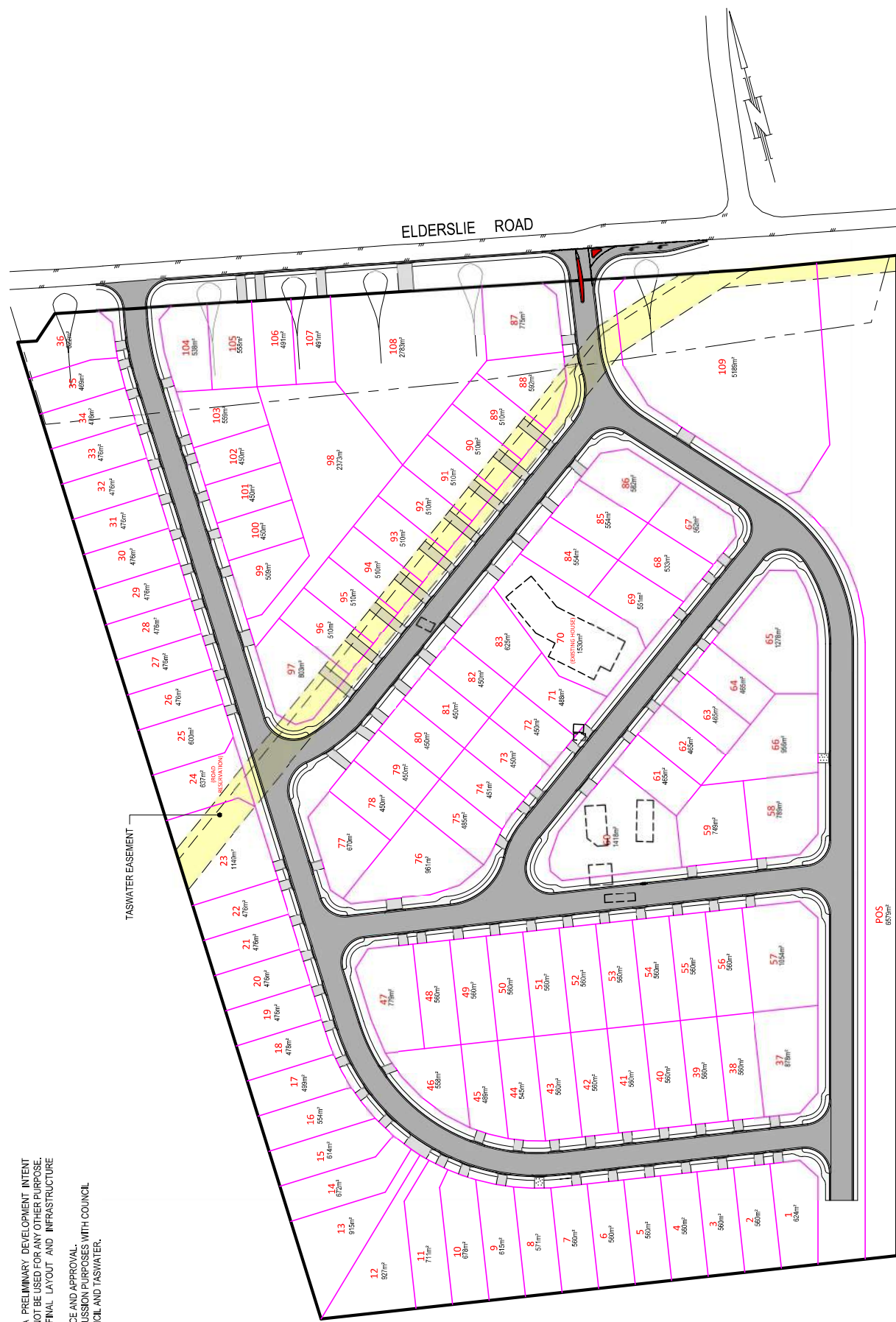
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Drawn By:	M. MCCLURE	Date:	08/03/2023
Designed By:	M. MCCLURE	Date:	15/08/2023
Checked By:	***	Date:	***
Approved By:	***	Date:	***

Client:	HOMES TASMANIA
Project:	ELDERSLIE ROAD SUBDIVISION
Title:	OVERALL PLAN, NOTES & INDEX
Scale:	1:2000
Sheet:	A3
Drawing No:	1847 - P01
Revision:	G

NOTES

1. THIS PLAN HAS BEEN PREPARED AS A PRELIMINARY DEVELOPMENT INTENT LAYOUT PLAN TO COUNCIL AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE.
2. LOT SIZE AND LAYOUT SUBJECT TO FINAL LAYOUT AND INFRASTRUCTURE ASSESSMENT/INVESTIGATION.
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5. LAYOUT SUBJECT TO APPROVAL OF COUNCIL AND TASWATER.



LOT LAYOUT PLAN
SCALE 1:1500

PRELIMINARY - NOT FOR CONSTRUCTION

REVISIONS		DATE		APPROVED	
Rev No	Revision note	Date	Checked	Approved	MM
A	ISSUED TO CLIENT FOR DISCUSSION PURPOSES ONLY	08/02/23	MM	MM	MM
B	ISSUED TO CLIENT FOR REVIEW AND COMMENT	20/02/23	MM	MM	MM
C	ISSUED TO PLANNER FOR ASSESSMENT AND REPORTING	11/02/23	MM	MM	MM
D	ISSUED DRAFT LOT LAYOUTS	09/02/23	MM	MM	MM
E	ISSUED FOR DEVELOPMENT APPROVAL	02/02/23	MM	MM	MM

Project	109 HOMES TASMANIA
Date	15/02/2023
Drawn By	M. MCCURE
Checked By	M. MCCURE
Date	15/02/2023
Approved By	
Date	
Scale	1:1500
Sheet	43
Project	1847 - P02

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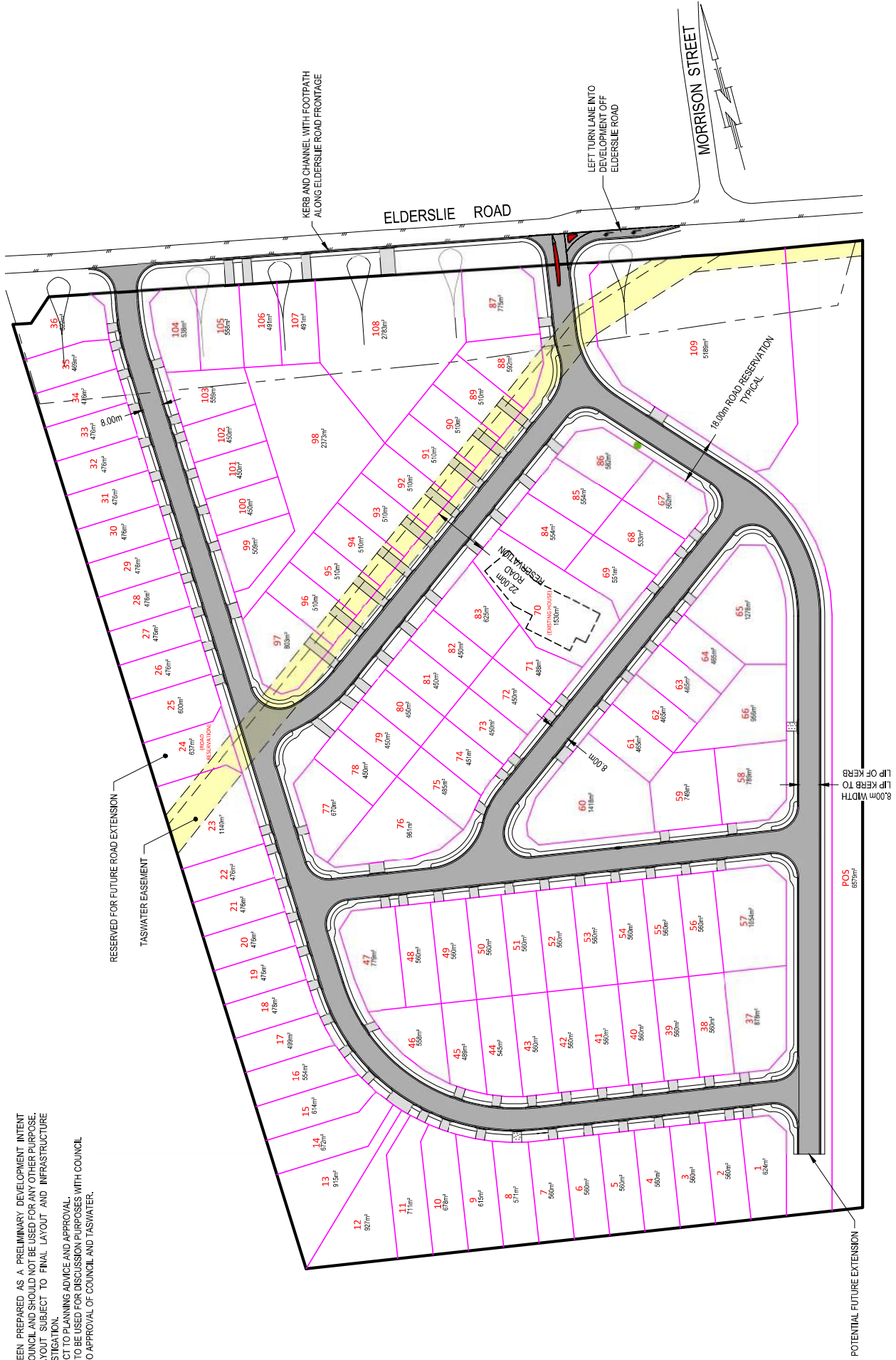
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 50 SOUTH HAZELBART, TAS 7204
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SCALE IN METRES - 1:1500

15 0 15 30 45 60

NOTES

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LOT LAYOUT PLAN - TRAFFIC LAYOUT

SCALE 1:1500

PRELIMINARY - NOT FOR CONSTRUCTION

Rev No	Revision note	Date	Checked	Approved
A	ISSUED TO TRAFFIC ENGINEER FOR PRELIMINARY REVIEW	04/02/23	MM	MM
B	ISSUED TO TRAFFIC ENGINEER FOR REVIEW	11/02/23	MM	MM
C	ISSUED FOR DEVELOPMENT APPROVAL	02/10/23	MM	MM

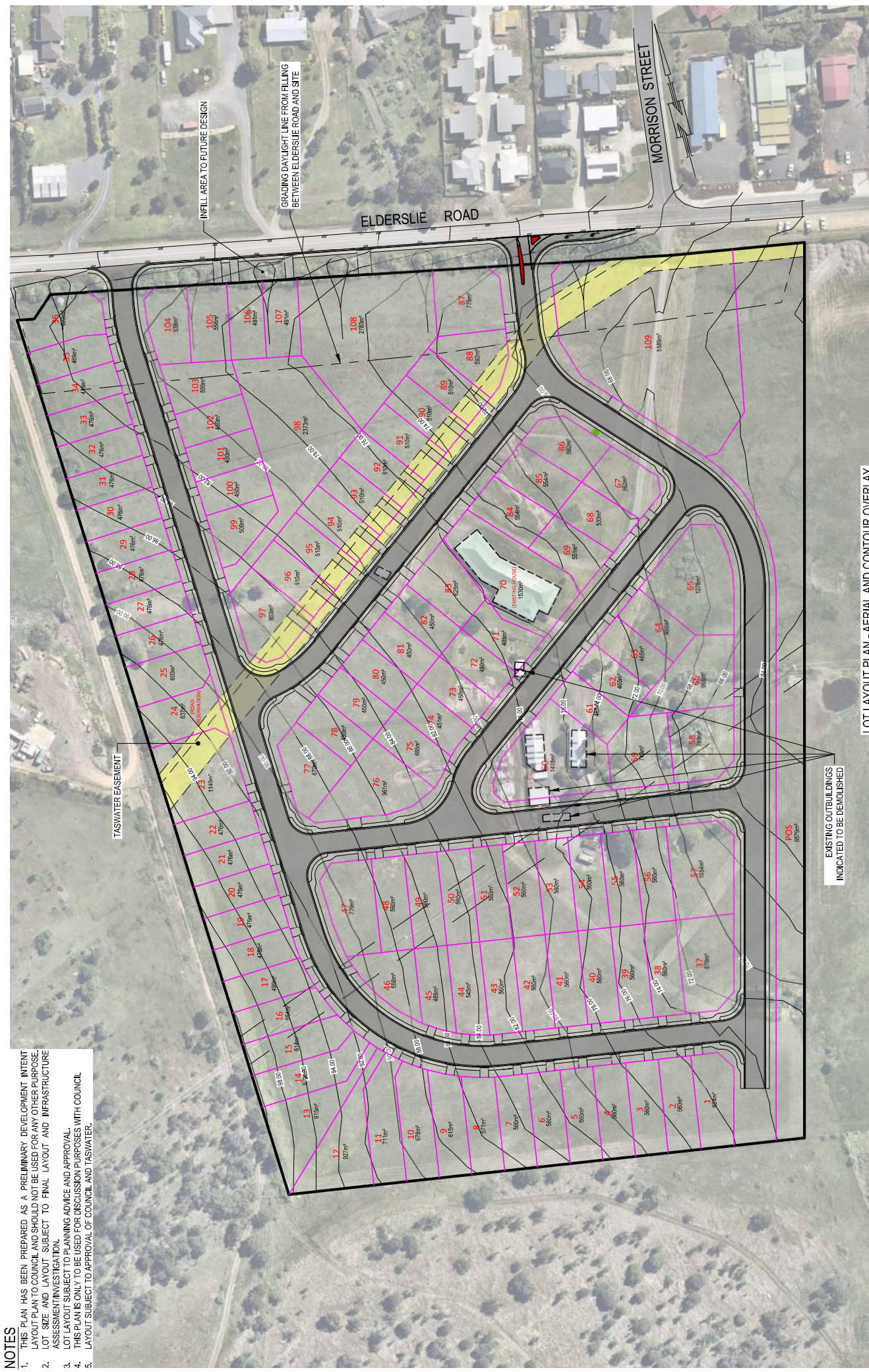
Client	HOMES TASMANIA
Project	ELDERSLIE ROAD SUBDIVISION
Date	15/08/2023
Drawn By	M. MCCURE
Checked By	
Approved By	
Scale	1:1500
Sheet	43
Project	1847 - P03

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SCALE IN METRES - 1:1500

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EXISTING OUTBUILDINGS
INDICATED TO BE DEMOLISHED

LOT LAYOUT PLAN - AERIAL AND CONTOUR OVERLAY

SCALE 1:1500

PRELIMINARY - NOT FOR CONSTRUCTION

Rev No	Revision note	Date	Checked	Approved
A	ISSUED FOR APPROVAL	13/02/23	MM	MM
B	ISSUED FOR DEVELOPMENT APPROVAL	02/10/2023	MM	MM

Drawn By	Checked By	Date
M. MCCURE	M. MCCURE	15/08/2023

Drawn By	Checked By	Date
M. MCCURE	M. MCCURE	15/08/2023

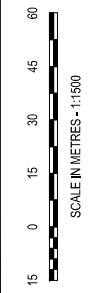
Client	Project	Title	Scale
HOMES TASMANIA	ELDERSLIE ROAD SUBDIVISION	LOT LAYOUT PLAN AERIAL IMAGE AND CONTOUR OVERLAY	1:1500

Author	Project	Date
ABN 75 148 719 899 SOUTH HAZARD, TAS 7204 P: (03) 6223 8007 F: (03) 6223 1143 E: admin@burbury.com.au	ELDERSLIE ROAD SUBDIVISION	15/08/2023

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Scale	Date
1:1500	15/08/2023

Scale	Date
1:1500	15/08/2023

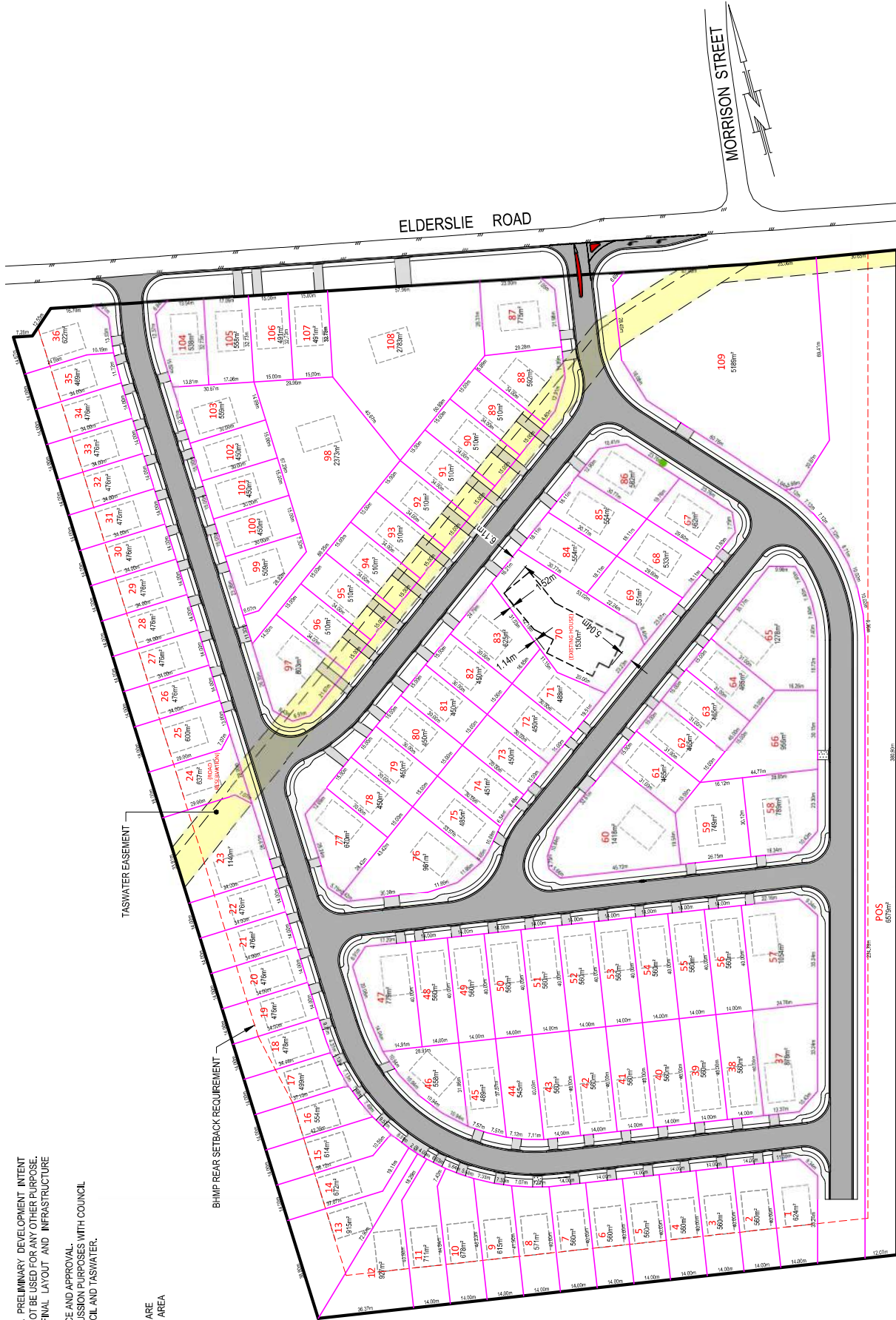


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LEGEND

DEMONSTRATION THAT LOTS ARE ABLE TO CONTAIN A MINIMUM AREA OF 10m x 15m RECTANGLE.



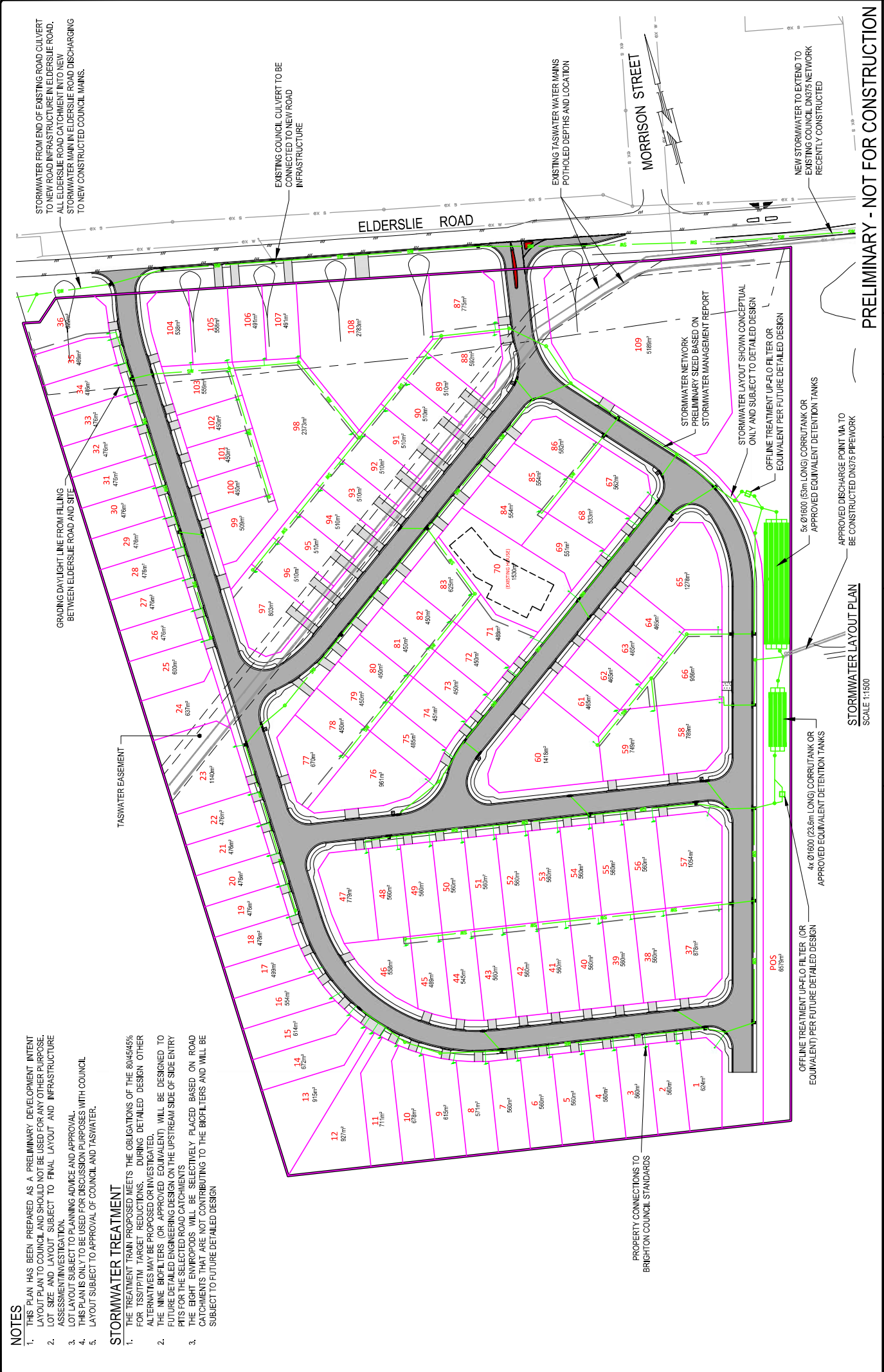
LOT LAYOUT PLAN
SCALE 1:1500

PRELIMINARY - NOT FOR CONSTRUCTION

Rev No	Revision note	Date	Checked	Approved
A	ISSUED TO BUSHFIRE HAZARD PRACTITIONER	13/03/23	MM	MM
B	ISSUED FOR DEVELOPMENT APPROVAL	02/10/2023	MM	MM

Client	HOMES TASMANIA
Project	ELDERSLIE ROAD SUBDIVISION
Date	15/08/2023
Drawn By	M. MCCURE
Checked By	
Date	
Approved By	
Date	
Scale	1:1500
Drawn	43
Approved	B

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STORMWATER TREATMENT

1. THE TREATMENT TRAIN PROPOSED MEETS THE OBLIGATIONS OF THE 80/45/45% FOR TSS/PTM/TARGET REDUCTIONS. DURING DETAILED DESIGN OTHER ALTERNATIVES MAY BE PROPOSED OR INVESTIGATED.
2. THE NINE BIOFILTERS (OR APPROVED EQUIVALENT) WILL BE DESIGNED TO FUTURE DETAILED ENGINEERING DESIGN ON THE UPSTREAM SIDE OF SIDE ENTRY PITS FOR THE SELECTED ROAD CATCHMENTS.
3. THE EIGHT ENVIROPODS WILL BE SELECTIVELY PLACED BASED ON ROAD CATCHMENTS THAT ARE NOT CONTRIBUTING TO THE BIOFILTERS AND WILL BE SUBJECT TO FUTURE DETAILED DESIGN.

PRELIMINARY - NOT FOR CONSTRUCTION

1:1500

STORMWATER LAYOUT PLAN

SCALE 1:1500

APPROVED DISCHARGE POINT VIA TO BE CONSTRUCTED DN375 PIPEWORK

OFFLINE TREATMENT UP-FLO FILTER (OR EQUIVALENT) PER FUTURE DETAILED DESIGN

4x 01600 (23.6m LONG) CORRUGATED TANK APPROVED EQUIVALENT DETENTION TANKS

5x 01600 (53m LONG) CORRUGATED TANK OR APPROVED EQUIVALENT DETENTION TANKS

OFFLINE TREATMENT UP-FLO FILTER OR EQUIVALENT PER FUTURE DETAILED DESIGN

STORMWATER NETWORK PRELIMINARY SIZED BASED ON CONCEPTUAL STORMWATER MANAGEMENT REPORT

STORMWATER LAYOUT SHOWN CONCEPTUAL ONLY AND SUBJECT TO DETAILED DESIGN

EXISTING TASMATER WATER MAINS POTHOLED DEPTHS AND LOCATION

MORRISON STREET

EXISTING COUNCIL CULVERT TO BE CONNECTED TO NEW ROAD INFRASTRUCTURE

STORMWATER FROM END OF EXISTING ROAD CULVERT TO NEW ROAD INFRASTRUCTURE IN ELDERSLIE ROAD. ALL ELDERSLIE ROAD CATCHMENT INTO NEW STORMWATER MAIN IN ELDERSLIE ROAD DISCHARGING TO NEW CONSTRUCTED COUNCIL MAINS.

ELDERSLIE ROAD

GRADING DAYLIGHT LINE FROM FILLING BETWEEN ELDERSLIE ROAD AND SITE

TASWATER EASEMENT

PROPERTY CONNECTIONS TO BRIGHTON COUNCIL STANDARDS

Rev No	Revision note	Date	Checked	Approved
A	ISSUED FOR DEVELOPMENT APPROVAL	02/10/2023	MM	MM
B	ADDRESSED REI ISSUED FOR DEVELOPMENT APPROVAL	31/10/2024	MM	MM
C	STORMWATER DETENTION INCREASED FOR REDUCED OUTFLOW	25/02/2024	MM	MM

Project	1452/2023	Client	HOMES TASMANIA
Date	15/08/2023	Drawn By	M. MCCURE
Title	CONCEPT STORMWATER SERVICING PLAN	Checked By	
Scale	1:1500	Approved By	
Drawn		Date	
Scale	1:1500	Date	
Scale	1:1500	Date	

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Burbury

15 0 15 30 45 60

SCALE IN METRES - 1:1500

NOTES

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PRELIMINARY - NOT FOR CONSTRUCTION

Rev No	Revision note	Date	Checked	Approved
A	ISSUED FOR DEVELOPMENT APPROVAL	02/10/2023	MM	MM
B	ADDRESSED RE: ISSUED FOR DEVELOPMENT APPROVAL	31/07/2024	MM	MM
C	STORMWATER DETENTION INCREASED FOR REDUCED OUTFLOW	25/09/2024	MM	MM

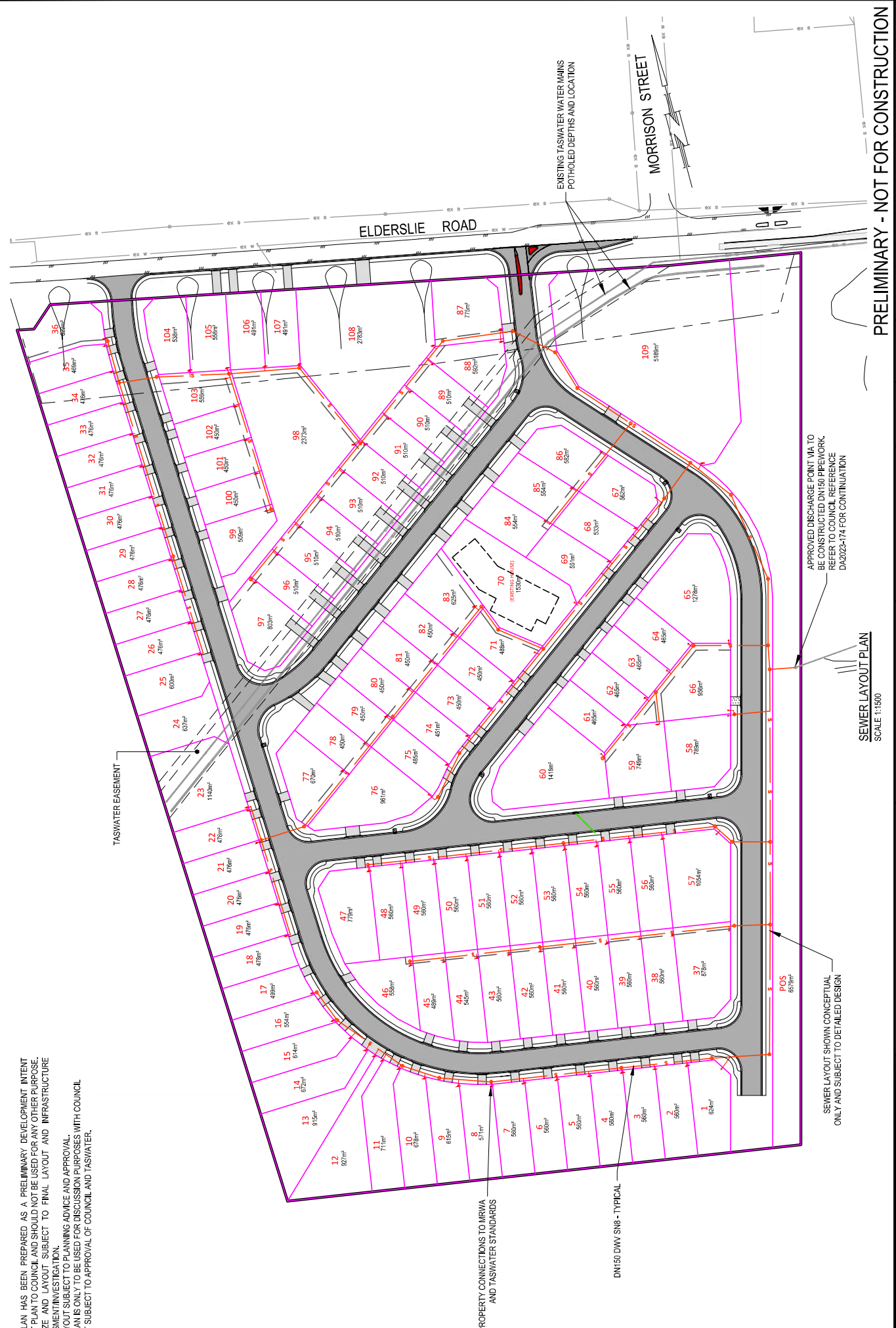
Client	HOMES TASMANIA
Project	ELDERSLIE ROAD SUBDIVISION
Date	15/08/2023
Drawn By	M. MCCURRY
Checked By	
Approved By	
Title	CONCEPT STORMWATER SERVICING PLAN
Overall Plan	
Scale	1:2000
Drawn	15/08/2023
Checked	15/08/2023
Approved	
Scale	1:2000
Drawn	15/08/2023
Checked	15/08/2023
Approved	

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Scale	0	20	40	60	80
SCALE IN METRES - 1:2000					

NOTES

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APPROVED DISCHARGE POINT VIA TO BE CONSTRUCTED DN150 PIPEWORK. REFER TO COUNCIL REFERENCE DA2023-174 FOR CONTINUATION

SEWER LAYOUT SHOWN CONCEPTUAL ONLY AND SUBJECT TO DETAILED DESIGN

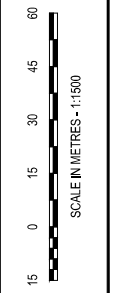
SEWER LAYOUT PLAN
SCALE 1:1500

PRELIMINARY - NOT FOR CONSTRUCTION

Rev No	Revision note	Date	Checked	Approved
A	ISSUED FOR DEVELOPMENT APPROVAL	02/10/2023	MM	MM
B	ADDRESSED REVISIONS FOR DEVELOPMENT APPROVAL	31/07/2024	MM	MM

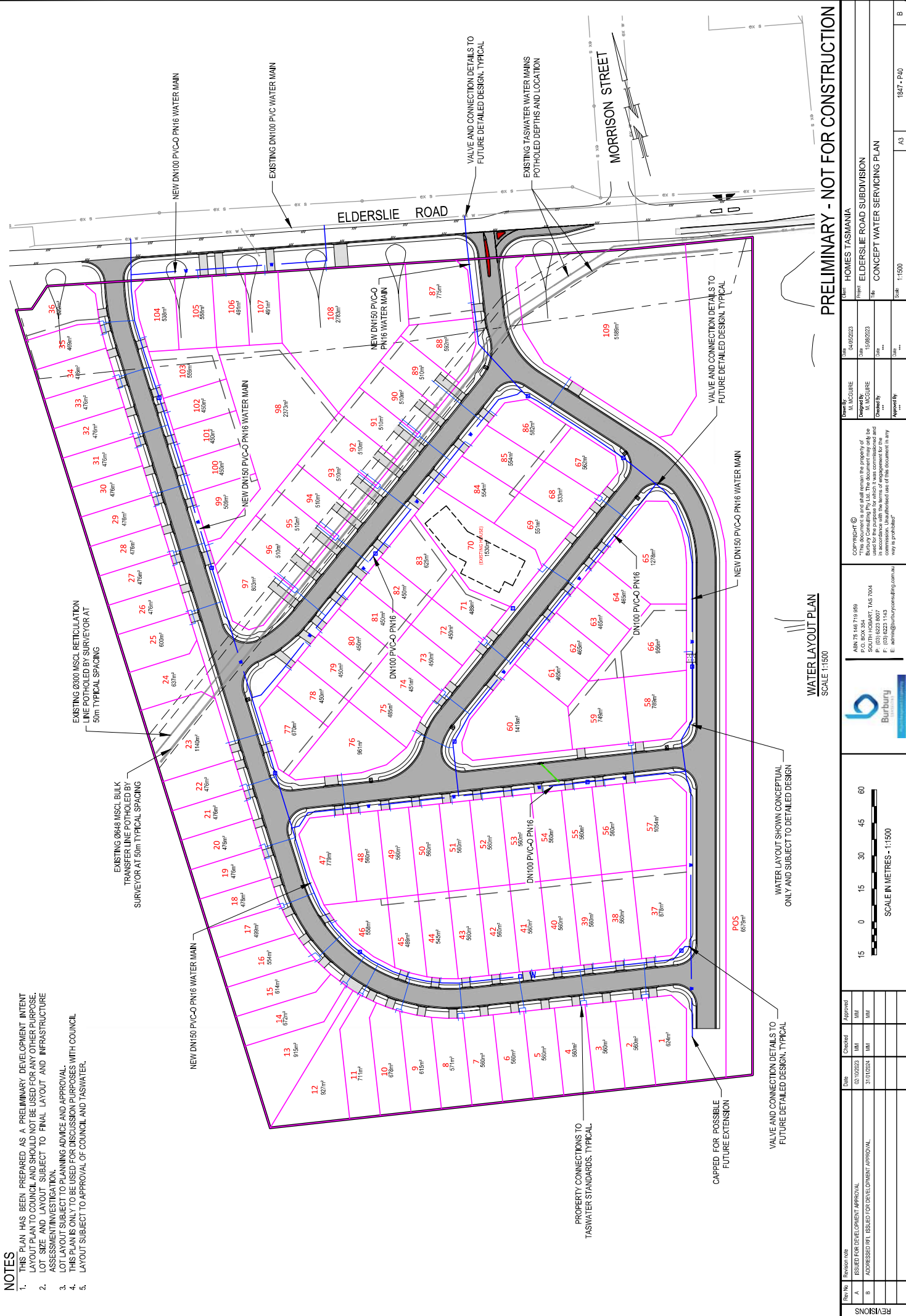
Client	HOMES TASMANIA
Project	ELDERSLIE ROAD SUBDIVISION
Title	CONCEPT SEWER SERVING PLAN
Scale	1:1500
Sheet	4/3
Block	B

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Checked By	M. MCCURE
Checked By	
Approved By	



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WATER LAYOUT PLAN
SCALE 1:1500

WATER LAYOUT SHOWN CONCEPTUAL ONLY AND SUBJECT TO DETAILED DESIGN

PRELIMINARY - NOT FOR CONSTRUCTION

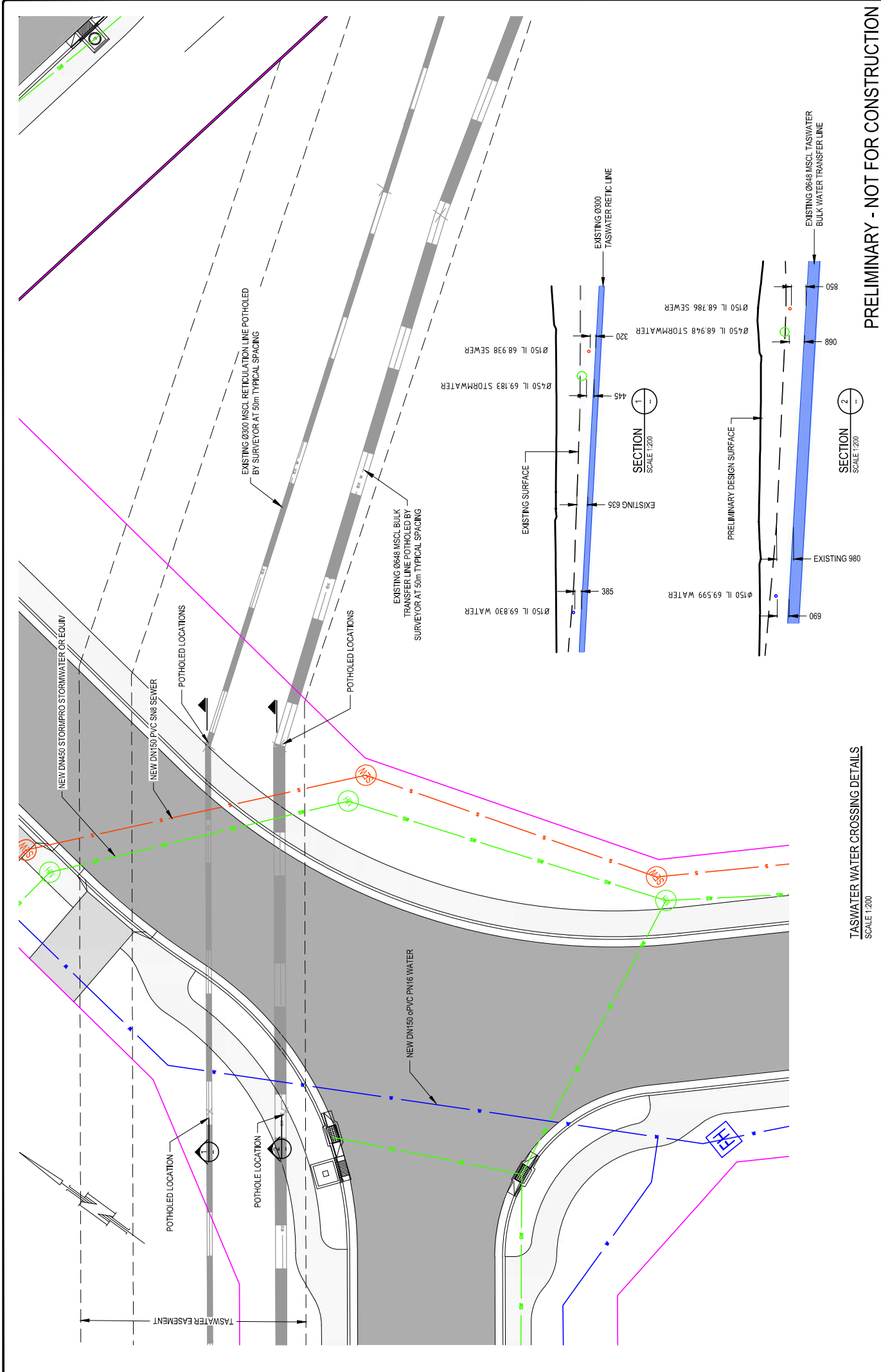
Rev No	Revision note	Date	Checked	Approved
A	ISSUED FOR DEVELOPMENT APPROVAL	02/10/2023	MM	MM
B	ADDRESSED RE: ISSUED FOR DEVELOPMENT APPROVAL	31/07/2024	MM	MM

Client	HOMES TASMANIA
Project	ELDERSLIE ROAD SUBDIVISION
Title	CONCEPT WATER SERVICING PLAN
Scale	1:1500
Drawn By	M. MCCURE
Checked By	M. MCCURE
Approved By	
Date	
Date	
Date	
Date	
Scale	1:1500
Drawn	1847-P40
Sheet	B

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15 0 15 30 45 60
 SCALE IN METRES - 1:1500



TASWATER WATER CROSSING DETAILS
SCALE 1:200

Rev No	Revision note	Date	Checked	Approved
A	ISSUED FOR DEVELOPMENT APPROVAL	02/10/2023	MM	MM

Drawn	Checked	Date
M. MCCURIE	M. MCCURIE	15/08/2023

Client	Project	Title	Scale
HOMES TASMANIA	ELDERSLIE ROAD SUBDIVISION	TASWATER WATER CROSSING DETAILS - SHEET 1	1:200

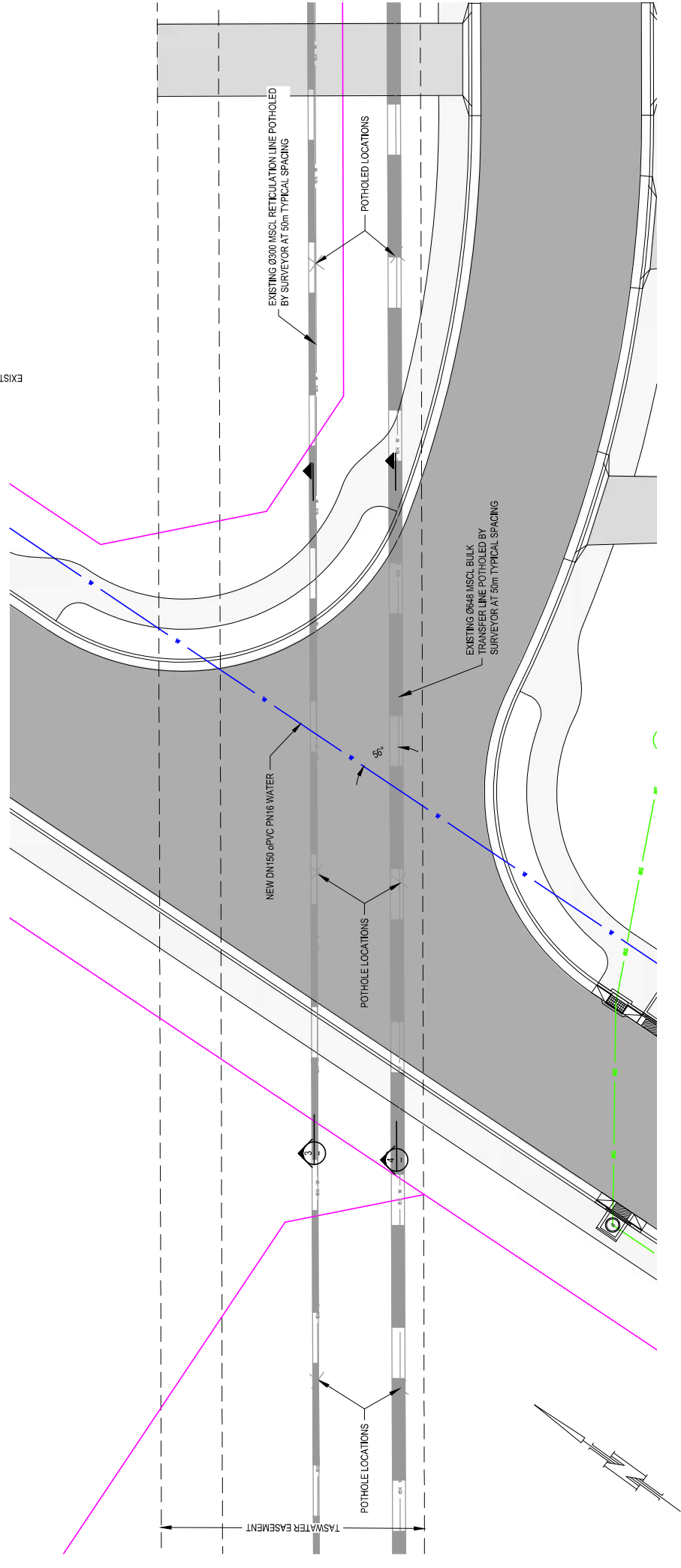
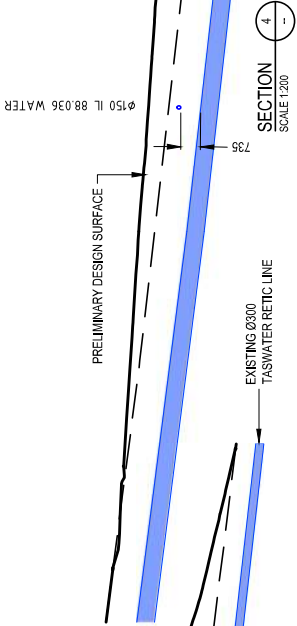
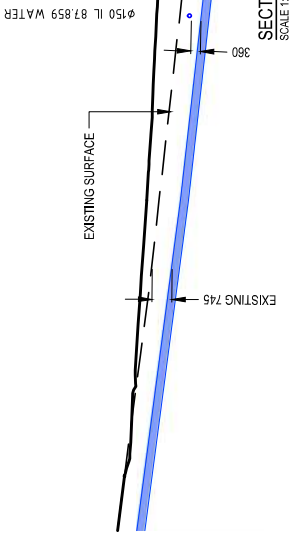
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Scale: 1:200

1887-R41

PRELIMINARY - NOT FOR CONSTRUCTION



TASWATER WATER CROSSING DETAILS
SCALE 1:200

PRELIMINARY - NOT FOR CONSTRUCTION

Rev No	Revision note	Date	Checked	Approved
A	ISSUED FOR DEVELOPMENT APPROVAL	02/10/2023	MAI	UMI

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AIN 75 148 719 889 SOUTH AUSTRALIA P: (03) 8223 8007 E: admin@burburyconsulting.com.au	Date: 15/08/2023	Scale: 1:200	Project: ELDERSLIE ROAD SUBDIVISION

Scale in metres: 1:200 	Item: HOMES TASMANIA
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REVISIONS	43	1847 - P42
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NOTES

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2. LOT SIZE AND LAYOUT SUBJECT TO FINAL LAYOUT AND INFRASTRUCTURE ASSESSMENT/INVESTIGATION.
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5. LAYOUT SUBJECT TO APPROVAL OF COUNCIL AND TASWATER.



BMP LAYOUT
SCALE 1:1500

PROPOSED FIRE HYDRANTS, SUBJECT TO FINAL ENGINEERING DESIGN

PRELIMINARY - NOT FOR CONSTRUCTION

Rev No	Revision note	Date	Checked	Approved
A	ISSUED FOR APPROVAL	09/02/23	MM	MM
B	ISSUED FOR DEVELOPMENT APPROVAL	02/10/2023	MM	MM

Client	HOMES TASMANIA
Project	ELDERSLIE ROAD SUBDIVISION
Title	BUSHFIRE HAZARD MANAGEMENT PLAN
Scale	1:1500
Date	15/08/2023
Checked By	M. MCCURE
Approved By	
Date	

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4. THIS PLAN IS ONLY TO BE USED FOR DISCUSSION PURPOSES WITH COUNCIL.
5. LAYOUT SUBJECT TO APPROVAL OF COUNCIL AND TASFATER.
6. TREES ARE SHOWN AT APPROX ACTUAL SIZE OF MATURITY.
7. STREET TREES IN THE ROAD PIT 'BIOFILTERS' ARE TO BE SELECTIVELY PLACED DURING DETAILED DESIGN AND WILL CONTRIBUTE TO THE LANDSCAPING.
8. EXACT PLACEMENT OF TREES TO BE DETERMINED DURING DETAILED DESIGN ONCE ALL SERVICES DESIGNED INCLUSIVE OF NBN AND TASNETWORKS UNDERGROUND CABLING.

LEGEND

- ASPHALT ROAD
- CONCRETE DRIVEWAY
- CONCRETE FOOTPATH
- GRASSED / TURFED / LANDSCAPED AREA
- KERB BLISTER / LOW LYING PLANTINGS
- FUTURE SELECTED STREET TREE

STREET TREES ALONG FRONTAGE OF LOTS 9-16 RESTRICTED DUE TO PROPOSED SERVICES

16m WIDE TYPICAL ROAD RESERVE. MODERATE HEIGHT TREES/SHRUBS PLANTED AND MAINTAINED FOR CLEAR STEMS ON BOTH SIDES OF ROAD TO FUTURE DESIGN. TYPICAL.

TASSIE GOLD SURFACING WITH POA GRASSES OR EQUIV AT INTERSECTIONS

POTENTIAL OPEN SPACE SUITABLE GRASSES AND PLANTINGS TO FUTURE ENGINEERING DESIGN

POTENTIAL ADDITIONAL TREE PLANTINGS

STREET TREES / LANDSCAPING WHERE POSSIBLE. TREES TO BE CLEAR OF ALL SERVICES

STREET TREES ALONG FRONTAGE OF LOTS 88-97 OMITTED DUE TO TASFATER EASEMENT

SOUTHERN SIDE OF EDLERSLIE ROAD PROVIDED WITH KERB AND CHANNEL INCLUSIVE OF FOOTPATH



LANDSCAPE CONCEPT PLAN
SCALE 1:1500

PRELIMINARY - NOT FOR CONSTRUCTION

Rev No	Revision note	Date	Checked	Approved
A	CONCEPT LANDSCAPING PLAN ISSUED	18/03/23	MM	MM
B	ADDRESSED PFI ISSUED FOR DEVELOPMENT APPLICATION	31/07/24	MM	MM
C	LANDSCAPING STREET TREES INCLUDED FOR DA	25/03/24	MM	MM

Client	11101	HOMES TASMANIA
Drawn	14/02/2023	
Checked By	M. MCCURE	
Drawn By		
Project	15/08/2023	
Title		LANDSCAPING INTENT PLAN
Scale	1:1500	

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SCALE IN METRES - 1:1500

15 0 15 30 45 60

To:	Leigh Wighton – Brighton Council		
Project:	Elderslie Road subdivision		
From:	Morgan McGuire	Date:	05/03/2024
Subject:	Landscaping	Job No.	1847

Referring to the RFI received from Council dated 15th February 2024 in relation to the requirements set out in the Landscaping policy.

5. Provide an amended landscaping plan demonstrating compliance with Council Policy 6.5 LANDSCAPING

Council's policy for subdivisions requires a minimum of 1 (one) street tree per 15m of frontage, except for lots that are internal lots, having regard to:

- a) The width of the frontages;
- b) Location of infrastructure;
- c) The topography of the site;
- d) The safety of pedestrian use and movement;
- e) The safety and efficiency of the road network;
- f) The nature of the road; and
- g) Existing vegetation that can be retained.

Clause 1.3 of the stated policy states "*Council has discretion to vary this Policy where it can be demonstrated that there are site constraints and requirements of this Policy cannot be met*".

Furthermore, clause 3.4 goes on to state "*A permit condition of approval for any subdivision application requiring landscaping under this Policy will require the landscaping to be shown on engineering design drawings to demonstrate that landscaping has been appropriately designed to be clear of services*".

TasNetworks standard drawing UG-622 (attached) outlines an exclusion zone for trees in relation to their services, noting that NBN cables will be alongside in a similar trench and likely have similar restrictions.

Whilst street trees have been shown along the frontages where it appears possible currently, the design of the future TasNetworks and NBN cables that is undertaken after a Permit is issued may restrict some trees being included in the detailed design. In addition to this it is shown on the updated landscape drawing that some frontages can not have the street trees included due to proposed sewer and stormwater services and also existing TasWater water easements.

In addition to the landscaping street tree update, we have provided kerb blisters and flaring out of footpaths at the intersections to allow low lying plantings with mulch/pebble aggregate at the junctions.

It is suggested that we largely meet the requirements of the policy where possible at this stage, and as per clause 1.3 there are site constraints that restrict the provision of some street trees. Where these can't be provided, we will aim to scatter these around the Public Open Space area where possible.

If you have any queries in relation to this please contact the undersigned.

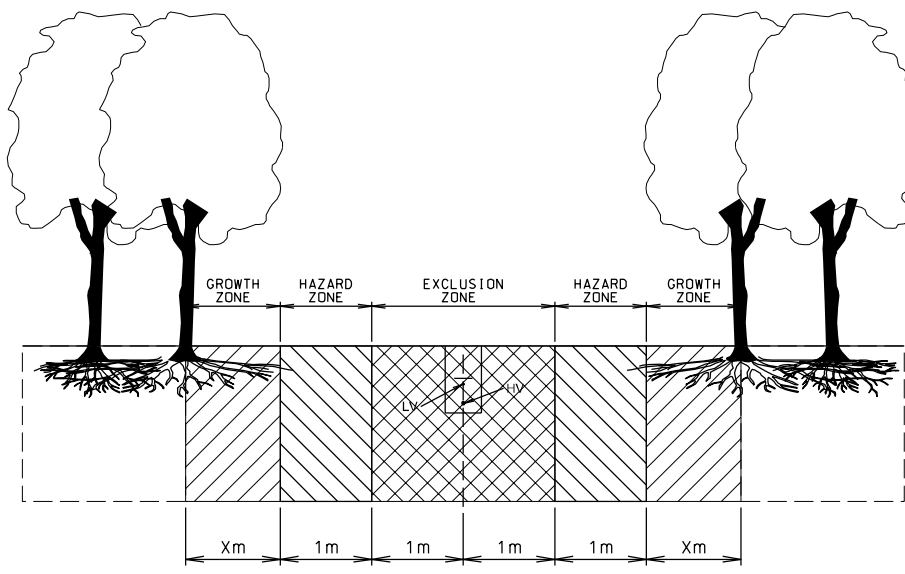
Yours faithfully,



Morgan McGuire

Team Leader – Civil Design

CAUTION : Printed document is uncontrolled.



- EXCLUSION ZONE
- HAZARD ZONE
- GROWTH ZONE

NOTES

1. PRINCIPLE:- NO TREE ROOT SHOULD ENTER WITHIN THE 1m EXCLUSION ZONE IN THE FULLY GROWN CONDITION OF THE TREE.
2. EXCLUSION ZONE:- NO MACHINE EXCAVATION TO BE UNDER TAKEN IN THIS ZONE, USE VACUUM TRUCK OR HAND DIG. NO TREE PLANTATION IS ALLOWED.
3. HAZARD ZONE:- "OBSERVED" MACHINE EXCAVATION IN THIS ZONE. SMALL TREES WITH A MAXIMUM HEIGHT OF 2m ALLOWED.
4. GROWTH ZONE:- X m - TREES PERMISSIBLE BASED ON SIZE WHEN FULLY GROWN. X = CANOPY OF TREE = ROOT SPREAD LENGTHS IN FULLY GROWN CONDITION.
5. REFER TO DRAWING UG-322 FOR STANDARD EASEMENT ARRANGEMENTS.

REFERENCES ALTERATIONS
TYPICAL CABLE ROUTE LAYOUT, POSITIONING & CLEARANCES ON EASEMENT - UG-322

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	DRAWN	C5 PRO-SOLUTIONS		TITLE	SCALES	
	CHECKED	J.HUGHES		UNDERGROUND CABLE INSTALLATION DATA TREE PLANTING RESTRICTIONS		SIZE A4
	APPROVED DATE	 ANGUS KETLEY 10/02/2016		UG-622	REVISION A	



TRAFFIC IMPACT ASSESSMENT

Hubble Traffic

October 2023

**RESIDENTIAL SUBDIVISION,
33 ELDERSLIE ROAD,
BRIGHTON**

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Version	Date	Reason for Issue
Draft	June 2023	Draft issued for client feedback
Final	October 2023	Final issued



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1. Introduction

Burbury Consulting Engineers have engaged Hubble Traffic on behalf of the developers, to prepare an independent Traffic Impact Assessment, to consider the traffic impacts from the provision of a 109 lot residential subdivision (development site) at 33 Elderslie Road, Brighton.

This assessment has considered the amount of traffic this subdivision is likely to generate, how the additional traffic movements will enter and leave the development site using two new junctions with Elderslie Road, and the impact to the surrounding road network.

A small portion of the development site is zoned for future local business, as this area will not be developed as part of this residential subdivision, it will not be assessed under this assessment.

This report has been prepared to satisfy the requirements of Austroads, Guide to Traffic Management Part 12: Traffic Impacts of Developments, 2019, and referred to the following information and resources:

- Tasmanian Planning Scheme (Brighton Council)
- Road Traffic Authority NSW (RTA) Guide to Traffic Generating Developments
- Australian Standards AS2890 parts 1, 2 and 6
- Austroads series of Traffic Management and Road Design
 - Part 4: Intersection and crossings, General
 - Part 4a: Unsignalised and Signalised Intersections
 - Part 12: Traffic Impacts of Development
- Department of State Growth crash database
- Land Information Database (LIST)

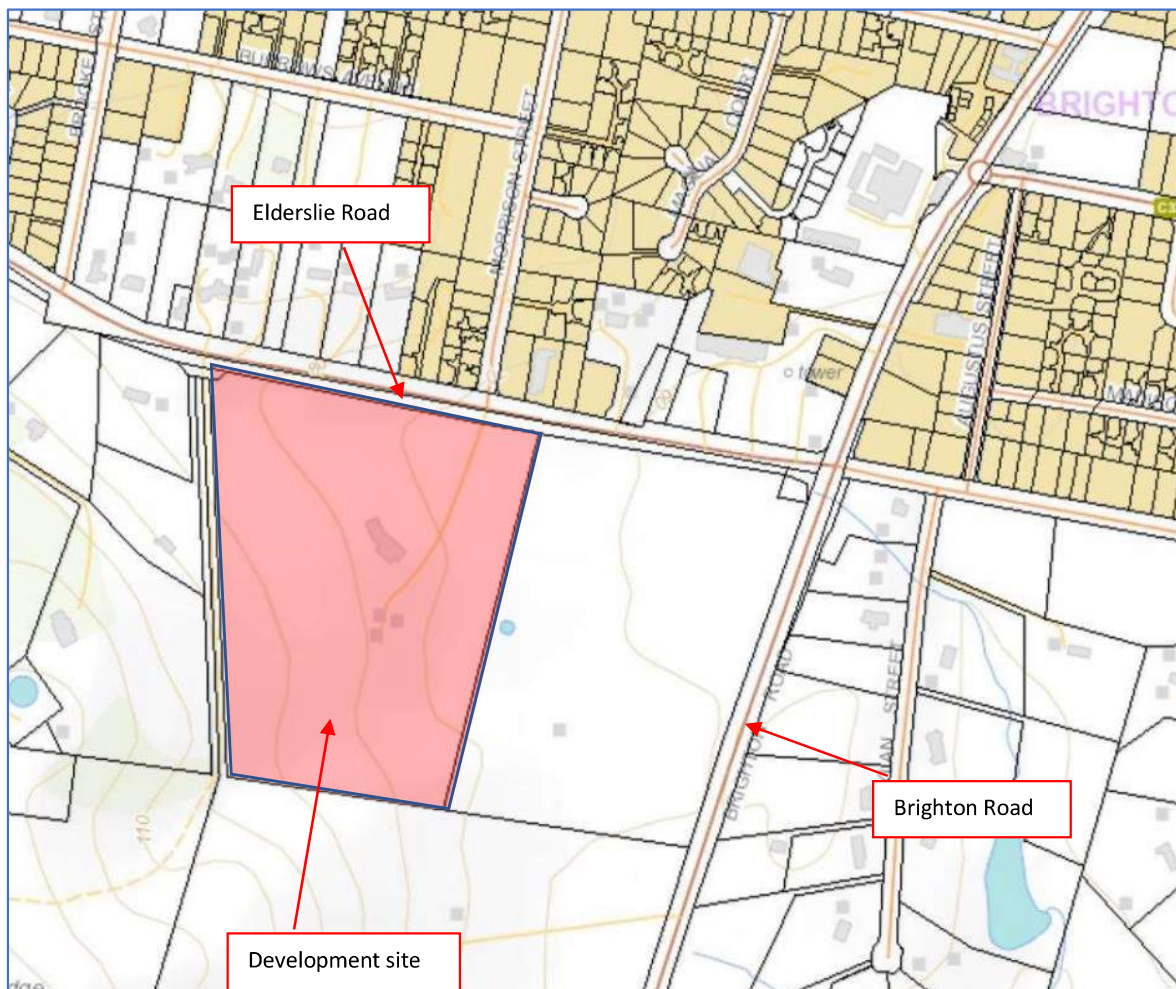
2. Site Description

The development site is a large parcel of land located at 33 Elderslie Road, Brighton, which is occupied by a single residential dwelling with an existing vehicular access onto Elderslie Road.

The site is located on the southern fringe of the established general residential development of Brighton and according to LIST is zoned as general residential.

On the northern side of Elderslie Road opposite the development site are urban residential properties, with rural residential properties along the southern side west of the development site. Adjacent to the development site on the eastern side, a new Brighton High School (new school) is under construction. The nearest arterial road is Brighton Road, with the majority of traffic generated by this development expected to use this road.

Diagram 2.0 – Extract from LIST Land Information Database



3. Development proposal

The developer has advised that the parcel of land will be subdivided into 109 lots, with 107 lots suitable for residential development, one lot to contain the existing dwelling, and one lot allocated as future local business zone.

The future local business lot is 5,189m², and the residential lots vary in size from 450 m² to 2,792m². Residential lots less than 750m² in size will be suitable for a single residential dwelling, while the larger lots will be suitable for multiple units, with each unit requiring at least 375m². Based on the square metreage, 92 lots are suitable for a single residential dwelling, 15 lots are suitable for unit development, with the larger lots having the potential to accommodate 45 units.

The existing vehicle access will be replaced with two new junctions, with one junction located at either end of the property. In between the two junctions are four lots that will require direct vehicular access onto Elderslie Road.

Diagram 3.0 – Development site layout



4. Trip generation by this development

A trip in this report is defined as a one-way vehicular movement from one point to another, excluding the return journey. Therefore, a return trip to and from a land use is counted as two trips.

To determine the number of trips likely to be generated by this development, reference has been taken from the RTA Guide to Traffic Generating Developments (RTA Guide), section 3.3 residential housing. For low density residential dwellings in regional areas:

- Daily vehicle trips of 7.4 per dwelling, and
- Weekday peak trips of 0.78 per dwelling

For the multiple units, a worst case scenario will be assumed, with each unit comprising three or more bedrooms, and the RTA Guide recommends each unit is likely to generate:

- Daily vehicle trips of 6.5 per unit
- Weekday peak trips of 0.65 per unit

When fully developed, the development is expected to be occupied by 92 single residential dwellings and 45 units. These residential properties are expected to generate additional 974 daily trips, with 101 of these trips likely to occur during the morning and evening peak periods. The existing residential dwelling will continue to generate seven daily trips, with one trip occurring in the peak periods.

Table 4.0 – Predicted number of trips to be generated from this residential subdivision

Dwelling Type	RTA Generation rate	Number of dwellings	Daily trips	Peak trips
Single dwelling	7.4 per day 0.78 per peak	92	681	72
Three-bedroom units	6.5 per day 0.65 per peak	45	293	29
Total new trips			974	101
Existing dwelling	7.4 per day 0.78 per peak	1	7	1

5. Existing surrounding road network

Within the surrounding road network, Elderslie Road is a local collector road extending in a westerly direction from Brighton Road. Brighton Road is the nearest arterial road, which runs in a south to north orientation, connecting to the Brighton Bypass (State Road network). Elderslie Road and Brighton Road intersect east of the development site, forming a cross intersection with William Street, which extends east from Brighton Road.

5.1 Elderslie Road characteristics adjacent to the development site

Elderslie Road runs in an east to west orientation, extending west from the Brighton Road and William Street intersection. Pass the development site, the road has a straight alignment and continuous steady incline. This vertical incline commences approximately 200 metres from the intersection, with the vertical grade measuring 6.5 percent adjacent to the development site. The road standard along Elderslie Road varies, with sections of the road upgraded or currently being upgraded to an urban standard, and other sections remaining a rural road standard.

On the northern side from the development site a section of the road has been constructed to an urban standard, with a sealed carriageway, concrete kerb and channel, concrete footpath, and indented parking bays. The other section of the road remains a rural road standard, with bitumen edge of seal.

On the southern side, the road frontage along the development site is of a rural standard. Adjacent to the development site the new school is currently under construction, and the road at the school frontage is being upgraded to an urban standard, with concrete kerb and channel, indented parking bays, and concrete footpath.

Adjacent to the development site, the road consists of a 3.3 metre wide sealed traffic lane in each direction, with marked centreline and guideposts. Elderslie Road has a posted speed limit of 60 km/h.

Photograph 5.1A – Typical urban Elderslie Road standard east of the development site



Photograph 5.1B – Typical rural Elderslie Road standard west of Morrison Street



5.2 Intersection of Brighton and Elderslie Roads

The majority of the traffic generated by the development is expected to turn at the intersection of Brighton and Elderslie Roads. As part of the new school development the current give way control is being replaced with a roundabout, which is expected to be completed within the next few months. This assessment assumes that the roundabout will be operating when this development commences.

Photograph 5.2 – Brighton Road and Elderslie Road intersection



5.3 Traffic activity on the surrounding road network

To evaluate the traffic impact from the development, it is important to understand the current traffic flow on Elderslie and Brighton Roads. A manual survey was undertaken at the intersection of Elderslie Road, Brighton Road, and William Street, during the two peak periods, including the period when the proposed school is expected to finish.

The morning and evening peak hour data has been extracted from the survey data and will be used to evaluate the traffic impact of the development. The peak hour data has been highlighted yellow in the table below.

Table 5.3 – Existing traffic flows

Brighton Road at Elderslie and William													
Brighton Road (south)				Brighton Road (north)			Elderslie Road			William Street			Total
Time	Left into Elderslie	Straight	Right into William	Left into William	Straight	Right into Elderslie	Left into Brighton Rd	Striaght to William	Right to Brighton St (Hobart)	Left onto Brighton (Hobart)	Straight	Right onto Brighton	
7.30 - 7.45	6	47	4	0	131	13	8	1	55	20	3	0	288
7.45 to 8.00	18	59	3	1	143	7	6	0	40	11	0	3	291
8.00 to 8.15	16	44	10	3	88	13	8	0	24	14	1	1	222
8.15 to 8.30	14	64	1	1	107	7	7	0	32	18	1	0	252
8.30 to 8.45	9	78	6	5	100	5	18	1	27	4	0	0	253
8.45 to 9.00	14	65	8	7	94	15	17	1	17	7	1	1	247
Total peak hour	54	214	18	5	469	40	29	1	151	63	5	4	1053
2.30 to 2.45	23	99	4	0	79	9	9	1	18	4	1	4	251
2.45 to 3.00	26	99	7	0	87	16	10	1	14	4	2	1	267
3.00 to 3.15	31	116	7	7	106	10	11	1	20	5	1	2	317
3.15 to 3.30	34	100	11	6	98	14	7	0	13	9	1	4	297
Peak hour	114	414	29	13	370	49	37	3	65	22	5	11	1132
4.30 to 4.45	37	150	10	1	67	17	14	1	27	5	0	0	329
4.45 to 5.00	35	133	14	2	79	12	12	0	16	8	2	3	316
5.00 to 5.15	47	120	18	4	85	11	9	0	20	12	3	2	331
5.15 to 5.30	33	125	17	2	60	13	13	1	15	7	1	4	291
5.30 to 5.45	25	105	12	4	76	15	5	0	14	9	2	1	268
5.45 to 6.00	25	123	14	2	67	9	9	0	15	11	1	3	279
Total peak hour	152	528	59	9	291	53	48	2	78	32	6	9	1267

5.4 Elderslie and Brighton Road Intersection - Peak hour turning movements

Diagram 5.4A – Morning peak hour traffic movements

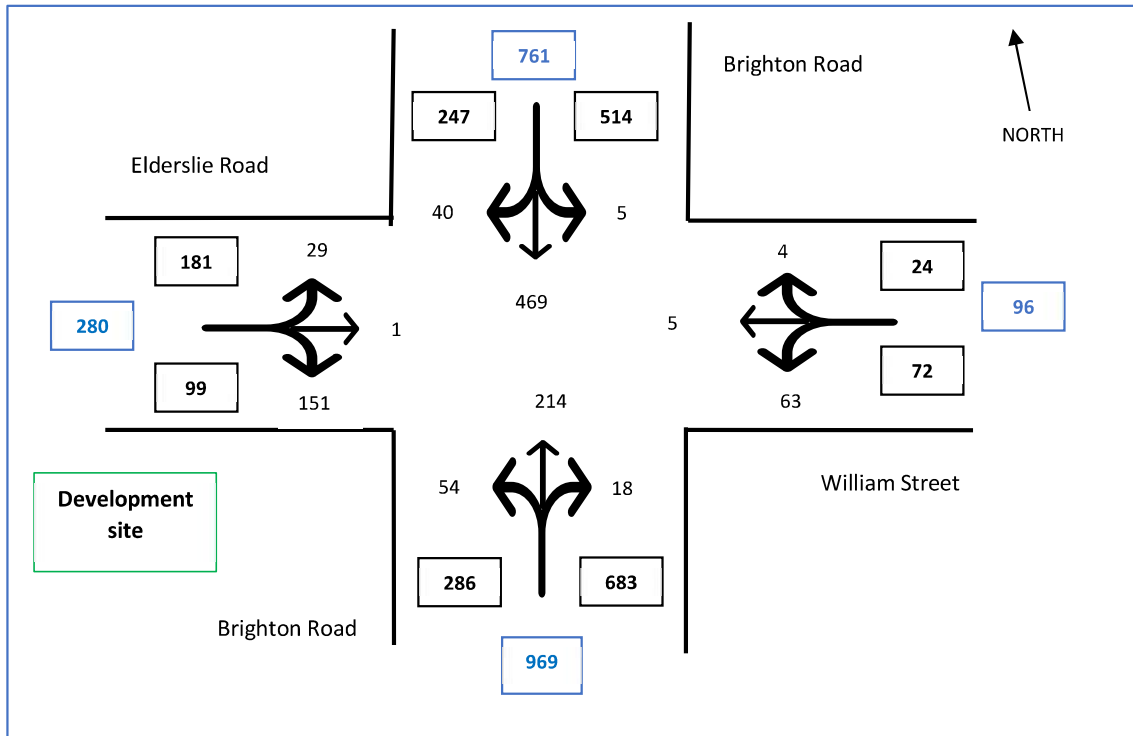
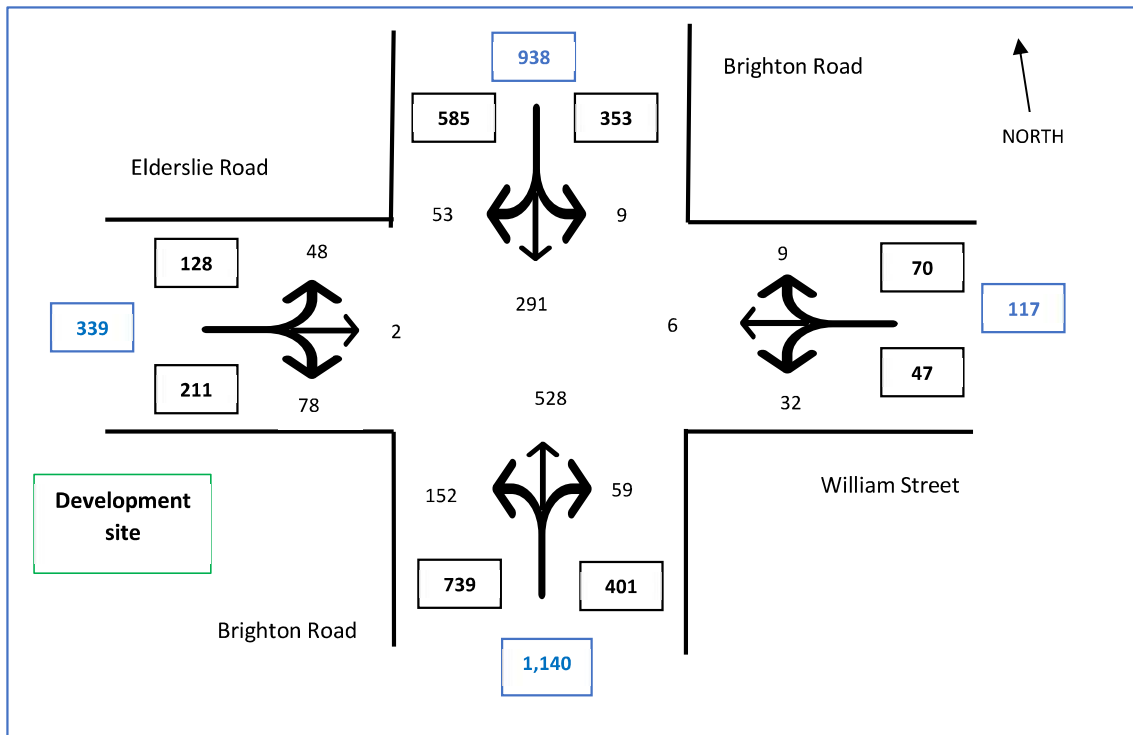


Diagram 5.4B – Evening peak hour traffic movements



5.5 Traffic safety along Elderslie Road near the development site

The Department of State Growth maintains a database of reported road crashes, a check of this database found that no crashes were reported on Elderslie Road within 200 metres of the development site in the last five years. At the intersection of Elderslie and Brighton Roads two crashes were reported, as the intersection is changing to a roundabout, the traffic conditions will change, with these crashes no longer relevant to the assessment.

6. Other major traffic generating developments

The new school will be a significant traffic generator and must be considered within this traffic assessment, as the school will generate additional traffic movements onto Elderslie Road and at the Brighton Roundabout.

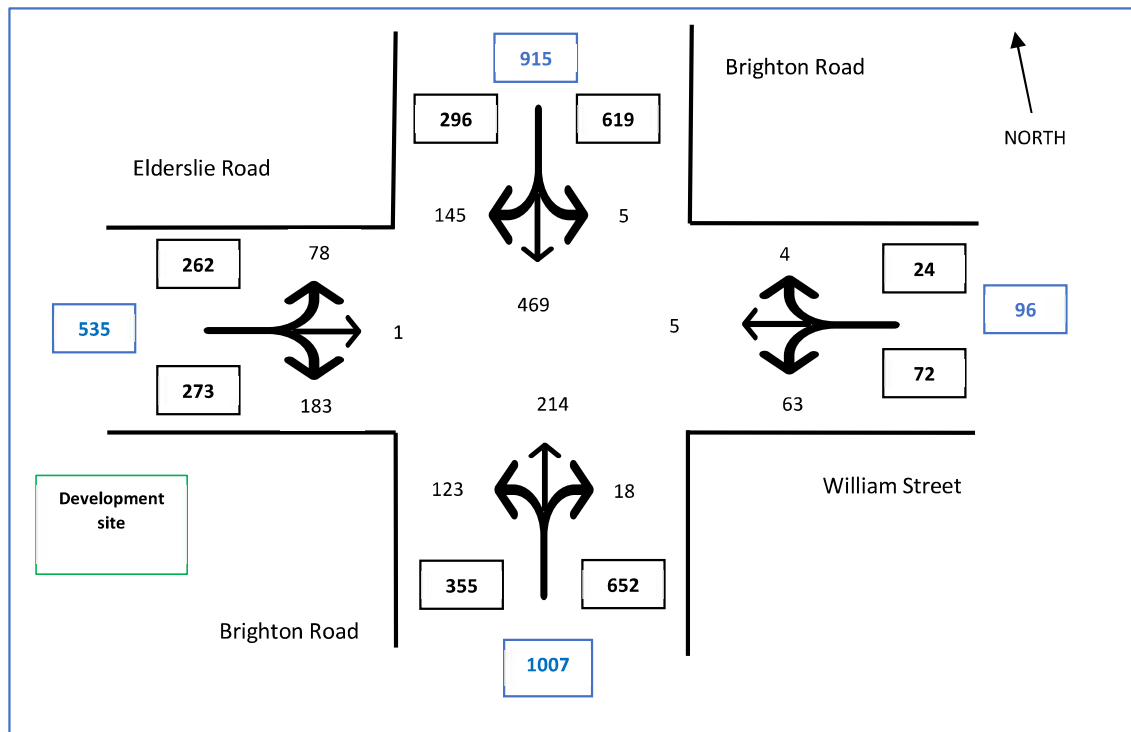
With Hubble Traffic Consulting preparing the Traffic Impact Assessment for this new school, the expected volume of vehicle movements generated is known. The previous peak hour traffic data using the intersection of Elderslie and Brighton Roads, has been adjusted to include additional traffic movements expected to be generated by this new school.

6.1 Predicted peak hour traffic movements with the new school operating

The new school will have one vehicular access only onto Elderslie Road, and during the morning peak hour period the school is predicted to generate 276 vehicle trips, with 187 of these trips arriving and 89 leaving. Of these trips, the majority 255 are expected to turn at the Brighton Road roundabout.

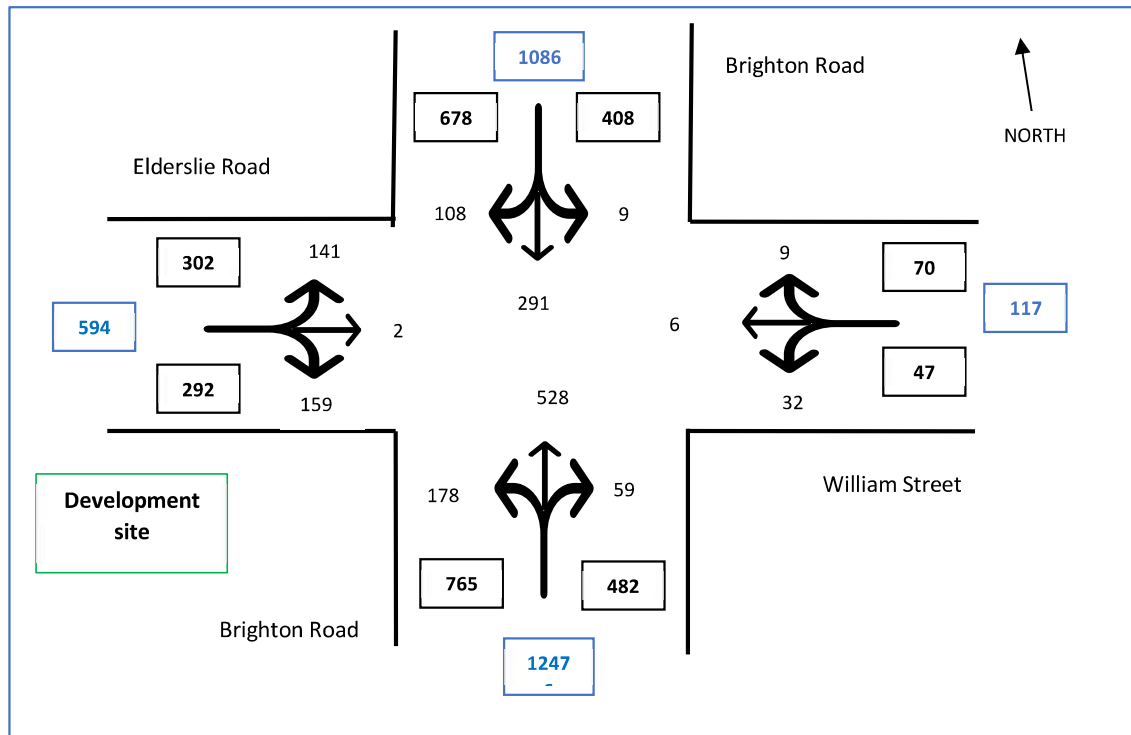
The existing traffic flows at this intersection have been adjusted to include the additional vehicle trips generated by this new school and will be used as the base flows in considering the traffic impact from this residential subdivision.

Diagram 6.1A – School adjusted traffic flows for the morning peak hour.



The new school is expected to generate the majority of the traffic trips in the afternoon between 2:30pm and 4:00pm, which is outside of the typical evening peak hour period, and similar to the traffic flows during the afternoon and evening peak hour period. To consider a worst case scenario, the additional school trips have been added to the evening peak hour.

Diagram 6.1B – School adjusted traffic flows for the evening peak hour.

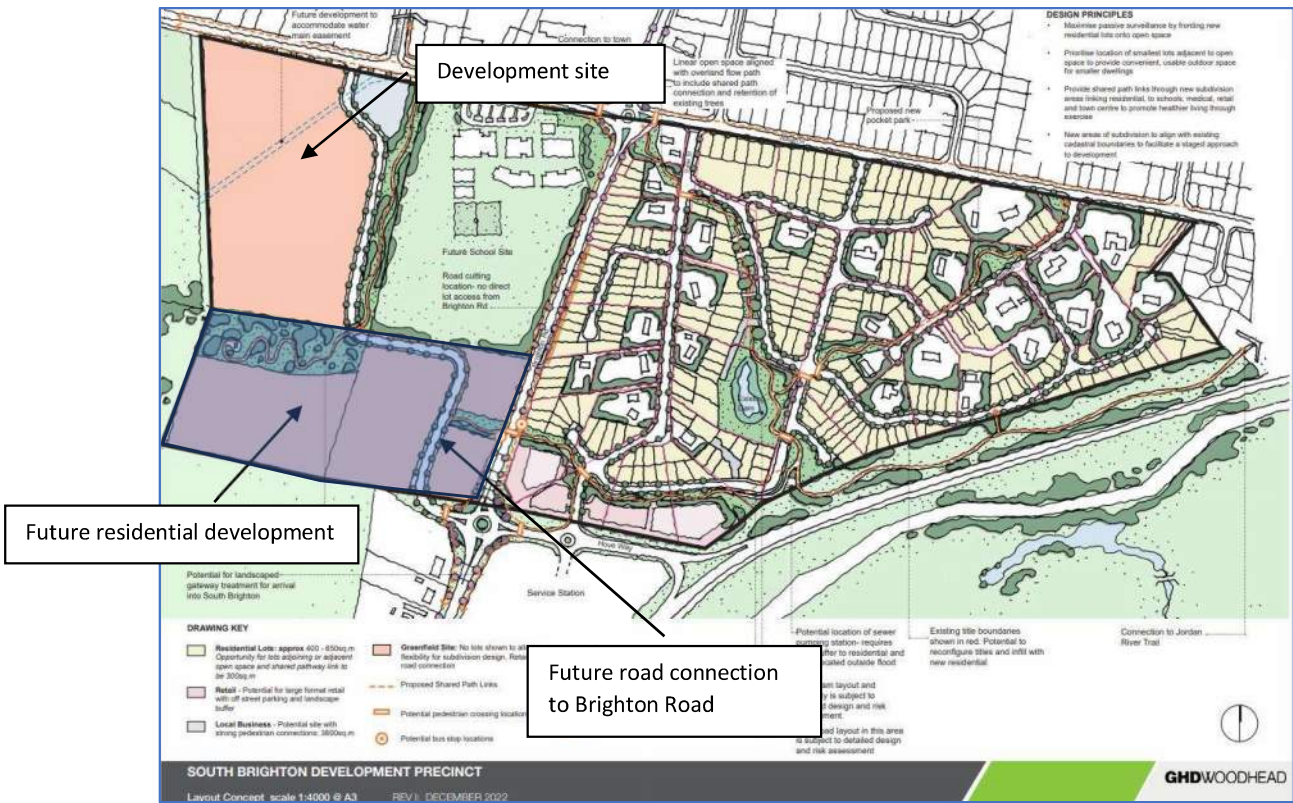


6.2 Master Plan for the Brighton area

Brighton Council has released a Master Plan for future land-use developments, including the parcel of land under consideration for this residential subdivision. Of importance to this development, the Master Plan includes future residential development, situated immediately south of the development site, which includes a road that connects back to Brighton Road at a new roundabout.

As a consequence of this Master Plan, this traffic assessment assumes that future residential development south of the development site, will not generate additional vehicle movements through the development site, as traffic is expected to use the future road connection back to Brighton Road.

Diagram 6.2 – Master plan



7. Impact from traffic generated by this development

As determined by section 4 of this report, the development site is estimated to generate up to 969 additional traffic movements per weekday, with 101 of these trips likely to occur during the morning and evening peak periods. The existing dwelling is already generating seven daily trips, with one of these trips occurring during the morning and evening peak periods.

It is common with residential properties, that 90 percent of the trips leave the site during the morning peak, with the opposite occurring in the evening. With Brighton Road the most direct route towards Hobart, it is expected that the majority of the trips generated by the development is likely to use the new Brighton Road roundabout.

7.1 Assignment of trips using the new internal development roads

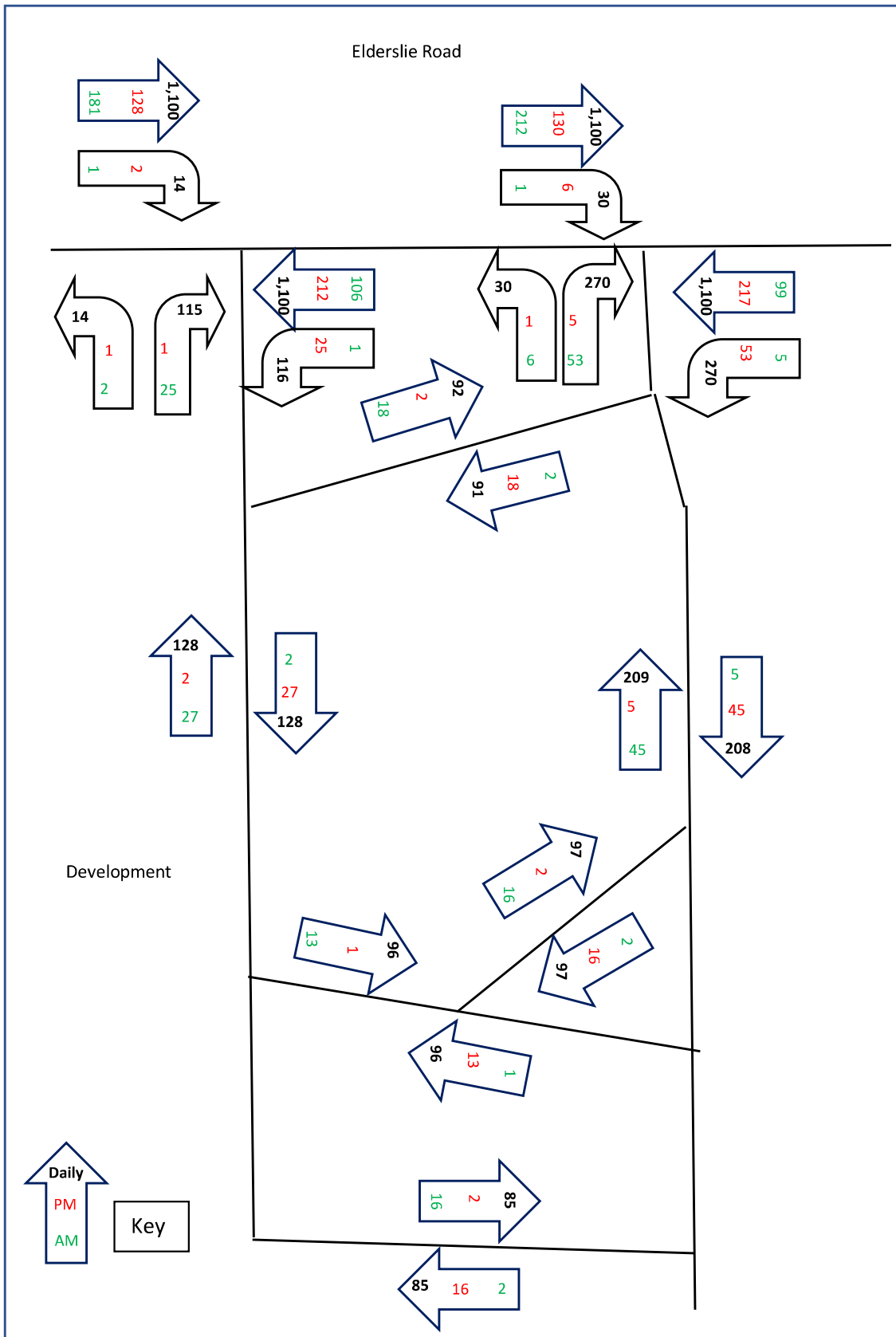
Each residential property will generate vehicle trips, with these trips assigned to the new internal road based on the property location and proximity of the two new Elderslie Road junctions, assuming motorists choose the shortest and most direct route.

This trip assignment predicts the number of daily and peak hour trips for each of the internal roads, and the number of vehicles expected to use each of the Elderslie Road junctions. The internal roads will be lightly trafficked, with most roads carrying less than 200 two-way traffic movements daily, and less than 60 vehicles in the peak hour periods.

This assessment estimates that 70 percent of the traffic generated will use the eastern junction, due to its proximity to Brighton Road.

The assignment of trips on the new internal roads are shown in diagram 7.1.

Diagram 7.1 – Assignment of developmental trips on the new internal roads



7.2 Traffic efficiency at the two new junctions with Elderslie Road

The simplest method to determine the traffic performance at a junction is to use SIDRA Intersection traffic modelling software, which uses gap acceptance theory to determine the average delay, queue lengths and degree of saturation, which are all measures of traffic congestion and level of service.

Level of Service (LOS) is a quantifiable assessment of the factors that contribute to the traffic performance, which includes traffic density, gaps in traffic streams, expected delays, and queues. For junctions, there are five levels from A to E, with A providing the highest level for controlled junctions, meaning motorists are not incurring delays, with ample gaps in the traffic stream for vehicles to turn freely and safely without disrupting other users. The following table provides a reference to the level of service for the various traffic controls.

Diagram 7.2 – RTA Level of service for intersections and junctions

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Signs
A	< 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity; at signals, incidents will cause excessive delays Roundabouts require other control mode	At capacity, requires other control mode

Traffic models have been developed within the SIDRA software, replicating the proposed eastern and western junctions with Elderslie Road, using current traffic flows, including additional traffic generated from the new school.

The predicted trips generated from the development have been assigned to each of the junctions, with traffic modelling predicting the two junctions will provide users with the highest level of traffic efficiency for a give way control, level of service LOS A. Motorists will experience minimal traffic queues or delays, with spare traffic capacity at each junction. A summary of the traffic modelling of the two proposed junctions is shown in the table 7.2A.

Table 7.2A – Traffic modelling of the junctions with Elderslie Road

Junction	Period	Total vehicles	DOS	Worst average delay	LOS	Max queue
Eastern	Morning	376	0.110	7.4 sec	A	1.8m
	Evening	412	0.111	7.7 sec	A	0.4m
Western	Morning	316	0.093	6.5 sec	A	0.6m
	Evening	369	0.122	6.7 sec	A	0.1m

7.3 Incremental traffic growth along Elderslie Road

Having consideration to incremental traffic growth on Elderslie Road, the two traffic models of the proposed junctions has been adjusted, with a two percent increase each year for ten years. Traffic modelling predicts both junctions will continue to perform at the highest level of service LOS A, for both peak periods, with virtually no queues or delays, as shown in the table below.

Table 7.3A – Traffic modelling prediction of future incremental growth

Junction	Period	Total vehicles	DOS	Worst average delay	LOS	Max queue
Eastern	Morning	444	0.133	7.9 sec	A	2.0m
	Evening	488	0.136	8.3 sec	A	0.4m
Western	Morning	379	0.114	6.8 sec	A	0.6m
	Evening	443	0.146	7.0 sec	A	0.1m

A printout of the modelling results for the two new junctions is available in appendix A.

7.4 Traffic lane capacity on Elderslie Road

In evaluating the impact of additional vehicle movements on Elderslie Road motorists, it is important to understand the Level of Service (LOS) motorists are currently receiving. The RTA Guide provides a level of service for urban roads based on peak hour directional traffic flows, as shown in the RTA extract below.

Diagram 7.4 – RTA Guide for level of service for urban roads

Level of Service	One Lane (veh/hr)	Two Lanes (veh/hr)
A	200	900
B	380	1400
C	600	1800
D	900	2200
E	1400	2800

This assessment considers the traffic increase on two sections of Elderslie Road, the first section being west of the development site, and the second section being between the development site and the Brighton Road, and assumes the additional traffic generated from the new school is operating on the road.

Once the new school is operating at full capacity, Elderslie Road west of the school is expected to provide motorists with a good level of traffic efficiency, with the traffic lanes operating between LOS A and B, with peak hour flows less than 250 vehicles per hour. While between the school and Brighton Road, motorists are expected to receive a similar level of service LOS B, with less than 300 vehicles per peak hour, as shown in the table below.

Level of service operating between LOS A and B, means the traffic flow is stable, motorists have freedom to select their own operating speed, and there should be sufficient gaps in the traffic stream to enable vehicles to enter and leave, without causing adverse impacts.

Table 7.4A – Existing level of service for motorists using Elderslie Road

Existing traffic flow	West of the development site				Development and Brighton Road			
	Morning		Afternoon		Morning		Afternoon	
	West Bound	East Bound	West Bound	East Bound	West Bound	East Bound	West Bound	East Bound
Manual survey data	99	181	211	128	99	181	211	128
Additional school traffic	8	14	13	8	191	81	81	174
New flows with school	107	195	224	136	290	262	292	302
Level of Service	A	A	B	A	B	B	B	B

Additional traffic generated from this residential subdivision has been assigned to Elderslie Road as shown in the table below, showing peak hour lane flows and level of service when the residential development is fully operational. This table demonstrates that the additional traffic flows is not expected to cause any deterioration in level of service for Elderslie Road, as motorists will continue to receive a good level of traffic efficiency, between LOS A and B.

Table 7.4B – Predicted directional flows and level of service when development is operational

Existing traffic flow	West of the development site				Development and Brighton Road			
	Morning		Afternoon		Morning		Afternoon	
	West Bound	East Bound	West Bound	East Bound	West Bound	East Bound	West Bound	East Bound
Predicted traffic	107	195	224	136	290	262	292	302
Development traffic	8	2	2	8	6	78	78	6
New flows with development	115	197	226	144	296	340	370	308
Level of Service	A	A	B	A	B	B	B	B

7.5 Traffic lane capacity on Brighton Road

The above lane capacity methodology used to quantify the traffic impact to Elderslie Road has been applied to Brighton Road, using the lane flows once the new school is operating, and then assigning the additional traffic generated by this residential development. The table below demonstrates the residential development is not expected to cause a deterioration in the traffic performance to Brighton Road, as the level of service will remain the same.

Table 7.5 - Predicted directional flows and level of service

Existing traffic flow	North of Elderslie Road				South of Elderslie Road			
	Morning		Afternoon		Morning		Afternoon	
	North Bound	South Bound	North Bound	South Bound	North Bound	South Bound	North Bound	South Bound
Predicted traffic when school is operating	296	619	679	408	355	652	765	482
Level of service	B	D	D	C	B	D	D	D
Development traffic	14	2	3	22	4	72	62	3
New directional flows with development operating	310	621	682	430	359	724	827	485
Level of Service	B	D	D	C	B	D	D	D

7.6 Traffic efficiency at the new roundabout at Elderslie and Brighton Roads

As discussed earlier, as part of the construction of the new school, the give way control at the intersection of Elderslie and Brighton Roads is being replaced with a single lane roundabout. This section will assess the traffic flow at the roundabout, with the additional vehicle trips generated from this residential development, based on the new school being fully operational.

Traffic modelling indicates the additional traffic generated from the residential development is not expected to cause any adverse traffic impact, the roundabout will provide all motorists with an appropriate level of performance. The modelling results in the table below demonstrates the additional residential development is not expected to cause any deterioration in level of performance, with all motorists predicted to receive level of service LOS B.

Table 7.6 – Summary of traffic modelling when the residential development is operating

Period	Scenario	Total vehicles	Degree of Saturation	Worst delay	Level of service	Max queue length
Morning peak	Base flows with school	1308	0.570	13.9 secs	B	36.3 metres
	With development	1392	0.618	14.8 secs	B	43.8 metres
Evening peak	Base flow with school	1522	0.627	12.8 secs	B	47 metres
	With development	1613	0.697	13.1 secs	B	57.6 metres

8. Sight distance requirements

It is important that drivers leaving the development site from the two new junctions have suitable sight distance to undertake turning manoeuvres in a safe manner, without impacting motorists travelling along Elderslie Road.

Safe Intersection Sight Distance (SISD) is the optimum sight distance to enable a vehicle leaving the development site to see approaching vehicles and then have sufficient time to enter Elderslie Road without impacting the approaching vehicles, meaning that vehicles do not need to slow. SISD is based on the operating speed of approaching vehicles and the gradient of the approaching road. At the development site the road has a posted 60 km/h speed limit, with a road gradient of 6.5 percent.

Based on these parameters, the Austroads Guide to Road Design part 4a: Unsignalised and signalised intersections, table 3.2 specifies the recommended SISD is 114 metres, based on a driver having a reaction time of 1.5 seconds and observation time of three seconds.

8.1 Sight distance at the two new junctions onto Elderslie Road

Measurements were undertaken on site, based on a driver being 1.05 metres above the road surface and an approaching vehicle being 1.2 metres high, with the available sight distances shown in the table below. The available sight distance for the two new junctions exceeds the required SISD, and vehicles will be able to enter and leave the development site in a safe and efficient manner without adversely impacting other users.

Table 8.1 – Available sight distance for the two new junctions

Junction	Available sight distance	
	Viewing left	Viewing right
Eastern	220 metres	>250 metres
Western	190 metres	>250 metres

Photograph 8.1A – Available sight distance at the eastern junction to the left



Photograph 8.1B – Available sight distance at the eastern junction to the right



Photograph 8.1C – Available sight distance at the western junction to the left



Photograph 8.1D - Available sight distance at the western junction to the right



8.2 Sight distance for four lots with direct access onto Elderslie Road

In optimising the number of residential lots, in addition to the two new junctions, lots 105 through to 108 will require direct access onto Elderslie Road.

The direct property accesses will be consistent with the development along the opposite side of Elderslie Road, where existing residential properties have direct road access. The additional accesses will also assist in developing the road as an urban environment.

There is a range of sight distance parameters that can be applied to various situations, with SISD being the highest parameter, suitable for junctions where traffic flows are higher, and users may be unfamiliar with the junction configuration.

The sight distance requirement is lower for a single domestic property, or residential property (multiple units), as traffic generation is significantly lower, and users are familiar with the access configuration. Austroads Guide section 3.4 specifies sight distance at property accesses can be assessed using minimum gap sight distance, which is specified in the Australian Standards 2890.1:2004, figure 3.2. For a domestic property within a 60 km/h speed environment, the minimum sight distance is 55 metres, while for a residential property the minimum sight distance is 83 metres.

Sight distances were measured on site for each of the lots with direct access onto Elderslie Road, with the available sight distances shown in table 7.3 below.

Table 8.2 – Available sight distance for lots 105 to 108

Lot	Sight distance to the left	Sight distance to the right
105	120 metres	In excess of 250 metres
106	140 metres	In excess of 250 metres
107	160 metres	In excess of 250 metres
108	200 metres	In excess of 250 metres

All direct property accesses are expected to have sufficient sight distance to exceed the Australian Standard desirable sight distance of 83 metres, ensuring vehicles can enter and leave the properties in a safe and efficient manner. Each of the property accesses will also have sufficient sight distance to comply with the SISD higher sight distance parameter.

Photographs of the driver's view for each of the direct property accesses, is available in appendix A.

8.3 Need for turning treatments on Elderslie Road

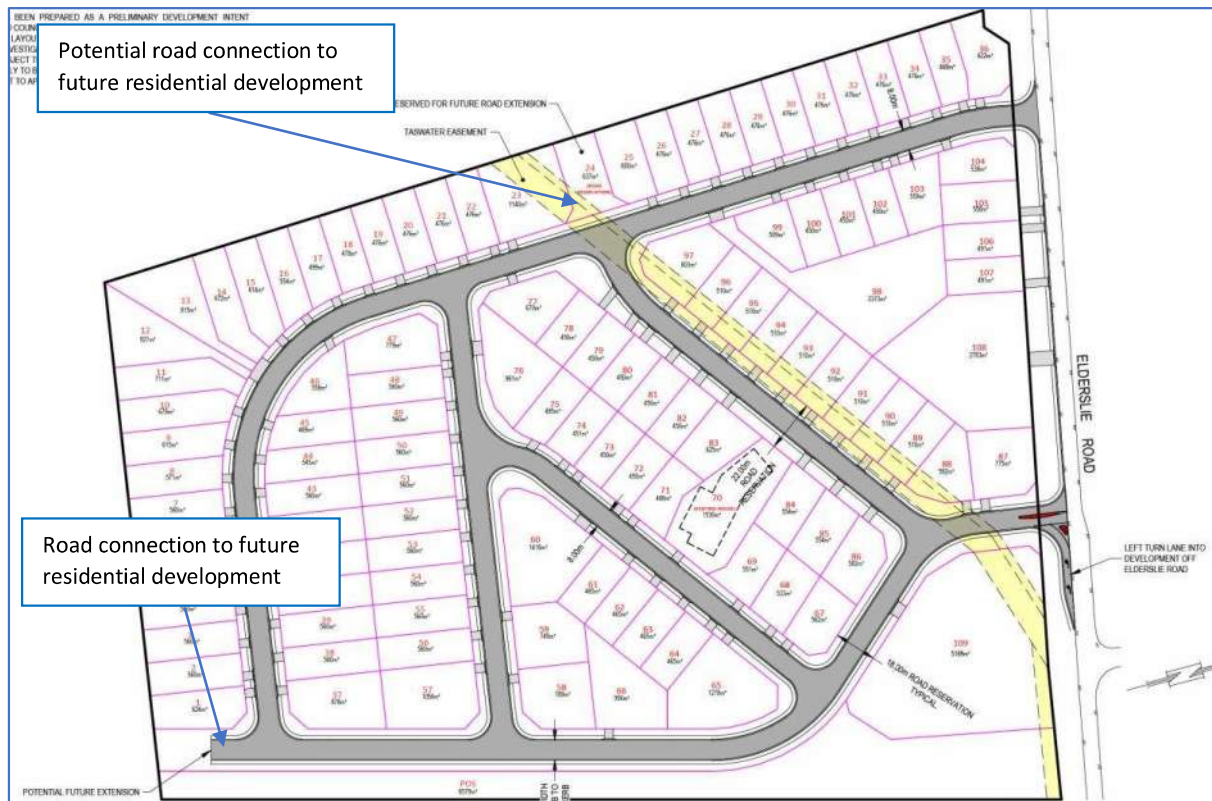
Vehicles entering and leaving the development site will generate turning manoeuvres on Elderslie Road. As discussed earlier, based on the nearest arterial road being east of the development site, the majority of the vehicles will turn right when leaving, and turn left when arriving. The number of vehicles expected to turn right into the development site is expected to be low, and dedicated right turn lanes are not considered warranted.

Most of the vehicles entering are expected to turn left at the eastern junction to the development site, and it is desirable for a short left turn lane to be installed on this junction approach.

9. Subdivision layout and internal road arrangements

The subdivision will extend to the south off Elderslie Road using two new junctions. The internal road network will primarily consist of a loop road connecting between the two junctions, with three other internal roads. Internal roads will intersect forming T-Junctions, minimising the number of vehicular conflict points. The majority of lots will have direct access to the new internal road, except lots 105 to 108, which will have direct access with Elderslie Road.

Diagram 9.0 – Development layout



9.1 Subdivisional road standard

Based on the trip assignment in section 7.1, the internal roads are predicted to have less than 350 two-way daily trips, which would make each road a local road. Based on the Local Government Association of Tasmania (LGAT) standard drawing for urban roads TSD-R06-V1, each of the subdivisional roads will be a through road and suitable to operate with a road width of 8.9 metres, within an 18-metre-wide road reservation.

Each of the roads will be constructed to comply with the LGAT standard for an urban road, with a bitumen road surface, concrete kerb and channel, 1.2-metre-wide footpath along both sides, and street lighting.

9.2 Turning facilities

The new internal road layout eliminates the need for dedicated turning facilities, as all roads allow vehicles to enter, circulate, and leave the development site in a forward-driving direction.

All internal roads will be of sufficient width to accommodate a standard waste collection vehicle to enter, circulate, and leave in a forward-driving direction.

9.3 Turning radius at the new junctions

The new junctions will be designed to accommodate the swept path of a medium rigid vehicle, measuring 8.8 metres in length, to turn left into and left out of the development, without crossing the centre of Elderslie Road.

9.4 On-site parking provisions

All internal lots will have direct access to an internal road, with a suitable area to accommodate on-site parking spaces. The internal roads will have sufficient width to accommodate visitor parking.

Along the eastern side of the development side, the road will be upgraded to an urban standard, with concrete kerb and channel, concrete footpath, and indented parking bays for visitor parking.

9.5 Junctions' layout with Elderslie Road

The two new junctions will intersect Elderslie Road at ninety degrees and form a T-Junction, and under the Australian Road Rules vehicles must give-way when travelling on the terminating leg of the junction. However, it would be appropriate given the significance of Elderslie Road that a Give Way sign, supplemented by a holding line, be provided to reinforce traffic priority for Elderslie Road motorists.

The junctions will be designed to comply with both LGAT standard drawings and Austroads Guide to Road Design, to ensure that light and heavy vehicles can enter and leave in a safe and efficient manner. The layout and design of the junctions will be undertaken during the detail design stage.

9.6 New accesses with direct vehicular access to Elderslie Road

Lots 105 to 108 will require direct vehicular access to Elderslie Road, as they have no direct access to the internal road network. As discussed earlier, direct vehicular access from residential properties will be compatible with other residential properties and developments along Elderslie Road. The concrete driveway crossovers will be provided in accordance with LGAT standard drawing TSD-R09-V1.

9.7 Connection to future residential developments

The Brighton Master Plan for the area, includes a future residential development directly south and west of this development site and it is worthwhile to allow for these residential areas to be connected for pedestrian and vehicular movement. The internal road layout within this subdivision includes a road connection to future residential development, with a connection to the south located adjacent to lot 1, while lot 24 will be reserved for a potential future road extension to the west, as shown in diagram 9.0.

This future road connection to the south is not expected to adversely impact this subdivision, as the Master Plan includes a new road connection directly to Brighton Road, with traffic generated from these new residential developments expected to use the Brighton Road junction and a new junction with Elderslie Road.

The future road connection to the west through lot 24, could allow for the future residential development to be serviced by the new Elderslie Road junctions being constructed under this development. As traffic modelling predicts these new junctions will operate at less than 15 percent of their capacity, indicating there is ample spare traffic capacity to accommodate future traffic growth.

10. Planning scheme

10.1 C3.5.1 Traffic generation at a vehicle crossing, level crossing or new junction

The development site is currently occupied by a residential dwelling that will be retained, while the dwellings existing access will be replaced with two new junctions, plus lots 105 to 108 will require direct vehicular access onto Elderslie Road. Therefore, this development will need to be assessed against the performance criteria P1, demonstrating that the junctions and accesses can operate safely and efficiently.

Performance criteria	Assessment
To ensure that the safety and efficiency of roads is not reduced by the creation of a new access and junctions.	
a) Any increase in the traffic caused by the use;	The new residential development is estimated to generate a total of 974 daily trips during the weekday, with 101 of these trips likely to occur during the morning and evening peak periods. The existing dwelling is already generating seven daily trips, with one of these trips occurring within the peak periods, and these trips will continue.
b) The nature and frequency of the traffic generated by the use;	The majority of the vehicle movements generated by the residential development will be light vehicles, less than 5.5 metres in length. These types of vehicles are associated with urban residential living, and compatible with the existing vehicles using the surrounding local road network.
c) The nature of the road;	Within the surrounding road network, Elderslie Road would function as a local collector road, which has been constructed to an urban standard east of the development site, and a rural standard past the development site. The road has 3.3 metre wide traffic lanes in each direction and is capable of carrying significant traffic volumes. This development will extend the residential development further west, with the road standard adjacent to the development site improved to an urban standard. The majority of traffic generated will connect onto Brighton Road which is the nearest arterial road. Currently the intersection of Elderslie and Brighton Roads is being upgraded to an urban roundabout, to facilitate improved traffic flow. Available sight distance at the two junctions and four direct property accesses will exceed the recommended sight distance, ensuring vehicles will be able to enter and leave in a safe and efficient manner without causing adverse impact to other users.

<p>d) The speed limit and traffic flow of the road;</p>	<p>Elderslie Road has a posted speed limit of 60 km/h. Manual traffic surveys found Elderslie Road is currently moderately trafficked. The Brighton High School is under construction on the land east of the development site, with this school only having a vehicular access to Elderslie Road, it will generate significant traffic movements of up to an additional 276 two-way vehicle movements on Elderslie Road during the peak periods. For the purpose of this traffic assessment, it is assumed that the school is operating at full capacity, with the two-way traffic flows along Elderslie Road between the school and Brighton Road expected to be operating at maximum of 600 two-way vehicle movements in the weekday peak hour periods. While traffic from this residential subdivision will increase the two-way traffic flow on this section of Elderslie Road by an additional 90 two-way vehicle movements, traffic analysis and modelling has determined there is sufficient spare traffic capacity to absorb the traffic increase without adversely impacting the traffic performance, with the level of service not predicted to deteriorate. Traffic modelling has determined the new Brighton roundabout at Elderslie Road, has sufficient spare traffic capacity to absorb the additional traffic without causing a reduction in traffic performance. All motorists using the roundabout are predicted to be receiving level of service LOS B. Also, there will be spare traffic capacity at the roundabout to accommodate future traffic growth in the area. Overall, the surrounding road network can accommodate the increase in traffic movements generated by the development, without adversely impacting the traffic flow.</p>
<p>e) Any alternative access;</p>	<p>No alternative road access.</p>
<p>f) The need for the access or junction;</p>	<p>Urban infill within established urban areas is an excellent method to increase the supply of housing, while optimising the current infrastructure and community facilities.</p>
<p>g) Any traffic impact assessment; and</p>	<p>An independent traffic assessment found there was no reason for this development not to proceed.</p>
<p>h) Any written advice received from the road authority.</p>	<p>Aware of none.</p>

10.2 C2 Parking and Sustainable Transport Code

C2.5.1 Car parking numbers.	Each residential lot will be of sufficient size to accommodate on-site parking facilities to meet the reasonable demand generated. The internal roads will have sufficient road width to accommodate on-street parking for visitors. Indented parking bays will be provided along Elderslie Road along the development road frontage and will provide for visitor parking for lots 105 to 108.
C2.5.2 Bicycle parking numbers.	Not applicable for a residential subdivision.
C2.5.3 Motorcycle parking numbers.	Not applicable for a residential subdivision.
C2.5.4 Loading bays.	While loading bays are not applicable for a residential subdivision, the subdivisional roads will have sufficient width to accommodate commercial vehicles, including waste collection and fire emergency vehicles to circulate.
C2.5.5 Number of car parking spaces within the General Residential Zone and Inner Residential Zone.	Not applicable for a residential subdivision.

11. Conclusion

The provision of a new subdivision off Elderslie Road will provide a supply of urban residential building lots, compatible with the surrounding land-use, and the traffic generated from these new lots is expected to be residential in nature.

From a traffic engineering and road safety perspective, additional traffic generated from this development site is not expected to create any adverse safety, amenity, or traffic efficiency problems, as:

- the amount of traffic generated is considered to be moderate, there is sufficient spare capacity within the current road network to absorb the extra traffic movements, without causing adverse impact to the traffic flow,
- the new junctions with Elderslie Road will have Safe Intersection Sight Distance that will comply with Austroads requirements, and this will ensure vehicles can enter and leave in a safe and efficient manner,
- the four lots 105 to 108 having direct vehicular access with Elderslie Road, will have sufficient sight distance that complies with the Australian Standard for a domestic and residential property driveway,
- traffic analysis and modelling predict that the new junctions with Elderslie Road will perform at the highest level of service for a give way control, and no deterioration in the level of traffic efficiency is expected,
- this assessment has considered the traffic impact when the new Brighton High School is operating at full capacity, with traffic analysis and modelling determining the road network and the new Brighton Road roundabout will provide motorists with an acceptable level of traffic performance, with spare traffic capacity to accommodate future growth.

This Traffic Impact Assessment found no reason for this development not to proceed.

12. Appendix A – Photographs of available sight distance for direct accesses to Elderslie Road

Photograph 12.1 – Available sight distance to the left for lot 103



Photograph 12.2 - Available sight distance to the right for lot 103



Photograph 12.3 - Available sight distance to the left for lot 104



Photograph 12.4 - Available sight distance to the right for lot 104



Photograph 12.5 - Available sight distance to the left for lot 105



Photograph 12.6 - Available sight distance to the right for lot 105



Photograph 12.7 - Available sight distance to the left for lot 106



Photograph 12.8 - Available sight distance to the right for lot 106



13. Appendix B – Modelling of the new Elderslie Road Junctions

Morning peak hour – Eastern junction

MOVEMENT SUMMARY								
▽ Site: 101 [Elderslie Road eastern junction - predicted morning flows]								
New Site								
Site Category: (None)								
Giveaway / Yield (Two-Way)								
Movement Performance - Vehicles								
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
South: Subdivision Road								
1	L2	6	0.0	0.067	5.8	LOS A	0.3	1.8
3	R2	53	0.0	0.067	7.4	LOS A	0.3	1.8
Approach		59	0.0	0.067	7.2	LOS A	0.3	1.8
East: Elderslie Road (Brighton)								
4	L2	5	0.0	0.003	5.5	LOS A	0.0	0.0
5	T1	99	0.0	0.051	0.0	LOS A	0.0	0.0
Approach		104	0.0	0.051	0.3	NA	0.0	0.0
West: Elderslie Road (Elderslie)								
11	T1	212	0.0	0.110	0.0	LOS A	0.0	0.1
12	R2	1	0.0	0.110	5.9	LOS A	0.0	0.1
Approach		213	0.0	0.110	0.0	NA	0.0	0.1
All Vehicles		376	0.0	0.110	1.2	NA	0.3	1.8

Evening peak hour – Eastern junction

MOVEMENT SUMMARY								
▽ Site: 101 [Elderslie Road eastern junction - predicted evening flows]								
New Site								
Site Category: (None)								
Giveaway / Yield (Two-Way)								
Movement Performance - Vehicles								
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
South: Subdivision Road								
1	L2	1	0.0	0.007	6.2	LOS A	0.0	0.2
3	R2	5	0.0	0.007	7.7	LOS A	0.0	0.2
Approach		6	0.0	0.007	7.4	LOS A	0.0	0.2
East: Elderslie Road (Brighton)								
4	L2	53	0.0	0.029	5.5	LOS A	0.0	0.0
5	T1	217	0.0	0.111	0.0	LOS A	0.0	0.0
Approach		270	0.0	0.111	1.1	NA	0.0	0.0
West: Elderslie Road (Elderslie)								
11	T1	130	0.0	0.072	0.1	LOS A	0.1	0.4
12	R2	6	0.0	0.072	6.6	LOS A	0.1	0.4
Approach		136	0.0	0.072	0.4	NA	0.1	0.4
All Vehicles		412	0.0	0.111	0.9	NA	0.1	0.4

Morning peak hour - Western junction

MOVEMENT SUMMARY								
▽ Site: 101 [Western Junction with Elderslie Road - predicted morning flows]								
New Site Site Category: (None) Giveaway / Yield (Two-Way)								
Movement Performance - Vehicles								
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
South: Subdivision western junction								
1	L2	2	0.0	0.026	5.8	LOS A	0.1	0.6
3	R2	25	0.0	0.026	6.5	LOS A	0.1	0.6
Approach		27	0.0	0.026	6.4	LOS A	0.1	0.6
East: Elderslie Road (Brighton)								
4	L2	1	0.0	0.055	5.5	LOS A	0.0	0.0
5	T1	106	0.0	0.055	0.0	LOS A	0.0	0.0
Approach		107	0.0	0.055	0.1	NA	0.0	0.0
West: Elderslie Road (Elderslie)								
11	T1	181	0.0	0.093	0.0	LOS A	0.0	0.0
12	R2	1	0.0	0.093	5.8	LOS A	0.0	0.0
Approach		182	0.0	0.093	0.0	NA	0.0	0.0
All Vehicles		316	0.0	0.093	0.6	NA	0.1	0.6

Evening peak hour - Western junction

MOVEMENT SUMMARY								
▽ Site: 101 [Western Junction with Elderslie Road - predicted evening flows]								
New Site Site Category: (None) Giveaway / Yield (Two-Way)								
Movement Performance - Vehicles								
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
South: Subdivision western junction								
1	L2	1	0.0	0.002	6.1	LOS A	0.0	0.0
3	R2	1	0.0	0.002	6.7	LOS A	0.0	0.0
Approach		2	0.0	0.002	6.4	LOS A	0.0	0.0
East: Elderslie Road (Brighton)								
4	L2	25	0.0	0.122	5.6	LOS A	0.0	0.0
5	T1	212	0.0	0.122	0.0	LOS A	0.0	0.0
Approach		237	0.0	0.122	0.6	NA	0.0	0.0
West: Elderslie Road (Elderslie)								
11	T1	128	0.0	0.067	0.0	LOS A	0.0	0.1
12	R2	2	0.0	0.067	6.2	LOS A	0.0	0.1
Approach		130	0.0	0.067	0.1	NA	0.0	0.1
All Vehicles		369	0.0	0.122	0.5	NA	0.0	0.1

Morning peak hour with incremental growth on Elderslie Road of 2% for 10 years – Eastern junction

MOVEMENT SUMMARY

▽ Site: 101 [Elderslie Road eastern junction - predicted morning flows with incremental growth 2% 10 years]

New Site
Site Category: (None)
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles								
Mov ID	Turn	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue	
		Total veh/h	HV %				Vehicles veh	Distance m
South: Subdivision Road								
1	L2	6	0.0	0.073	5.9	LOS A	0.3	2.0
3	R2	53	0.0	0.073	7.9	LOS A	0.3	2.0
Approach		59	0.0	0.073	7.7	LOS A	0.3	2.0
East: Elderslie Road (Brighton)								
4	L2	5	0.0	0.003	5.5	LOS A	0.0	0.0
5	T1	121	0.0	0.062	0.0	LOS A	0.0	0.0
Approach		126	0.0	0.062	0.2	NA	0.0	0.0
West: Elderslie Road (Elderslie)								
11	T1	258	0.0	0.133	0.0	LOS A	0.0	0.1
12	R2	1	0.0	0.133	6.0	LOS A	0.0	0.1
Approach		259	0.0	0.133	0.0	NA	0.0	0.1
All Vehicles		444	0.0	0.133	1.1	NA	0.3	2.0

Evening peak hour with incremental growth on Elderslie Road of 2% for 10 years – Eastern junction

MOVEMENT SUMMARY

▽ Site: 101 [Elderslie Road eastern junction - predicted evening flows - with incremental growth 2% 10 years]

New Site
Site Category: (None)
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles								
Mov ID	Turn	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue	
		Total veh/h	HV %				Vehicles veh	Distance m
South: Subdivision Road								
1	L2	1	0.0	0.008	6.3	LOS A	0.0	0.2
3	R2	5	0.0	0.008	8.3	LOS A	0.0	0.2
Approach		6	0.0	0.008	7.9	LOS A	0.0	0.2
East: Elderslie Road (Brighton)								
4	L2	53	0.0	0.029	5.5	LOS A	0.0	0.0
5	T1	265	0.0	0.136	0.0	LOS A	0.0	0.0
Approach		318	0.0	0.136	0.9	NA	0.0	0.0
West: Elderslie Road (Elderslie)								
11	T1	158	0.0	0.087	0.1	LOS A	0.1	0.4
12	R2	6	0.0	0.087	6.9	LOS A	0.1	0.4
Approach		164	0.0	0.087	0.3	NA	0.1	0.4
All Vehicles		488	0.0	0.136	0.8	NA	0.1	0.4

Morning peak hour with incremental growth on Elderslie Road of 2% for 10 years - Western junction

MOVEMENT SUMMARY

▽ Site: 101 [Western Junction with Elderslie Road - predicted morning flows - with incremental growth 2% 10 yr

New Site
Site Category: (None)
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles								
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
South: Subdivision western junction								
1	L2	2	0.0	0.028	5.9	LOS A	0.1	0.6
3	R2	25	0.0	0.028	6.8	LOS A	0.1	0.6
Approach		27	0.0	0.028	6.7	LOS A	0.1	0.6
East: Elderslie Road (Brighton)								
4	L2	1	0.0	0.067	5.5	LOS A	0.0	0.0
5	T1	129	0.0	0.067	0.0	LOS A	0.0	0.0
Approach		130	0.0	0.067	0.0	NA	0.0	0.0
West: Elderslie Road (Elderslie)								
11	T1	221	0.0	0.114	0.0	LOS A	0.0	0.1
12	R2	1	0.0	0.114	5.9	LOS A	0.0	0.1
Approach		222	0.0	0.114	0.0	NA	0.0	0.1
All Vehicles		379	0.0	0.114	0.5	NA	0.1	0.6

Evening peak hour with incremental growth on Elderslie Road of 2% for 10 years - Western junction

MOVEMENT SUMMARY


▽ Site: 101 [Western Junction with Elderslie Road - predicted evening flows -with incremental growth 2% 10 yrs]

New Site
Site Category: (None)
Giveaway / Yield (Two-Way)


Movement Performance - Vehicles								
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
South: Subdivision western junction								
1	L2	1	0.0	0.002	6.3	LOS A	0.0	0.0
3	R2	1	0.0	0.002	7.0	LOS A	0.0	0.0
Approach		2	0.0	0.002	6.7	LOS A	0.0	0.0
East: Elderslie Road (Brighton)								
4	L2	25	0.0	0.146	5.6	LOS A	0.0	0.0
5	T1	258	0.0	0.146	0.0	LOS A	0.0	0.0
Approach		283	0.0	0.146	0.5	NA	0.0	0.0
West: Elderslie Road (Elderslie)								
11	T1	156	0.0	0.081	0.0	LOS A	0.0	0.1
12	R2	2	0.0	0.081	6.4	LOS A	0.0	0.1
Approach		158	0.0	0.081	0.1	NA	0.0	0.1
All Vehicles		443	0.0	0.146	0.4	NA	0.0	0.1

14. Appendix C – Modelling of Brighton Road roundabout

Morning peak hour - based on flows with school operating at capacity

MOVEMENT SUMMARY								
 Site: 101 [Proposed roundabout AM peak with school traffic]								
New Site Site Category: (None) Roundabout								
Movement Performance - Vehicles								
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m
South: Brighton Road (south)								
1	L2	123	5.0	0.320	5.8	LOS A	2.1	16.0
2	T1	214	10.0	0.320	6.0	LOS A	2.1	16.0
3	R2	18	5.0	0.320	9.0	LOS A	2.1	16.0
Approach		355	8.0	0.320	6.1	LOS A	2.1	16.0
East: William Street								
4	L2	63	5.0	0.126	10.8	LOS B	0.8	5.6
5	T1	5	5.0	0.126	10.8	LOS B	0.8	5.6
6	R2	4	5.0	0.126	13.9	LOS B	0.8	5.6
Approach		72	5.0	0.126	11.0	LOS B	0.8	5.6
North: Brighton Road (north)								
7	L2	5	5.0	0.570	6.6	LOS A	4.8	36.3
8	T1	469	10.0	0.570	6.8	LOS A	4.8	36.3
9	R2	145	5.0	0.570	9.8	LOS A	4.8	36.3
Approach		619	8.8	0.570	7.5	LOS A	4.8	36.3
West: Elderslie Road								
10	L2	78	0.0	0.254	6.3	LOS A	1.5	10.6
11	T1	1	0.0	0.254	6.3	LOS A	1.5	10.6
12	R2	183	0.0	0.254	9.4	LOS A	1.5	10.6
Approach		262	0.0	0.254	8.5	LOS A	1.5	10.6
All Vehicles		1308	6.6	0.570	7.5	LOS A	4.8	36.3

Evening peak hour – based on flows with school operating at capacity

MOVEMENT SUMMARY								
 Site: 101 [Proposed roundabout PM peak with school traffic]								
New Site Site Category: (None) Roundabout								
Movement Performance - Vehicles								
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m
South: Brighton Road (south)								
1	L2	178	5.0	0.627	6.0	LOS A	6.3	47.1
2	T1	528	10.0	0.627	6.2	LOS A	6.3	47.1
3	R2	59	5.0	0.627	9.2	LOS A	6.3	47.1
Approach		765	8.5	0.627	6.4	LOS A	6.3	47.1
East: William Street								
4	L2	32	5.0	0.062	8.2	LOS A	0.3	2.5
5	T1	6	5.0	0.062	8.2	LOS A	0.3	2.5
6	R2	9	5.0	0.062	11.3	LOS B	0.3	2.5
Approach		47	5.0	0.062	8.8	LOS A	0.3	2.5
North: Brighton Road (north)								
7	L2	9	5.0	0.397	6.4	LOS A	2.8	21.0
8	T1	291	10.0	0.397	6.6	LOS A	2.8	21.0
9	R2	108	5.0	0.397	9.6	LOS A	2.8	21.0
Approach		408	8.6	0.397	7.4	LOS A	2.8	21.0
West: Elderslie Road								
10	L2	141	0.0	0.417	9.7	LOS A	3.0	20.7
11	T1	2	0.0	0.417	9.7	LOS A	3.0	20.7
12	R2	159	0.0	0.417	12.8	LOS B	3.0	20.7
Approach		302	0.0	0.417	11.3	LOS B	3.0	20.7
All Vehicles		1522	6.7	0.627	7.7	LOS A	6.3	47.1