

Beveridge Williams




The Beach – Apollo Bay

Development Plan Summary

17 January 2018

DOCUMENT CONTROL DATA

 Beveridge Williams Melbourne Office 1 Glenferrie Road Malvern Vic 3144 PO Box 61 Malvern Vic 3144 Tel: (03) 9524 8888 beveridgewilliams.com.au	Title	Development Plan Summary
	Author	Leanne Nickels
	Checked	Mark Fleming
	Project Manager	Bernard Stewart
	Synopsis	Brief report discussing the revised development plan

Reference: 3133

Client: Australian Tourism Investments No.5 Pty Ltd

Revision Table

Rev	Description	Date	Authorised
01	Initial Issue	20.11.2017	M. FLEMING
02	Section 7 Added	21.11.2017	M. FLEMING
03	Development plan amended to V24, responses to meeting with Council, November 2017 added	12.01.2018	M. FLEMING
04	Development plan amended to V25, further information regarding landslide mitigation measures added	17.01.2018	L. NICKELS

Distribution Table

Date	Revision	Distribution

Copyright Notice

© Copyright – Beveridge Williams & Co P/L

Users of this document are reminded that it is subject to copyright. This document should not be reproduced, except in full and with the permission of Beveridge Williams & Co Pty Ltd

CONTENTS

1	INTRODUCTION	4
1.1	DEVELOPMENT PLAN.....	4
1.1A	RESPONSE FOLLOWING MEETING WITH COUNCIL – NOVEMBER 2017	4
2	DEVELOPMENT PLAN	5
2.1	LOT SIZING AND FRONTAGES	5
2.2	LOT SETBACKS & HEIGHT RESTRICTIONS.....	5
2.2A	RESPONSE FOLLOWING MEETING WITH COUNCIL – NOVEMBER 2017	5
2.3	LAND ABOVE THE 40M CONTOUR.....	6
2.3A	RESPONSE FOLLOWING MEETING WITH COUNCIL – NOVEMBER 2017	6
3	OPEN SPACE PROVISION	7
3.1	OPEN SPACE PROVISION (10% OF LAND FOR RESIDENTIAL PURPOSES).....	7
3.2	LOCATION & CONNECTIVITY OF OPEN SPACE	7
3.3	STAGED PROVISION OF OPEN SPACE	7
3.4	DRAFT NEIGHBOURHOOD PARK CONCEPT PLAN.....	8
4	AVOIDANCE OF IMPACTS ON GREAT OCEAN ROAD	9
4.1	EXISTING TREES	9
4.2	EXISTING CABLE STATION.....	9
4.3	VIEWS FROM GREAT OCEAN ROAD.....	9
5	LANDSLIDE MITIGATION	10
5.1	PROPOSED EARTH BUND.....	10
5.1A	RESPONSE FOLLOWING MEETING WITH COUNCIL – NOVEMBER 2017	10
5.1B	INITIAL CONCEPT AND TYPICAL SECTION OF BUND.....	10
5.2	MAINTENANCE OF EARTH BUND.....	11
5.3	IMPACTS ON DRAINAGE OVERLAND FLOW.....	11
6	DRAINAGE CONSIDERATIONS.....	12
6.1	CENTRAL DRAINAGE CHANNEL.....	12
6.1A	RESPONSE FOLLOWING MEETING WITH COUNCIL – NOVEMBER 2017	12
6.2	TREATMENT AND DETENTION OF STORM WATER.....	12
6.3	PEDESTRIAN SAFETY	12
6.4	OUTLET TO GREAT OCEAN ROAD	13
7	WATER TANK & SEWER PUMP STATION ARRANGEMENTS.....	14
7.1	WATER TANK	14
7.2	SEWER PUMP STATION	14

APPENDICES

- APPENDIX A. PROPOSED DEVELOPMENT PLAN
- APPENDIX B. CROSS SECTIONS ALONG GREAT OCEAN ROAD
- APPENDIX C. POTENTIAL FUTURE STREETScape RENDER
- APPENDIX D. OPEN SPACE LOCATION AND CONNECTIVITY PLAN
- APPENDIX E. DRAFT NEIGHBOURHOOD PARK CONCEPT PLAN
- APPENDIX F. INDICATIVE LANDSLIP PROTECTION MEASURES
- APPENDIX G. INDICATIVE STORMWATER MANAGEMENT PLAN

1 INTRODUCTION

1.1 Development Plan

This development plan has undergone a number of iterations as concerns have been raised and addressed by the various interested parties.

In Version 22, ATI No. 5, under new leadership, has sought to address all concerns raised in the past, to produce a development plan that can be welcomed by Council, Community, and Developer alike.

The following summary addresses key concerns on the development, and explains how they have been mitigated in this new design.

1.1a Response following meeting with Council – November 2017

After meeting with Council in November 2017, the development plan has again been revised, and is now at Version 25. The main changes concern the drainage channel through the centre of the open space, and the removal of the lot above the 40m contour. The changes are discussed in further detail within the following sections of this report.

2 DEVELOPMENT PLAN

2.1 Lot Sizing and Frontages

The development plan has now been amended to show all lots above the minimum required size of 450m². Additionally, all lots along the north and west boundaries of the site have an area greater than 500m².

Internal frontages within the development range from 14 to 18 m, with the exception of a small number of lots in stage 4, where lots front a shared driveway, and where lots have been narrowed slightly to provide space for the overland flow of stormwater to enter the proposed drainage reserve in Mariners Vue.

Lot widths fronting the Great Ocean Road range from 16 to 20m.

Refer Appendix A.

2.2 Lot Setbacks & Height Restrictions

An assessment of the visibility of any potential housing fronting the Great Ocean Road has been undertaken – refer Appendix B.

The zoning of the site allows for a maximum building envelope height of 9m, measured from natural ground level.

It is proposed to provide “no building” setbacks of between 20m and 30m, depending on the depth of the block, and to provide vegetation along the landscape buffer and drainage reserves along the Great Ocean Road frontage, which will grow to a height of at least 2.5m

The attached sections demonstrate that, at worst, approximately the top 3.5m of housing on 6 lots will be visible from vehicles travelling along the great ocean road (lots east of proposed entry road).

It is also proposed to provide design guidelines for the estate, which will ensure any visible housing has high aesthetic value, and respects the natural form and siting of the land.

Overall, these measures ensure that the valued entryway into Apollo Bay is not negatively aesthetically impacted by the proposed development.

2.2a Response following meeting with Council – November 2017

Council pointed out that the oblique view, travelling into Apollo Bay along the Great Ocean Road has also had high importance to locals and Councillors in the area. In response, the attached “Potential Future Streetscape” render has been produced, showing that the views will not be adversely impacted. A number of taller species is intended to be interspersed with the vegetation in the landscape buffer, providing further screening of houses and enhancing the aesthetic appeal of the estate.

Refer Appendix C.

2.3 Land Above the 40m Contour

DPO5 makes mention that development should not occur above the 40m Contour. We request that Council review this requirement, in light of the Neighbourhood Residential Zone encompassing a small pocket of land above the 40m contour in the west of the site.

It is noted that the Mariners Vue Development, immediately west of the proposed development, has been approved with lots situated above the 40m contour, and a connection into the proposed development, also occurring above the 40m contour.

We ask Council to consider that we be allowed to deliver the single proposed lot above the 40m contour, in order to make the provision of the connection financially viable to the developer, and in the interests of fairness, since no restriction has been placed on the Mariners Vue Estate.

Additionally, there is a requirement for this development to provide landslide mitigation measures along the rear of the Neighbourhood Residential Zone, which would protect the proposed lot above the 40m contour from any landslide impacts.

2.3a Response following meeting with Council – November 2017

Following discussions with Council regarding this matter, the development plan has been amended to show land above the 40m contour contained within a single lot, which also has sufficient area for a dwelling to be constructed below the 40m contour.

3 OPEN SPACE PROVISION

3.1 Open Space Provision (10% of Land for Residential Purposes)

Council has requested that an open space contribution as a combination of land (a 1ha Open Space Reserve as a minimum) as well as a cash financial contribution for the balance of the required contribution be provided.

The total land on this development proposed for residential use is 14.305ha.

The current plan provides an open space of 1.040ha, and the applicant agrees they are willing to provide a cash contribution in lieu of the remaining 0.391ha.

3.2 Location & Connectivity of Open Space

The open space has been located further west than Council had indicated a preference for. We understand Council's preference to be based on a central location (within the estate) and the ability to deliver the public open space on the leased land. The attached Open Space Location and Connectivity Plan (Appendix D) demonstrates that over 98% of lots (all except 3) are within a 400m walkable catchment of the proposed open space. The remaining 3 lots are within 450m. It is also noted that the adjacent Mariners Vue development plan provides for public open space on the western boundary of that site, making this open space area quite central in the broader context of the residential area.

To assuage Council's concerns that the remaining Open Space may be delayed by the long-term leasehold that exists on the land on which much of the open space is situated, the developer will provide a signed agreement with the Leaseholder of the land, allowing the developer to locate and build the Open Space and any required associated infrastructure, if and when required by Council (in this case, with Stage 2 of the development). The Agreement would also allow for the subdivision of the land and the transfer of title of the reserve to Council.

Pedestrian connections are proposed, connecting from the Mariners Vue Estate to the west, via the proposed Open Space, and down to the existing shoreline walking trail. Further proposed connections link the Open Space to the Drainage Reserve and existing vegetated area in the east of the site.

A crossing point connecting the site to the existing shoreline walking trail is to be provided in stage 1, and will include a pedestrian refuge for crossing the Great Ocean Road.

3.3 Staged Provision of Open Space

An area of 10% of the residential area of stage 1 (0.29ha) is proposed to be delivered with Stage 1, as a standalone open space. This will include embellishment of the open space, including a DDA compliant walking path, picnic facilities, and tree plantings.

The remaining 0.75ha of open space is to be delivered with stage 2. This is necessary to allow available cash flow from the initial stage to fund the embellishments that will be required.

3.4 Draft Neighbourhood Park Concept Plan

A draft concept plan has been provided (Appendix E), which demonstrates that the proposed site can comply with Table 7.1 of the Colac Otway Public Open Space Strategy, for a Neighbourhood Parkland.

The plan provides for a DDA compliant walking path, picnic facilities, and tree plantings. Additionally, a children's playground is proposed, in order to meet the requirements of DPO5.

Boardwalk crossings are proposed, to provide for pedestrian access across the drainage channel, while curved gabion walls will allow the slope to be softened to provide for an informal play area.

The side walls of the channel are proposed to be provided at a 1:6 grade, to allow them to be grassed, and thus easily mown and maintained with the rest of the reserve.

4 AVOIDANCE OF IMPACTS ON GREAT OCEAN ROAD

4.1 Existing Trees

The proposed works to provide an entryway into the estate have been sited so as to ensure no existing Trees along the ocean side of Great Ocean Road will be impacted.

4.2 Existing Cable Station

The proposed works to provide an entryway into the estate have been sited so as to ensure all works remain within the frontage of the proposed estate, and the existing title containing the historic Cable Station will not be impacted.

4.3 Views from Great Ocean Road

As detailed in section 2.2 above, view from the Great Ocean Road have been considered, and any housing impacts to the existing views will be minimal.

Additionally, any infrastructure required to be positioned within the landscape or drainage buffers (e.g. sewer pumping station) will be well screened with vegetation to minimise any aesthetic impacts.

5 LANDSLIDE MITIGATION

5.1 Proposed Earth Bund

It is proposed to provide an earth bund, delivered in stages as appropriate, to protect proposed lots from any landslide impacts. The earth bund will be certified by the relevant professionals to ensure adequate protection for the subdivision, and will feature a profile at a grade which can be mown, for easy maintenance. It is noted that the bund will be located within the fire buffer area which also requires ongoing maintenance.

5.1a Response following meeting with Council – November 2017

The process of obtaining professional advice so as to form a more detailed idea of the proposed bund's size, aesthetic and position has been initiated. An initial report has been received and the developer is now undertaking further investigation of the options presented, so a decision on the final form of the bund can be made.

5.1b Initial concept and typical section of bund

Based on professional advice received from Golder Associates an initial concept for the size, form and positioning of the proposed earth bund has been put together.

It is proposed that the bund is formed with a rear retaining wall structure facing up the slope, to prevent debris "launching" over the bund. This side of the bund will not be visible to the public and so aesthetics are not as important in this area.

Initial calculations show that the functional part of the bund may require dimensions in the order of 3m high and 7m wide. There is the possibility of reducing this size if a pile-driven wall can be located at the rear of the bund. The viability of this would be subject to onsite geotechnical investigations and cost assessments.

Due to the fall of the site, relatively steep (1 in 2 to 1 in 3 grade) slopes will be required in front of the functional part of the bund in order to batter back to the existing slope. Grades need to be around 1 in 6 for mowing to take place. For this reason, it is proposed to relocate the bund and battering further back in the site, outside of the required fire buffer. This will allow the bund to be planted out or hydro-seeded with native grasses, to match the surrounding area, which will not require mowing. Depending on the grades required, geo-fabric may be investigated to provide extra stability on the front slopes of the bund.

Advice from Golders has recommended that where landslide debris flow may enter existing channels and flow into the developed portion of the site via roads and drainage flow paths, breaker zones be placed, consisting of driven piles, to break up the debris flow. The actual sizing, form and position of the breaker zones will be subject to detailed design. An additional breaker zone and drainage flow path has been added in the eastern portion of the site, to allow for debris flows to remain on the subject property, without impacting any allotments.

Refer Appendix F for a plan demonstrating the intended concept, including an indicative typical section.

5.2 Maintenance of Earth Bund

It is proposed that mowing and maintenance of the earth bund be packaged with the fire buffer maintenance arrangements. Our client is open to discussion about the most appropriate legal mechanism to deal with this but is currently proposing the provision of a right of way in favour of lots within the development (and Council should they see the need), and a Section 173 agreement on the created and balance titles outlining the responsibilities and costs associated with maintenance of the area.

5.3 Impacts on Drainage Overland Flow

There has been some concern in the past that the natural overland flow from higher up the site would be impacted by the installation of an earth bund. It is proposed that the bund be installed in such a way to act as a catch drain, directing flows to existing overland flow routes entering the developed portion of the site, and also offering protection from sheet flows to properties within the development.

6 DRAINAGE CONSIDERATIONS

6.1 Central Drainage Channel

The plan attached in appendix G demonstrates that existing overland flow routes through the site are to be maintained. Small overland flow reserves have been placed at the existing entry routes of overland flows into the area to be developed. Together with road grading, these will allow the overland flows to be directed either offsite to Mariners Vue drainage reserve, or along the central drainage channel to be provided within the proposed open space.

The side walls of the channel are proposed to be provided at a 1:6 grade, to allow them to be grassed, and thus easily mown and maintained with the rest of the reserve.

6.1a Response following meeting with Council – November 2017

At the meeting, Council Officers expressed concern at the narrow width of the channel at the northern entry point to the developed area. In response, the development plan now shows the channel extending through at a consistent width. Additionally, the northern road crossing the drainage channel has been converted into two non-joining T-heads, allowing for the removal of a culvert crossing, and presenting the added benefit of removing a long, unrestricted section of road, improving speed control within the local area.

6.2 Treatment and Detention of Storm Water

Flows will be directed to wetlands along the Great Ocean Road frontage of the site. Preliminary calculations and modelling has been completed to give us the confidence that the reserve sizes allocated have sufficient space to achieve best practice guidelines for the removal of sediment and nutrients prior to discharge from the site. A stormwater strategy can be provided prior to issue of a planning permit for the development. Further details of the wetlands, including prevention of washout, can be provided at the detailed design phase of the project. It is suggested that it be a condition of the permit that stormwater is managed to the satisfaction of Council.

6.3 Pedestrian Safety

Pedestrian safety will be taken into account in the design of all drainage infrastructure. All overland flow paths will meet the industry accepted safety criteria of $v \times d \leq 0.35$ and the paths within the public open space crossing the channel will be designed so as to avoid the need for pedestrians entering flowing water with culverts or small bridges. Further details demonstrating how this is to be achieved can be provided at the detailed design phase of the project. It is suggested that it be a condition of the permit that pedestrian safety is managed to the satisfaction of Council.

6.4 Outlet to Great Ocean Road

We do not intend to adjust the existing culverts under Great Ocean Road, nor do we intend to construct any additional culverts. Because we will be retarding flows back to the pre-existing peak flows from the site, the existing culverts will be adequate. There should be no need for any works within the foreshore because of the proposed development. However, if there are existing concerns (we are not aware of any), the developer would be willing to work with Council and VicRoads to implement a practical solution to improve on the situation.

7 WATER TANK & SEWER PUMP STATION ARRANGEMENTS

7.1 Water Tank

The current strategy for the provision of water to the site is to utilise the proposed site within the Mariners Vue Estate, as per Barwon Water's preference. The site already contains an acquisition overlay and it is part of the water supply strategy for Apollo Bay.

Arrangements for the construction of the tank will be negotiated with Barwon Water. We understand an upgrade to the existing water supply will be required prior to Statement of Compliance for the first stage. That upgrade will also be adequate for fire-fighting purposes.

7.2 Sewer Pump Station

A sewer pump station is required on the site. It is proposed to situate the pump station towards the rear of the 20m drainage reserve, to the east of the emergency vehicle access. Vehicle access will be provided for the purposes of maintenance of the sewer pump station.

The majority of the infrastructure required for the sewer pump station is below ground. A cabinet will be situated above ground, which can be easily screened to avoid any negative aesthetic impacts on the Great Ocean Road.

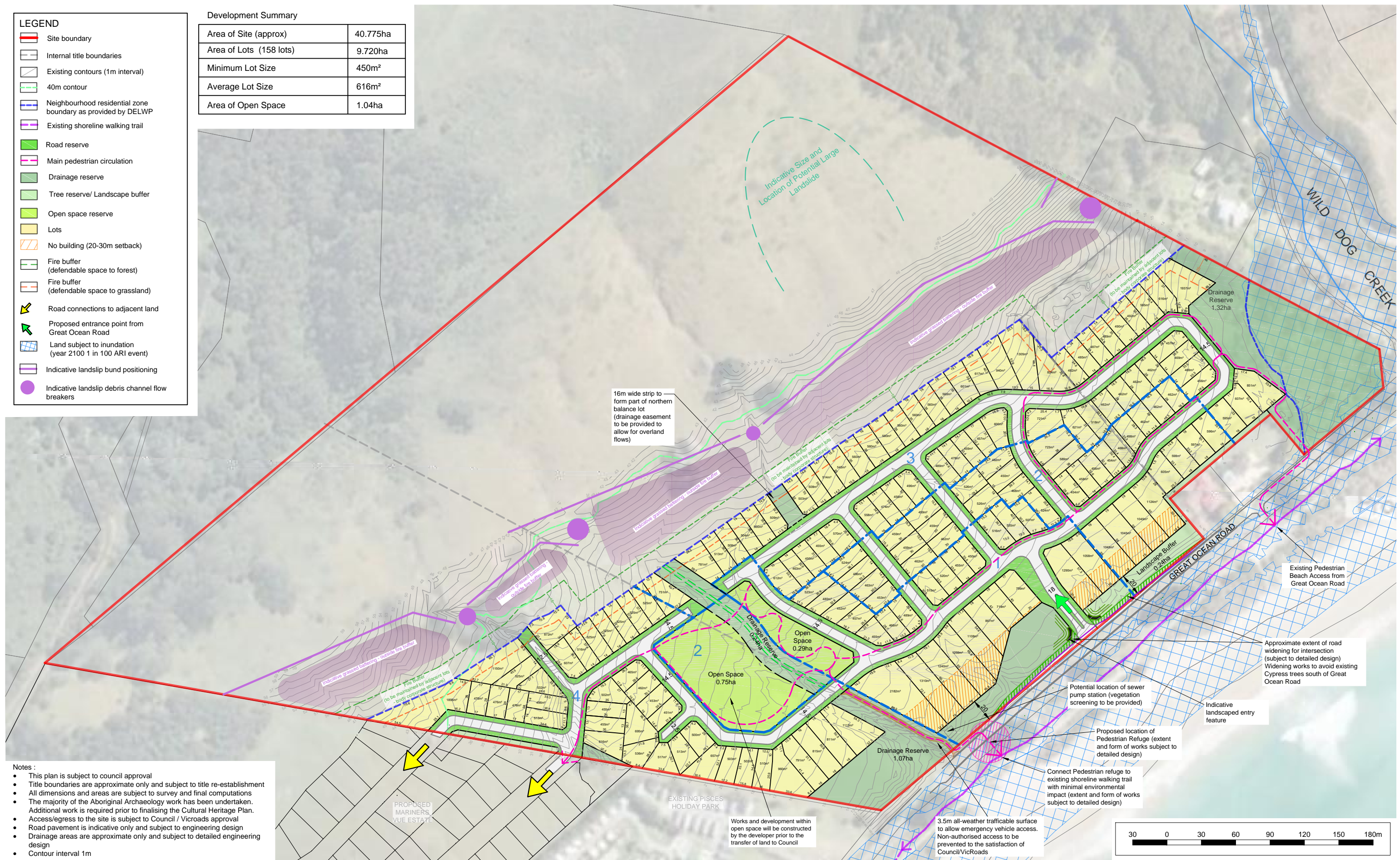
APPENDIX A. Proposed Development Plan

LEGEND

- Site boundary
- Internal title boundaries
- Existing contours (1m interval)
- 40m contour
- Neighbourhood residential zone boundary as provided by DELWP
- Existing shoreline walking trail
- Road reserve
- Main pedestrian circulation
- Drainage reserve
- Tree reserve/ Landscape buffer
- Open space reserve
- Lots
- No building (20-30m setback)
- Fire buffer (defendable space to forest)
- Fire buffer (defendable space to grassland)
- Road connections to adjacent land
- Proposed entrance point from Great Ocean Road
- Land subject to inundation (year 2100 1 in 100 ARI event)
- Indicative landslip bund positioning
- Indicative landslip debris channel flow breakers

Development Summary

Area of Site (approx)	40.775ha
Area of Lots (158 lots)	9.720ha
Minimum Lot Size	450m ²
Average Lot Size	616m ²
Area of Open Space	1.04ha



- Notes :**
- This plan is subject to council approval
 - Title boundaries are approximate only and subject to title re-establishment
 - All dimensions and areas are subject to survey and final computations
 - The majority of the Aboriginal Archaeology work has been undertaken. Additional work is required prior to finalising the Cultural Heritage Plan.
 - Access/egress to the site is subject to Council / Vicroads approval
 - Road pavement is indicative only and subject to engineering design
 - Drainage areas are approximate only and subject to detailed engineering design
 - Contour interval 1m

Overall Development Plan
The Beach, Apollo Bay
Australian Tourism Investments Number 5

DRAFT

FOR DISCUSSION PURPOSES ONLY

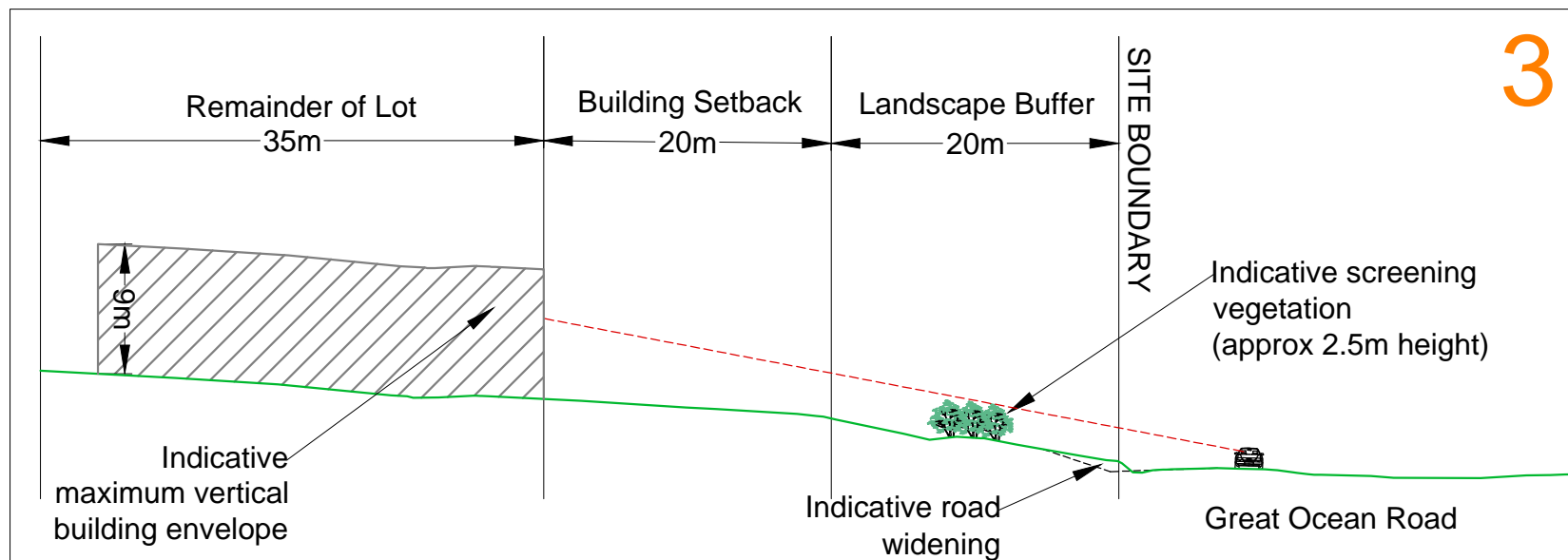
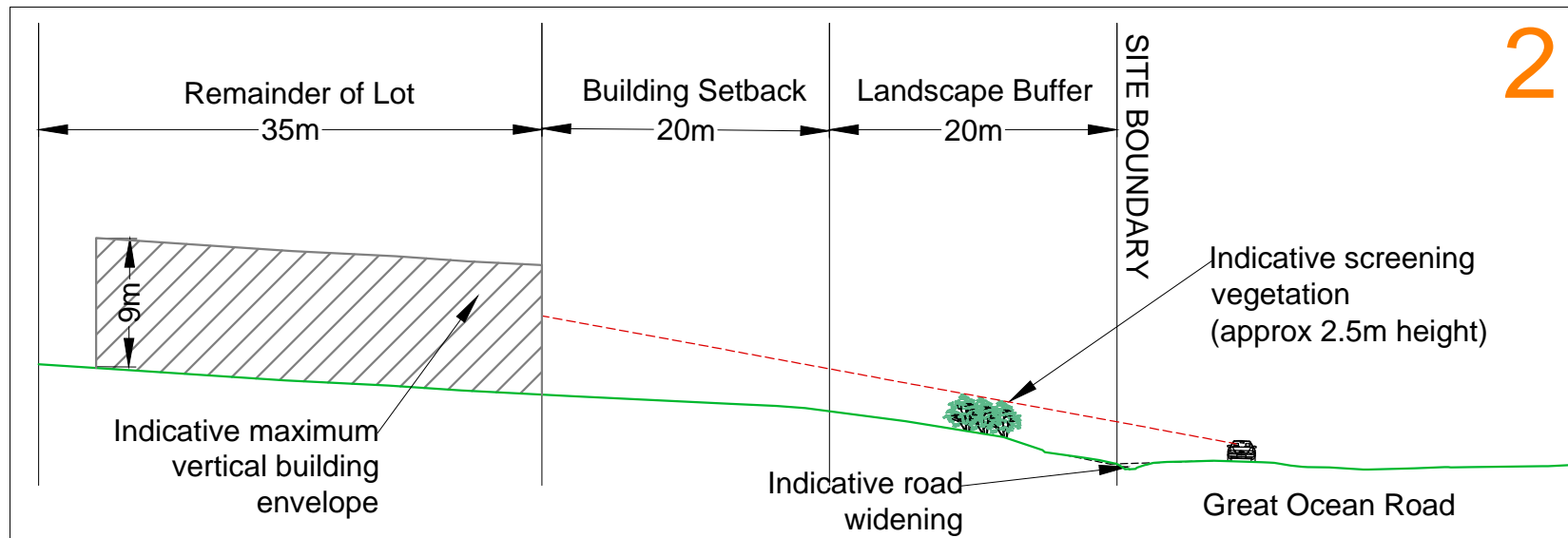
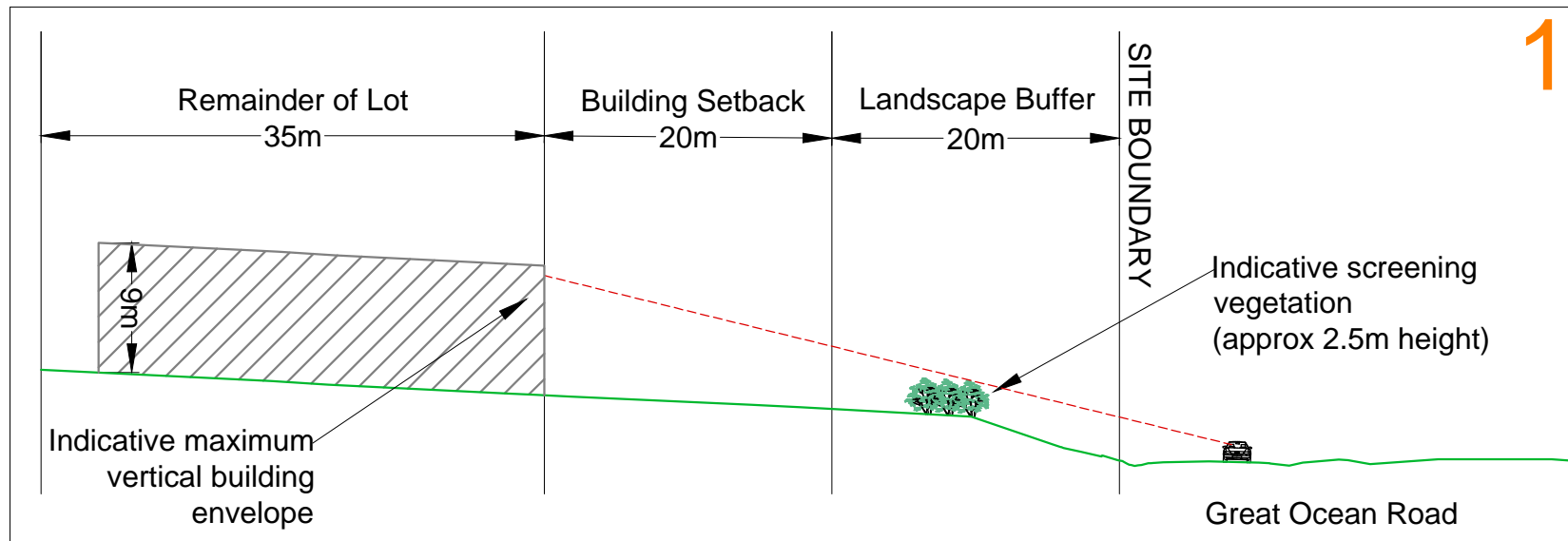
BW Beveridge Williams
development & environment consultants
Melbourne ph : 03 9524 8888
www.beveridgewilliams.com.au

Version	Date	Description	Drafted	Approved	Version	Date	Description	Drafted	Approved
21	14.11.17	Amended as per Council/Client Comments	LN	LN	16	02.06.17	New road & lot layout - SKETCH ONLY	CK	LN
22	20.11.17	Lot Layout, Drainage and Staging amended	LN	LN	17	07.06.17	New road, lot & open space layout - SKETCH ONLY	CK	MF
23	29.11.17	Lots & Drainage amended	LN	LN	18	14.09.17	New road, lot & open space layout	LN	CK
24	30.11.17	No Build Zone' removed	CK	MF	19	28.03.17	Roads & lots amended	CK	LN
25	17.01.18	Eastern Overland Flow Path Added	LN	LN	20	02.10.17	Lots amended, entrance widened	LN	LN

Date: 17.01.18
Version No: 25
Job No: 3313
Scale (A1): 1:1500
Scale (A3): 1:3000

\\MELFILE01\DATA\JOBS DATA\3313 - APOLLO BAY_LAN00\CAD\3313 OVERALL DEVELOPMENT PLAN.DWG

APPENDIX B. Cross Sections along Great Ocean Road



Indicative View from Great Ocean Road (sheet 1)
The Beach, Apollo Bay

DRAFT

BW Beveridge Williams
development & environment consultants

Australian Tourism Investments Number 5

FOR DISCUSSION PURPOSES ONLY

Melbourne ph : 03 9524 8888
www.beveridgewilliams.com.au

Version	Date	Description	Drafted	Approved	Version	Date	Description	Drafted	Approved
01	20.11.17	Initial Issue			LN				
					LN				

Date: 20.11.17

Version No:

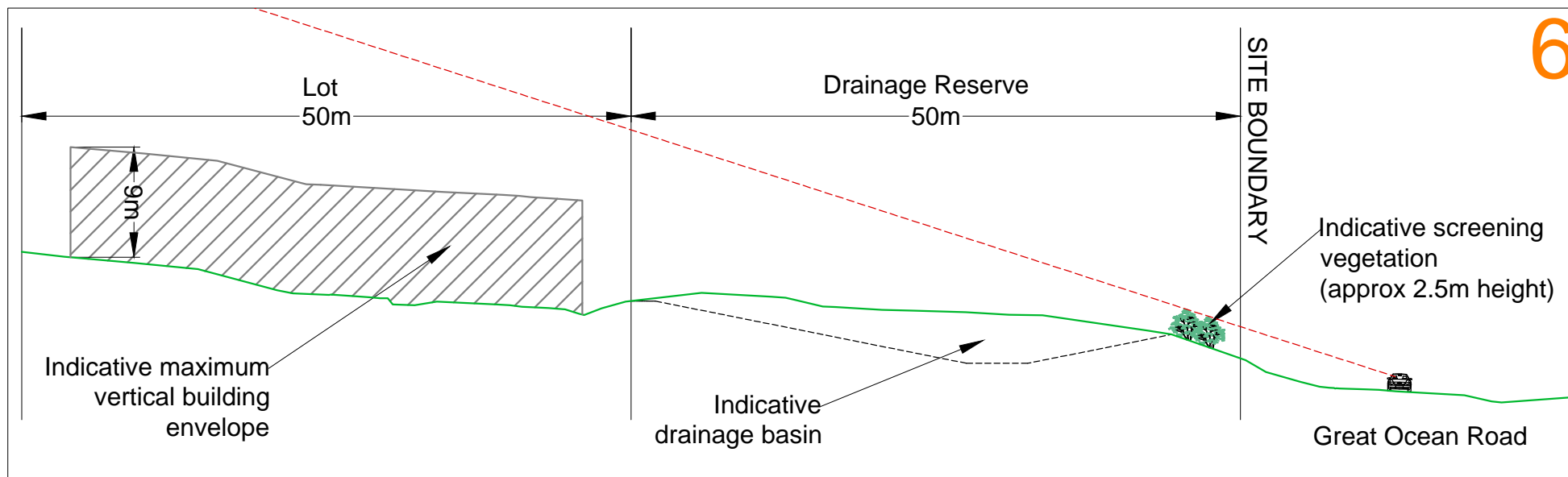
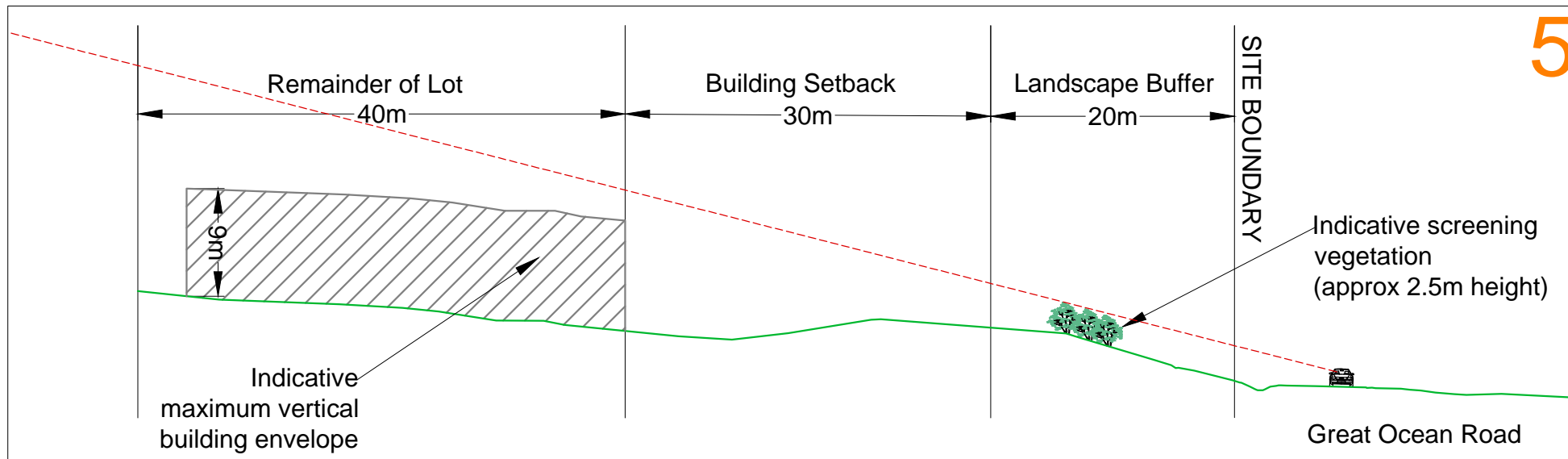
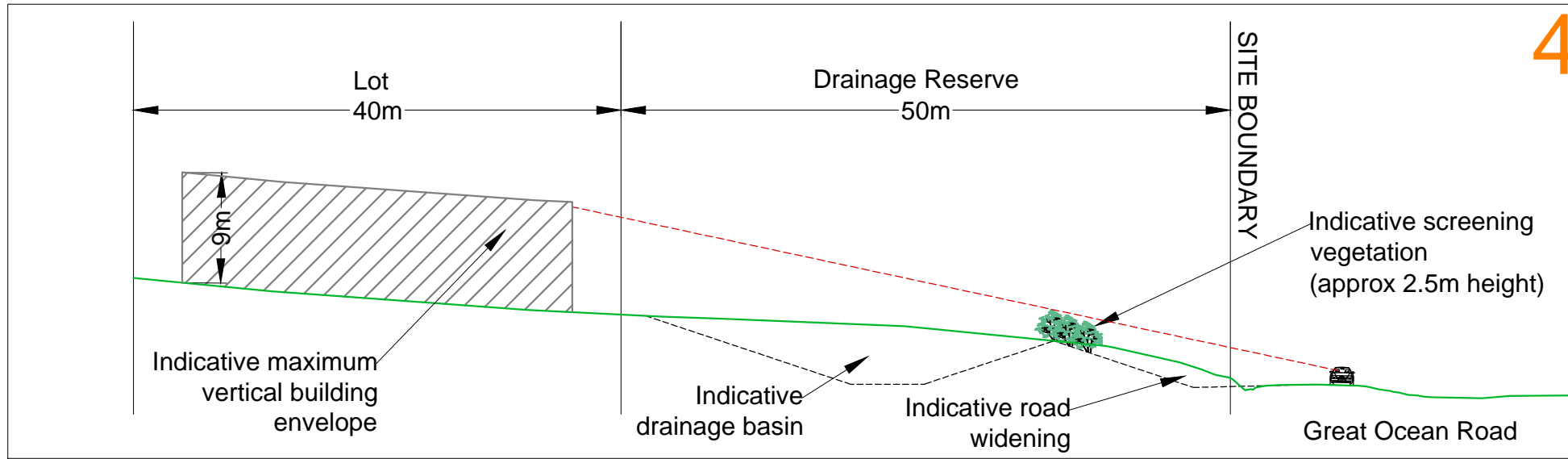
01

Job No: 3313

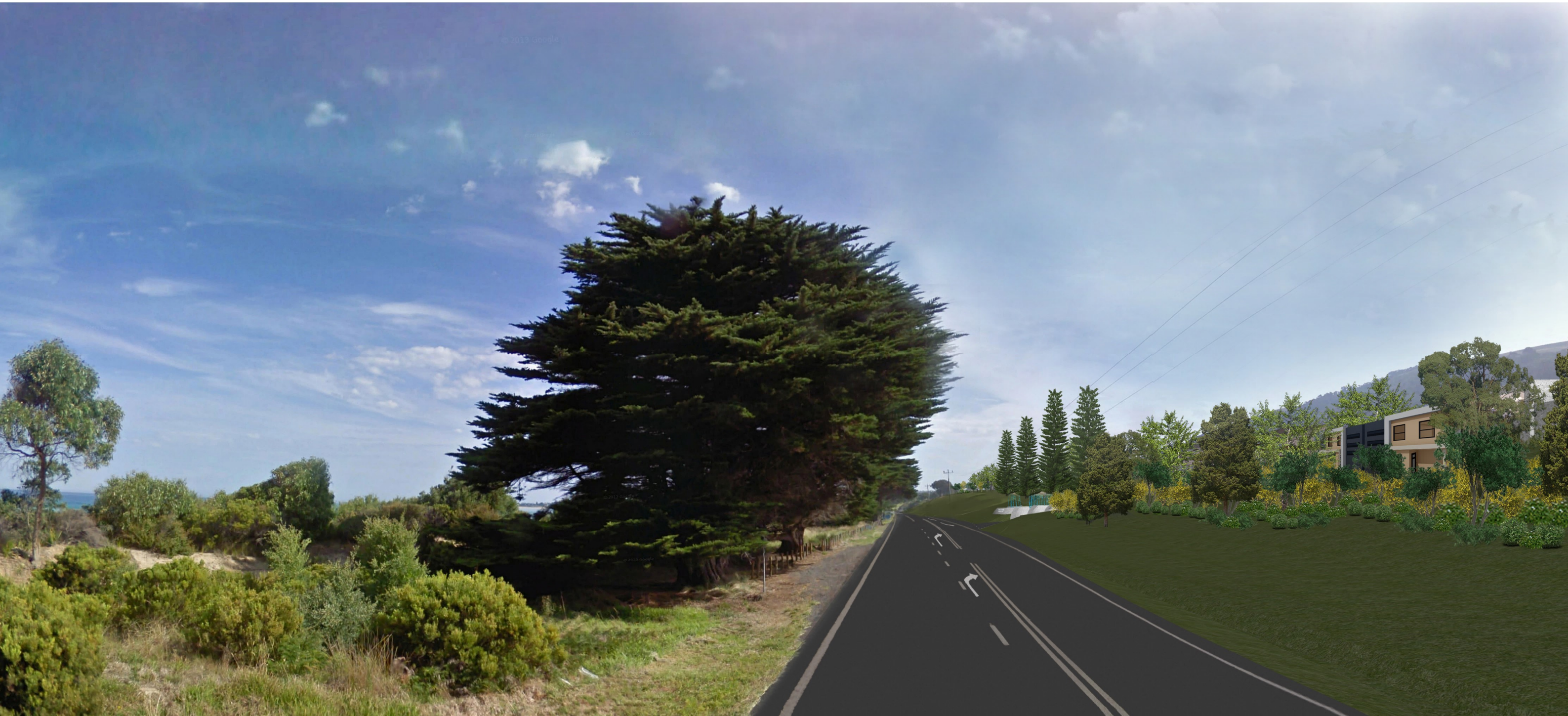
Scale (A1):

(A3):












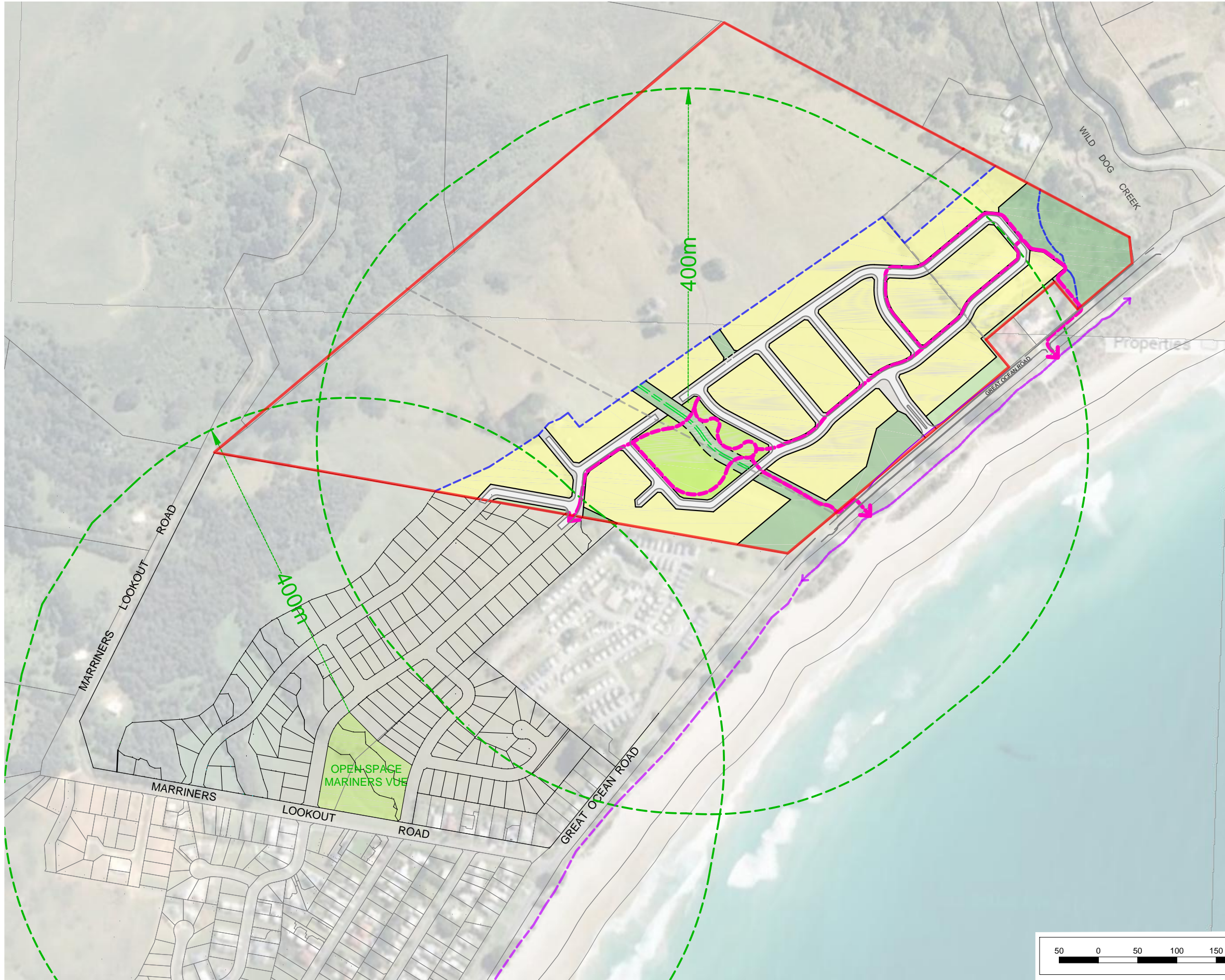
APPENDIX C. Potential Future Streetscape Render



APPENDIX D. Open Space Location and Connectivity Plan

LEGEND

-  Site boundary
-  Internal title boundaries
-  Neighbourhood residential zone boundary as provided by DELWP
-  Existing shoreline walking trail
-  Main pedestrian circulation
-  Drainage reserve
-  Tree reserve/ Landscape buffer
-  Open space reserve



Overall Development Plan
The Beach, Apollo Bay

Australian Tourism Investments Number 5

DRAFT

FOR DISCUSSION PURPOSES ONLY

BW Beveridge Williams
development & environment consultants
Melbourne ph : 03 9524 8888
www.beveridgewilliams.com.au

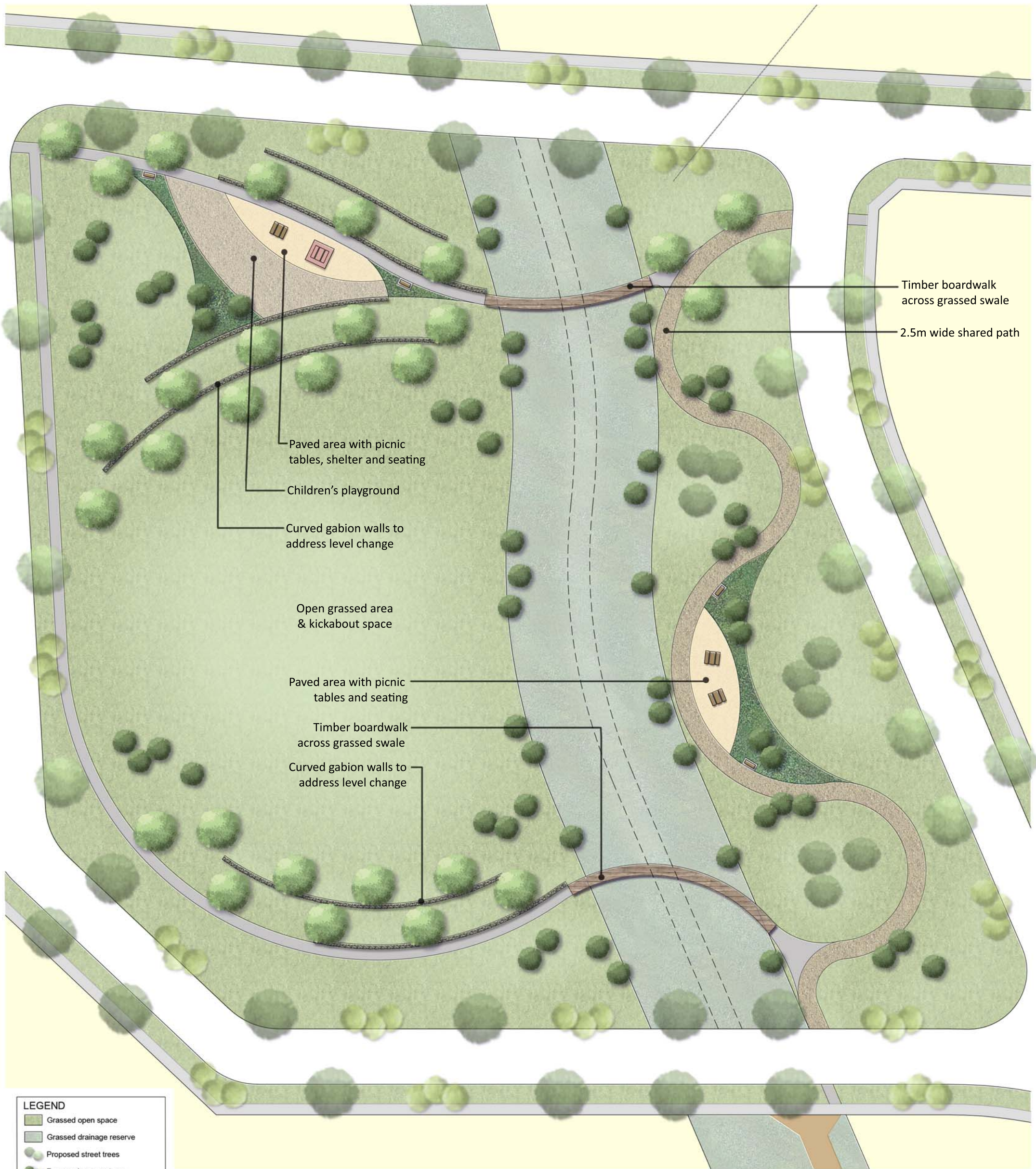
Version	Date	Description	Drafted	Approved
01	20.11.17	Initial Issue	LN	LN
02	08.01.18	Layout amended	CK	LN

Version	Date	Description	Drafted	Approved

Date: 08.01.18
Version No:
02
Job No: 3313
Scale (A1): 1:2500
(A3): 1:5000



APPENDIX E. Draft Neighbourhood Park Concept Plan



LEGEND

- Grassed open space
- Grassed drainage reserve
- Proposed street trees
- Proposed reserve trees
- Small shrubs and groundcovers
- Gabion Walls
- Picnic Table
- Seat
- Shelter
- Play area
- 1.5m wide concrete footpath
- 2.5m wide shared path
- Coloured concrete paving
- Timber Boardwalk

RESERVE PLANT SCHEDULE

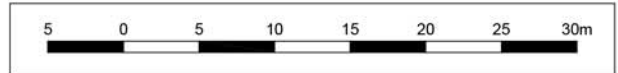
CODE	BOTANICAL NAME	COMMON NAME	HEIGHT x WIDTH	POT SIZE
TREES				
L.1	<i>Leptospermum lanigerum</i>	Woolly Tea-tree	4-5 x 3m	45L
L.1a	<i>Leptospermum laevigatum</i>	Coastal Tea-tree	5-8 x 5m	45L
M.s.	<i>Melaleuca squarrosa</i>	Scented Paperbark	3-5 x 2-3m	45L
SMALL SHRUBS AND GROUNDCOVERS				
A.c.	<i>Atriplex cinerea</i>	Coast Saltbush	1 x 2m	150mm
A.n.	<i>Acaena novae-zelandiae</i>	Bidgee Widgee	prostrate x 1m	tubestock
C.r.	<i>Carpobrotus rossii</i>	Karkall	prostrate x 1m	tubestock
D.b.	<i>Dianella brevicaulis</i>	Coast Flax Lily	0.8 x 0.8m	tubestock
L.p.	<i>Leucophyta parviflorus</i>	Coast Beard-heath	1 x 1m	150mm
L.T.	<i>Lomandra 'Tanika'</i>	Spiny-headed Mat Rush	1 x 1-1.2m	tubestock
P.a.	<i>Poa australis</i>	Tussock Grass	1 x 1m	tubestock
R.c.	<i>Rhagodia candolleana</i>	Seaberry Saltbush	1.5-2 x 2m	150mm

Note: Local indigenous plant species from the Otway Plain bioregion have been used throughout the development site where appropriate (EVC 3: Coastal Dune, EVC 30 Wet Forest and EVC 53 Swiree Scrub)

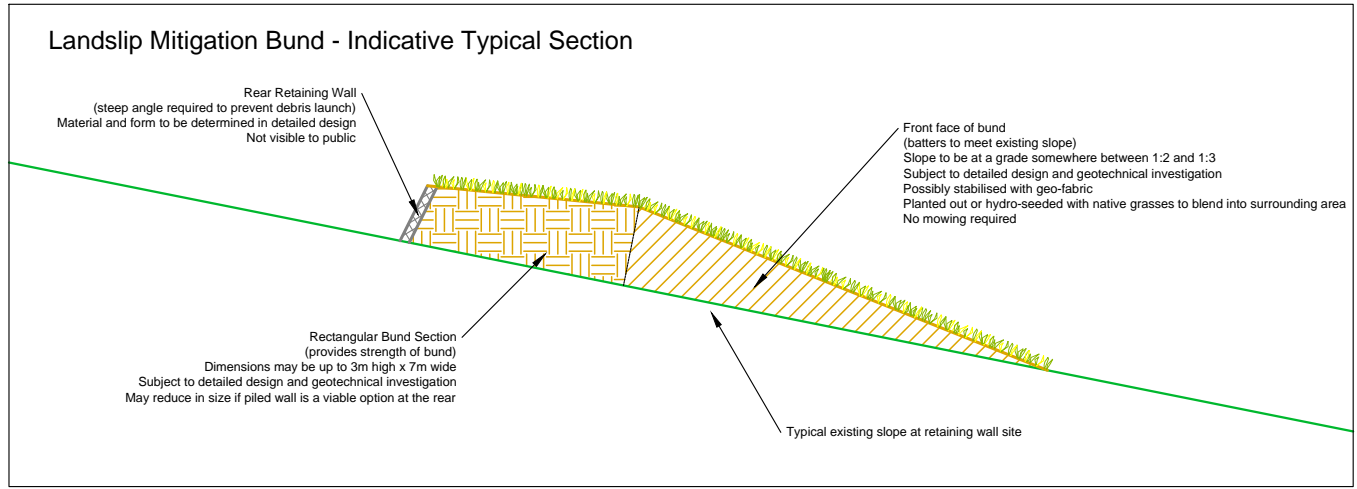
GENERAL NOTES

- This plan has been prepared to meet the requirements outlined in the Development Plan Overlay (Schedule 5) of the Colac Otway Planning Scheme and in line with the Colac Otway Public Open Space Strategy. The plan is subject to approval by Council.
- This plan has been prepared as a Landscape Concept Plan and is not to be used for construction purposes.
- Where any conflict occurs between proposed tree locations and infrastructure, such as light poles or services, tree(s) must be relocated or removed.

DRAFT

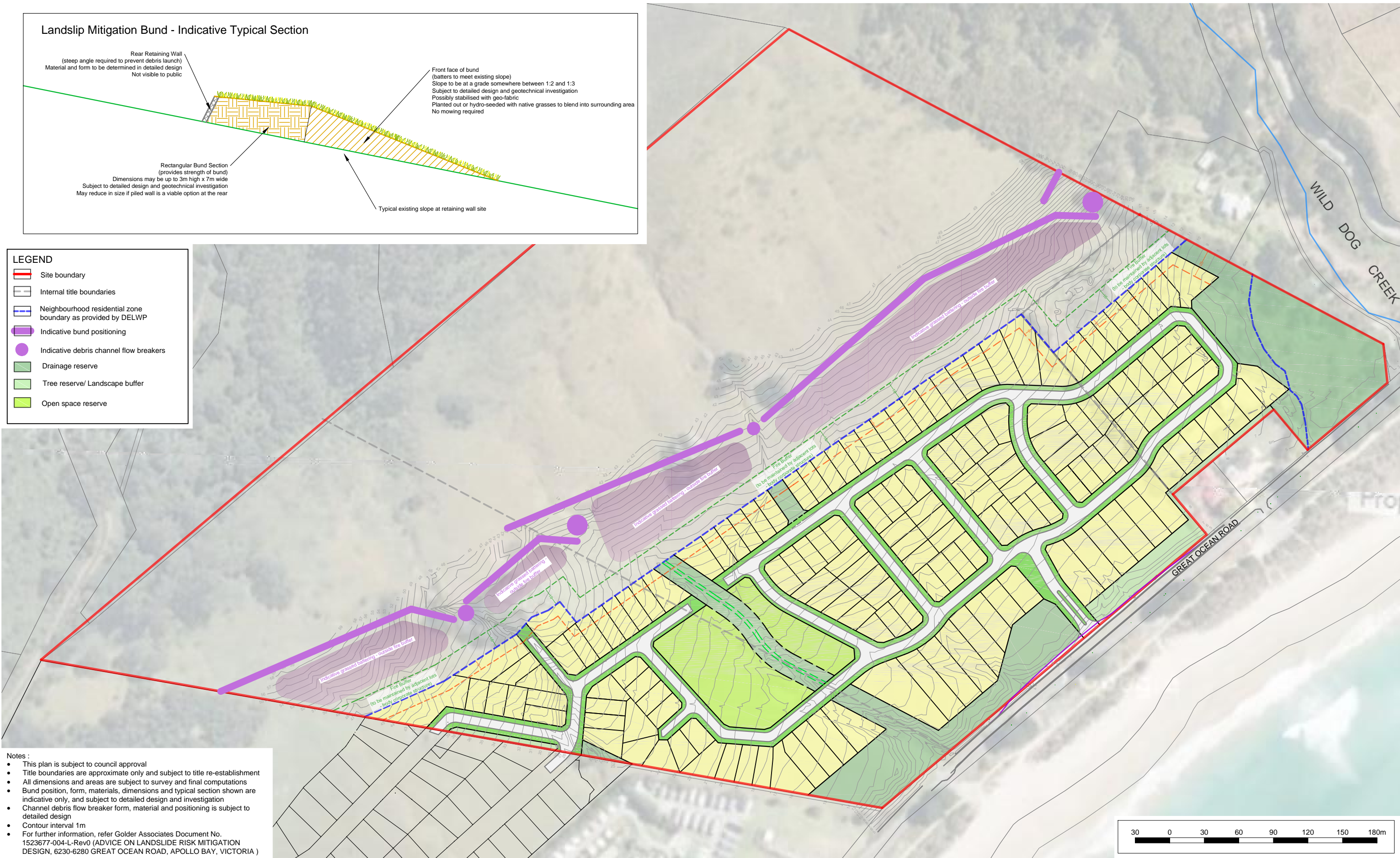


APPENDIX F. Indicative Landslip Protection Measures

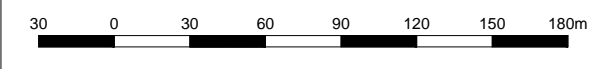


LEGEND

- Site boundary
- Internal title boundaries
- Neighbourhood residential zone boundary as provided by DELWP
- Indicative bund positioning
- Indicative debris channel flow breakers
- Drainage reserve
- Tree reserve/ Landscape buffer
- Open space reserve



- Notes :**
- This plan is subject to council approval
 - Title boundaries are approximate only and subject to title re-establishment
 - All dimensions and areas are subject to survey and final computations
 - Bund position, form, materials, dimensions and typical section shown are indicative only, and subject to detailed design and investigation
 - Channel debris flow breaker form, material and positioning is subject to detailed design
 - Contour interval 1m
 - For further information, refer Golder Associates Document No. 1523677-004-L-Rev0 (ADVICE ON LANDSLIDE RISK MITIGATION DESIGN, 6230-6280 GREAT OCEAN ROAD, APOLLO BAY, VICTORIA)



Indicative Landslip Protection Measures
The Beach, Apollo Bay
Australian Tourism Investments Number 5

DRAFT

FOR DISCUSSION PURPOSES ONLY
















BW Beveridge Williams
development & environment consultants
Melbourne ph : 03 9524 8888
www.beveridgewilliams.com.au

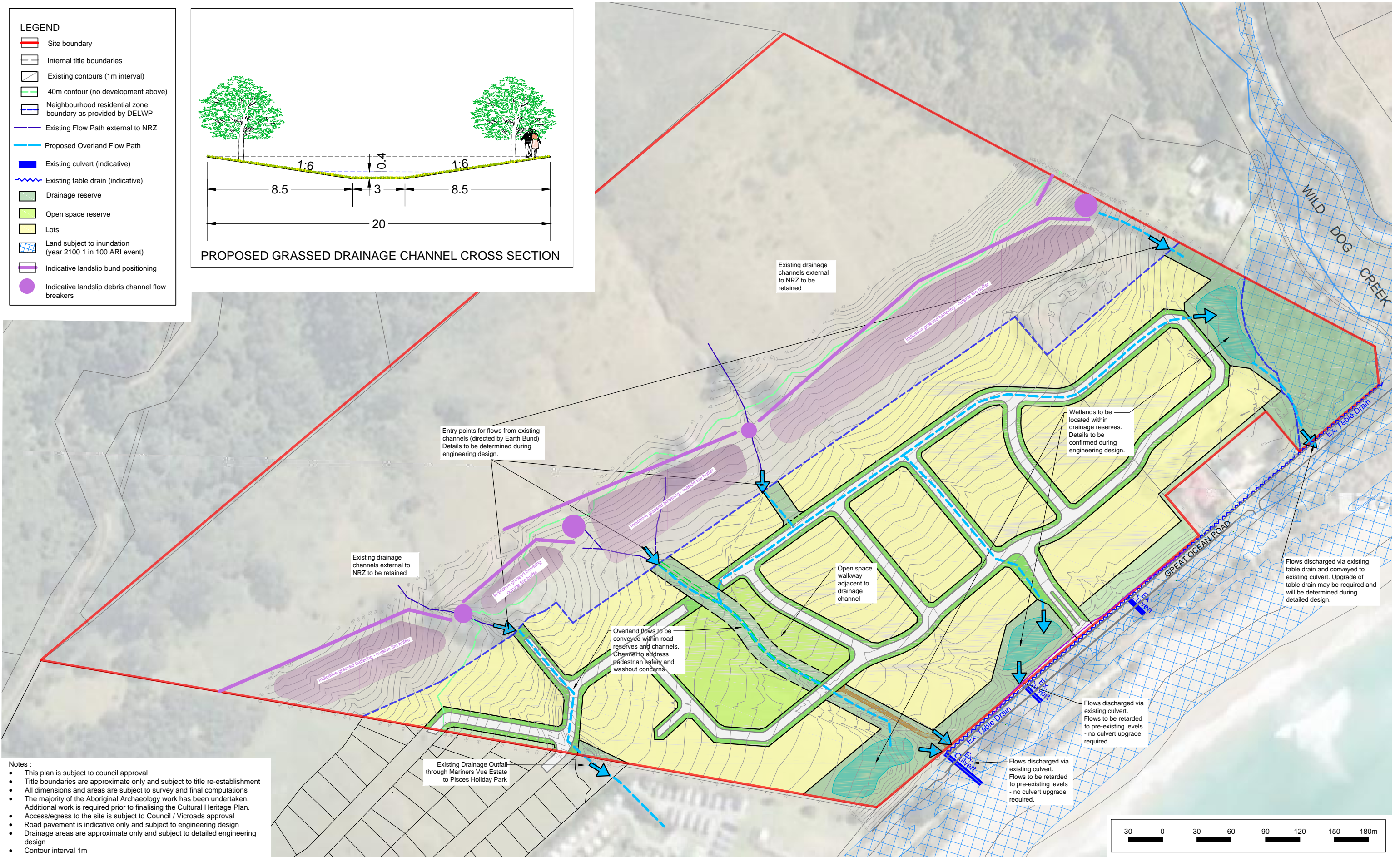
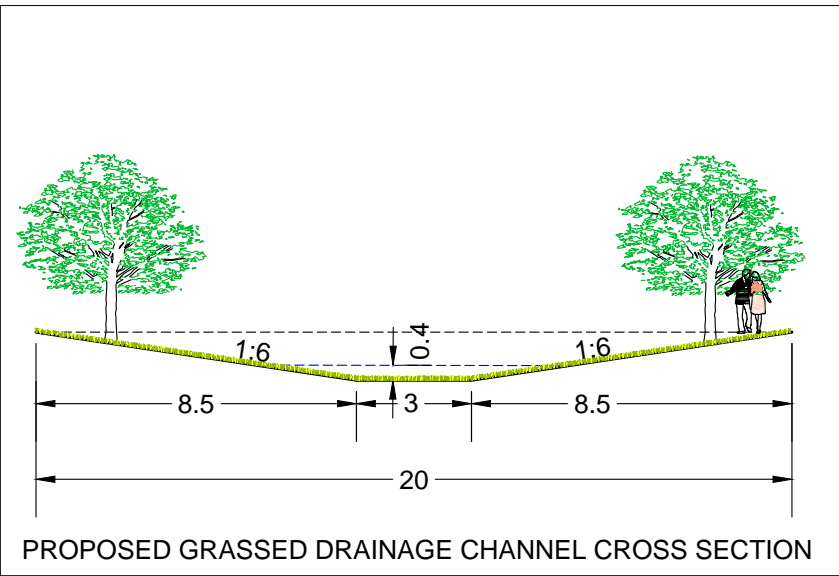
Version	Date	Description	Drafted	Approved	Version	Date	Description	Drafted	Approved
01	17.01.18	Initial Issue			LN				
					LN				

Date: 17.01.18
Version No: 01
Job No: 3313
Scale (A1): 1:1500
Scale (A3): 1:3000

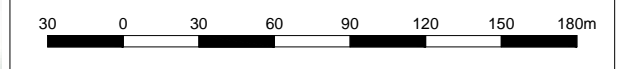
APPENDIX G. Indicative Stormwater Management Plan

LEGEND

-  Site boundary
-  Internal title boundaries
-  Existing contours (1m interval)
-  40m contour (no development above)
-  Neighbourhood residential zone boundary as provided by DELWP
-  Existing Flow Path external to NRZ
-  Proposed Overland Flow Path
-  Existing culvert (indicative)
-  Existing table drain (indicative)
-  Drainage reserve
-  Open space reserve
-  Lots
-  Land subject to inundation (year 2100 1 in 100 ARI event)
-  Indicative landslide bund positioning
-  Indicative landslide debris channel flow breakers



- Notes :**
- This plan is subject to council approval
 - Title boundaries are approximate only and subject to title re-establishment
 - All dimensions and areas are subject to survey and final computations
 - The majority of the Aboriginal Archaeology work has been undertaken. Additional work is required prior to finalising the Cultural Heritage Plan.
 - Access/egress to the site is subject to Council / Vicroads approval
 - Road pavement is indicative only and subject to engineering design
 - Drainage areas are approximate only and subject to detailed engineering design
 - Contour interval 1m



DRAFT

FOR DISCUSSION PURPOSES ONLY

Version	Date	Description	Drafted	Approved	Version	Date	Description	Drafted	Approved
01	20.11.17	Initial Issue	LN	LN					
02	17.01.18	Additional Overland Flow Path and Bunds Added	LN	LN					

Date: 17.01.18
Version No: 02
Job No: 3313
Scale (A1): 1:1500
Scale (A3): 1:3000

Beveridge Williams
Melbourne Office
1 Glenferrie Road
Malvern Vic 3144
PO Box 61
Malvern Vic 3144
Tel: (03) 9524 8888
Fax: (03) 9524 8899
www.beveridgewilliams.com.au