

# Flood Impact Assessment

West Culburra Beach Expansion Area  
Revised Concept Plan  
NSWLEC Case Number 2019/00078149  
(in response to Section 34 Conciliation Conference)

Prepared for  
Sealark Pty Ltd

SSD Application No: 3846

Site address  
Part Lot 5 & Part Lot 6 of DP 1065111 and  
Part Lot 1 DP 631825

Date  
28 October 2020

**allen price & scarratts pty ltd**  
land and development consultants

Surveying



Town Planning



Civil Engineering



Project Management





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### **Appendices**

### Table of Revisions

Rev	Date	Details
P0	February 2013	Draft for review
0	28.10.2020	s34 Conciliation Conference – revised layout

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For and on behalf of Allen, Price and Scarratts Pty Ltd

## **1.0 Introduction**

Allen Price & Scarratts (APS) has been commissioned by Sealark Pty Ltd to prepare an EIS to accompany an amended Concept Plan for West Culburra Beach Expansion Area.

The Proposal is for a staged mixed-use development. The Proposal is deemed to be State Significant Development after it was transitioned from Part 3A to Part 4 Division 4.7 of the EP&A Act in 2015.

A Section 34 Conciliation Conference, under the LEC Act, commenced on 14 November 2019. One outcome of the Conciliation Conference process was for the applicant to provide a revised Concept Plan (**Proposal**) to significantly reduce the size of the development and to provide additional environmental assessment to address the issues raised by the Independent Planning Commission (IPC).

The revised Concept Plan has an urban development footprint that has resulted in a greater than 50% reduction from 102.23ha to 47.34ha.

The aim of this report is to assess the proposed development against regulatory framework surrounding the approval of development on flood prone land. The following sections of this report provide analysis and commentary on how the proposed development meets the requirements of regulatory framework for development on flood prone land, showing flooding is not an impediment to re-development on the site.

## **2.0 Landowner Background**

Sealark Pty Ltd is administered by The Halloran Trust. The Halloran family were the original owners of land that now forms the township of Culburra Beach and surrounds. The Trust is a not-for-profit organisation that has a mandate to distribute its profits to several beneficiaries which include the community of Culburra Beach, The Jervis Bay Maritime Museum, The University of Sydney and The Scots College.

## **3.0 Existing Site & Locality**

The Proposal relates to land owned by Sealark Pty Ltd. (The Site) is located on the south coast of NSW and is located on the northern side of Culburra Road, immediately adjacent to the western edge of the Culburra Beach township, approximately 15km south-east of Nowra (**Figure 1**).

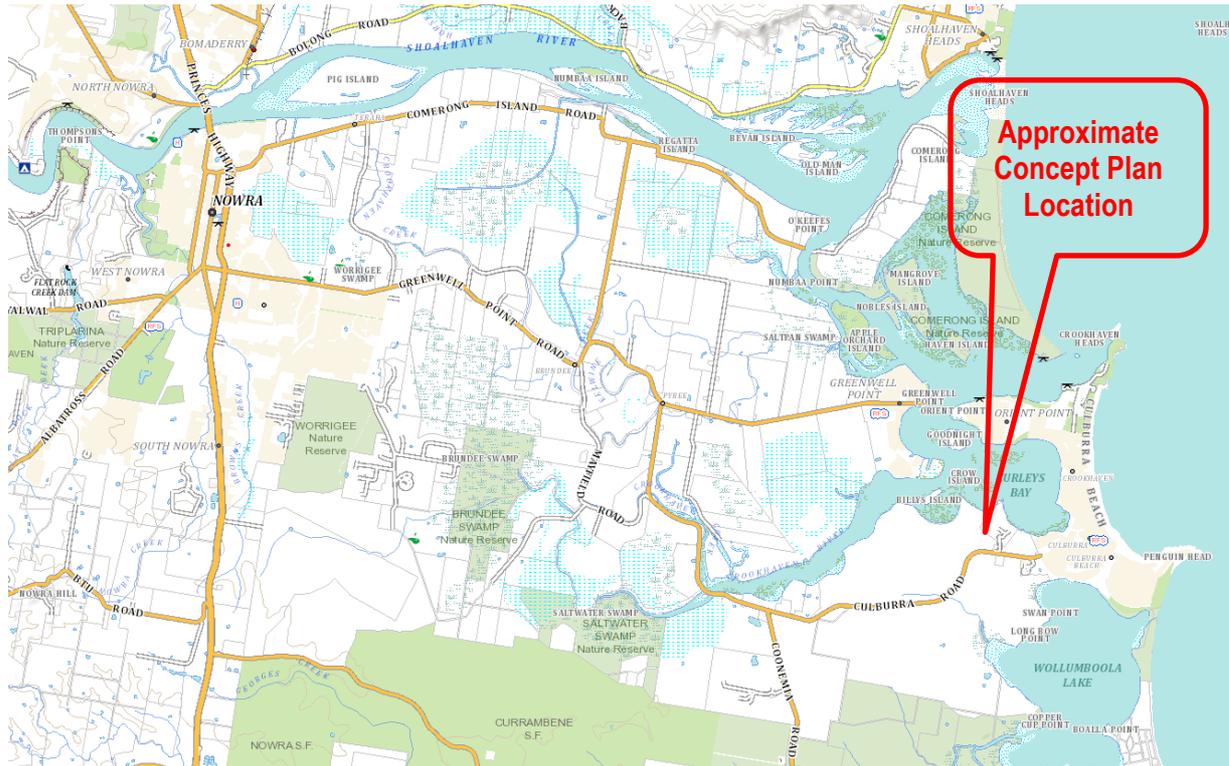


Figure 1 – Site Location Image (Source, SIXmaps)

#### 4.0 Land Description

The Site, as shown in **Figure 2** consists of:

- Part Lots 5 and 6 DP 1065111; and
- Part Lot 1 DP 631825

The Site is predominantly undeveloped and mostly covered in native bushland.



Figure 2 – Aerial Image of the Site showing Lots 5 & 6 (Source, SIXmaps)

## 5.0 Proposed Development Summary

The Proposal seeks Concept Plan approval to allow expansion of the Culburra Beach township to the west of the existing established urban area onto land which is largely zoned for this land use purpose.

The revised proposal has considered feedback from the original proposal lodged in 2010 and the Proposal reviewed at the Section 34 Conciliation Conference, under the Land & Environment Court Act, in November 2019.

The revised Concept Plan remains a staged mixed-use development which is consistent with the original application albeit a scaled down version of the original proposal. The revised Concept Plan is included in **Appendix 1**.

## 6.0 Proposed Development Staging

The Proposal will be developed over a number of years and the exact layout of individual lots, roads, public reserves, etc will be addressed in subsequent DAs for each individual stage.

In recognition that development consent is sought for a Concept Plan only, and subsequent DAs for each individual stage will be applied for at a later date, the project staging plan concentrates on staged delivery of each of the three key precincts as summarised below.

- Town Centre Expansion – 5 stages
- Industrial Centre Expansion – 2 stages
- New Residential Area – 9 stages



## ***7.0 Flooding Information***

### **7.1 Shoalhaven City Council Flood Certificates**

A Flood Certificate for Lot 5 DP 106511 was obtained from Shoalhaven City Council and is likely representative of the flooding information for the subject properties. The Flood Certificate is attached in **Appendix 2**. The Flood Certificate provides details as summarised below;

## FLOOD CERTIFICATE

According to the *Lower Shoalhaven River Floodplain Risk Management Plan – Climate Change Assessment (2011)* and *Lake Wollumboola Flood Study (2015)* this property, Culburra Rd, CULBURRA BEACH - Lot 5 DP 1065111, is affected by the 1% AEP flood event.

### FLOOD INFORMATION

Year	Existing	Projected 2050	Projected 2100
<b>Flood Planning Level</b>	Not applicable	3.9m AHD	4.1m AHD

<b>Hazard Category</b>	High Hazard	High Hazard	High Hazard
<b>Hydraulic Category</b>	Flood Storage	Flood Storage	Flood Storage

<b>Probable Maximum Flood Level</b>	4.9m AHD	4.9m AHD	5.0m AHD
<b>1% AEP Flood Level</b>	3.2m AHD	3.4m AHD	3.6m AHD
<b>2% AEP Flood Level</b>	2.8m AHD	3.0m AHD	3.3m AHD
<b>5% AEP Flood Level</b>	2.3m AHD	2.6m AHD	2.9m AHD
<b>10% AEP Flood Level</b>	2.0m AHD	2.2m AHD	2.7m AHD

<b>Velocity (1% AEP flood event)</b>	Not Available	Not Available	Not Available
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### SITE SPECIFIC CONSIDERATIONS

1. Current NSW Government legislation requires climate change to be considered as part of this Floodplain Risk Management Study and Plan. Climate change related information evolves with time and it is expected that existing flood behaviour and levels may change in the future.
2. All applications for buildings, and the like, must take into account the projected 2050 flood information. All subdivision and other long-term planning must take into account the projected 2100 flood information.
3. Information provided in this flood certificate uses previous State Government sea level rise benchmarks (400mm and 900mm for the 2050 and 2100 horizon's respectively). On Tuesday 10th February 2015 Council's Policy & Resources Committee resolved to no longer use State Government benchmarks and to "Establish a sea level rise benchmarks for planning purposes based on a 2030 horizon 100 mm, a 2050 horizon of 230 mm and 360 mm horizon for 2100". The new benchmarks will be incorporated into the flood information in future. Until studies incorporating the new benchmarks are undertaken Council will continue to use the best available information.
4. There is no current NSW Government legislation covering predicted increases in rainfall intensity as a result of climate change. The flood information provided in this flood certificate therefore excludes potential climate change impacts on rainfall and associated flood levels.
5. Not all of the property is categorised as High Hazard Flood Storage. Part of the property is categorised as Low Hazard Flood Storage and most of the property is above the flood planning level. The property is affected by both Lower Shoalhaven River and Lake Wollumboola flooding to the north and south of Culburra Road respectively. It is noted that different flood planning levels apply to the property to the north and south of Culburra Road due to different 1% AEP

flood event levels in the Lower Shoalhaven River and Lake Wollumboola. The flood levels and flood planning levels in this flood certificate apply to Lower Shoalhaven River flood events, which are the highest. For more specific information regarding the different hazard and hydraulic categorisations on this property please contact Council's Natural Resource and Floodplain Unit on (02) 44293392.

**7.2 Current and future projected flood levels**

It should be noted the current projected 2050 and 2100 flood levels as stated on the Flood Certificates are reflective of the previous NSW State Government sea level rise benchmarks.

Refer to Section 8.0 below for information regarding Shoalhaven City Council's resolution on projections for sea level rise for planning purposes.

**7.3 Lower Shoalhaven River Floodplain Management Study & Plan**

As shown in **Figure 3** below, the lower foreshore areas of the three subject properties all contain areas of High and Low Hazard Flood Storage. It should be noted that the hazard categorisation is not based on detailed ground survey but represents an approximation of the extent of flooding.

The majority of the site and the areas proposed for development are flood free.

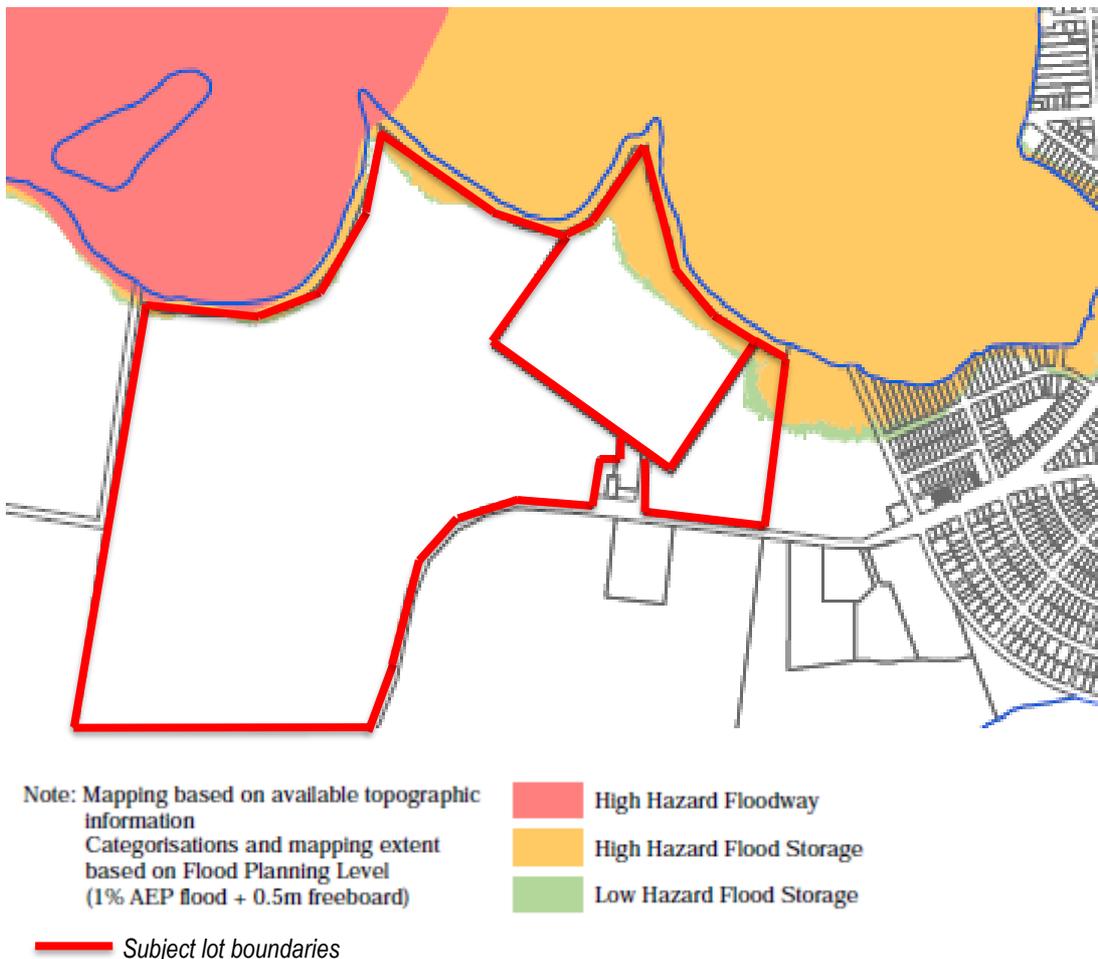


Figure 3 – Figure 3D from Lower Shoalhaven River Floodplain Management Study & Plan  
2050 Provisional Hydraulic & Hazard Categorisation

## 8.0 Sea Level Rise Impacts

### **Flood Risk Management Guide: Incorporating Sea Level Rise Benchmarks in Flood Risk Assessments**

The NSW Department of Environment, Climate Change and Water has issued a report entitled “*Flood Risk Management Guide: Incorporating Sea Level Rise Benchmarks in Flood Risk Assessments*”, August 2010.

The report adopts the planning benchmarks of the *NSW Government Policy on Sea level Rise* and provides guidance as to how to apply sea level rise benchmarks to flood risk assessments which are undertaken for flood affected areas.

The Guide states the following:

*This guide applies to areas where projected sea level rise is likely to have a discernable impact on predicted flood levels. This includes the NSW Coastal Zone and areas in the vicinity of lower coastal waterways, including rivers, creeks, estuaries and ICOLLs. In particular, this is likely to apply if the land is:*

- likely to be inundated if water levels were 1.0 m above the upper limit of the current tidal range, generally defined by mean high water springs*
- likely to be inundated if water levels were 1.0 m above the current flood planning level*
- within 1.5 m of the maximum historic height of the entrance berm or the upper limit for management intervention identified in entrance management plans for any ocean entrance to the waterway which controls flooding (this commonly applies to ICOLLs)*
- below 4 m AHD.*

The current Council policy for sea level rise benchmarks as adopted on 10 February 2015 are:

100mm by 2030  
230mm by 2050; and  
360mm by 2100

As noted on the Flood Certificate in Site Specific Considerations, 3. the flood levels shown on the Flood Certificate are NOT reflective of the above sea level rise benchmarks as adopted by Council in February 2015.

## 9.0 Policy Framework

There are a number of policy and statutory documents that need to be considered when developing any land affected by flooding in the Shoalhaven. Each of these will now be discussed and dealt with in turn.

### **9.1 Shoalhaven Local Environmental Plan 2014 - Clause 7.3 – Flood Planning**

Council can lawfully grant consent to developments located within the Flood Planning Area on Councils Flood Planning Area Map, or other land at or below the flood planning level, despite being flood prone.

Council have set a number of objectives required for all development at or below the flood planning level.

The objectives are;

- (a) to minimise the flood risk to life and property associated with the use of land,
- (b) to allow development on land that is compatible with the land's flood hazard, taking into account projected changes as a result of climate change,
- (c) to avoid significant adverse impacts on flood behaviour and the environment.

To meet these objectives, Council must be satisfied that the proposed development can meet the following requirements:

- (a) is compatible with the flood hazard of the land, and
- (b) will not significantly adversely affect flood behaviour resulting in detrimental increases in the potential flood affectation of other development or properties, and
- (c) incorporates appropriate measures to manage risk to life from flood, and
- (d) will not significantly adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of riverbanks or watercourses, and
- (e) is not likely to result in unsustainable social and economic costs to the community as a consequence of flooding, and
- (f) will not affect the safe occupation or evacuation of the land.

### **9.2 SCC Development Control Plan 2014; Chapter G9: Development on Flood Prone Land**

Chapter G9 of DCP2014 applies to all development on flood prone land.

Section 5.1 of Chapter G9 contains various objectives and a number of performance criteria for development on flood prone land, which need to be addressed for any development to proceed.

Section 5.2 of Chapter G9 contains one objective and various performance criteria for fill or excavation on flood prone land, which need to be addressed for any development involving fill or excavation to proceed.

Section 5.3 of Chapter G9 contains one objective and various performance criteria for development on flood prone land, which need to be addressed for any subdivision to proceed.

A set of acceptable solutions are also provided as a means to meet the performance criteria and objectives, although these do not exclude other acceptable solutions from being used. In other words, compliance with the acceptable solutions deems compliance with the performance criteria and objectives of the DCP.

These sections are assessed below.

## 10.0 Assessment

### **10.1 Shoalhaven Local Environmental Plan 2014 - Clause 7.3 – Flood Planning**

The objectives and requirements of Clause 7.3 in the SLEP 2014 are met by assessing compliance of the development through Councils principal flood control planning document being DCP2014, Chapter G9: Development on Flood Prone Land. Specifically, however, the requirements of clause 7.3 in SLEP 2014 are met as follows;

**(a) is compatible with the flood hazard of the land, and**

Subdivision of land classified as High Hazard Flood Storage is not suitable however this relates to the lower foreshore areas of the site only.

Part of the land contains areas of Low Hazard Flood Storage but again this relates to the lower foreshore areas of the site only. Subdivision of land in a Low Hazard Flood Storage area is permissible, subject to assessment.

The majority of the site however is flood free and subdivision is suitable.

Refer to assessment against Sections 5.1, 5.2 and 5.3 outlined below.

**(b) will not significantly adversely affect flood behaviour resulting in detrimental increases in the potential flood affectation of other development or properties, and**

The proposed subdivision will not significantly adversely affect flood behaviour nor result in detrimental increases in the potential flood affectation of other development or properties.

Refer to assessment against Sections 5.1, 5.2 and 5.3 outlined below.

**(c) incorporates appropriate measures to manage risk to life from flood, and**

Refer to assessment against Sections 5.1, 5.2 and 5.3 outlined below.

**(d) will not significantly adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses, and**

The proposed subdivision will not significantly adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses.

Refer to assessment against Sections 5.1, 5.2 and 5.3 outlined below.

**(e) is not likely to result in unsustainable social and economic costs to the community as a consequence of flooding, and**

The proposed subdivision will not result in unsustainable social and economic costs to the community as a consequence of flooding.

Refer to assessment against Sections 5.1, 5.2 and 5.3 outlined below.

**(f) will not affect the safe occupation or evacuation of the land.**

The proposed subdivision will not affect the safe occupation or evacuation of the land. All future development will be flood free land and have egress to flood free land.

Refer to relevant parts of the assessment against Section 5.1, 5.2 and 5.3 outlined below.

**10.2 SCC Development Control Plan 2014; Chapter G9: Development on Flood Prone Land**

**Section 5.1 – General Controls**

Acceptable Solutions	Response
<p>A1.1 The development satisfies the requirements as shown in the planning matrix at Schedule 2 including climate change considerations); and</p>	<p>The current proposal is for a subdivision. The Land Use Category of <b>D – Subdivision</b> applies.</p> <p>The most restrictive flood Hazard/Hydraulic Risk Category for the subject land is <b>High Hazard Flood Storage</b>, however this only relates to the foreshore parts of the land. Parts of the land, also adjacent the foreshore are categorised as Low Hazard Flood Storage. The majority of the land however above flood planning level and is flood free.</p>
<p>Schedule 2 indicates that development defined as D – Subdivision within an area with the nominated flood risk category of High Hazard Flood Storage is NOT suitable for development.</p> <p>Schedule 2 also indicates that development defined as D – Subdivision within an area with the nominated flood risk category lower than High Hazard, is suitable for development.</p> <p>The only requirements in Schedule 2 for a subdivision are to provide flood free access for vehicles and pedestrians in the 1% AEP event. The entire developable portion of the site including access roads will be above the 1% AEP flood level and safe evacuation will be available to flood free land.</p>	
Schedule 2 requirements	Response
<p>Floor level</p>	<p>This application is for a subdivision however any future application for building development would be subject to finished floor level controls.</p>
<p>Building Components</p>	<p>No building or structure is proposed as part of this application. Future buildings or structures will be above the flood planning level and will therefore not need to comply with this requirement.</p>
<p>Structural soundness</p>	<p>No building or structure is proposed as part of this application. Future buildings or structures will be above the flood planning level and will therefore not need to comply with this requirement.</p>
<p>Hydraulic impact</p>	<p>No building or structure is proposed as part of this</p>

	<p>application. Future buildings or structures will be above the flood planning level and will therefore not need to comply with this requirement.</p>
<p>Access</p> <ul style="list-style-type: none"> <li>Reliable emergency vehicle is required for ambulance, SES, fire brigade police and other emergency services during a 1% AEP flood event; and</li> <li>Reliable access for pedestrians is required during a 1% AEP flood event;</li> </ul>	<p>Reliable vehicle and pedestrian access will be available during a 1% AEP flood event. All roads will be at or above the 1% AEP flood event and have direct access to Culburra Road which is flood free between the site and the township of Culburra Beach.</p> <p>There are walking paths and elevated boardwalks proposed below the 1% AEP flood level however these are for recreational purposes only and do not form part of any footpath network required during a 1% AEP flood event.</p>
Flood evacuation plan	<p>No building or structure is proposed as part of this application. Future buildings or structures will be above the flood planning level and will therefore not need to comply with this requirement.</p>
Management & design	<p>No building or structure is proposed as part of this application. Future buildings or structures will be above the flood planning level and will therefore not need to comply with this requirement.</p>
<b>Acceptable Solutions</b>	
<p>Acceptable Solution A1.1 The development satisfies the requirements as shown in the planning matrix at Schedule 2 including climate change considerations; and</p>	<p>Schedule 2 indicates that development defined as D – Subdivision within an area with the nominated flood risk category of High Hazard Flood Storage is NOT suitable for development.</p> <p>Schedule 2 also indicates that development defined as D – Subdivision within an area with the nominated flood risk category lower than High Hazard, is suitable for development.</p>
<p>Acceptable Solutions A1.2 through A1.6 and A1.8.</p>	<p>The current application seeks approval for subdivision only. No building or structure is proposed as part of this application. Future buildings or structures will be above the flood planning level and will therefore not need to comply with these requirements.</p>

**Non - compliance with one part of Section 5.1 in that part of the proposed subdivision is located on land partially classified as High Hazard Flood Storage is demonstrated above.**

Therefore, a merit assessment of the Performance Criteria of Section 5.1 (see below) has been carried out.

Performance Criteria	
P1 Development or work on the flood prone land will meet the following:	
<ul style="list-style-type: none"> <li>The development will not increase the risk to life or safety of persons during a flood event on the development site and adjoining land.</li> </ul>	<p>The development will not increase the risk to life or safety of persons during a flood event on the development site and adjoining land provided development controls identified in this report are followed.</p>
<ul style="list-style-type: none"> <li>The development or work will not unduly restrict the flow behaviour of flood waters.</li> </ul>	<p>As can be seen on the proposed concept plan (APS Drawing Reference 25405-210 Rev 08 – (see <b>Appendix 1.</b>), in addition to some walking paths and elevated boardwalks, there may be minor earthworks on or just below the 1% AEP flood level associated with the construction of the intersection of Road 23 and Canal Street and batters of biofiltration swales and pond adjacent Road 23 and the sports field. The extent and volumes of earthworks are expected to be very minor and will not unduly restrict the flow behaviour of flood waters.</p> <p>Concept engineering designs are provided in <b>Appendix 3.</b></p>
<ul style="list-style-type: none"> <li>The development or work will not unduly increase the level or flow of floodwaters or stormwater runoff on land in the vicinity.</li> </ul>	<p>This is addressed below in the assessment of Section 5.2.</p>
<ul style="list-style-type: none"> <li>The development or work will not exacerbate the adverse consequences of floodwaters flowing on the land with regard to erosion, siltation and destruction of vegetation</li> </ul>	<p>As can be seen on the proposed concept plan (APS Drawing Reference 25405-210 Rev 08 – (see <b>Appendix 1.</b>), in addition to some walking paths and elevated boardwalks, there may be minor earthworks on or just below the 1% AEP flood level associated with the construction of the intersection of Road 23 and Canal Street and batters of biofiltration swales and pond adjacent Road 23 and the sports field. The extent and volumes of earthworks are expected to be very minor and will not exacerbate the adverse consequences of floodwaters flowing on the land with regard to erosion, siltation and destruction of vegetation.</p>
<ul style="list-style-type: none"> <li>The structural characteristics of any building or work that are the subject of the application are capable of withstanding flooding in accordance with the requirements of the Council.</li> </ul>	<p>No building or structure is proposed as part of this application. Future buildings or structures will be above the flood planning level and will therefore not need to comply with this requirement.</p>

<ul style="list-style-type: none"> <li>The development will not become unsafe during floods or result in moving debris that potentially threatens the safety of people or the integrity of structures.</li> </ul>	No building or structure is proposed as part of this application. Future buildings or structures will be above the flood planning level and will therefore not need to comply with this requirement.
<ul style="list-style-type: none"> <li>Potential damage due to inundation of proposed buildings and structures is minimised.</li> </ul>	No building or structure is proposed as part of this application. Future buildings or structures will be above the flood planning level and will therefore not need to comply with this requirement.
<ul style="list-style-type: none"> <li>The development will not obstruct escape routes for both people and stock in the event of a flood.</li> </ul>	The development will not obstruct any escape routes.
<ul style="list-style-type: none"> <li>The development will not unduly increase dependency on emergency services.</li> </ul>	The development will not increase dependency on emergency services. All developable land and future buildings and structures will be above the flood planning level as will all internal roads and external roads with direct access to flood free land.
<ul style="list-style-type: none"> <li>Interaction of flooding from all possible sources has been taken into account in assessing the proposed development against risks to life and property resulting from any adverse hydraulic impacts.</li> </ul>	The interaction of flooding from all possible sources has been taken into account by using the latest available flood related depth and velocity information (supplied by SCC).
<ul style="list-style-type: none"> <li>The development will not adversely affect the integrity of floodplains and floodways, including riparian vegetation, fluvial geomorphologic environmental processes and water quality.</li> </ul>	<p>From a flooding perspective, the development will not adversely affect the integrity of floodplains and floodways, including riparian vegetation, fluvial geomorphologic environmental processes and water quality.</p> <p>Other aspects relating to floodplain ecology, environmental processes and water quality are dealt with outside of this report.</p>

**Compliance with Section 5.1 is demonstrated above.**

### **Section 5.2 - Fill or Excavation in the Floodplain.**

<b>Acceptable Solutions</b>	<b>Response</b>
A2.1 The development satisfies the requirements as shown in the planning matrix at Schedule 2.	Discussed in Section 5.1 above
A2.2 The proposed fill volume occupies less than 1% of the 2050 20%, 5% and 1% AEP flood volume on the development site and does not create a depth exceeding 1 metre above natural ground level or require more than 250 cubic metres of filling materials.	As mentioned above, there may be minor earthworks on or just below the 1% AEP flood level associated with the construction of the intersection of Road 23 and Canal Street and batters of biofiltration swales and pond adjacent Road 23 and the sports field. The extent and volumes of earthworks are expected to be very minor.

	<p>Given there is in the order of 2km of foreshore, determining the available flood storage on the subject site by undertaking extensive survey and assessing what is expected to be minor earthworks volumes against the minimum desirable is beyond the level of detail required by this report.</p> <p>It is anticipated however that;</p> <ul style="list-style-type: none"> <li>• Any fill volumes below the 1% AEP flood level are unlikely to occupy more than 1% of the 2050 1% and 5% AEP flood storage volumes;</li> <li>• The filling is unlikely to be more than 250m<sup>3</sup> but this may need to be assessed further at detailed design stage;</li> <li>• The maximum depth of filling is unlikely to exceed 1m but this may need to be assessed further at detailed design stage;</li> </ul>
<p>A2.3 The proposed fill and excavation does not adversely affect neighbouring properties or the overall flood behaviour and flood storage volume.</p>	<p>It is reasonable to anticipate any fill below the 1% AEP flood level line will not adversely affect neighbouring properties or the overall flood behaviour and flood storage volume.</p>
<p>A2.4 The proposed fill is used only for the purpose of filling a local depression beneath the confines of a building within an existing residential/ commercial area.</p>	<p>The proposed would not be used for the purpose of filling a local depression beneath the confines of a building within an existing residential/ commercial area.</p>

**Partial non-compliance with Section 5.2 of Shoalhaven DCP 2014 Chapter G9 is demonstrated above. A merit assessment of the Performance Criteria of Section 5.2 is demonstrated below.**

### Merit Assessment

Performance Criteria	Response
<p><b>P2</b> Filling or excavation on flood prone land will meet the following:</p>	
<p>High hazard floodway areas are kept free of fill and/or obstructions.</p>	<p>The site does not contain land classified as high hazard floodway.</p>
<p>The proposed fill or excavation will not unduly restrict the flow behaviour of floodwaters.</p>	<p>Given any fill or excavation will be at or close to the 1% AEP flood level line, it is reasonable to anticipate the fill will not unduly restrict the flow behaviour of floodwaters.</p>
<p>The proposed fill or excavation will not unduly increase the level or flow of floodwaters or stormwater runoff on land in the vicinity, including adjoining land.</p>	<p>Given any fill volumes below the 1% AEP flood level line are expected to be minor, it is reasonable to anticipate the fill will not unduly increase the level or flow of floodwaters or stormwater runoff on land in the vicinity, including adjoining land.</p>

<p>The proposed fill or excavation will not exacerbate erosion, siltation and destruction of vegetation caused by floodwaters flowing on the land.</p>	<p>Given any fill or excavation will be at or close to the 1% AEP flood level line, it is reasonable to anticipate the fill or excavation will not exacerbate erosion, siltation and destruction of vegetation caused by floodwaters flowing on the land.</p>
<p>The proposed fill or excavation will not be carried out on flood prone land if sufficient flood free area is available for development within the subject property.</p>	<p>As can be seen on the proposed concept plan (APS Drawing Reference 25405-210 Rev 08 – (see <b>Appendix 1.</b>), in addition to some walking paths and elevated boardwalks, there may be minor earthworks on or just below the 1% AEP flood level line associated with the construction of the intersection of Road 23 and Canal Street and batters of biofiltration swales and pond adjacent Road 23 and the sports field. The extent of these works is subject to survey and detailed design and if/where possible, earthworks below the 1% AEP flood level line will be kept to minimum.</p>
<p>The proposed excavation does not create new habitable rooms, non habitable storage areas or carparks with floor levels below the existing ground level.</p>	<p>There is no proposal to create areas below existing ground level either in the proposed subdivision or future development.</p>

**Partial non-compliance with Section 5.2 of Shoalhaven DCP 2014 Chapter G9 is demonstrated above in so far as;**

- The proposed subdivision is over land where part of the land has a flood risk category of High Hazard Flood Storage however this only relates to the foreshore parts of the land. The majority of the land is above flood planning level and is flood free.
- The proposed fill is not for filling of local depressions beneath the confines of a building within an existing residential/ commercial area.

Notwithstanding the above, Council can however lawfully grant consent to developments located with the Flood Planning Area on Councils Flood Planning Area Maps, or other land at or below Flood Planning Level, despite being flood prone.

### **Section 5.3 – Subdivision in the Floodplain.**

<p>A3.1 The development (subdivision and future use) satisfies the requirements as shown in the planning matrix at Schedule 2; and</p>	<p>The proposed subdivision satisfies the requirements as shown in the planning matrix at Schedule 2 based on Merit.</p>
--	--

	All future uses will be above the flood planning level and will therefore not need to comply with flood related controls.
A3.2 Flood conditions for the year 2100, which include the respective sea level rise projection, are used.	The proposed subdivision and future uses comply with the flood conditions as required for this site.

### Site Specific Controls

Section 5.4.4 of Chapter G9 requires site specific flood related development controls for the Lower Shoalhaven River area.

Location/type of development	Specific Controls	Response
All Lower Shoalhaven Foreshore Areas	A minimum setback should be applied to all new development on the foreshore and tributary creeks of the Shoalhaven and Crookhaven Rivers which is consistent with requirements for controlled actions under the Water Management Act 2000 in the associated Guidelines for riparian corridors on waterfront land which specifies the requirement of a permit for development within 40 metres of the top of bank or shoreline.	The setbacks for the proposed development are well in excess of 40m.

## 11.0 Conclusion

- This report has been prepared to support a staged mixed-use development. A Section 34 Conciliation Conference, under the LEC Act, commenced on 14 November 2019. One outcome of the Conciliation Conference process was for the applicant to provide a revised Concept Plan (**Proposal**) to significantly reduce the size of the development and to provide additional environmental assessment to address the issues raised by the Independent Planning Commission(IPC). The revised Concept Plan (**Proposal**) is the subject of this report.
- The site is flood prone only in the areas of the lower foreshore reserves.
- Part of the subject sites are flood prone and contain areas of High Hazard Flood Storage. There are also parts of the land that are classified as Low Hazard Flood Storage. The majority of the land however is above flood planning level and is flood free. Development can be lawfully consented to on land within the Flood Planning Area on Councils Flood Planning Area Maps, or other land at or below Flood Planning Level.
- The current projected 2100 1% AEP flood level is RL 3.6m AHD.
- The current projected 2050 Flood Planning Level for buildings is RL3.9m AHD.
- The proposed development will have negligible effect, if any, on flood behaviour.
- Reliable access for emergency vehicles, vehicles and pedestrians is available during a 1% AEP flood event.
- There is no increase in demand for emergency services in relation to flooding as a result of this development.
- An assessment of the proposed development shows that it generally meets the requirements of Clause 7.3 of the SLEP2014.
- An assessment of the proposed development shows that on merit it meets the Acceptable Solutions criteria for Section 5.1 of Chapter G9 of DCP2014.
- An assessment of the proposed development shows that on merit it generally meets the Performance Criteria for Section 5.2 of Chapter G9 of DCP2014.
- An assessment of the proposed development shows that on merit it generally meets the Performance Criteria for Section 5.3 of Chapter G9 of DCP2014.
- An assessment of the proposed development shows that it generally meets the requirements for subdivision within the Flood Planning Area.
- It is considered that the low risk nature of the proposal in terms of flooding is not an impediment to the proposed development.



## **References**

Lower Shoalhaven River Floodplain Management Study & Plan, Climate Change Assessment – WMA Water , 2011

Shoalhaven LEP 2014

Shoalhaven Development Control Plan 2014; Chapter G9: Development on Flood Prone Land

NSW Flood Prone Land Policy

NSW Floodplain Development Manual, April 2005 - Gazetted 6 May 2005 to comply with Section 733 of the Local Government Act ,1993

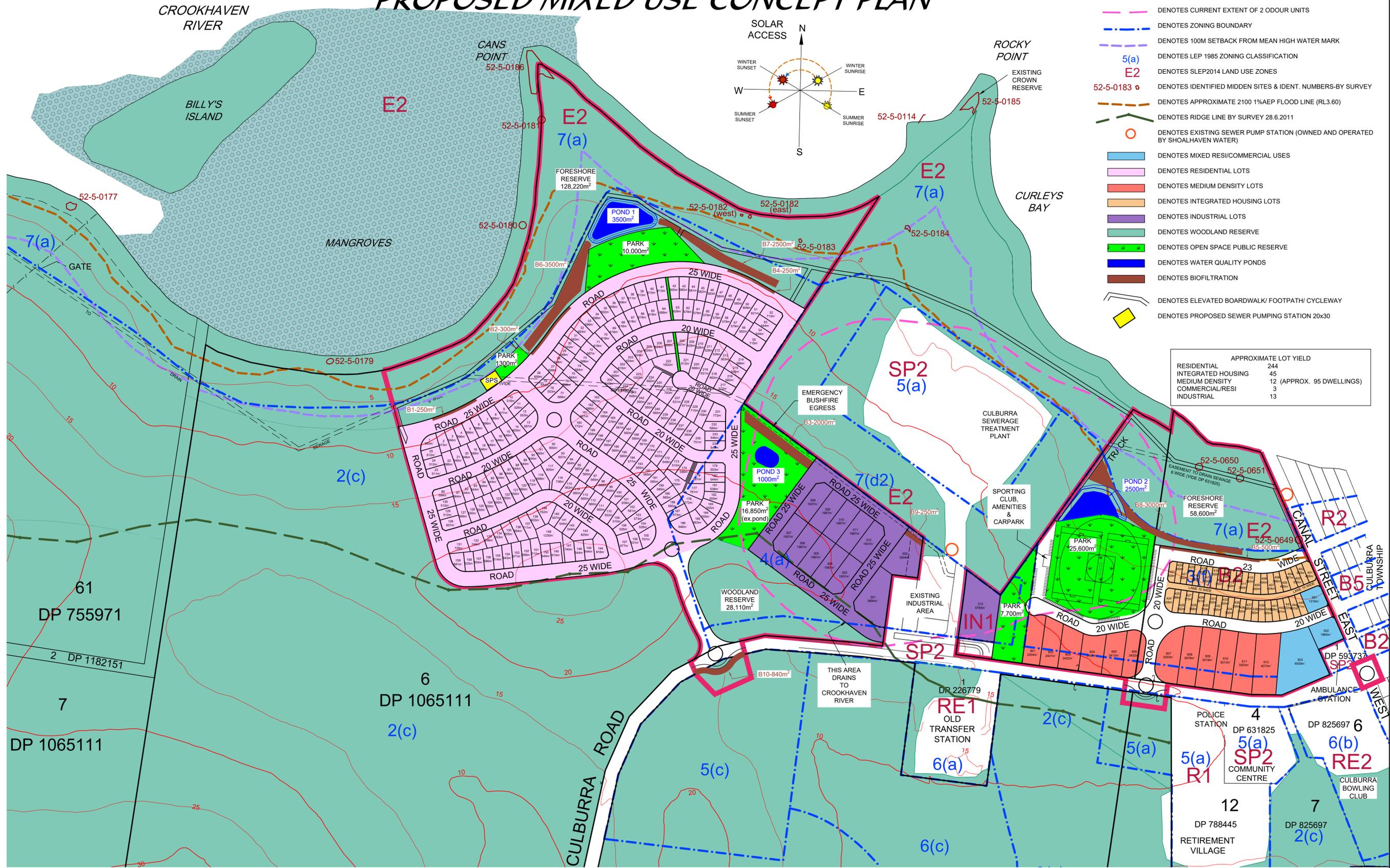


## **APPENDIX 1**

### **Revised Mixed Use Concept Plan**

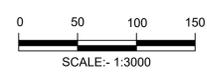
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# PROPOSED MIXED USE CONCEPT PLAN



- DENOTES DEVELOPMENT BOUNDARY
- - - DENOTES CURRENT EXTENT OF 2 ODOUR UNITS
- - - DENOTES ZONING BOUNDARY
- - - DENOTES 100M SETBACK FROM MEAN HIGH WATER MARK
- 5(a) DENOTES LEP 1985 ZONING CLASSIFICATION
- E2 DENOTES SLEP2014 LAND USE ZONES
- 52-5-0183 ○ DENOTES IDENTIFIED MIDDEN SITES & IDENT. NUMBERS-BY SURVEY
- - - DENOTES APPROXIMATE 2100 1% AEP FLOOD LINE (RL3.60)
- - - DENOTES RIDGE LINE BY SURVEY 28.6.2011
- DENOTES EXISTING SEWER PUMP STATION (OWNED AND OPERATED BY SHOALHAVEN WATER)
- DENOTES MIXED RESI/COMMERCIAL USES
- DENOTES RESIDENTIAL LOTS
- DENOTES MEDIUM DENSITY LOTS
- DENOTES INTEGRATED HOUSING LOTS
- DENOTES INDUSTRIAL LOTS
- DENOTES WOODLAND RESERVE
- DENOTES OPEN SPACE PUBLIC RESERVE
- DENOTES WATER QUALITY PONDS
- DENOTES BIOFILTRATION
- DENOTES ELEVATED BOARDWALK/ FOOTPATH/ CYCLEWAY
- DENOTES PROPOSED SEWER PUMPING STATION 20x30

APPROXIMATE LOT YIELD	
RESIDENTIAL	244
INTEGRATED HOUSING	45
MEDIUM DENSITY	12 (APPROX. 95 DWELLINGS)
COMMERCIAL/RESI	3
INDUSTRIAL	13



08	CANAL ST EAST AREA REDESIGNED	DS	28.09.2020
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CONTOUR INTERVAL 5.0 METRES



RATIO:  
**1:3000**  
(AT A1 ORIGINAL)  
(1:8000 AT A3)

DATUM:  
AUSTRALIAN HEIGHT DATUM  
ORIGIN: SSM  
RL  
DATE OF PLAN: 19.11.2019

SURVEY	AERIAL PHOTOGRAPHY	REV	DESCRIPTION	BY	DATE
DESIGN	MP	01	MIDDEN SITES LOCATED BY SURVEY ADDED	DS	09.12.2019
DRAWN	DS	02	FURTHER MODIFICATIONS	DS	20.12.2019
CHECK'D	MP	03	SOUTHERN DEVELOPMENT OMITTED	DS	15.01.2020
		04	FOOTPATH LINKS TO DEVELOPMENT ADDED	DS	29.01.2020
		05	TITLE CHANGED. MINOR LOT AMENDMENTS	DS	18.02.2020
		06	MINOR STORMWATER QUALITY AMENDMENTS	DS	01.04.2020
		07	MIDDEN SITES CLARIFIED	DS	17.09.2020
		07	INDUSTRIAL & COMMERCIAL AREAS MODIFIED	DS	17.09.2020

**allen price & scarratts pty ltd**  
land and development consultants  
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Kiama Branch: 1/28 Bong Bong Street, Kiama NSW 2533  
phone: (02) 4421 6544 fax: (02) 4422 1821  
consultants@allenprice.com.au www.allenprice.com.au

**PROPOSED MIXED USE CONCEPT PLAN**  
**OVER PART OF LOTS 5 & 6 DP1065111**  
**AT WEST CULBURRA FOR SEALARK PTY LTD**

DRAWING STATUS		<b>PRELIMINARY</b>	
NOT TO BE USED FOR CONSTRUCTION PURPOSES			
DRAWING NUMBER	SHEET	REVISION	
<b>25405-210</b>	<b>1</b>	<b>08</b>	
	OF		



## **APPENDIX 2**

### **Detailed Flood Certificates**

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COUNCIL REFERENCE: 28112E (D20/144595)  
CONTACT PERSON: Kate Britton  
DATE: 30 Apr 2020

Debbi Szota  
PO Box 73  
Nowra NSW 2541

Thank you for your recent inquiry in relation to flood data held by Shoalhaven City Council.

Please find below the original details of your inquiry, some general information on flooding as well as the requested property specific Flood Certificate.

Details of Inquiry:

<b>Name of Inquirer</b>	Debbi Szota	<b>Date Requested:</b> 19 Mar 2020
<b>Reason for Enquiry</b>	Other - Subdivision	
<b>Contact Details</b>	Phone: 44216544 Email: Consultants@allenprice.com.au Postal: PO Box 73 Nowra	
<b>Preferred Response</b>	Email	
<b>Notes</b>		
<b>Survey Detail</b>	Not Provided	
<b>Flood Safety Tip</b>	<b>Causeways can kill! Never drive through flood waters! Wait and be safe!</b>	
<b>General Flood Information</b>	Shoalhaven City Council in conjunction with SES has produced site specific flood brochures for Shoalhaven Heads, Nowra / Bomaderry / Terara, Greenwell Point/Orient Point and Sussex Inlet. General Flood Information booklets, such as "What to do before, during & after a flood" prepared by Emergency Management Australia are also available. You can pick up free copies of all brochures at the City Administration Building in Nowra.	

## FLOOD CERTIFICATE

According to the *Lower Shoalhaven River Floodplain Risk Management Plan – Climate Change Assessment (2011)* and *Lake Wollumboola Flood Study (2015)* this property, Culburra Rd, CULBURRA BEACH - Lot 5 DP 1065111, is affected by the 1% AEP flood event.

### FLOOD INFORMATION

Year	Existing	Projected 2050	Projected 2100
<b>Flood Planning Level</b>	Not applicable	3.9m AHD	4.1m AHD

<b>Hazard Category</b>	High Hazard	High Hazard	High Hazard
<b>Hydraulic Category</b>	Flood Storage	Flood Storage	Flood Storage

<b>Probable Maximum Flood Level</b>	4.9m AHD	4.9m AHD	5.0m AHD
<b>1% AEP Flood Level</b>	3.2m AHD	3.4m AHD	3.6m AHD
<b>2% AEP Flood Level</b>	2.8m AHD	3.0m AHD	3.3m AHD
<b>5% AEP Flood Level</b>	2.3m AHD	2.6m AHD	2.9m AHD
<b>10% AEP Flood Level</b>	2.0m AHD	2.2m AHD	2.7m AHD

<b>Velocity (1% AEP flood event)</b>	Not Available	Not Available	Not Available
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### SITE SPECIFIC CONSIDERATIONS

1. Current NSW Government legislation requires climate change to be considered as part of this Floodplain Risk Management Study and Plan. Climate change related information evolves with time and it is expected that existing flood behaviour and levels may change in the future.
2. All applications for buildings, and the like, must take into account the projected 2050 flood information. All subdivision and other long-term planning must take into account the projected 2100 flood information.
3. Information provided in this flood certificate uses previous State Government sea level rise benchmarks (400mm and 900mm for the 2050 and 2100 horizon's respectively). On Tuesday 10th February 2015 Council's Policy & Resources Committee resolved to no longer use State Government benchmarks and to "Establish a sea level rise benchmarks for planning purposes based on a 2030 horizon 100 mm, a 2050 horizon of 230 mm and 360 mm horizon for 2100". The new benchmarks will be incorporated into the flood information in future. Until studies incorporating the new benchmarks are undertaken Council will continue to use the best available information.
4. There is no current NSW Government legislation covering predicted increases in rainfall intensity as a result of climate change. The flood information provided in this flood certificate therefore excludes potential climate change impacts on rainfall and associated flood levels.
5. Not all of the property is categorised as High Hazard Flood Storage. Part of the property is categorised as Low Hazard Flood Storage and most of the property is above the flood planning level. The property is affected by both Lower Shoalhaven River and Lake Wollumboola flooding to the north and south of Culburra Road respectively. It is noted that different flood planning levels apply to the property to the north and south of Culburra Road due to different 1% AEP

flood event levels in the Lower Shoalhaven River and Lake Wollumboola. The flood levels and flood planning levels in this flood certificate apply to Lower Shoalhaven River flood events, which are the highest. For more specific information regarding the different hazard and hydraulic categorisations on this property please contact Council's Natural Resource and Floodplain Unit on (02) 44293392.

## **STANDARD CONSIDERATIONS**

### **Properties below the Flood Planning Level:**

Council considers the land in question to be below the flood planning level and therefore subject to flood related development controls. The conditions as set out below will reduce flood risk in flood events up to the Flood Planning Level, however the property may still be subject to flooding at higher levels during rare flood events.

### **Development controls apply to flood affected properties.**

**Development conditions will vary depending on flood hazard, hydraulic category as well as the type of development that is proposed.** Please refer to the following documents for information on Council's flood related development controls and the NSW State Government's Floodprone Land Policy.

- Shoalhaven Development Control Plan – Chapter 9: Development on Flood Prone Land <http://dcp2014.shoalhaven.nsw.gov.au/main-category/whole-document>
- NSW Floodplain Development Manual 2005:  
<http://www.environment.nsw.gov.au/floodplains/manual.htm>

## **DISCLAIMER**

Your enquiry relating to the likelihood of the land specified in the application being flooded has been referred to the Council's Floodplain Engineer.

In responding to your application the Council seeks to bring to your attention the fact that pursuant to s.733 of the Local Government Act a council does not incur liability in respect of the giving of any advice furnished in good faith by the Council relating to the likelihood of any land being flooded or the nature or extent of any such flooding.

The Council does not have a legal obligation to provide advice to you and to the extent that this reply is giving advice, the Council provides that advice in good faith with the intention of preserving, so far as is legally possible, the Council's immunity from liability pursuant to s.733 of the Local Government Act.

While all reasonable care has been taken to ensure the accuracy of the information given in this reply, its purpose is to provide a general indication of flood risk in the area. Flood lines shown on Council maps indicate the approximate extent of flooding only in relation to the abovementioned land.

The information provided may contain errors or omissions and the accuracy may not suit the purposes of all users. A site survey and further investigation are strongly recommended before commencement of any project based on this data.

The information given is the most current information at the time of the request. It is to be noted, however, that flood information is constantly reviewed and updated and as such, the information contained in this regard is current only on the day of issue.

Before acting upon the information provided in this reply, the Council urges you to obtain separate and independent advice as Council, in giving this information, does not intend it to be relied upon in such a fashion as to impose liability upon the Council.

Should you not be prepared to accept the information contained in this reply upon that basis then you should immediately notify Council.

## **GLOSSARY**

**AEP (Annual Exceedance Probability)** means the chance of a flood of a given or larger size occurring in any one year, usually expressed as a percentage – for example a 1% AEP flood event has a 1% chance of occurring in any one calendar year.

**AHD (Australian Height Datum)** is a common national surface level datum corresponding approximately to mean sea level.

**Flood fringe** is the part of the floodplain remaining after the floodway and flood storage areas have been defined.

**Flood planning area** is any land identified as being flood affected in the 1% AEP flood event plus freeboard.

**Flood planning level (FPL)** is the 1% AEP flood level plus freeboard. The FPL is used for planning purposes, as determined in floodplain risk management studies and incorporated in floodplain risk management plans.

**Flood prone land** means any land susceptible to flooding up to the probable maximum flood event (that is, land within the floodplain) as identified in an adopted Council flood study or floodplain risk management study and plan.

**Flood storage** areas are those parts of the floodplain that are important for the temporary storage of floodwaters during the passage of a flood.

**Flood study** is a technical investigation of flood behaviour. It defines the nature of flood risk by establishing the extent, level and velocity of floodwaters. The study also provides information on the distribution of flood flows across various sections of the flood plain for the full range of flood events up to and including the PMF.

**Floodplain risk management plan** is a plan developed in accordance with the principles and guidelines contained in the NSW Government Floodplain Management Manual. Usually includes both written and diagrammatic information describing how particular areas of flood prone land are to be used and managed to achieve defined objectives.

**Floodplain risk management study** is a study that identifies and compares various risk management options. This includes an assessment of their social, economic, ecological and cultural impacts, together with opportunities to maintain and enhance river and floodplain environments.

**Floodway** means those parts of the floodplain where a significant discharge of water occurs during floods. They are often aligned with natural defined channels. Floodway's are areas that, even if only partially blocked, would cause a significant redistribution of flood flow, or a significant increase in flood levels.

**Freeboard** is currently 0.5m for all catchments in the Shoalhaven. Freeboard is a factor of safety used to set the FPL (i.e.  $FPL = 1\% \text{ AEP flood level plus freeboard (0.5m)}$ ). Freeboard takes into account uncertainties in flood modelling and climate change predictions, local factors that cannot be included in the flood model or wave action caused by wind, boats or vehicles driving through flood waters.

**Hazard category** represents the risk or danger to personal safety, evacuation movements and buildings and structures within the Flood Planning Area during the 1% AEP flood. There are only two possible hazard categories – high or low.

**Hydraulic category** describes the function of a specific part of the Flood Planning Area in conveying flood waters during a 1% AEP flood. There are three possible hydraulic categories – floodway, flood storage or flood fringe.

**Probable maximum flood (PMF)** is the largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation. Generally, it is not physically or economically possible to provide complete protection against this event. The PMF defines the extent of flood prone land, that is, the floodplain.

**Provisional** is used for hazard categories that have been determined in a flood study. Hazard categories are provisional until the floodplain risk management study and plan has been completed and adopted by Council, as this document considers additions risks, not considered during the flood study.

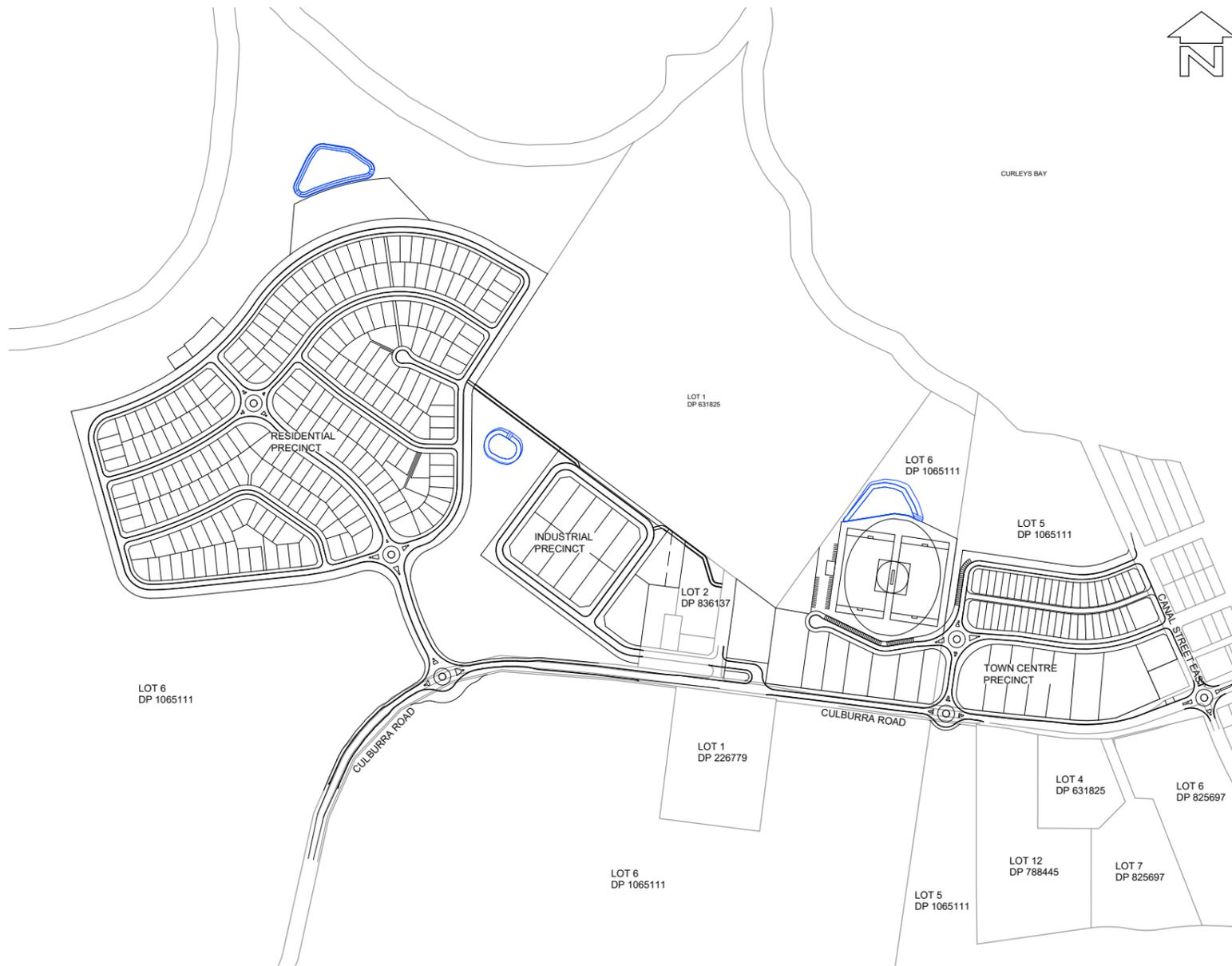


## **APPENDIX 3**

### **Preliminary engineering designs**

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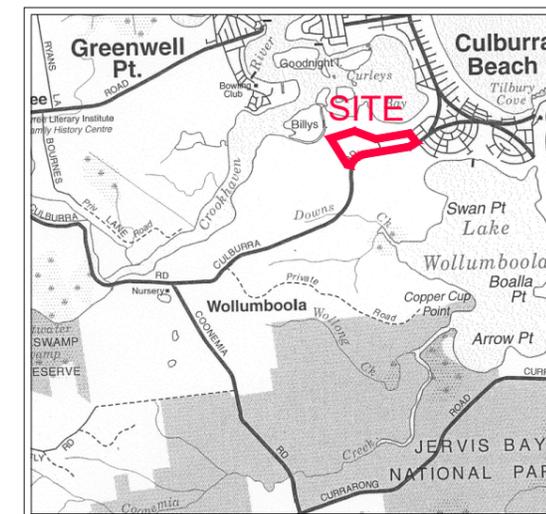
# PRELIMINARY ENGINEERING DRAWINGS FOR PROPOSED MIXED-USE SUBDIVISION AT WEST CULBURRA



SITE LAYOUT PLAN  
SCALE 1:4000

## DRAWING SCHEDULE

25405-100	COVER SHEET AND INDEX PLAN
25405-101	PRELIMINARY RESIDENTIAL PRECINCT LAYOUT PLAN
25405-102	PRELIMINARY INDUSTRIAL PRECINCT LAYOUT PLAN
25405-103	PRELIMINARY TOWN CENTRE PRECINCT LAYOUT PLAN
25405-104	PRELIMINARY OVERALL CONCEPT ROUNDABOUT 01 DESIGN
25405-105	PRELIMINARY CONCEPT ROUNDABOUT 01 DESIGN
25405-106	ROUNDABOUT 01 VEHICLE MOVEMENT LAYOUT PLAN SHEET 01
25405-107	ROUNDABOUT 01 VEHICLE MOVEMENT LAYOUT PLAN SHEET 02
25405-108	PRELIMINARY ROUNDABOUT 01 SIGHT LINE LAYOUT PLAN
25405-109	PRELIMINARY CONCEPT INDUSTRIAL ENTRY AND EXIT LAYOUT PLAN
25405-110	PRELIMINARY CONCEPT INDUSTRIAL ENTRY AND EXIT VEHICLE MOVEMENTS AND SIGHT DISTANCE LAYOUT PLAN
25405-111	PRELIMINARY CONCEPT ROUNDABOUT 02 LAYOUT PLAN
25405-112	PRELIMINARY CONCEPT ROUNDABOUT 02 DESIGN
25405-113	ROUNDABOUT 02 VEHICLE MOVEMENT LAYOUT PLAN
25405-114	PRELIMINARY ROUNDABOUT 02 SIGHT LINE LAYOUT PLAN
25405-115	PRELIMINARY CONCEPT ROUNDABOUT 03 LAYOUT PLAN
25405-116	PRELIMINARY CONCEPT ROUNDABOUT 03 DESIGN
25405-117	ROUNDABOUT 03 VEHICLE MOVEMENT LAYOUT PLAN SHEET 01
25405-118	ROUNDABOUT 03 VEHICLE MOVEMENT LAYOUT PLAN SHEET 02
25405-119	PRELIMINARY ROUNDABOUT 03 SIGHT LINE LAYOUT PLAN
25405-120	PRELIMINARY TYPICAL ROAD CROSS SECTIONS PLAN SHEET 01
25405-121	PRELIMINARY TYPICAL ROAD CROSS SECTIONS PLAN SHEET 02
25405-122	PRELIMINARY TYPICAL ROAD CROSS SECTIONS PLAN SHEET 03
25405-123	PRELIMINARY TYPICAL ROAD CROSS SECTIONS PLAN SHEET 04
25405-124	PRELIMINARY TYPICAL ROAD CROSS SECTIONS PLAN SHEET 05
25405-125	WESTERN POND CONCEPT LAYOUT PLAN
25405-126	CENTRAL POND CONCEPT LAYOUT PLAN
25405-127	EASTERN POND CONCEPT LAYOUT PLAN
25405-128	TYPICAL WESTERN AND EASTERN POND CROSS SECTIONS PLAN



LOCALITY PLAN  
MAP DRAWN & PUBLISHED BY  
CARTODRAFT AUST P/L

0 50 100 150 200  
SCALE: 1:4000

PROFESSIONAL  
STANDARDS SCHEME  
Liability limited by a scheme  
approved under Professional  
Standards Legislation

BEWARE!

THE CONTRACTOR IS TO VERIFY THE LOCATION OF ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF CONSTRUCTION AND SHALL BE RESPONSIBLE, AT THE CONTRACTOR'S EXPENSE, FOR ANY REPAIRS TO DAMAGE CAUSED DURING CONSTRUCTION.

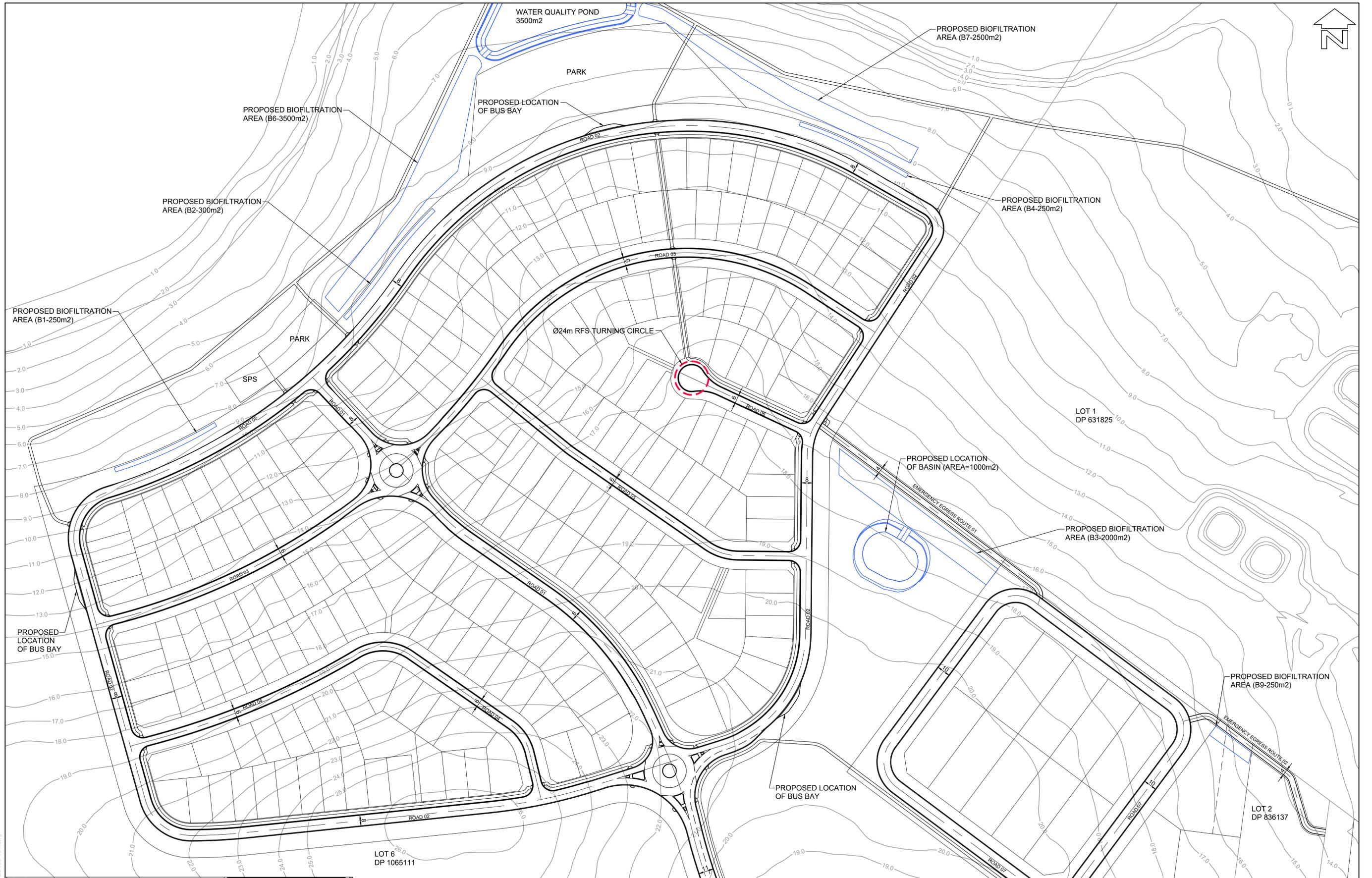


RATIO:	DATUM:	SURVEY	APS	REV	DESCRIPTION	BY	DATE
1:4000 (AT A1 ORIGINAL)	AUSTRALIAN HEIGHT DATUM ORIGIN: SSM RL DATE OF PLAN: MARCH 2020	DESIGN DRAWN CHECK'D	CJG CJG MJP	=			

**aps** allen price & scarratts pty ltd  
land and development consultants  
Nowra Office: 75 Plunkett Street, Nowra NSW 2541  
Kiama Office: 1/28 Bong Bong Street, Kiama NSW 2533  
phone: (02) 4421 6544  
consultants@allenprice.com.au www.allenprice.com.au

COVER SHEET AND INDEX PLAN  
OVER CULBURRA ROAD  
AT CULBURRA BEACH  
FOR SEALARK PTY LTD

DRAWING STATUS <b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION PURPOSES	
DRAWING NUMBER <b>25405-100</b>	SHEET <b>1</b> OF <b>29</b> REVISION <b>P6</b>



**BEWARE!**

THE CONTRACTOR IS TO VERIFY THE LOCATION OF ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF CONSTRUCTION AND SHALL BE RESPONSIBLE, AT THE CONTRACTOR'S EXPENSE, FOR ANY REPAIRS TO DAMAGE CAUSED DURING CONSTRUCTION.



**DIAL BEFORE YOU DIG**  
www.1100.com.au

0 10 20 30 40 50  
SCALE: 1:1250

**PROFESSIONAL STANDARDS SCHEME**  
Liability limited by a scheme approved under Professional Standards Legislation

RATIO:  
**1:1250**  
(AT A1 ORIGINAL)

DATUM:  
AUSTRALIAN HEIGHT DATUM  
ORIGIN: SSM  
RL  
DATE OF PLAN: MARCH 2020

SURVEY	APS	REV	DESCRIPTION	BY	DATE
DESIGN	C/JG				
DRAWN	C/JG				
CHECK'D	MJP				

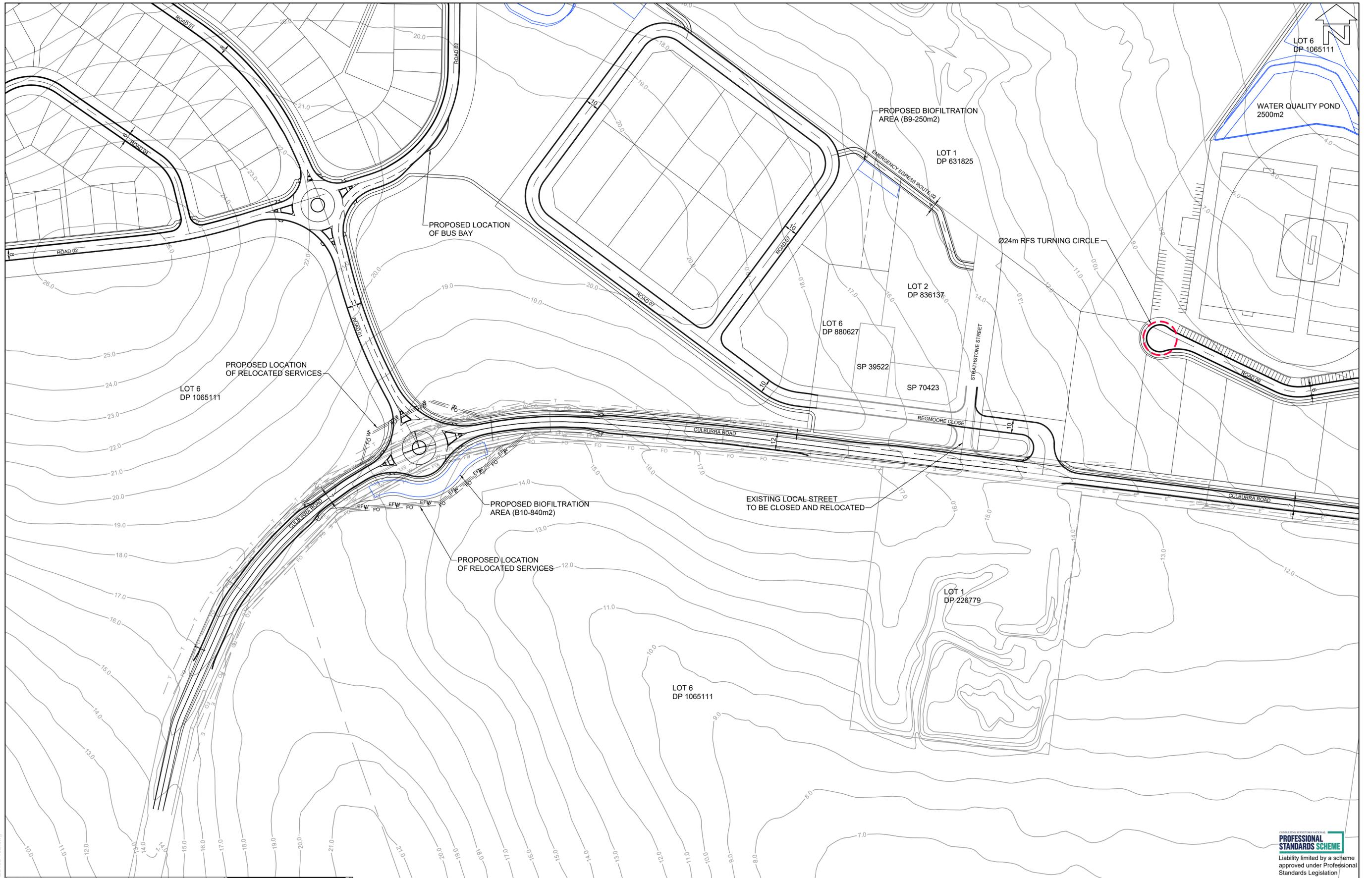
**aps** allen price & scarratts pty ltd  
land and development consultants  
Nowra Office: 75 Plunkett Street, Nowra NSW 2541  
Kiama Office: 1/28 Bong Bong Street, Kiama NSW 2533  
phone: (02) 4421 6544  
consultants@allenprice.com.au www.allenprice.com.au

**PRELIMINARY RESIDENTIAL PRECINCT LAYOUT PLAN**  
**OVER CULBURRA ROAD AT CULBURRA BEACH FOR SEALARK PTY LTD**

DRAWING STATUS  
**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION PURPOSES

DRAWING NUMBER  
**25405-101**

SHEET **2** OF **29** REVISION **P1**



LOT 6  
DP 1065111

WATER QUALITY POND  
2500m2

PROPOSED BIOFILTRATION  
AREA (B9-250m2)

LOT 1  
DP 631825

PROPOSED LOCATION  
OF BUS BAY

Ø24m RFS TURNING CIRCLE

LOT 2  
DP 836137

LOT 6  
DP 880627

SP 39522

SP 70423

PROPOSED LOCATION  
OF RELOCATED SERVICES

LOT 6  
DP 1065111

PROPOSED BIOFILTRATION  
AREA (B10-840m2)

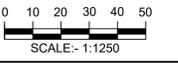
EXISTING LOCAL STREET  
TO BE CLOSED AND RELOCATED

PROPOSED LOCATION  
OF RELOCATED SERVICES

LOT 1  
DP 226779

LOT 6  
DP 1065111

PROFESSIONAL  
STANDARDS SCHEME  
Liability limited by a scheme  
approved under Professional  
Standards Legislation



**BEWARE!**

THE CONTRACTOR IS TO VERIFY THE LOCATION OF ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF CONSTRUCTION AND SHALL BE RESPONSIBLE, AT THE CONTRACTOR'S EXPENSE, FOR ANY REPAIRS TO DAMAGE CAUSED DURING CONSTRUCTION.

**DIAL BEFORE YOU DIG**  
www.1100.com.au

RATIO:  
**1:1250**  
(AT A1 ORIGINAL)

DATUM:  
AUSTRALIAN HEIGHT DATUM  
ORIGIN: SSM  
RL  
DATE OF PLAN: MARCH 2020

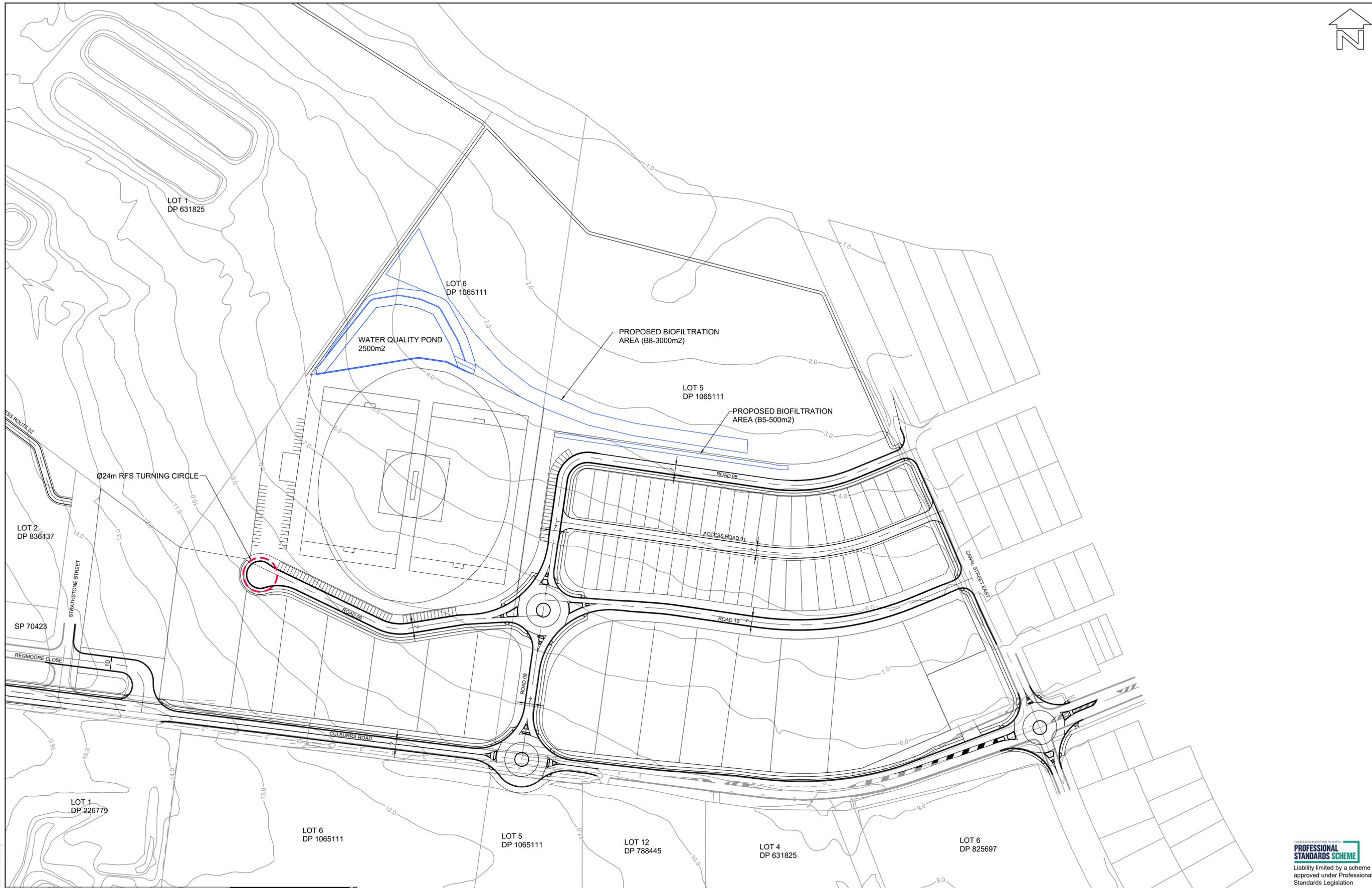
SURVEY	APS	REV	DESCRIPTION	BY	DATE
DESIGN	CJG				
DRAWN	CJG				
CHECK'D	MJP				

**aps** allen price & scarratts pty ltd  
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phone: (02) 4421 6544  
consultants@allenprice.com.au www.allenprice.com.au

**PRELIMINARY INDUSTRIAL PRECINCT LAYOUT PLAN**  
**OVER CULBURRA ROAD  
AT CULBURRA BEACH  
FOR SEALARK PTY LTD**

DRAWING STATUS <b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION PURPOSES	
DRAWING NUMBER <b>25405-102</b>	SHEET <b>3</b> REVISION <b>29</b> P1

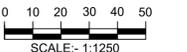
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**BEWARE!**  
 THE CONTRACTOR IS TO VERIFY THE LOCATION OF ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF CONSTRUCTION AND SHALL BE RESPONSIBLE, AT THE CONTRACTOR'S EXPENSE, FOR ANY REPAIRS TO DAMAGE CAUSED DURING CONSTRUCTION.

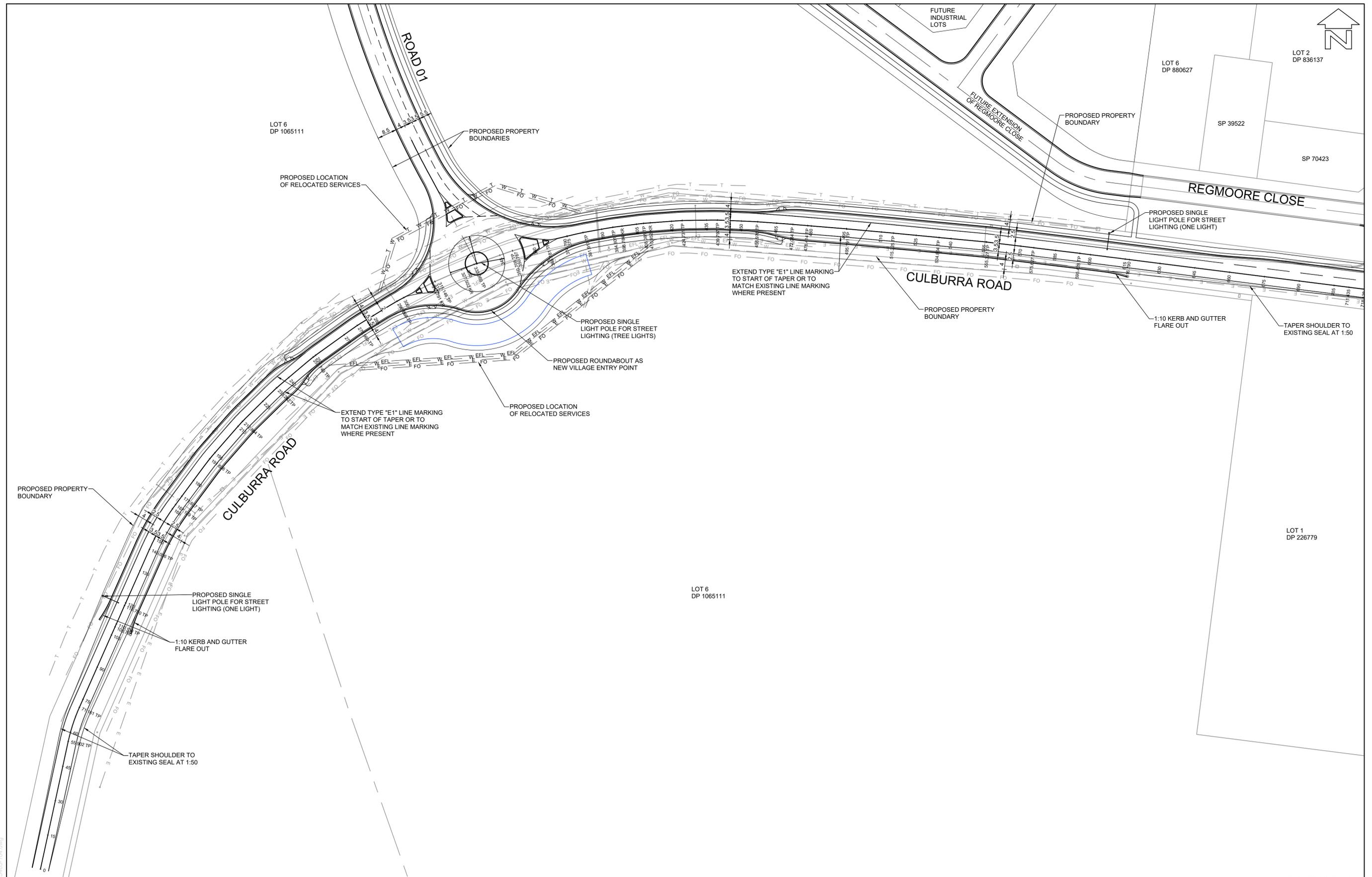


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RATIO: <b>1:1250</b> (AT A1 ORIGINAL)	DATUM: AUSTRALIAN HEIGHT DATUM	SURVEY DESIGN	APS CJG	REV =	DESCRIPTION	BY	DATE	 <b>allen price &amp; scarratts pty ltd</b> land and development consultants Nowra Office: 75 Plunkett Street, Nowra NSW 2541 Kiama Office: 1/28 Bong Bong Street, Kiama NSW 2533 phone:(02) 4421 6544 consultants@allenprice.com.au www.allenprice.com.au	<b>PRELIMINARY TOWN CENTRE PRECINCT LAYOUT PLAN</b>  <b>OVER CULBURRA ROAD AT CULBURRA BEACH FOR SEALARK PTY LTD</b>	DRAWING STATUS <b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION PURPOSES
	ORIGIN: SSM RL	DRAWN CJG	CHECK'D MJP							DRAWING NUMBER <b>25405-103</b>
	DATE OF PLAN: MARCH 2020									

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LAYOUT PLAN  
SCALE 1:750

**BEWARE!**



THE CONTRACTOR IS TO VERIFY THE LOCATION OF ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF CONSTRUCTION AND SHALL BE RESPONSIBLE, AT THE CONTRACTOR'S EXPENSE, FOR ANY REPAIRS TO DAMAGE CAUSED DURING CONSTRUCTION.

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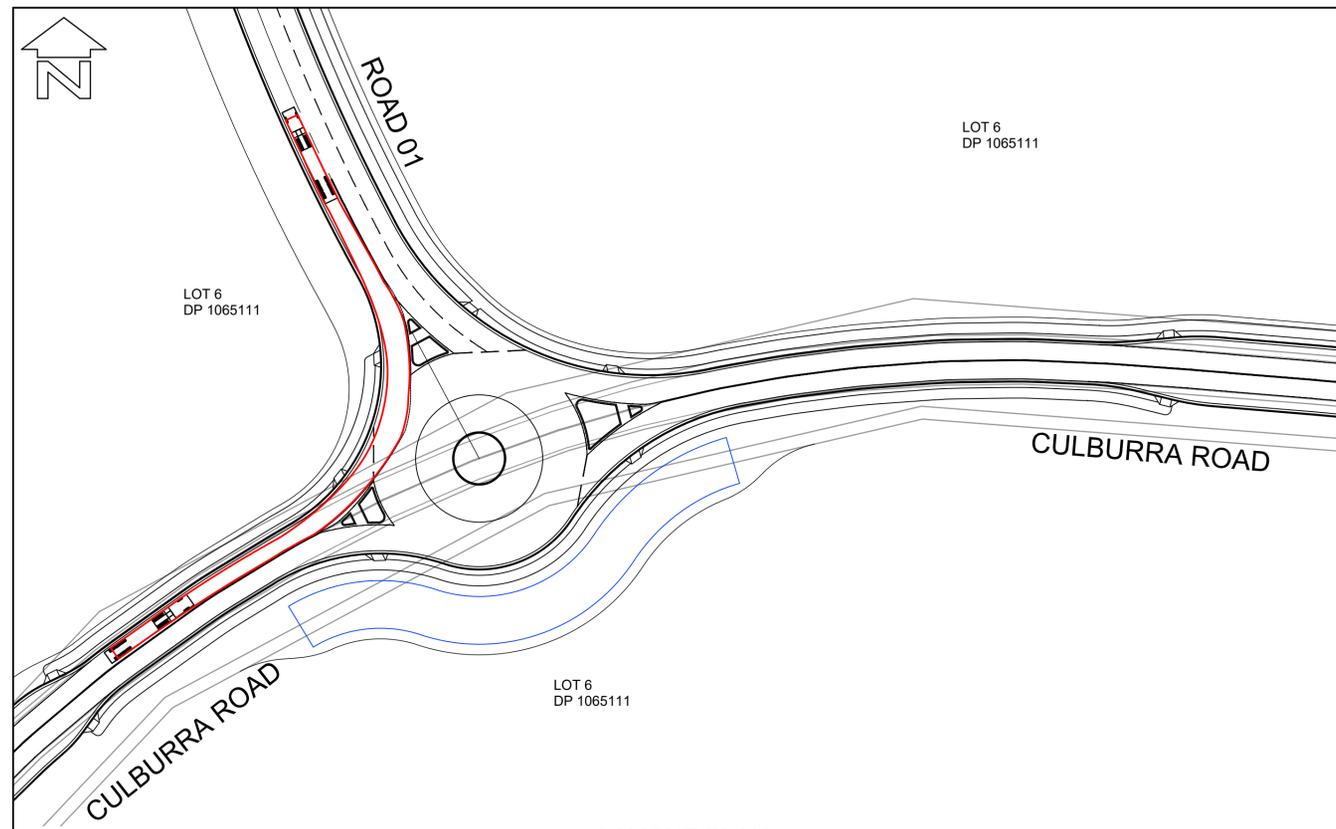


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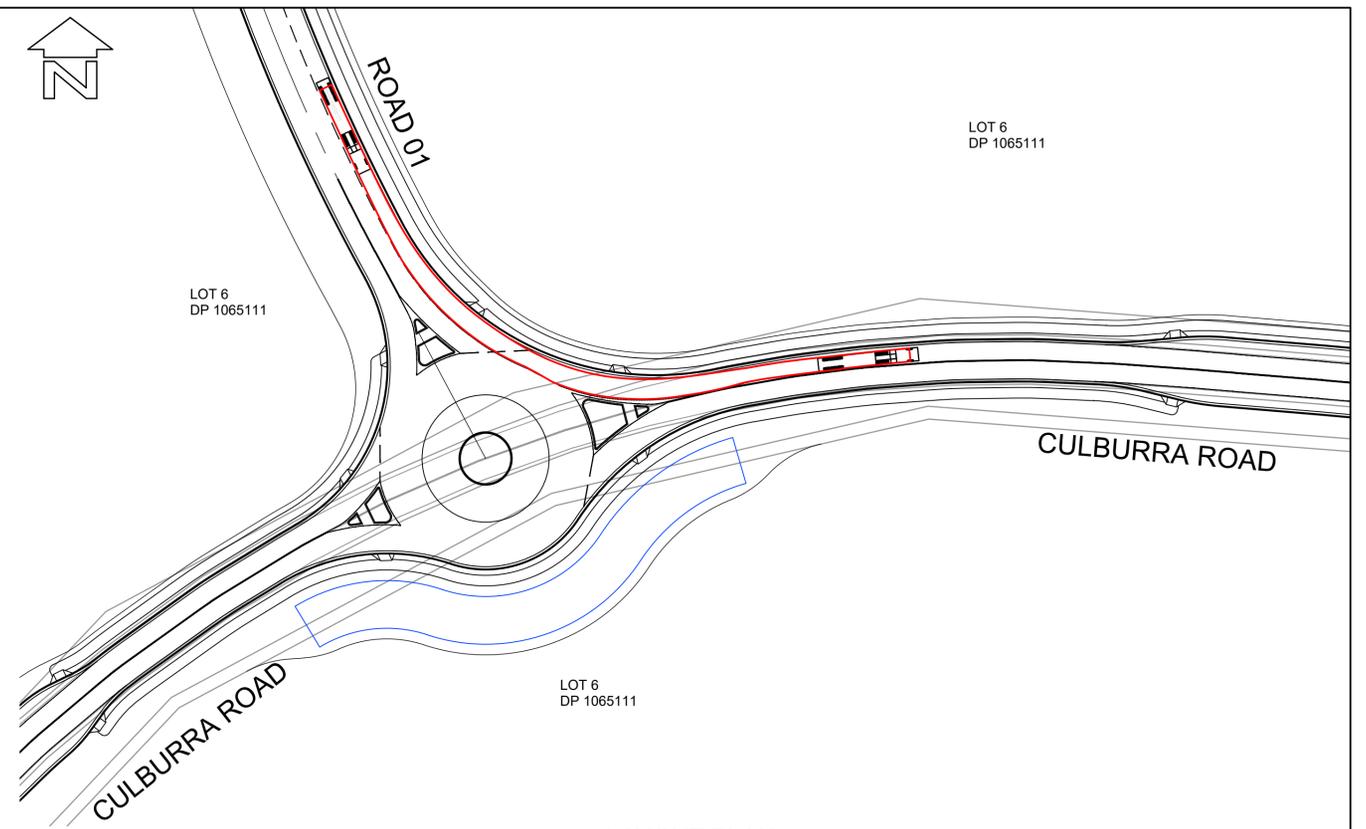
0 5 10 15 20 25  
SCALE:- 1:750

RATIO: <b>1:750</b> (AT A1 ORIGINAL)	DATUM: AUSTRALIAN HEIGHT DATUM	SURVEY	APS	REV	DESCRIPTION	BY	DATE	 <p>PRELIMINARY OVERALL CONCEPT ROUNDABOUT 01 DESIGN OVER CULBURRA ROAD AT CULBURRA BEACH FOR SEALARK PTY LTD</p>	DRAWING STATUS <b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION PURPOSES
	ORIGIN: SSM RL	DESIGN CJG	APS CJG	=					DRAWING NUMBER <b>25405-104</b>
	DATE OF PLAN: MARCH 2020	DRAWN CJG							
		CHECK'D MJP							

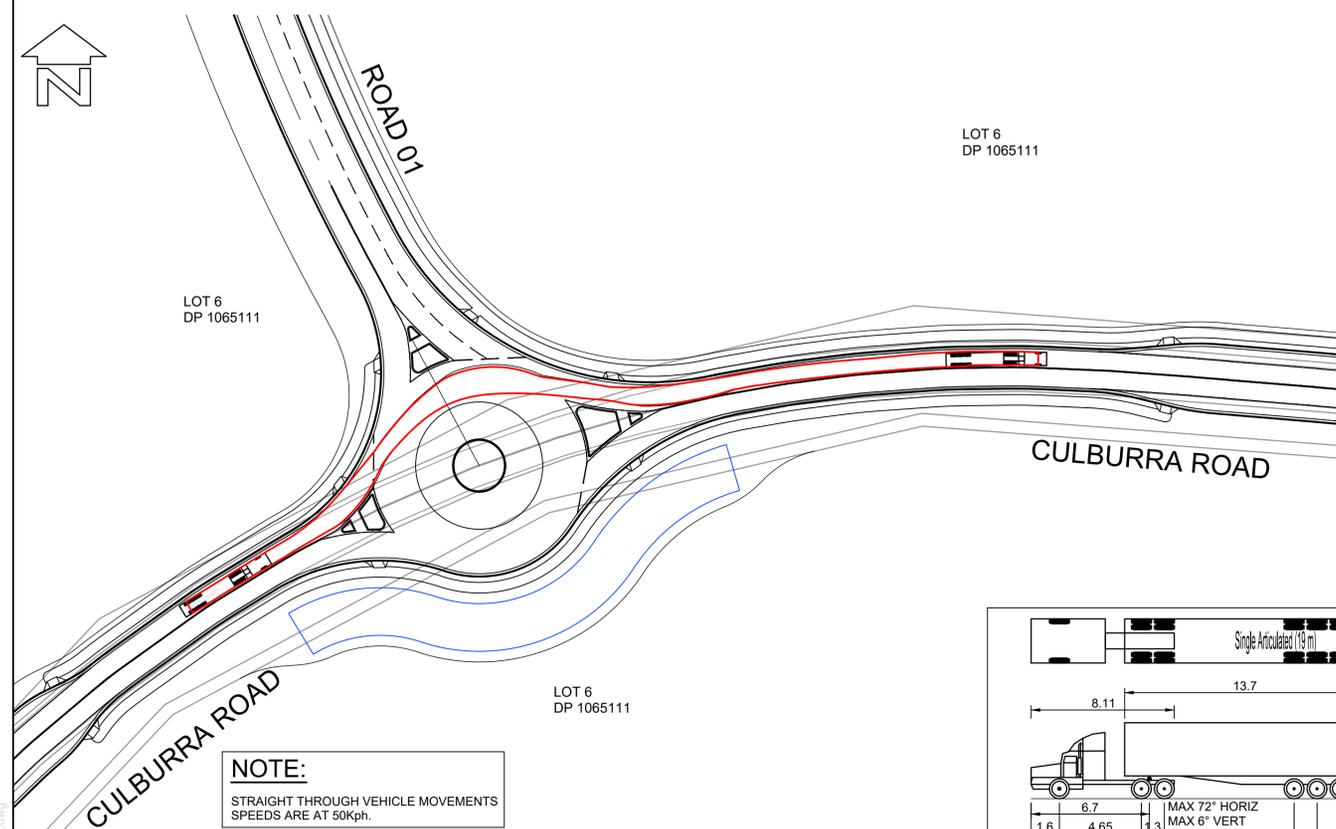




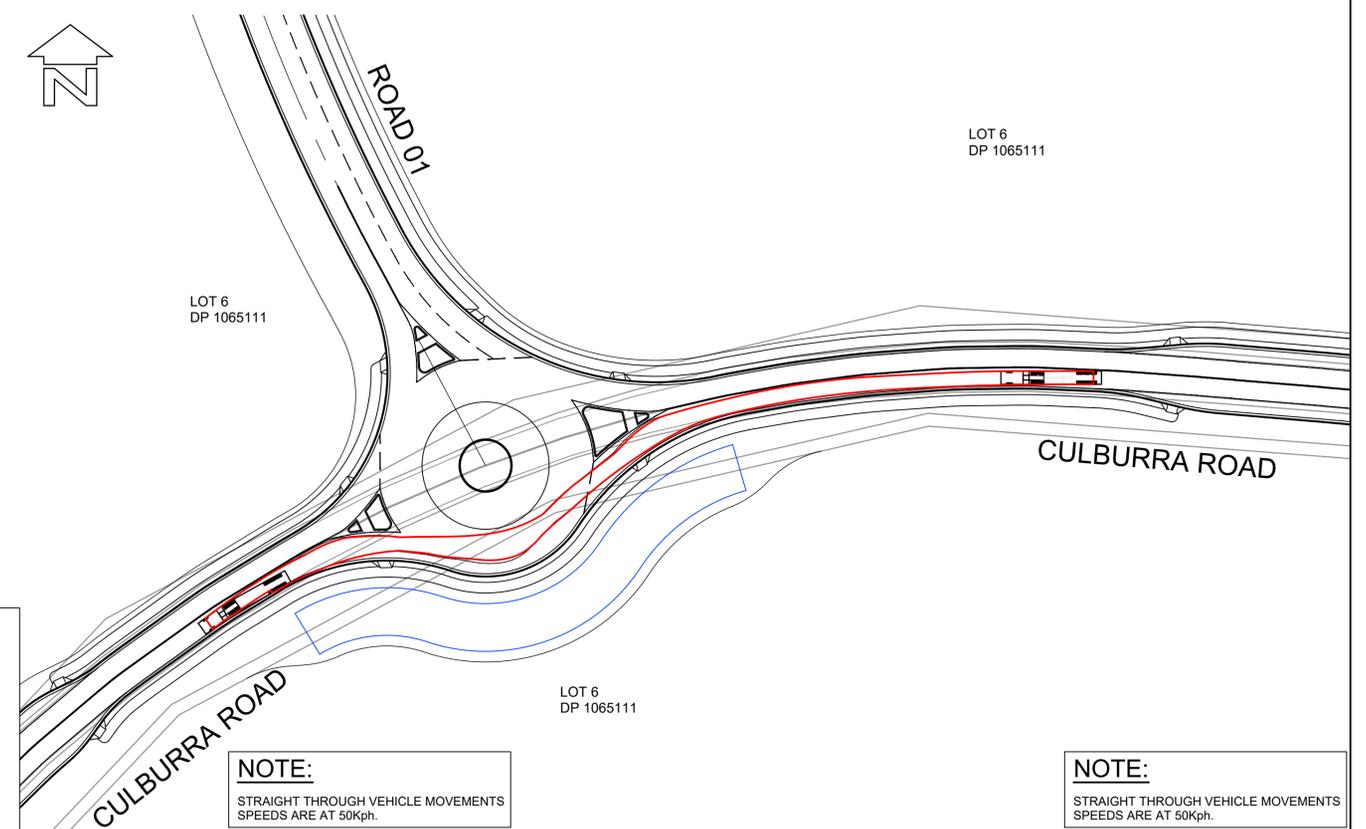
LAYOUT PLAN  
SCALE 1:750



LAYOUT PLAN  
SCALE 1:750



LAYOUT PLAN  
SCALE 1:750

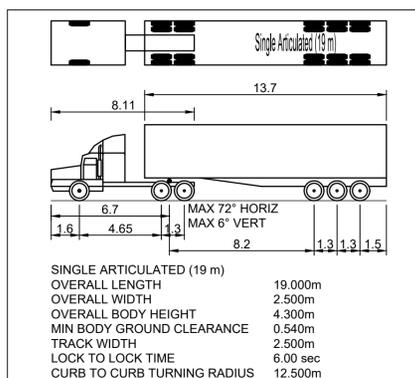


LAYOUT PLAN  
SCALE 1:750

**NOTE:**  
STRAIGHT THROUGH VEHICLE MOVEMENTS  
SPEEDS ARE AT 50kph.

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STRAIGHT THROUGH VEHICLE MOVEMENTS  
SPEEDS ARE AT 50kph.

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STRAIGHT THROUGH VEHICLE MOVEMENTS  
SPEEDS ARE AT 50kph.



**VEHICLE MANOEUVRE LEGEND:**  
 - - - - - PATH OF OUTER FRONT WHEEL (FORWARD MOVEMENT)  
 - - - - - SWEEP PATH OF VEHICLE BODY (FORWARD MOVEMENT)  
 THIS DRAWING HAS BEEN PREPARED USING MODELING COMPUTER SOFTWARE AUTODESK VEHICLE TRACKING 2016. THE VEHICLE USED IS BASED UPON DATA PROVIDED BY AUSTRROADS 2013 FOR A SINGLE ARTICULATED (19.0m) TRAVELING AT 20km/hr AND INCORPORATES A REASONABLE DEGREE OF TOLERANCE. HOWEVER IT IS NOT POSSIBLE TO ACCOUNT FOR ALL VEHICLE TYPES/ CHARACTERISTICS AND/OR DRIVER ABILITY.

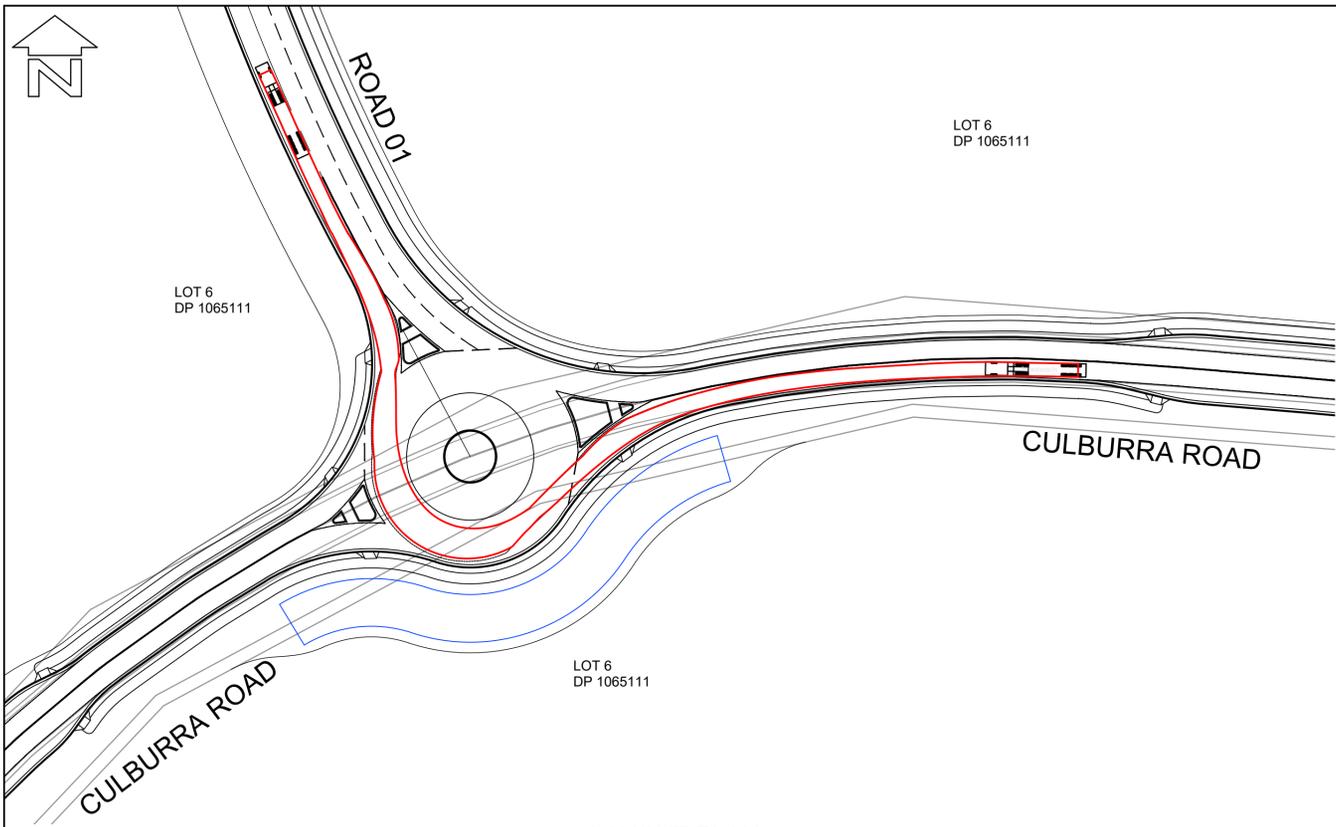


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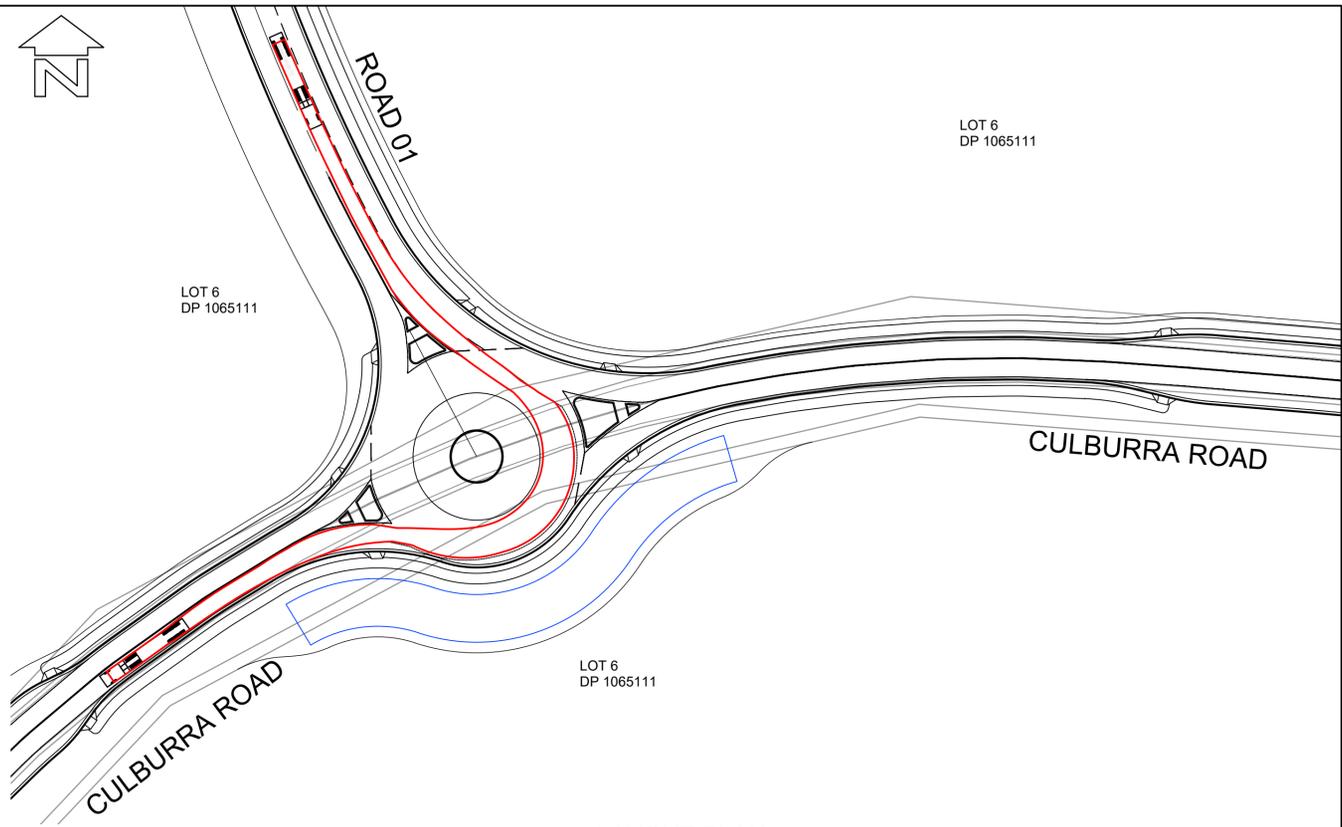
**BEWARE!**  
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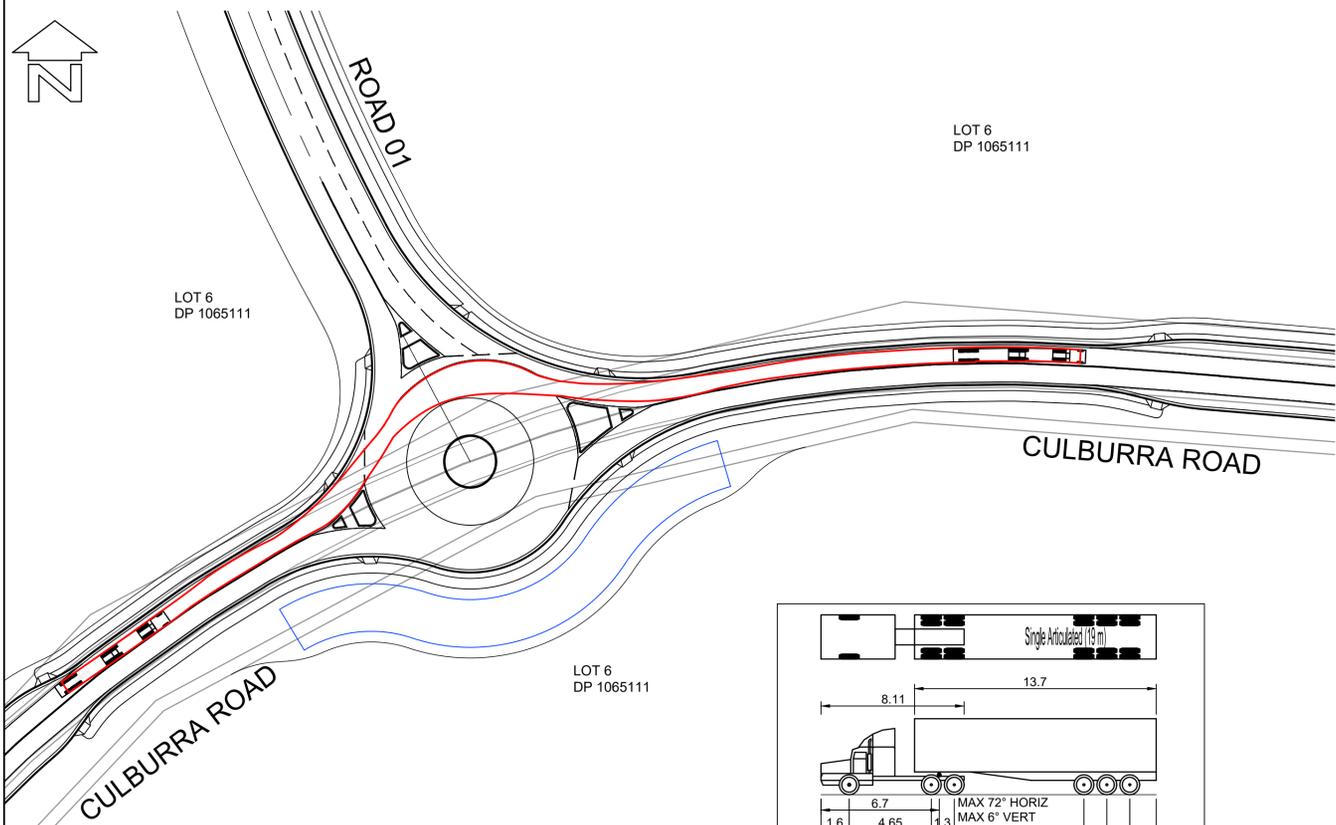
RATIO: <b>1:750</b> (AT A1 ORIGINAL)	DATUM: AUSTRALIAN HEIGHT DATUM	SURVEY DESIGN	APS CJG	REV =	DESCRIPTION	BY	DATE	<b>allen price &amp; scarratts pty ltd</b> land and development consultants Nowra Office: 75 Plunkett Street, Nowra NSW 2541 Kiama Office: 1/28 Bong Bong Street, Kiama NSW 2533 phone:(02) 4421 6544 consultants@allenprice.com.au www.allenprice.com.au	<b>ROUNDAABOUT 01 VEHICLE MOVEMENT LAYOUT PLAN</b> <b>SHEET 01</b> <b>OVER CULBURRA ROAD</b> <b>AT CULBURRA BEACH</b> <b>FOR SEALARK PTY LTD</b>	DRAWING STATUS <b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION PURPOSES
	ORIGIN: SSM RL	DRAWN CHECK'D	CJG MJP	DATE OF PLAN: MARCH 2020	DRAWING NUMBER <b>25405-106</b>	SHEET <b>7</b> OF <b>29</b>	REVISION <b>P6</b>			



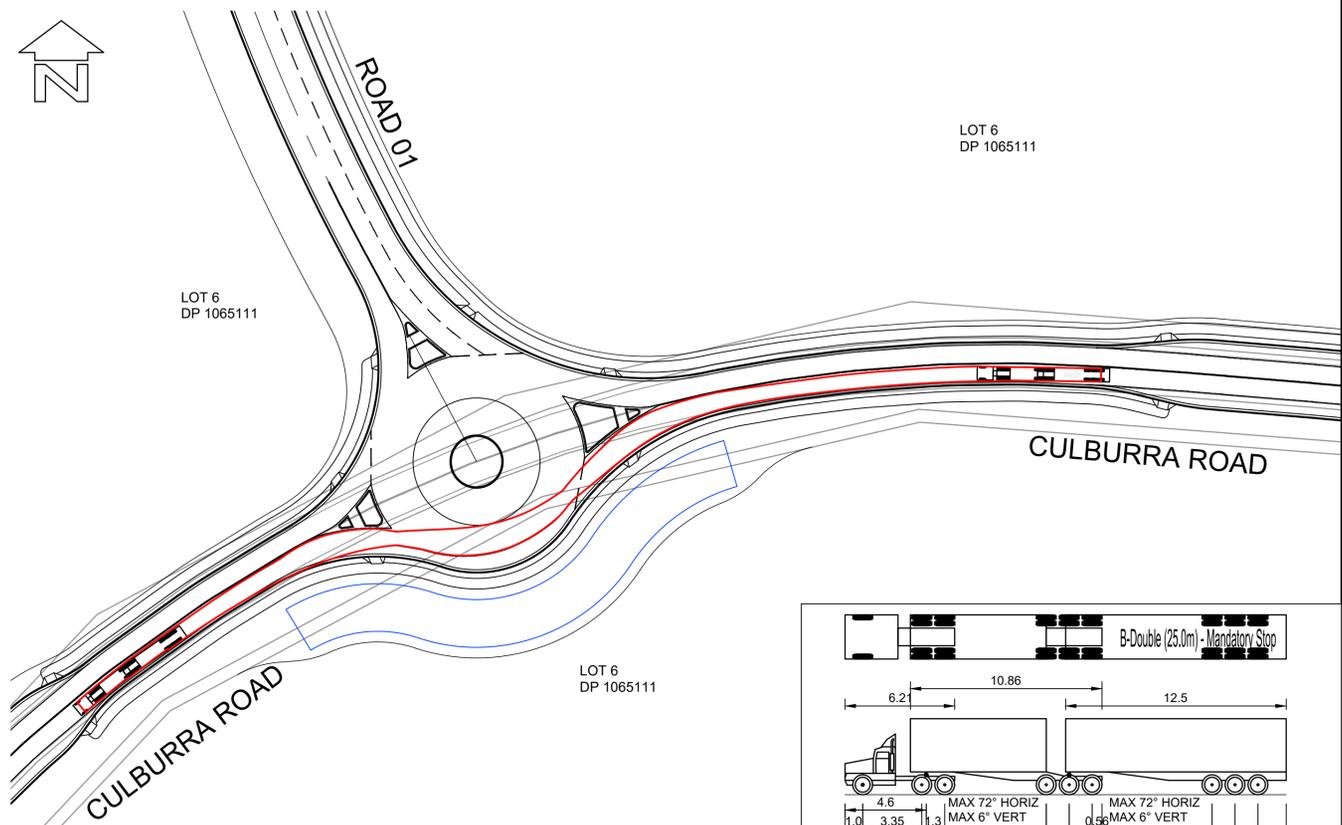
LAYOUT PLAN  
SCALE 1:750



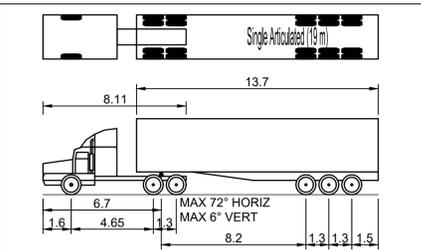
LAYOUT PLAN  
SCALE 1:750



LAYOUT PLAN  
SCALE 1:750



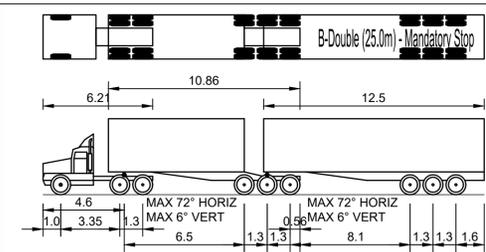
LAYOUT PLAN  
SCALE 1:750



SINGLE ARTICULATED (19 m)	19.000m
OVERALL LENGTH	2.500m
OVERALL WIDTH	4.300m
OVERALL BODY HEIGHT	0.540m
MIN BODY GROUND CLEARANCE	2.500m
TRACK WIDTH	6.00 sec
LOCK TO LOCK TIME	12.500m
CURB TO CURB TURNING RADIUS	

**VEHICLE MANOEUVRE LEGEND:**

--- PATH OF OUTER FRONT WHEEL (FORWARD MOVEMENT)  
 - - - - - SWEEP PATH OF VEHICLE BODY (FORWARD MOVEMENT)  
 THIS DRAWING HAS BEEN PREPARED USING MODELING COMPUTER SOFTWARE AUTODESK VEHICLE TRACKING 2016. THE VEHICLE USED IS BASED UPON DATA PROVIDED BY AUSTRROADS 2013 FOR A SINGLE ARTICULATED (19.0m) TRAVELING AT 20km/hr AND INCORPORATES A REASONABLE DEGREE OF TOLERANCE. HOWEVER IT IS NOT POSSIBLE TO ACCOUNT FOR ALL VEHICLE TYPES/ CHARACTERISTICS AND/OR DRIVER ABILITY.



B-DOUBLE (25.0m) - MANDATORY STOP	25.000m
OVERALL LENGTH	2.500m
OVERALL WIDTH	4.300m
OVERALL BODY HEIGHT	0.540m
MIN BODY GROUND CLEARANCE	2.500m
TRACK WIDTH	6.00 sec
LOCK TO LOCK TIME	12.500m
CURB TO CURB TURNING RADIUS	



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RATIO:  
**1:750**  
(AT A1 ORIGINAL)

DATUM:  
AUSTRALIAN HEIGHT DATUM  
ORIGIN: SSM  
RL  
DATE OF PLAN: MARCH 2020

SURVEY	APS	REV	DESCRIPTION	BY	DATE
DESIGN	CJG				
DRAWN	CJG				
CHECK'D	MJP				

**aps** allen price & scarratts pty ltd  
 land and development consultants  
 Nowra Office: 75 Plunkett Street, Nowra NSW 2541  
 Kiama Office: 1/28 Bong Bong Street, Kiama NSW 2533  
 phone:(02) 4421 6544  
 consultants@allenprice.com.au www.allenprice.com.au

**ROUNDAABOUT 01 VEHICLE MOVEMENT LAYOUT PLAN**  
**SHEET 02**  
**OVER CULBURRA ROAD**  
**AT CULBURRA BEACH**  
**FOR SEALARK PTY LTD**

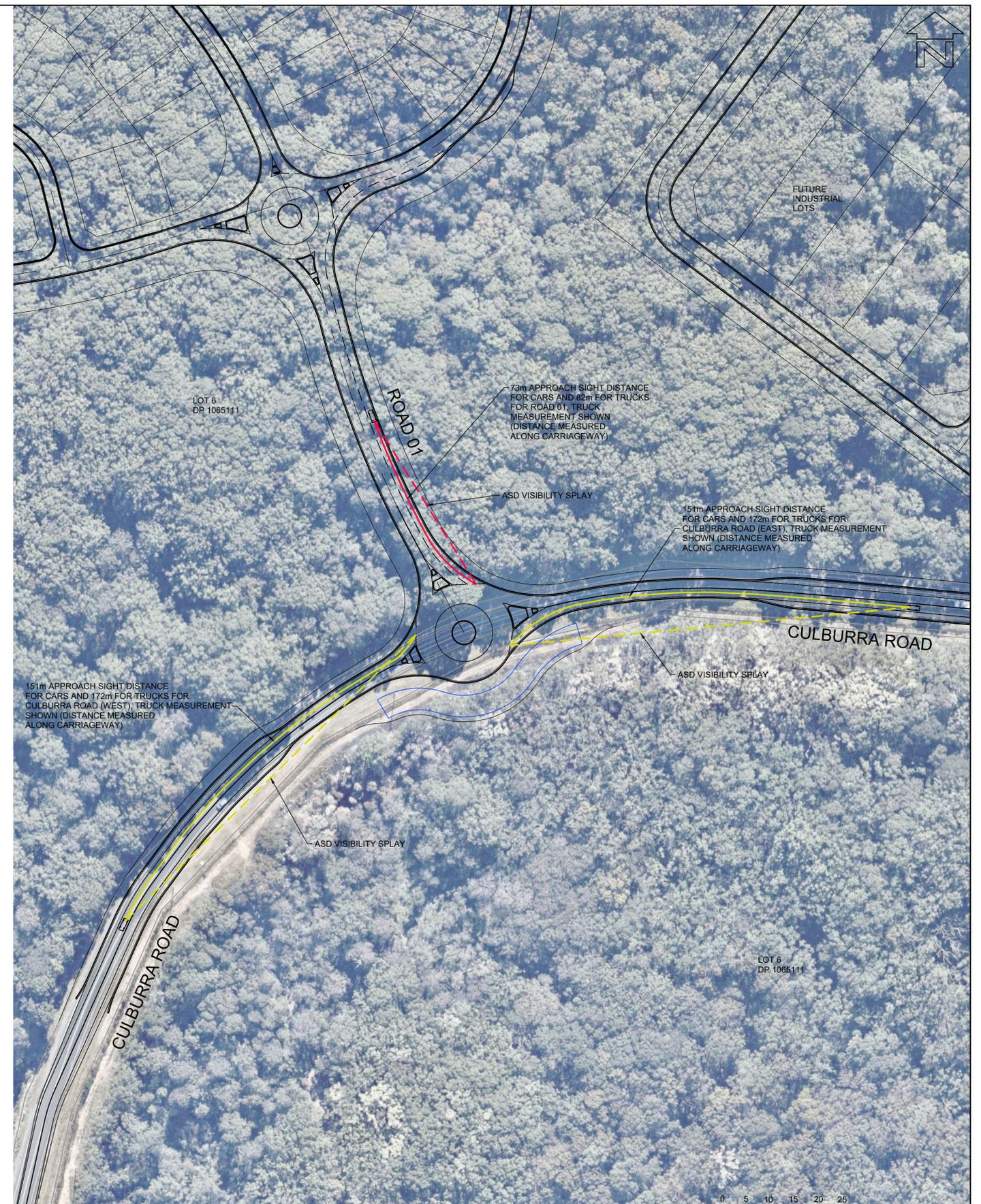
DRAWING STATUS <b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION PURPOSES	
DRAWING NUMBER <b>25405-107</b>	SHEET <b>8</b> OF <b>29</b> REVISION <b>P6</b>



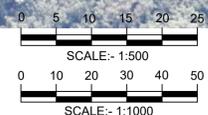
LAYOUT PLAN  
SCALE 1:500



LAYOUT PLAN  
SCALE 1:500



LAYOUT PLAN  
SCALE 1:1000



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RATIO:  
**AS NOTED**  
(AT A1 ORIGINAL)

DATUM:  
AUSTRALIAN HEIGHT DATUM  
ORIGIN: SSM  
RL  
DATE OF PLAN: MARCH 2020

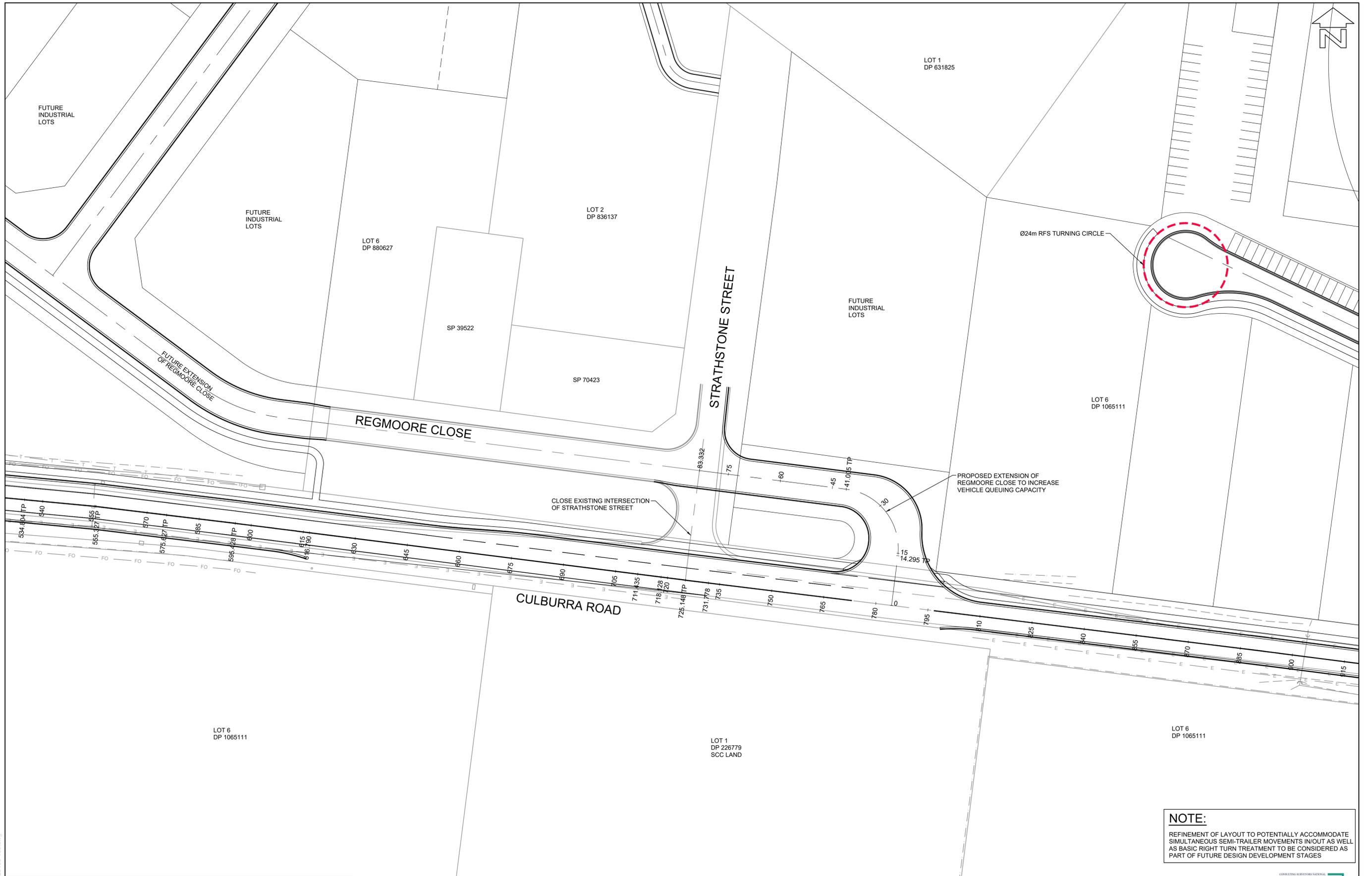
SURVEY	APS	REV	DESCRIPTION	BY	DATE
DESIGN	CJG				
DRAWN	CJG				
CHECK'D	MJP				

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phone: (02) 4421 6544  
consultants@allenprice.com.au www.allenprice.com.au

PRELIMINARY ROUNDABOUT 01 SIGHT LINE LAYOUT PLAN  
OVER CULBURRA ROAD  
AT CULBURRA BEACH  
FOR SEALARK PTY LTD

DRAWING STATUS <b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION PURPOSES	
DRAWING NUMBER <b>25405-108</b>	SHEET <b>9</b> OF <b>29</b> REVISION <b>P6</b>

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**NOTE:**  
 REFINEMENT OF LAYOUT TO POTENTIALLY ACCOMMODATE SIMULTANEOUS SEMI-TRAILER MOVEMENTS IN/OUT AS WELL AS BASIC RIGHT TURN TREATMENT TO BE CONSIDERED AS PART OF FUTURE DESIGN DEVELOPMENT STAGES

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**LAYOUT PLAN**  
 SCALE 1:500

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RATIO:  
**1:500**  
 (AT A1 ORIGINAL)

DATUM:  
 AUSTRALIAN HEIGHT DATUM  
 ORIGIN: SSM  
 RL  
 DATE OF PLAN: MARCH 2020

SURVEY	APS
DESIGN	CJG
DRAWN	CJG
CHECK'D	MJP

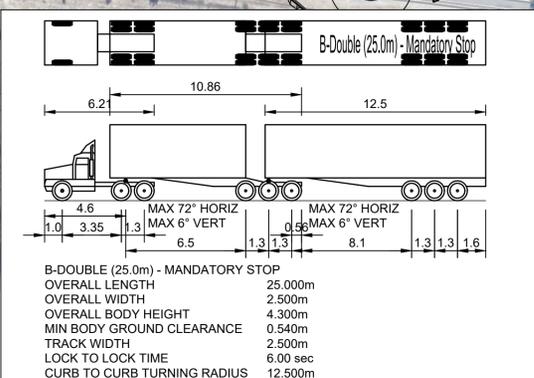
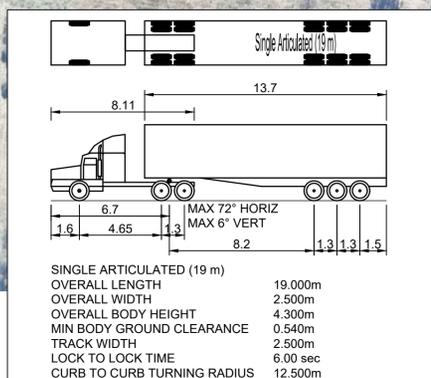
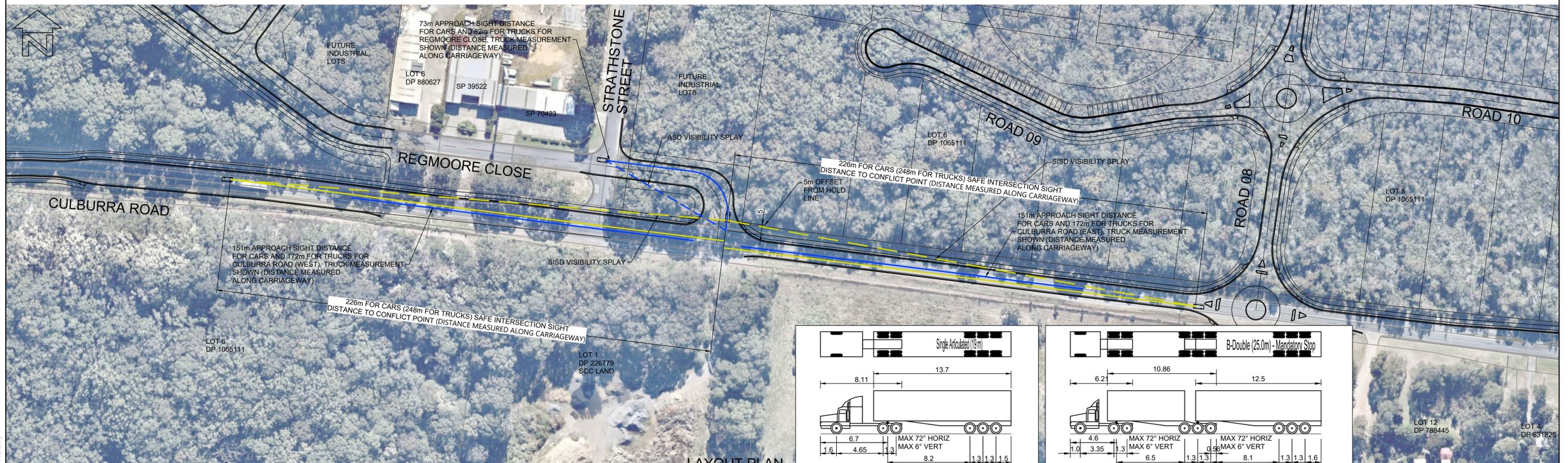
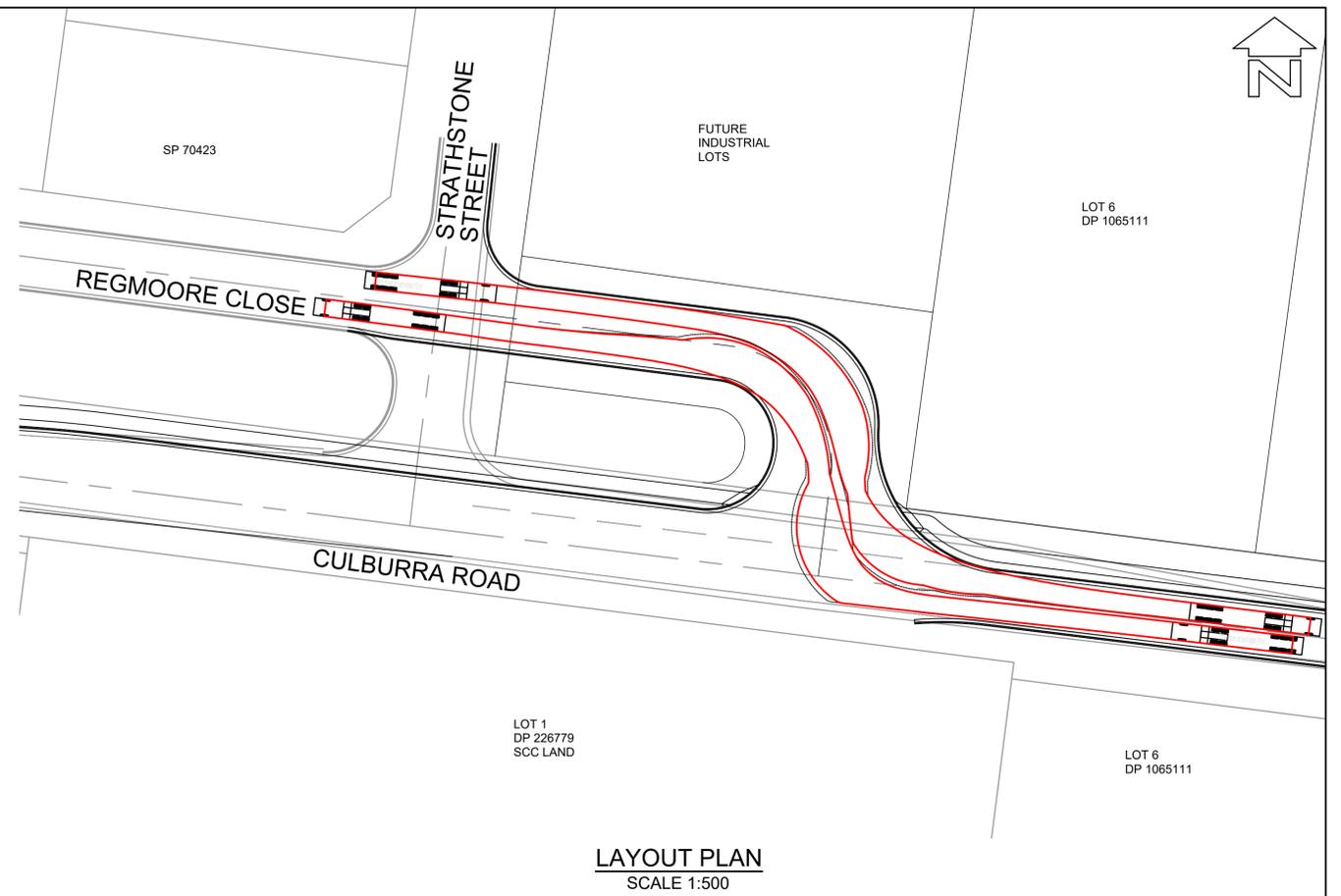
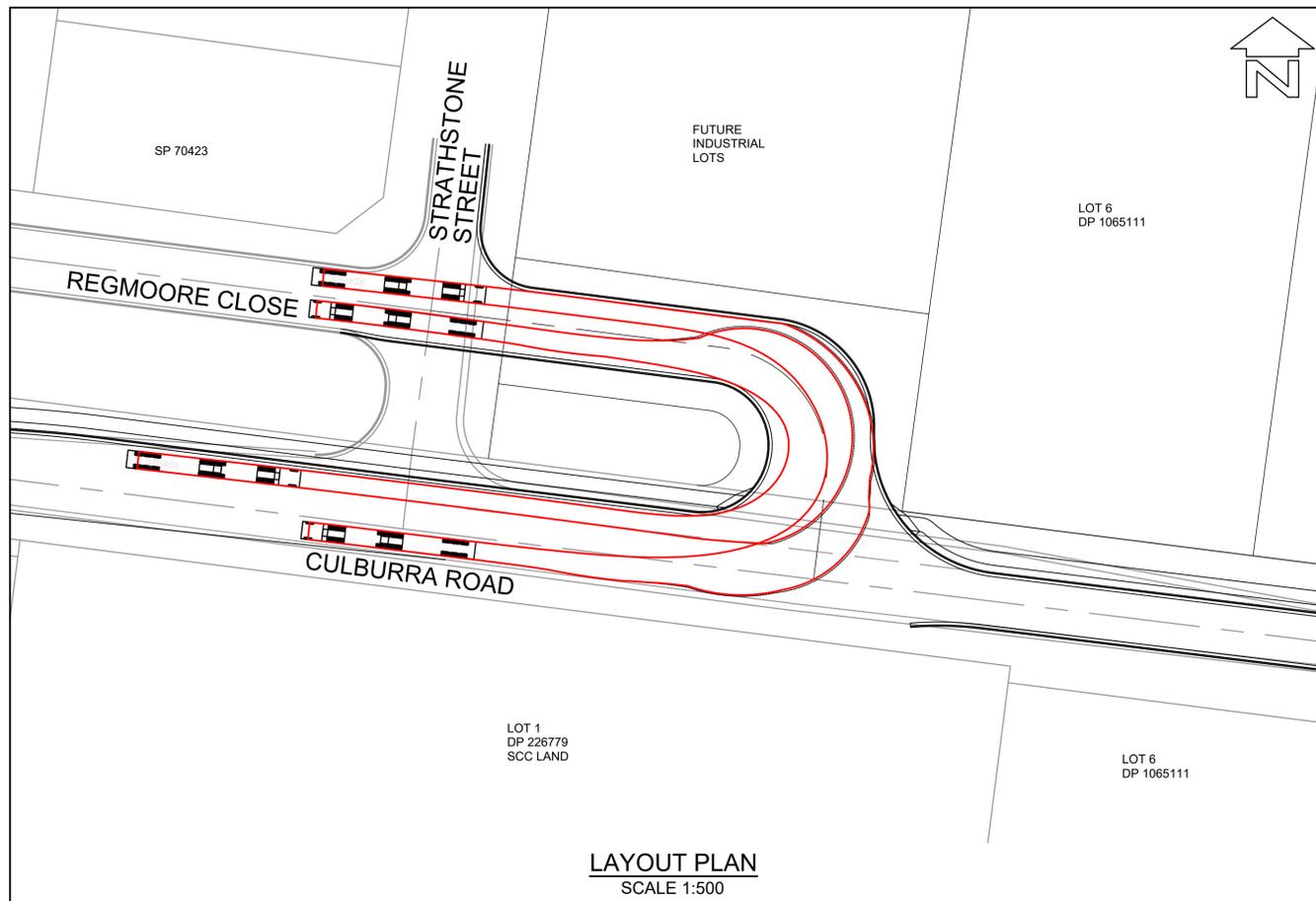
REV	DESCRIPTION	BY	DATE

**aps** **allen price & scarratts pty ltd**  
 land and development consultants  
 Nowra Office: 75 Plunkett Street, Nowra NSW 2541  
 Kiama Office: 1/28 Bong Bong Street, Kiama NSW 2533  
 phone: (02) 4421 6544  
 consultants@allenprice.com.au www.allenprice.com.au

**PRELIMINARY CONCEPT INDUSTRIAL ENTRY AND EXIT LAYOUT PLAN OVER CULBURRA ROAD AT CULBURRA BEACH FOR SEALARK PTY LTD**

DRAWING STATUS <b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION PURPOSES	
DRAWING NUMBER <b>25405-109</b>	SHEET <b>10</b> OF <b>29</b> REVISION <b>P4</b>

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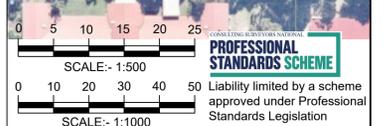
**VEHICLE MANOEUVRE LEGEND:**

- PATH OF OUTER FRONT WHEEL (FORWARD MOVEMENT)
- SWEEP PATH OF VEHICLE BODY (FORWARD MOVEMENT)

THIS DRAWING HAS BEEN PREPARED USING MODELING COMPUTER SOFTWARE AUTODESK VEHICLE TRACKING 2016. THE VEHICLE USED IS BASED UPON DATA PROVIDED BY AUSTRROADS 2013 FOR A B-DOUBLE (25.0m) AND SINGLE ARTICULATED (19.0m) TRAVELING AT 20km/hr AND INCORPORATES A REASONABLE DEGREE OF TOLERANCE. HOWEVER IT IS NOT POSSIBLE TO ACCOUNT FOR ALL VEHICLE TYPES/ CHARACTERISTICS AND/OR DRIVER ABILITY.

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RATIO:  
**AS NOTED**  
(AT A1 ORIGINAL)

DATUM:  
AUSTRALIAN HEIGHT DATUM  
ORIGIN: SSM  
RL  
DATE OF PLAN: MARCH 2020

SURVEY	APS	REV	DESCRIPTION	BY	DATE
DESIGN	CJG				
DRAWN	CJG				
CHECK'D	MJP				

**allen price & scarratts pty ltd**  
land and development consultants  
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Kiama Office: 1/28 Bong Bong Street, Kiama NSW 2533  
phone:(02) 4421 6544  
consultants@allenprice.com.au www.allenprice.com.au

**PRELIMINARY CONCEPT INDUSTRIAL ENTRY AND EXIT VEHICLE MOVEMENTS AND SIGHT DISTANCE LAYOUT PLAN OVER CULBURRA ROAD AT CULBURRA BEACH FOR SEALARK PTY LTD**

DRAWING STATUS  
**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION PURPOSES

DRAWING NUMBER  
**25405-110**

SHEET **11** OF **29** REVISION **P0**



LAYOUT PLAN  
SCALE 1:750

**BEWARE!**

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SCALE:- 1:750

RATIO:  
**1:750**  
(AT A1 ORIGINAL)

DATUM:  
AUSTRALIAN HEIGHT DATUM  
ORIGIN: SSM  
RL  
DATE OF PLAN: MARCH 2020

SURVEY	APS	REV	DESCRIPTION	BY	DATE
DESIGN	CJG				
DRAWN	CJG				
CHECK'D	MJP				

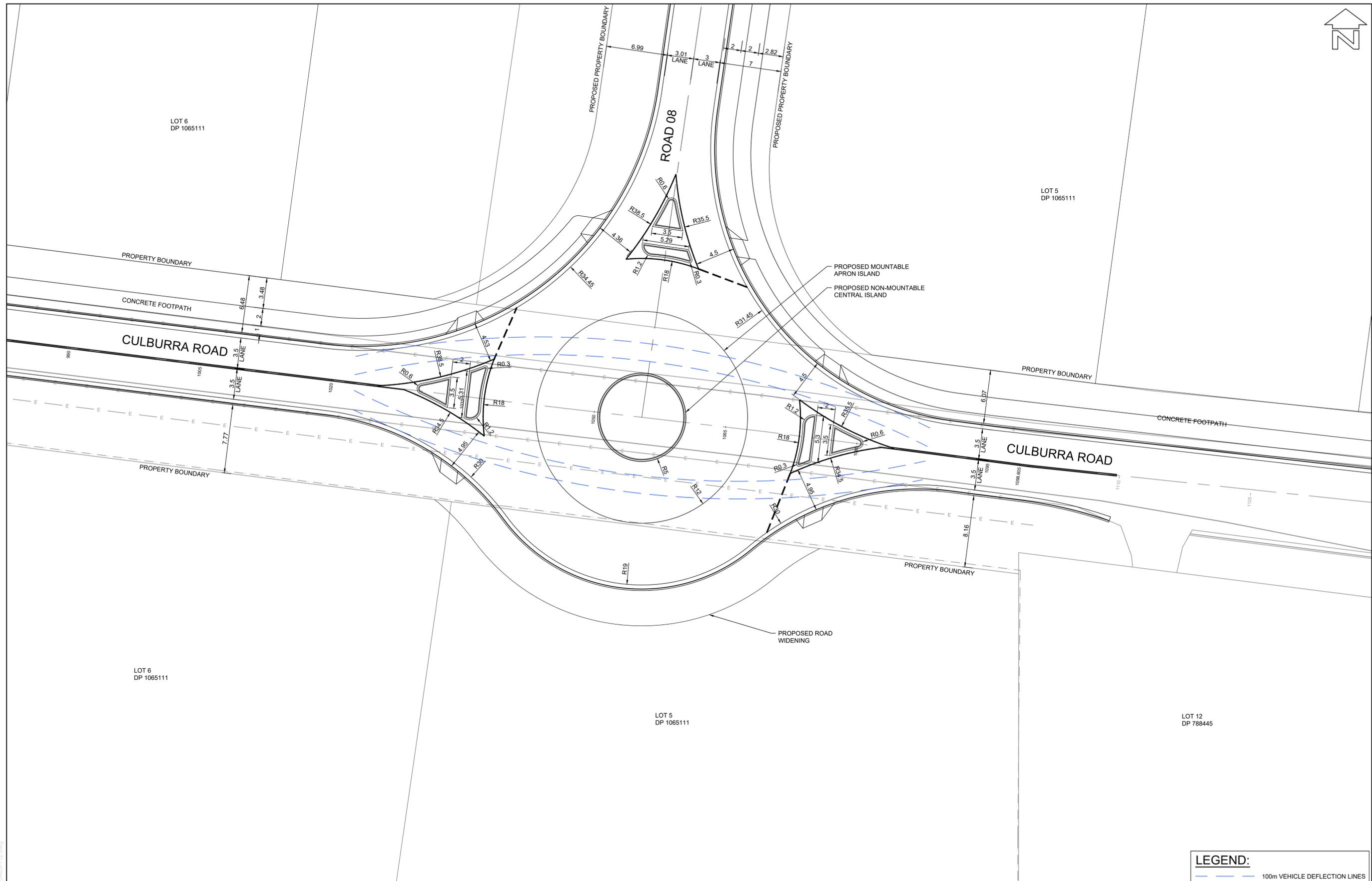
BY	DATE

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consultants@allenprice.com.au www.allenprice.com.au

**PRELIMINARY CONCEPT ROUNDABOUT 02 LAYOUT PLAN**  
**OVER CULBURRA ROAD AT CULBURRA BEACH FOR SEALARK PTY LTD**

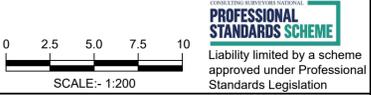
DRAWING STATUS <b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION PURPOSES	
DRAWING NUMBER <b>25405-111</b>	SHEET <b>12</b> OF <b>29</b> REVISION <b>P1</b>

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LAYOUT PLAN  
SCALE 1:200

**LEGEND:**  
 100m VEHICLE DEFLECTION LINES



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RATIO:  
**1:200**  
(AT A1 ORIGINAL)

DATUM:  
AUSTRALIAN HEIGHT DATUM  
ORIGIN: SSM  
RL  
DATE OF PLAN: MARCH 2020

SURVEY	APS
DESIGN	CJG
DRAWN	CJG
CHECK'D	MJP

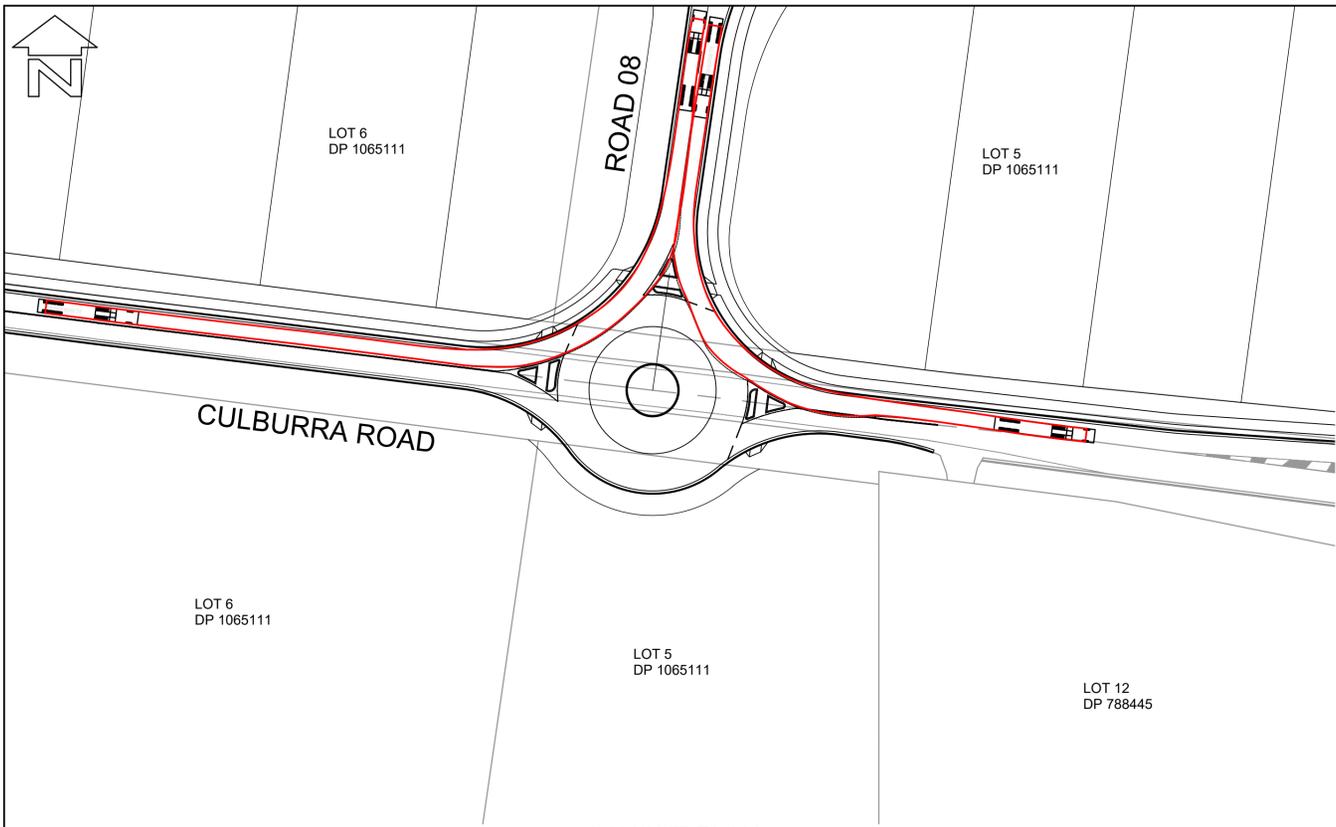
REV	DESCRIPTION	BY	DATE

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 Kiama Office: 1/28 Bong Bong Street, Kiama NSW 2533  
 phone: (02) 4421 6544  
 consultants@allenprice.com.au www.allenprice.com.au

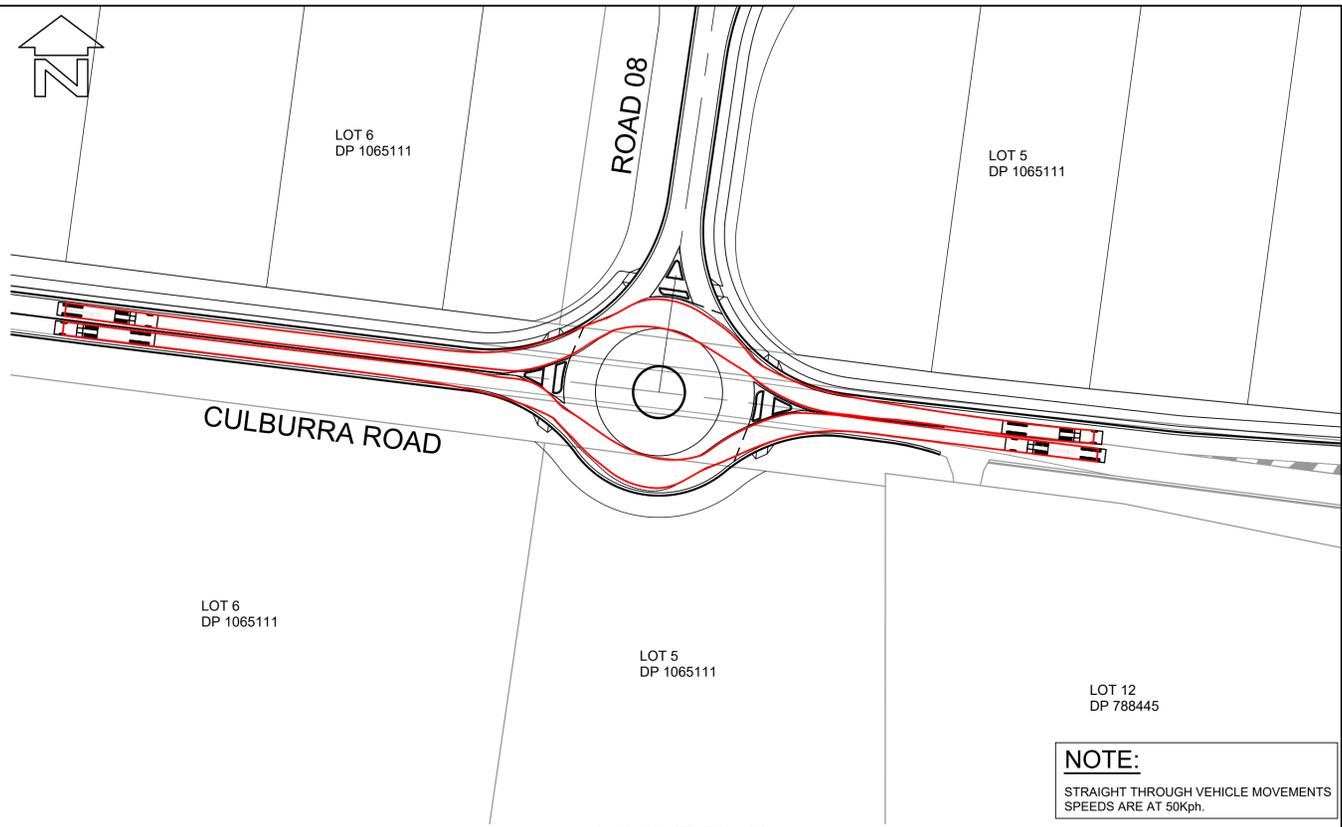
PRELIMINARY CONCEPT ROUNDABOUT 02 DESIGN  
 OVER CULBURRA ROAD  
 AT CULBURRA BEACH  
 FOR SEALARK PTY LTD

DRAWING STATUS <b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION PURPOSES	
DRAWING NUMBER <b>25405-112</b>	SHEET <b>13</b> OF <b>29</b> REVISION <b>P1</b>

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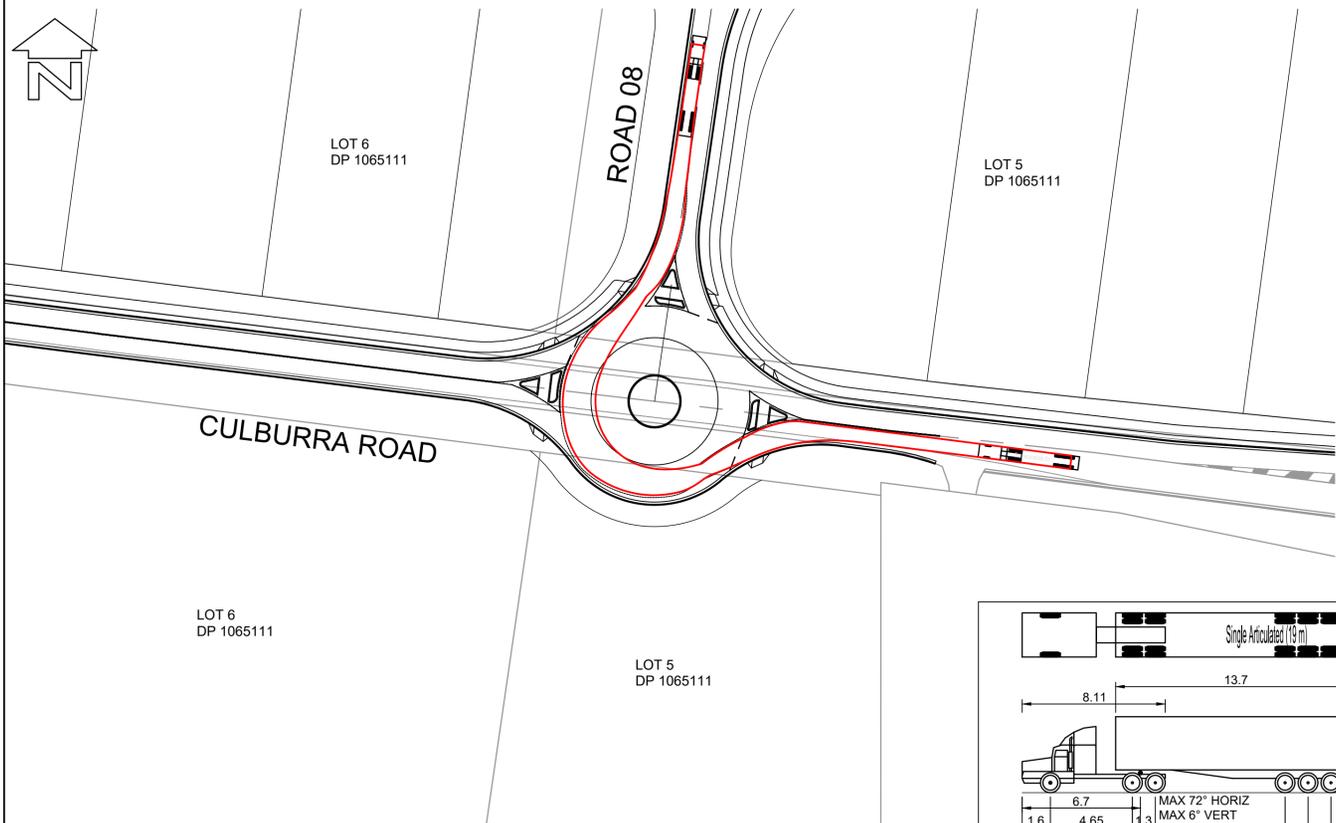


LAYOUT PLAN  
SCALE 1:750

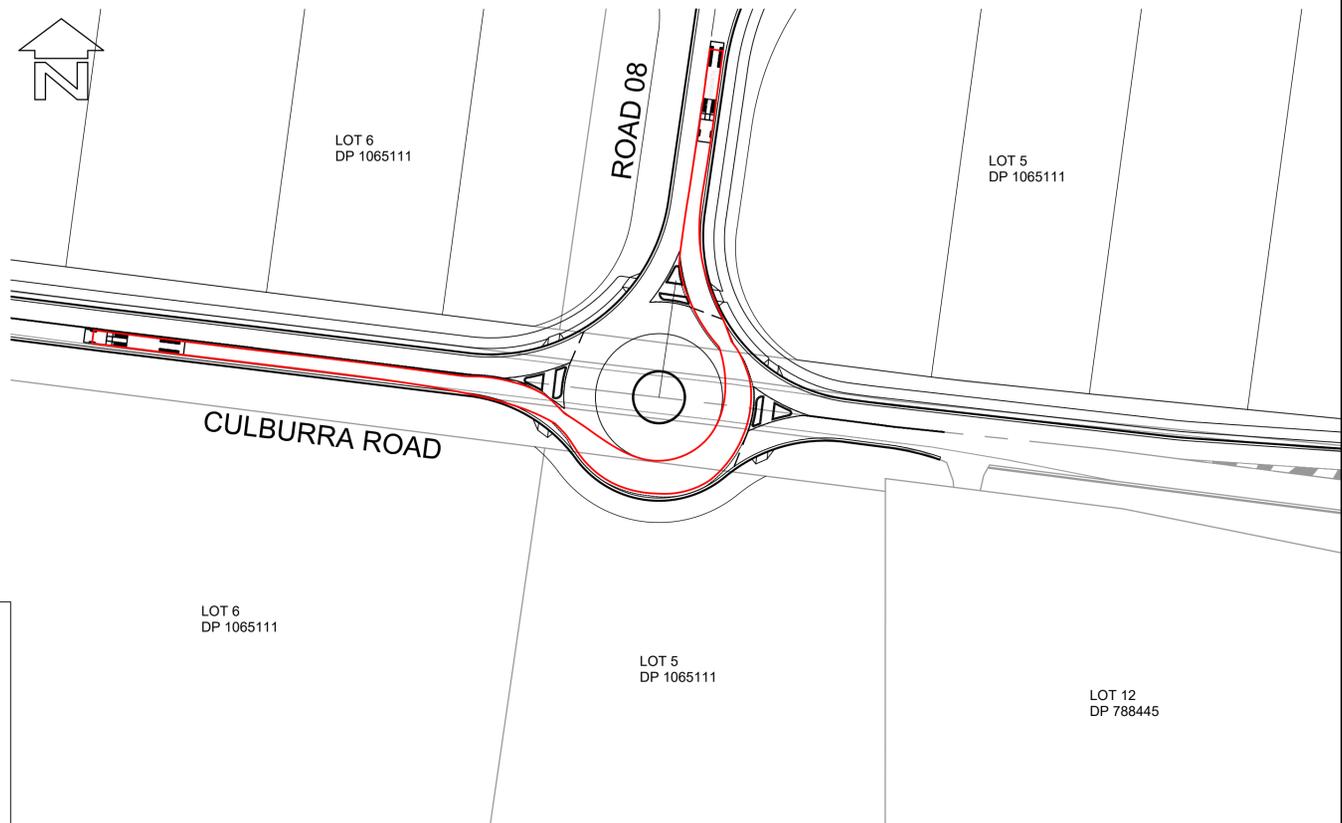


LAYOUT PLAN  
SCALE 1:750

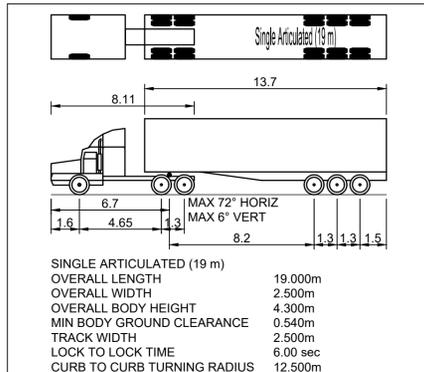
**NOTE:**  
STRAIGHT THROUGH VEHICLE MOVEMENTS  
SPEEDS ARE AT 50Kph.



LAYOUT PLAN  
SCALE 1:750



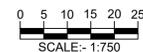
LAYOUT PLAN  
SCALE 1:750



SINGLE ARTICULATED (19 m)  
OVERALL LENGTH 19.000m  
OVERALL WIDTH 2.500m  
OVERALL BODY HEIGHT 4.300m  
MIN BODY GROUND CLEARANCE 0.540m  
TRACK WIDTH 2.500m  
LOCK TO LOCK TIME 6.00 sec  
CURB TO CURB TURNING RADIUS 12.500m

**VEHICLE MANOEUVRE LEGEND:**

— PATH OF OUTER FRONT WHEEL (FORWARD MOVEMENT)  
- - - - - SWEEP PATH OF VEHICLE BODY (FORWARD MOVEMENT)  
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RATIO:  
**1:750**  
(AT A1 ORIGINAL)

DATUM:  
AUSTRALIAN HEIGHT DATUM  
ORIGIN: SSM  
RL  
DATE OF PLAN: MARCH 2020

SURVEY	APS	REV	DESCRIPTION	BY	DATE
DESIGN	CJG				
DRAWN	CJG				
CHECK'D	MJP				

**aps** allen price & scarratts pty ltd  
land and development consultants  
Nowra Office: 75 Plunkett Street, Nowra NSW 2541  
Kiama Office: 1/28 Bong Bong Street, Kiama NSW 2533  
phone:(02) 4421 6544  
consultants@allenprice.com.au www.allenprice.com.au

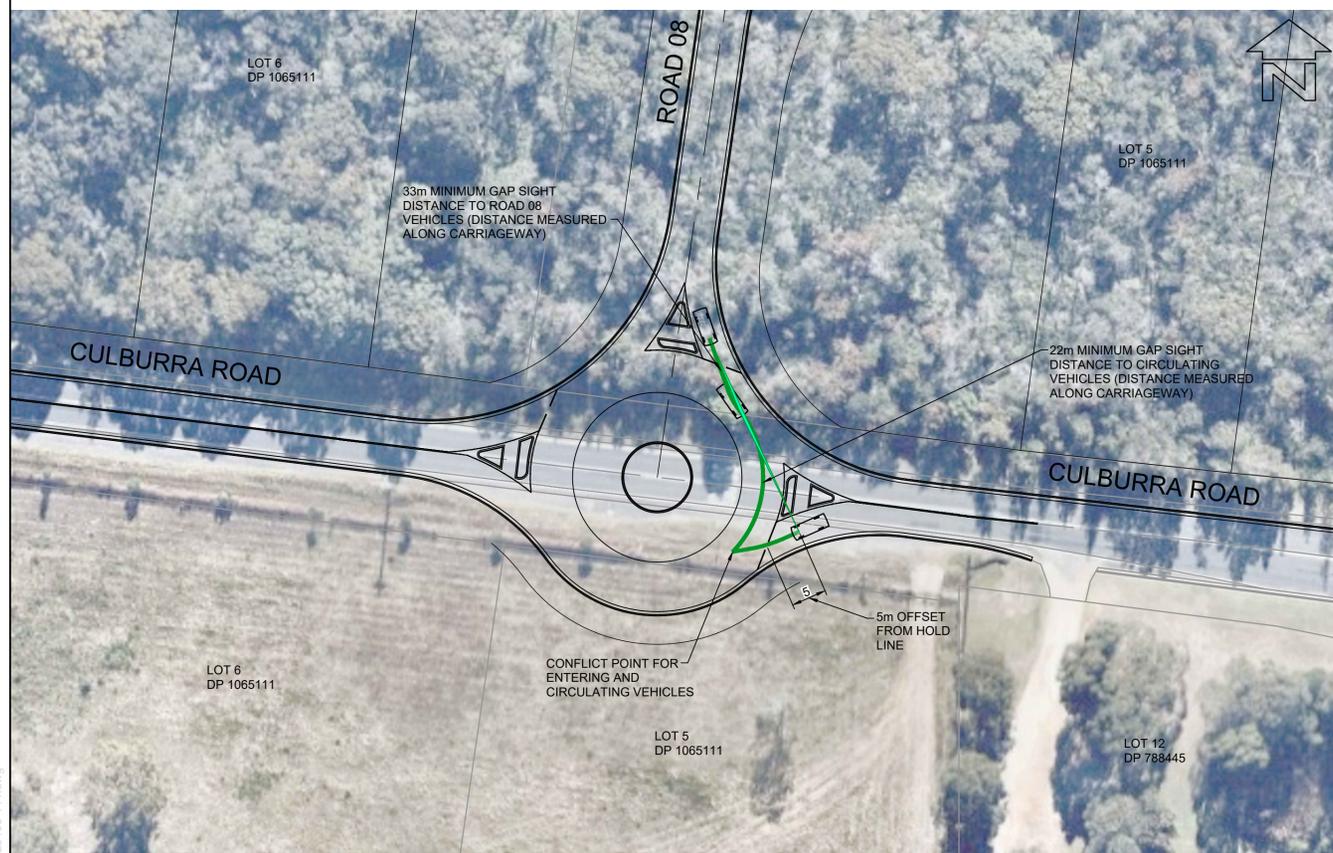
**ROUNDAABOUT 02 VEHICLE MOVEMENT LAYOUT PLAN**  
**OVER CULBURRA ROAD AT CULBURRA BEACH FOR SEALARK PTY LTD**

DRAWING STATUS <b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION PURPOSES	
DRAWING NUMBER <b>25405-113</b>	SHEET <b>14</b> OF <b>29</b> REVISION <b>P1</b>

M:\Projects\25405\25405-113.dwg



LAYOUT PLAN  
SCALE 1:500



LAYOUT PLAN  
SCALE 1:500



LAYOUT PLAN  
SCALE 1:1000

**BEWARE!**  
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RATIO:  
**AS NOTED**  
(AT A1 ORIGINAL)

DATUM:  
AUSTRALIAN HEIGHT DATUM  
ORIGIN: SSM  
RL  
DATE OF PLAN: MARCH 2020

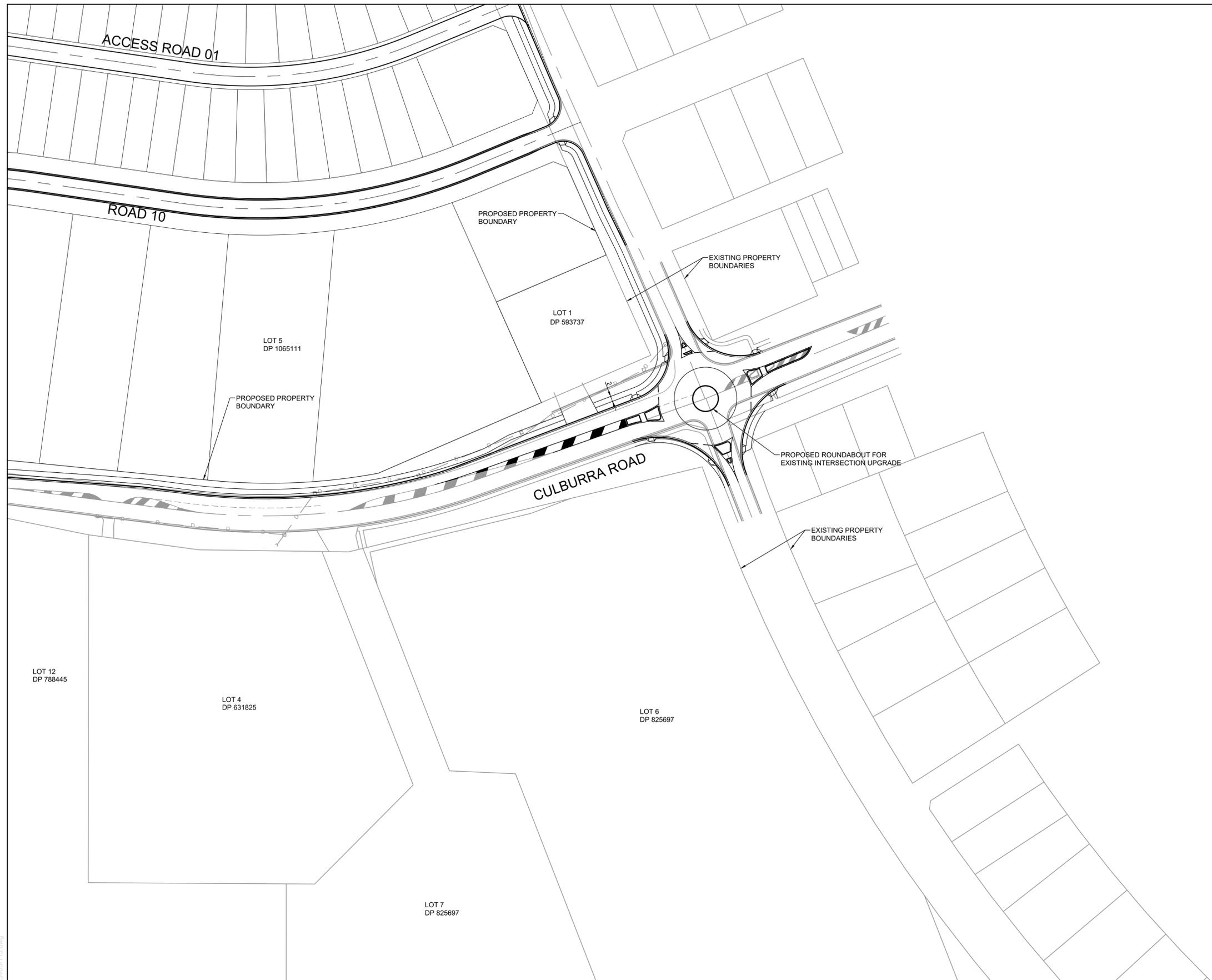
SURVEY	APS	REV	DESCRIPTION	BY	DATE
DESIGN	C/JG				
DRAWN	C/JG				
CHECK'D	MJP				

**aps** allen price & scarratts pty ltd  
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Nowra Office: 75 Plunkett Street, Nowra NSW 2541  
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consultants@allenprice.com.au www.allenprice.com.au

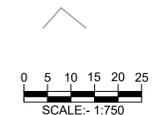
PRELIMINARY ROUNDABOUT 02 SIGHT LINE LAYOUT PLAN  
OVER CULBURRA ROAD  
AT CULBURRA BEACH  
FOR SEALARK PTY LTD

DRAWING STATUS  
**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION PURPOSES  
DRAWING NUMBER  
**25405-114**  
SHEET **15** OF **29**  
REVISION  
**P1**

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LAYOUT PLAN  
SCALE 1:750



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**BEWARE!**

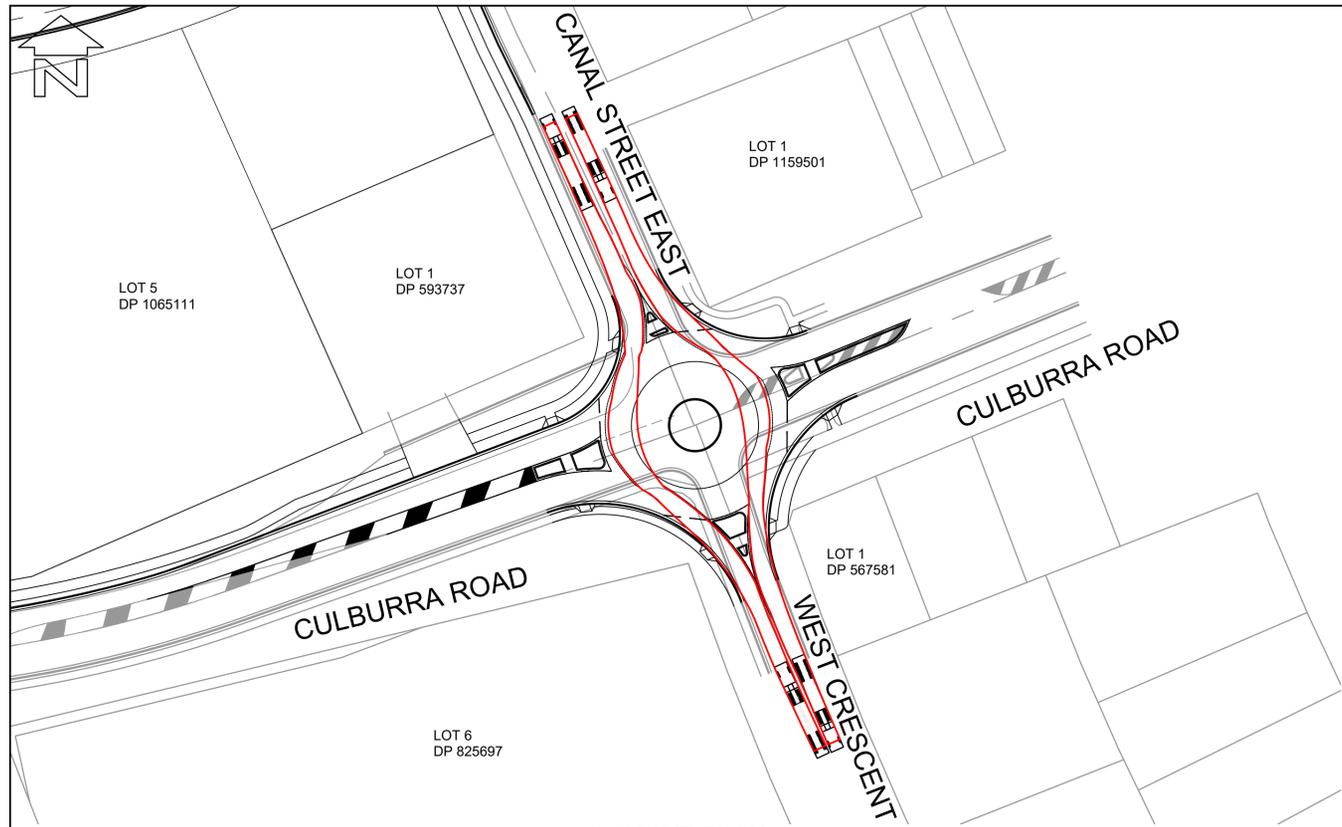
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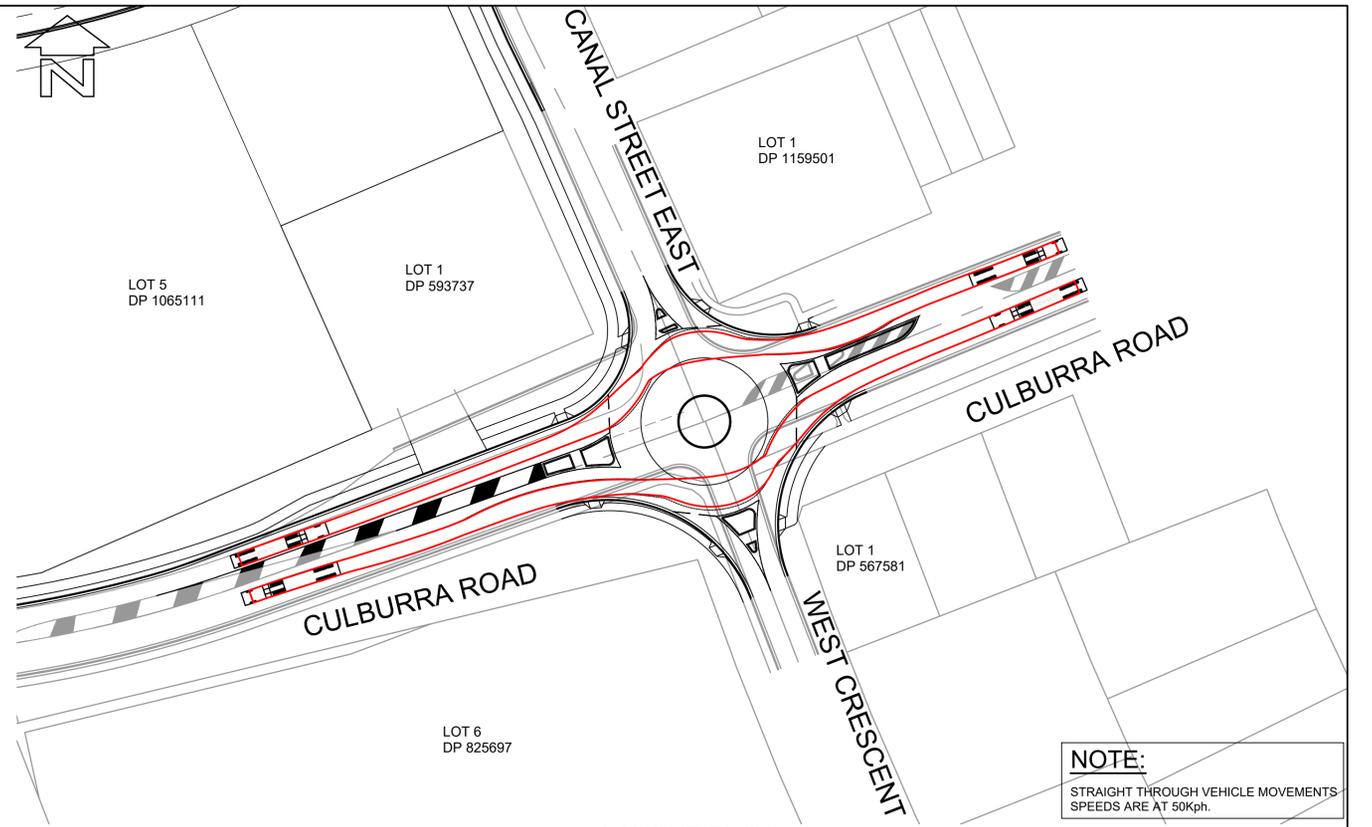
RATIO: <b>1:750</b> (AT A1 ORIGINAL)	DATUM: AUSTRALIAN HEIGHT DATUM	SURVEY	APS	REV	DESCRIPTION	BY	DATE	<p>allen price &amp; scarratts pty ltd land and development consultants Nowra Office: 75 Plunkett Street, Nowra NSW 2541 Kiama Office: 1/28 Bong Bong Street, Kiama NSW 2533 phone: (02) 4421 6544 consultants@allenprice.com.au www.allenprice.com.au</p>	<b>PRELIMINARY CONCEPT ROUNDABOUT 03 LAYOUT PLAN</b>  <b>OVER CULBURRA ROAD AT CULBURRA BEACH FOR SEALARK PTY LTD</b>	DRAWING STATUS <b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION PURPOSES
	ORIGIN: SSM RL	DESIGN CJG	DRAWN CJG	CHECK'D MJP						DRAWING NUMBER <b>25405-115</b>
DATE OF PLAN: MARCH 2020										

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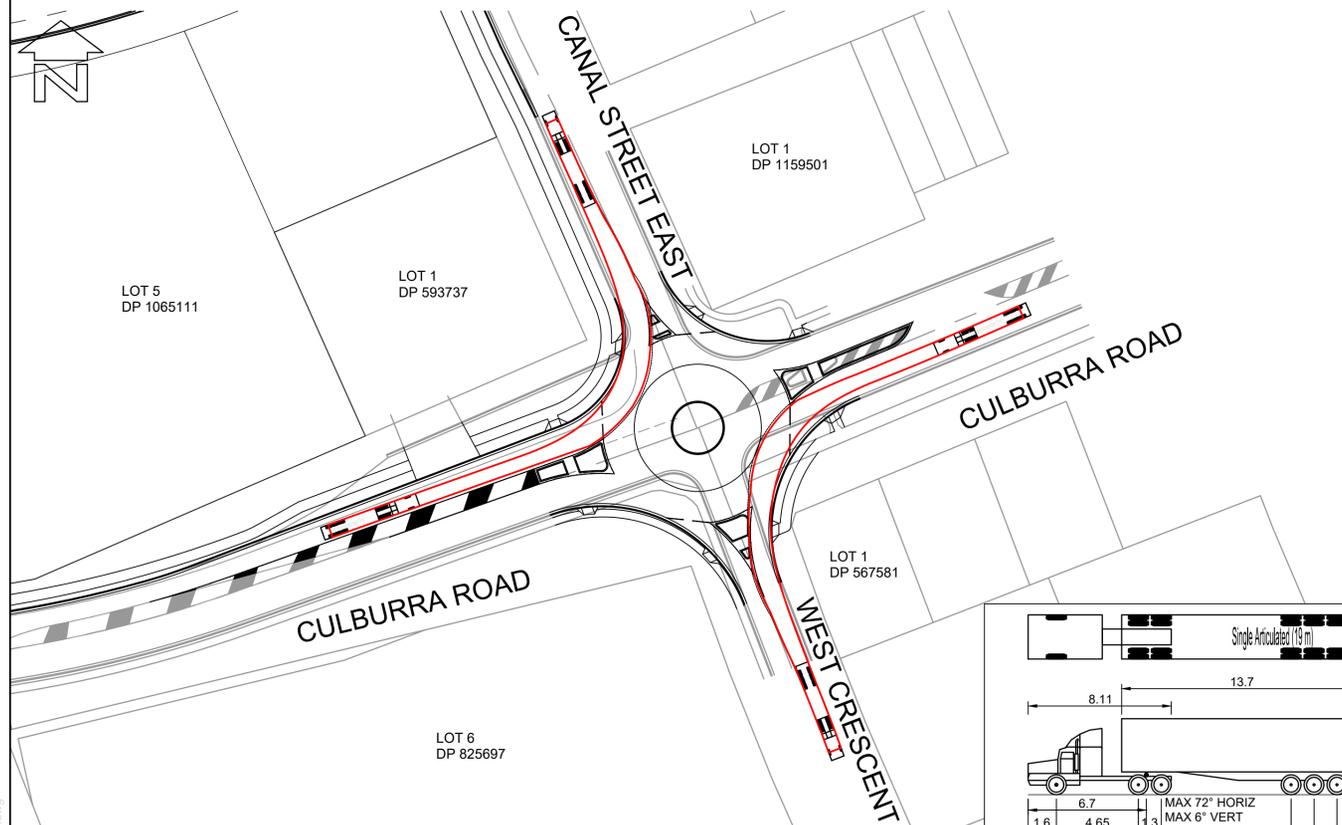


LAYOUT PLAN  
SCALE 1:750

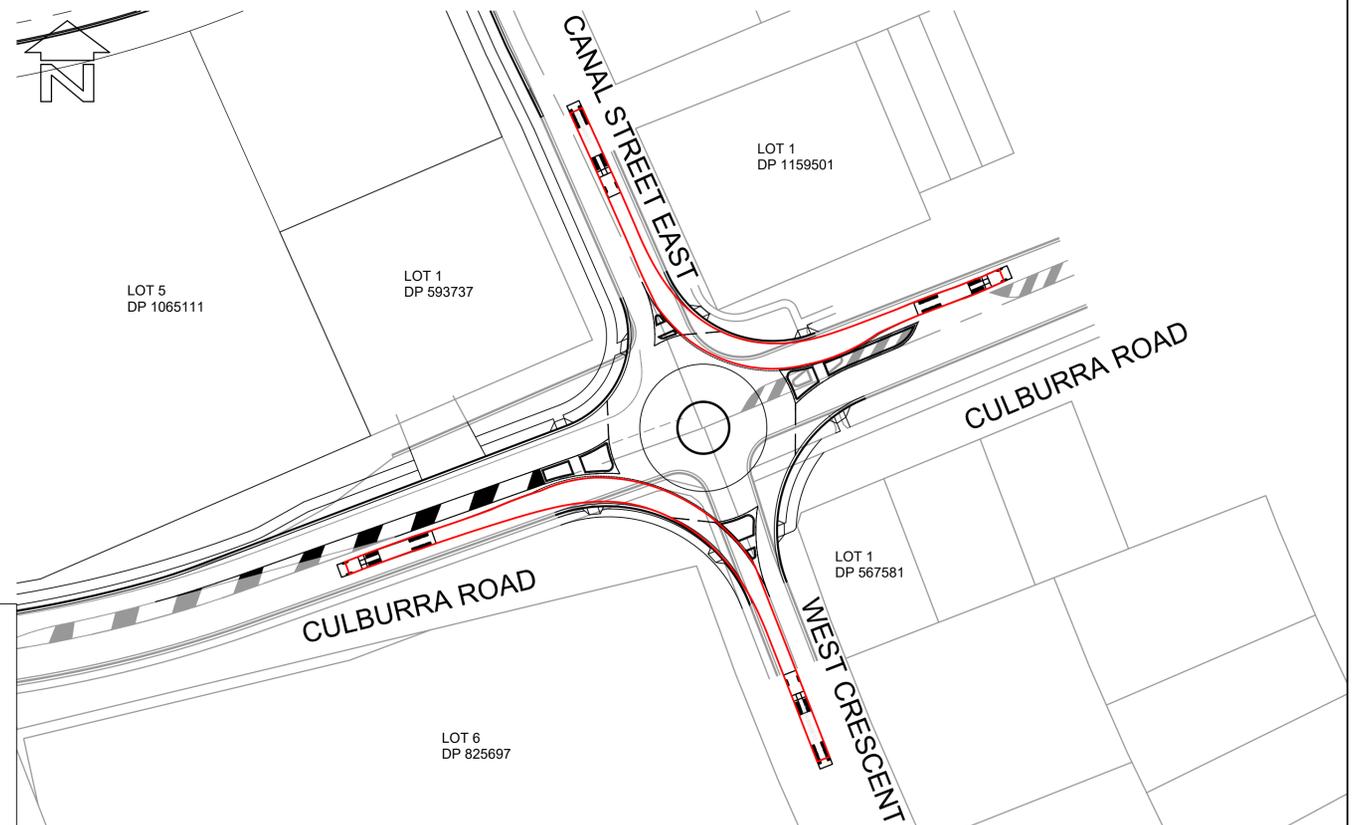


LAYOUT PLAN  
SCALE 1:750

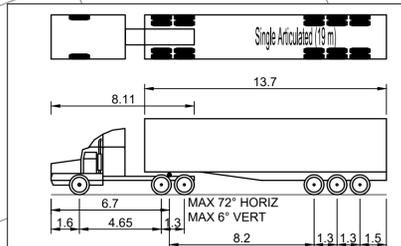
**NOTE:**  
STRAIGHT THROUGH VEHICLE MOVEMENTS  
SPEEDS ARE AT 50kph.



LAYOUT PLAN  
SCALE 1:750



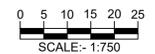
LAYOUT PLAN  
SCALE 1:750



SINGLE ARTICULATED (19 m)  
OVERALL LENGTH 19.000m  
OVERALL WIDTH 2.500m  
OVERALL BODY HEIGHT 4.300m  
MIN BODY GROUND CLEARANCE 0.540m  
TRACK WIDTH 2.500m  
LOCK TO LOCK TIME 6.00 sec  
CURB TO CURB TURNING RADIUS 12.500m

**VEHICLE MANOEUVRE LEGEND:**

— PATH OF OUTER FRONT WHEEL (FORWARD MOVEMENT)  
- - - SWEEP PATH OF VEHICLE BODY (FORWARD MOVEMENT)  
THIS DRAWING HAS BEEN PREPARED USING MODELING COMPUTER SOFTWARE AUTODESK VEHICLE TRACKING 2016. THE VEHICLE USED IS BASED UPON DATA PROVIDED BY AUSTRROADS 2013 FOR A SINGLE ARTICULATED (19.0m) TRAVELING AT 20km/hr AND INCORPORATES A REASONABLE DEGREE OF TOLERANCE. HOWEVER IT IS NOT POSSIBLE TO ACCOUNT FOR ALL VEHICLE TYPES/ CHARACTERISTICS AND/OR DRIVER ABILITY.



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RATIO:  
**1:750**  
(AT A1 ORIGINAL)

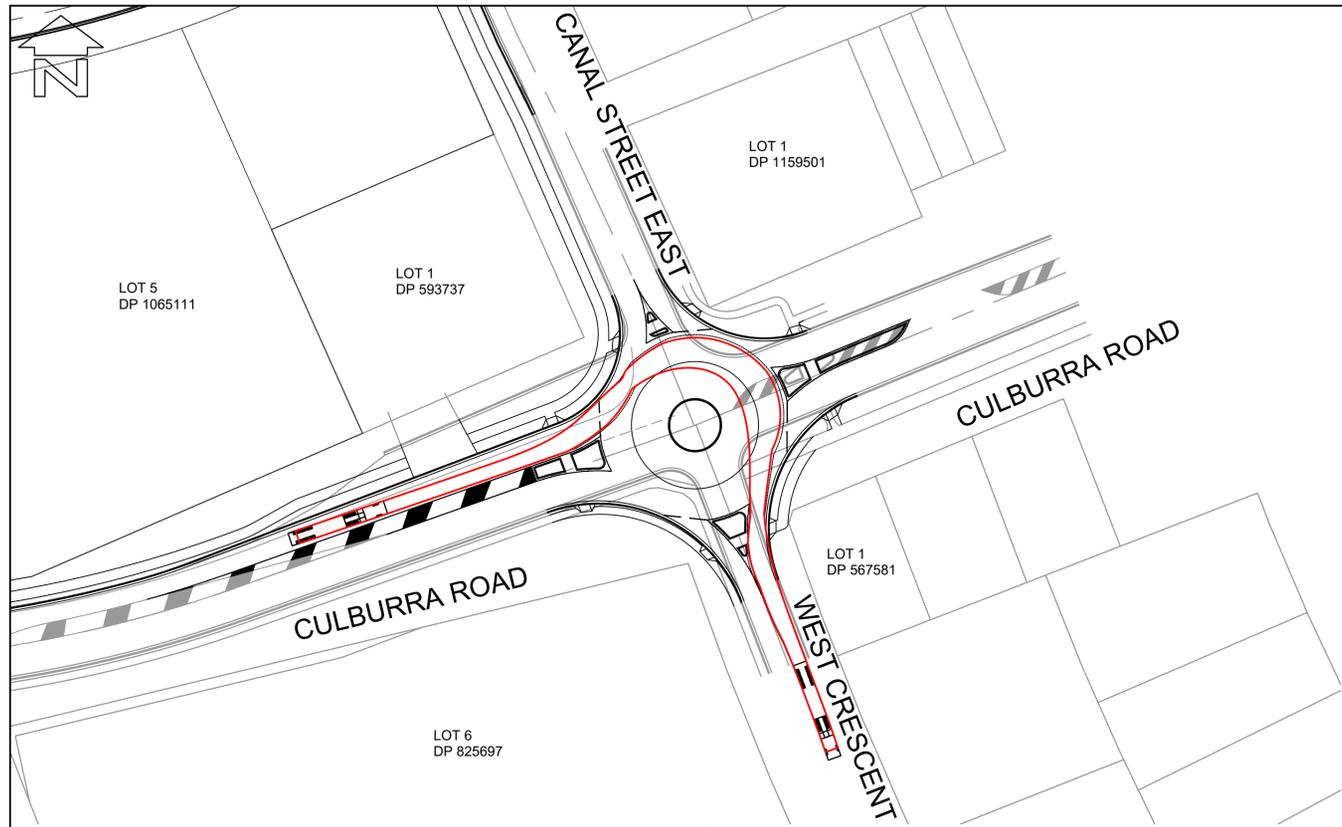
DATUM:  
AUSTRALIAN HEIGHT DATUM  
ORIGIN: SSM  
RL  
DATE OF PLAN: MARCH 2020

SURVEY	APS	REV	DESCRIPTION	BY	DATE
DESIGN	CJG				
DRAWN	CJG				
CHECK'D	MJP				

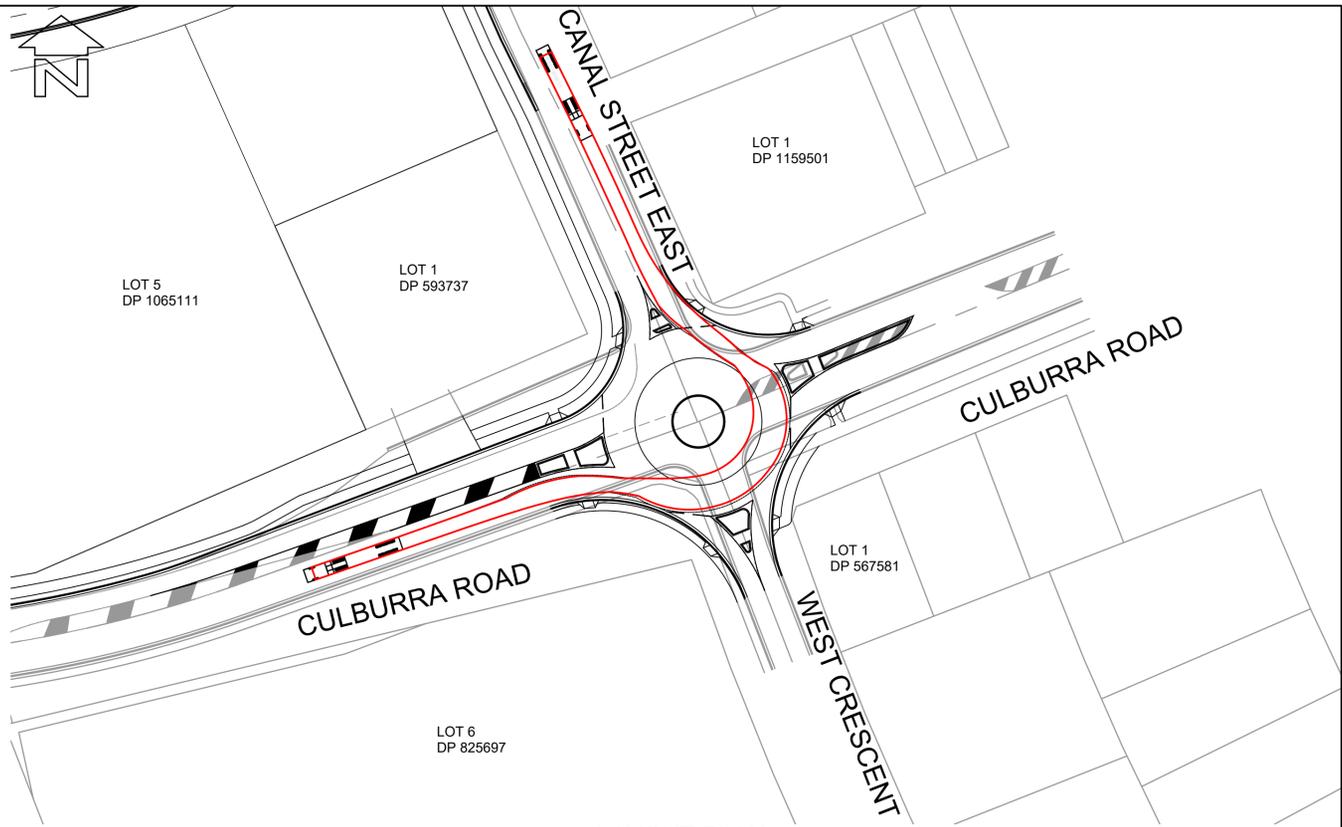
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land and development consultants  
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Kiama Office: 1/28 Bong Bong Street, Kiama NSW 2533  
phone: (02) 4421 6544  
consultants@allenprice.com.au www.allenprice.com.au

**ROUNDAABOUT 03 VEHICLE MOVEMENT LAYOUT PLAN**  
**SHEET 01**  
**OVER CULBURRA ROAD**  
**AT CULBURRA BEACH**  
**FOR SEALARK PTY LTD**

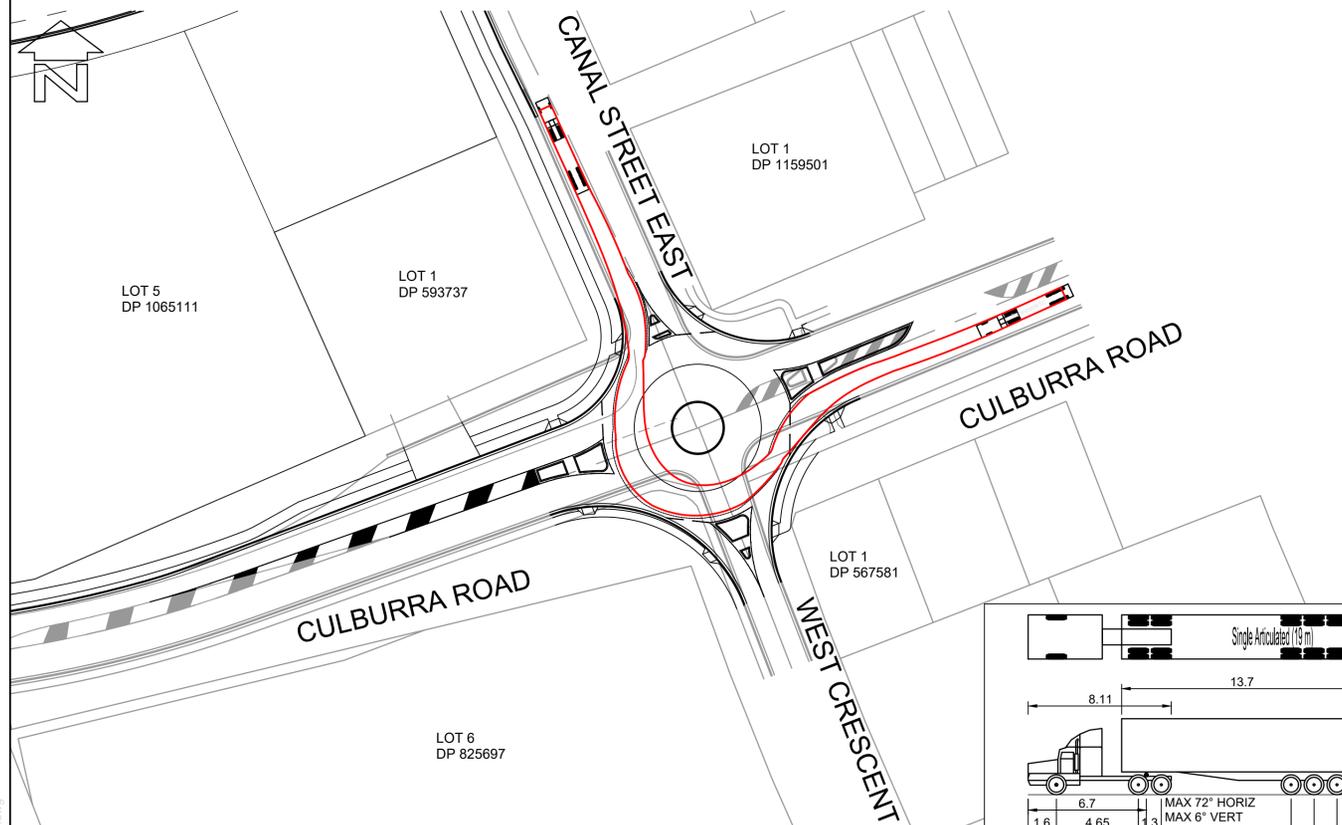
DRAWING STATUS <b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION PURPOSES	
DRAWING NUMBER <b>25405-117</b>	SHEET <b>18</b> REVISION <b>29</b> P1



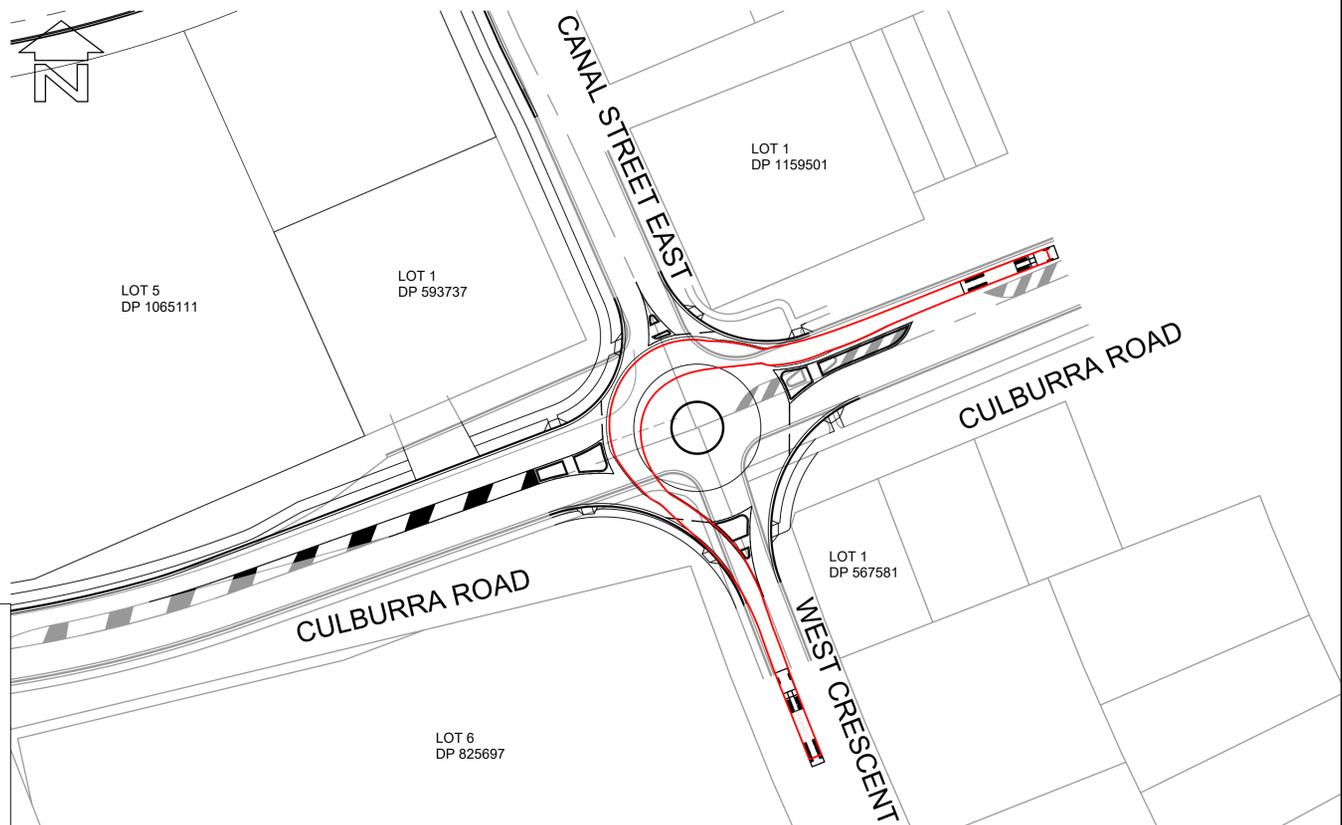
LAYOUT PLAN  
SCALE 1:750



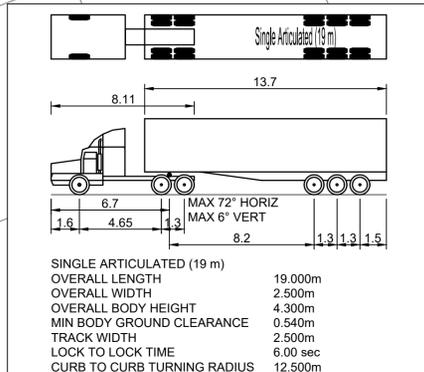
LAYOUT PLAN  
SCALE 1:750



LAYOUT PLAN  
SCALE 1:750



LAYOUT PLAN  
SCALE 1:750



VEHICLE MANOEUVRE LEGEND:

— PATH OF OUTER FRONT WHEEL (FORWARD MOVEMENT)  
 - - - SWEEP PATH OF VEHICLE BODY (FORWARD MOVEMENT)  
 THIS DRAWING HAS BEEN PREPARED USING MODELING COMPUTER SOFTWARE AUTODESK VEHICLE TRACKING 2016. THE VEHICLE USED IS BASED UPON DATA PROVIDED BY AUSTRROADS 2013 FOR A SINGLE ARTICULATED (19.0m) TRAVELING AT 20km/hr AND INCORPORATES A REASONABLE DEGREE OF TOLERANCE. HOWEVER IT IS NOT POSSIBLE TO ACCOUNT FOR ALL VEHICLE TYPES/ CHARACTERISTICS AND/OR DRIVER ABILITY.



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RATIO:  
**1:750**  
(AT A1 ORIGINAL)

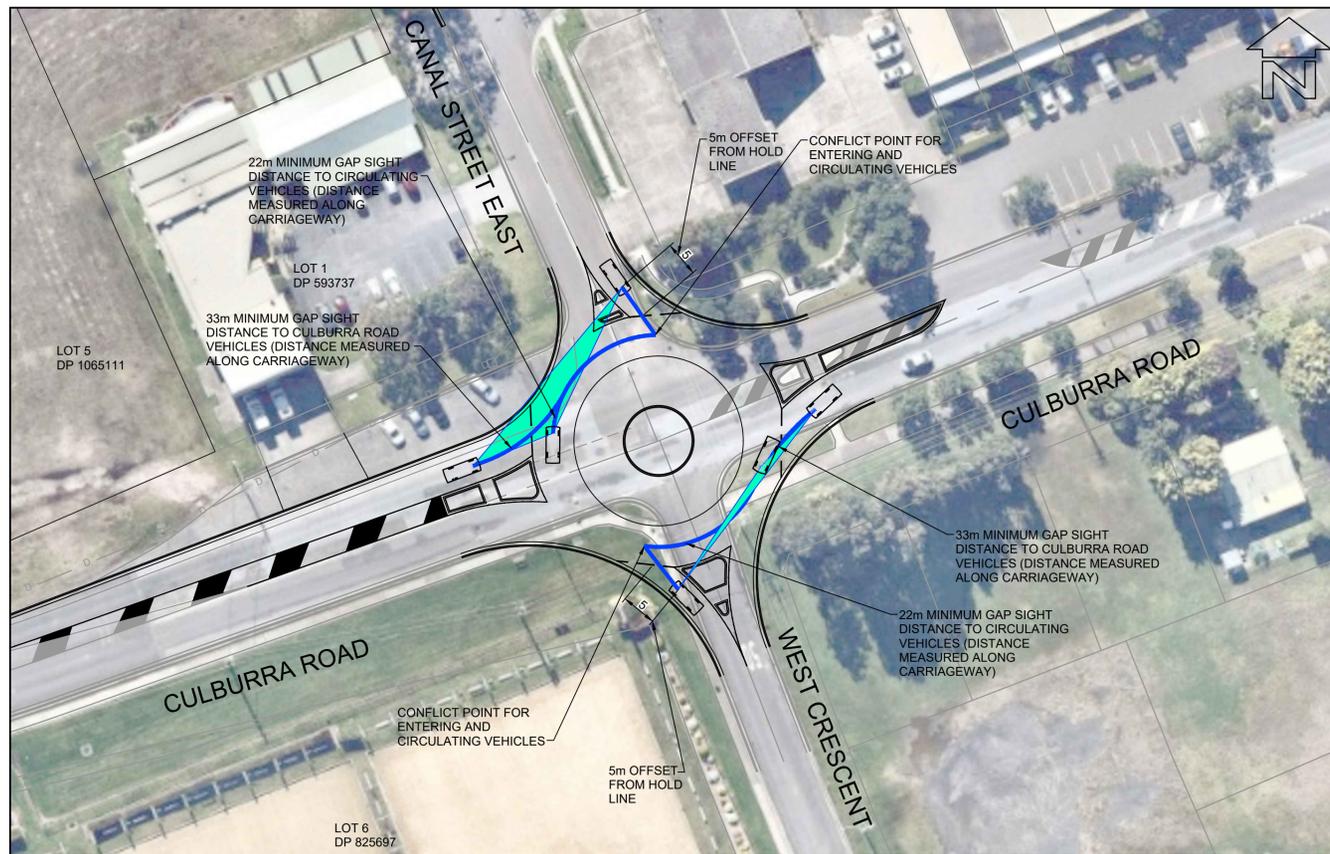
DATUM:  
AUSTRALIAN HEIGHT DATUM  
ORIGIN: SSM  
RL  
DATE OF PLAN: MARCH 2020

SURVEY	APS	REV	DESCRIPTION	BY	DATE
DESIGN	CJG				
DRAWN	CJG				
CHECK'D	MJP				

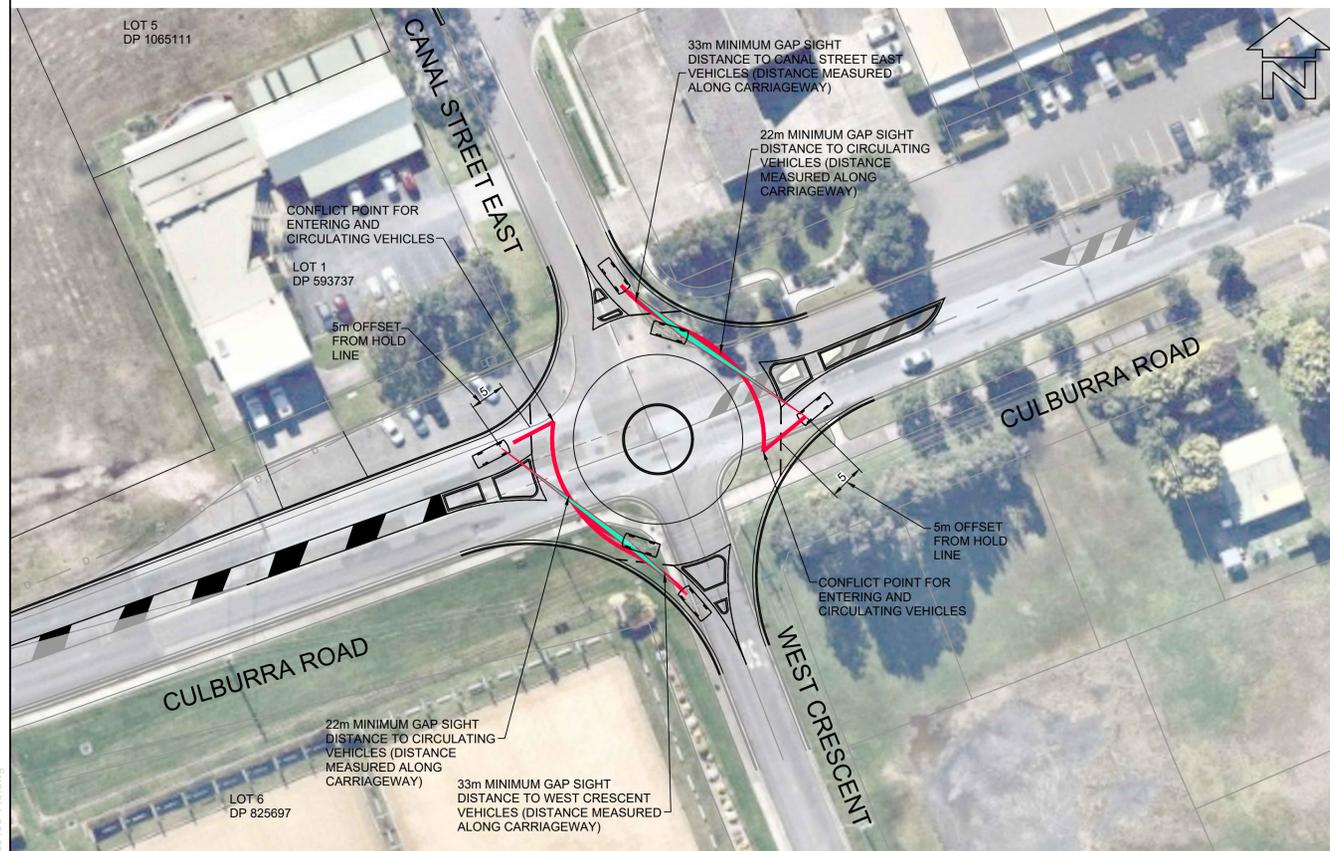
**ps** allen price & scarratts pty ltd  
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**ROUNDAABOUT 03 VEHICLE MOVEMENT LAYOUT PLAN  
SHEET 01  
OVER CULBURRA ROAD  
AT CULBURRA BEACH  
FOR SEALARK PTY LTD**

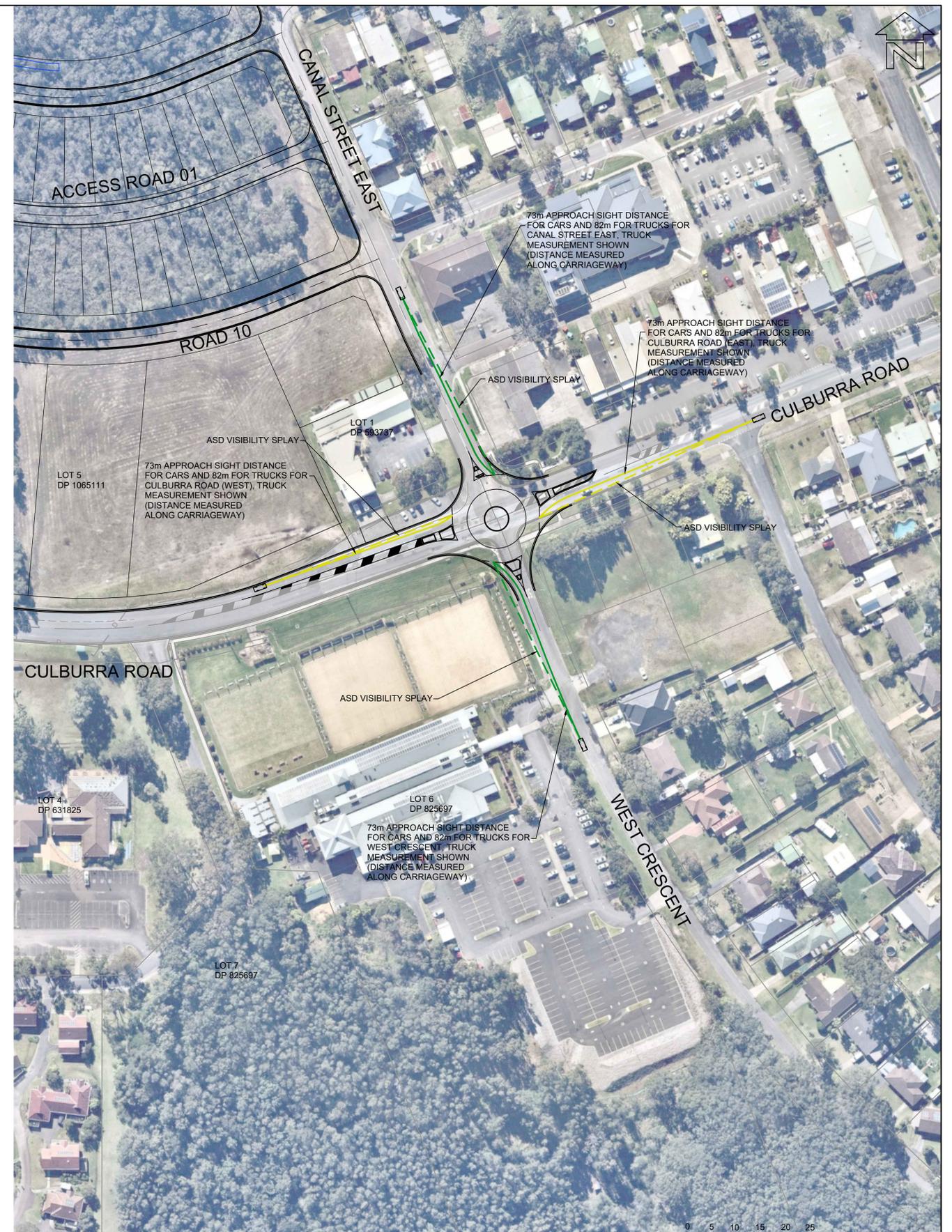
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DRAWING NUMBER <b>25405-118</b>	SHEET <b>19</b> OF <b>29</b> REVISION <b>P1</b>



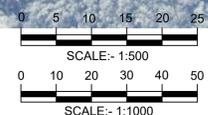
LAYOUT PLAN  
SCALE 1:500



LAYOUT PLAN  
SCALE 1:500



LAYOUT PLAN  
SCALE 1:1000



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RATIO:  
**AS NOTED**  
(AT A1 ORIGINAL)

DATUM:  
AUSTRALIAN HEIGHT DATUM  
ORIGIN: SSM  
RL  
DATE OF PLAN: MARCH 2020

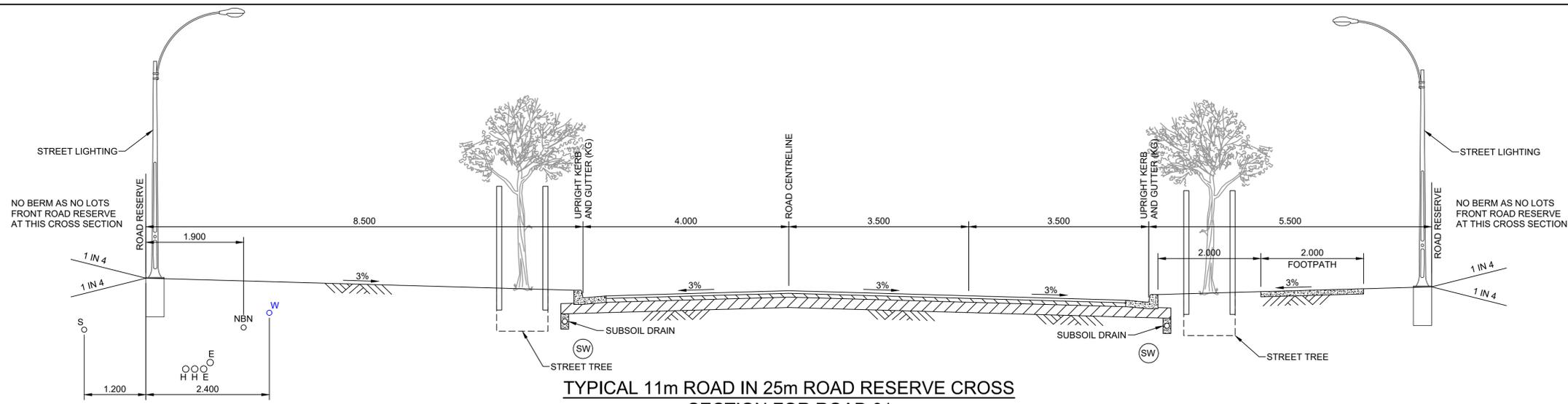
SURVEY	APS	REV	DESCRIPTION	BY	DATE
DESIGN	CJG				
DRAWN	CJG				
CHECK'D	MJP				

**aps** allen price & scarratts pty ltd  
land and development consultants  
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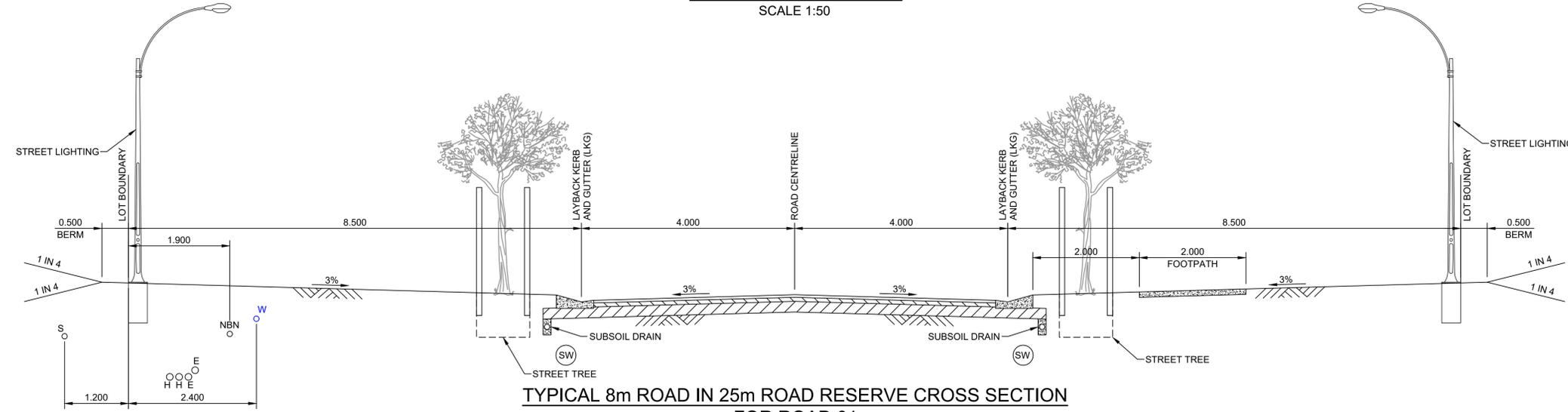
PRELIMINARY ROUNDABOUT 03 SIGHT LINE LAYOUT PLAN  
OVER CULBURRA ROAD  
AT CULBURRA BEACH  
FOR SEALARK PTY LTD

DRAWING STATUS <b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION PURPOSES	
DRAWING NUMBER <b>25405-119</b>	SHEET <b>20</b> OF <b>29</b> REVISION <b>P1</b>

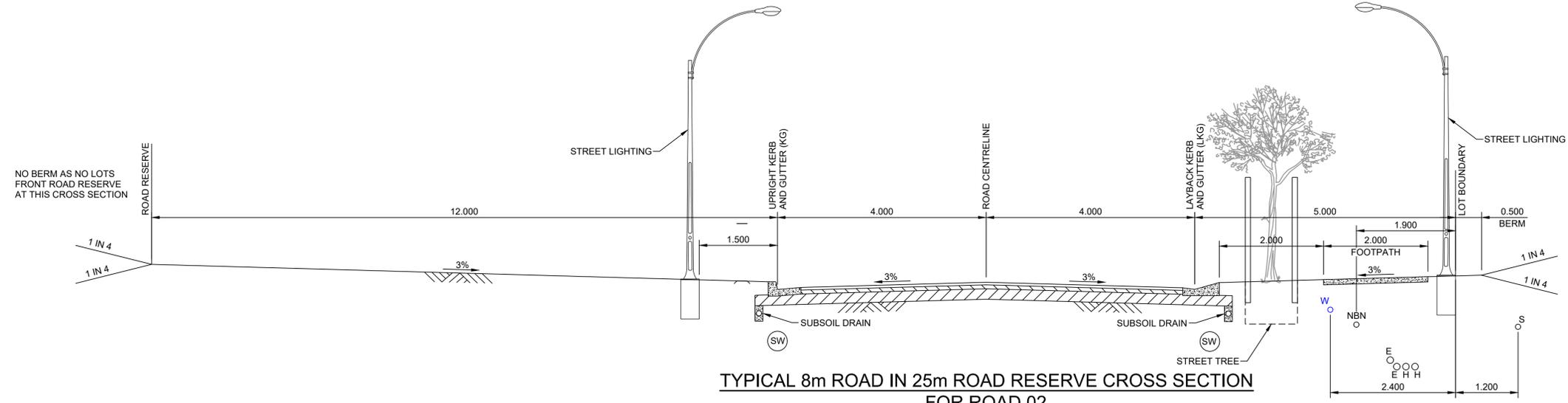
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**TYPICAL 11m ROAD IN 25m ROAD RESERVE CROSS SECTION FOR ROAD 01**  
SCALE 1:50

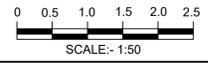


**TYPICAL 8m ROAD IN 25m ROAD RESERVE CROSS SECTION FOR ROAD 01**  
SCALE 1:50



**TYPICAL 8m ROAD IN 25m ROAD RESERVE CROSS SECTION FOR ROAD 02**  
SCALE 1:50

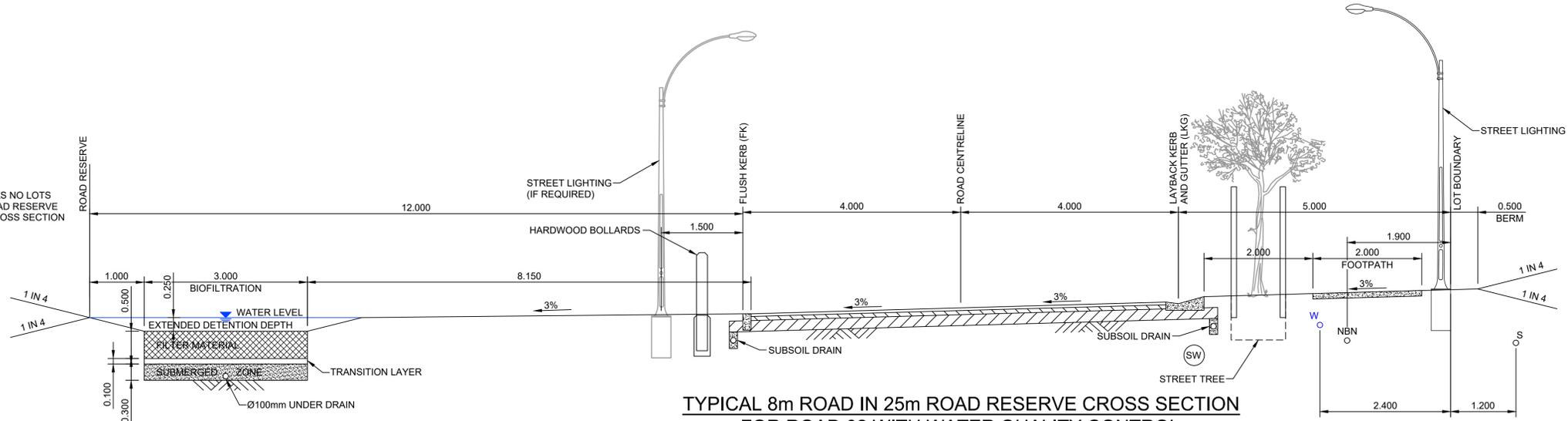
**NOTE:**  
FOOTPATHS SHOWN ON CROSS SECTIONS ARE FOR INFORMATION ONLY. SEE LAYOUT PLANS FOR CLARIFICATION OF FOOTPATH LOCATION THROUGH SUBDIVISION.



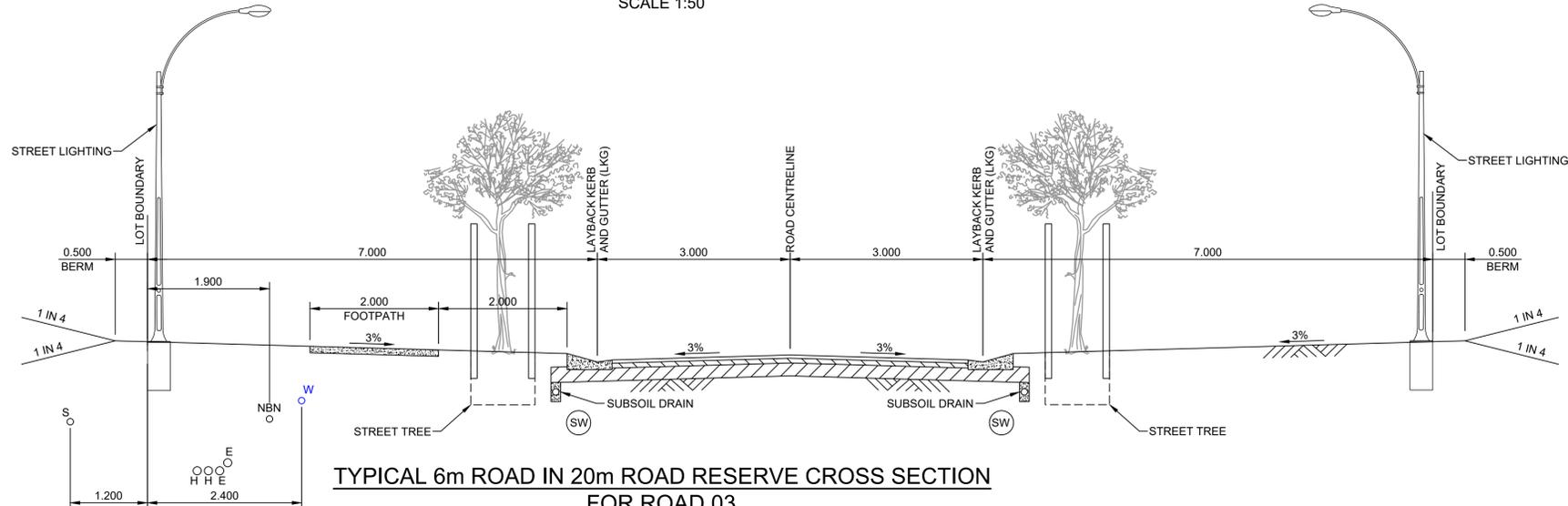
**BEWARE!**  
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RATIO: <b>1:50</b> (AT A1 ORIGINAL)	DATUM: AUSTRALIAN HEIGHT DATUM	SURVEY DESIGN	APS CJG	REV =	DESCRIPTION	BY	DATE	 <b>allen price &amp; scarratts pty ltd</b> land and development consultants Nowra Office: 75 Plunkett Street, Nowra NSW 2541 Kiama Office: 1/28 Bong Bong Street, Kiama NSW 2533 phone: (02) 4421 6544 consultants@allenprice.com.au www.allenprice.com.au	<b>PRELIMINARY TYPICAL ROAD CROSS SECTIONS PLAN</b> <b>SHEET 01</b> <b>OVER CULBURRA ROAD</b> <b>AT CULBURRA BEACH</b> <b>FOR SEALARK PTY LTD</b>	DRAWING STATUS <b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION PURPOSES
	ORIGIN: SSM RL	DRAWN CJG	CHECK'D MJP	DATE OF PLAN: MARCH 2020						DRAWING NUMBER <b>25405-120</b>

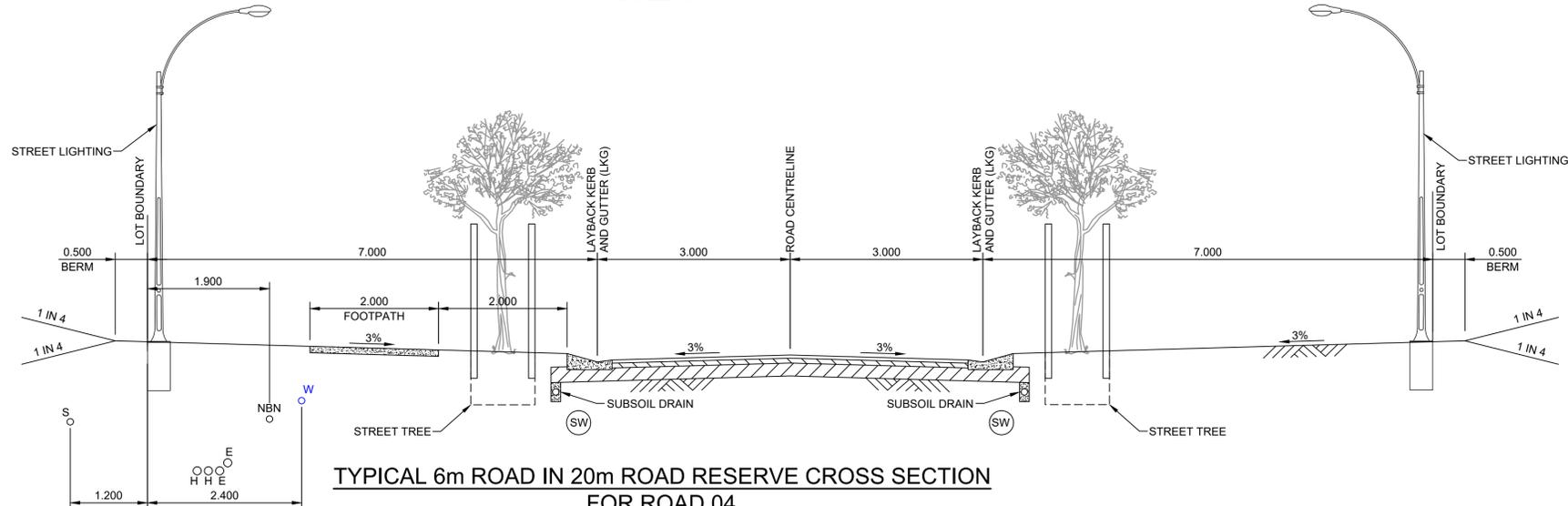
NO BERM AS NO LOTS  
FRONT ROAD RESERVE  
AT THIS CROSS SECTION



**TYPICAL 8m ROAD IN 25m ROAD RESERVE CROSS SECTION  
FOR ROAD 02 WITH WATER QUALITY CONTROL**  
SCALE 1:50

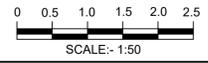


**TYPICAL 6m ROAD IN 20m ROAD RESERVE CROSS SECTION  
FOR ROAD 03**  
SCALE 1:50



**TYPICAL 6m ROAD IN 20m ROAD RESERVE CROSS SECTION  
FOR ROAD 04**  
SCALE 1:50

**NOTE:**  
FOOTPATHS SHOWN ON CROSS SECTIONS ARE FOR INFORMATION ONLY. SEE LAYOUT PLANS FOR CLARIFICATION OF FOOTPATH LOCATION THROUGH SUBDIVISION.



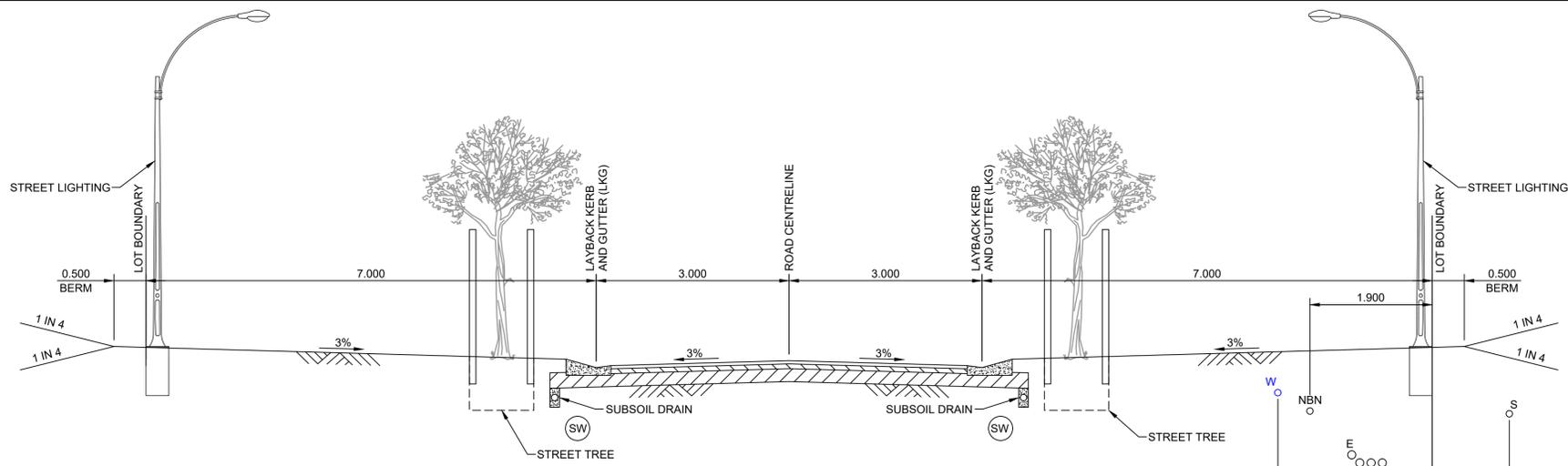
**BEWARE!**

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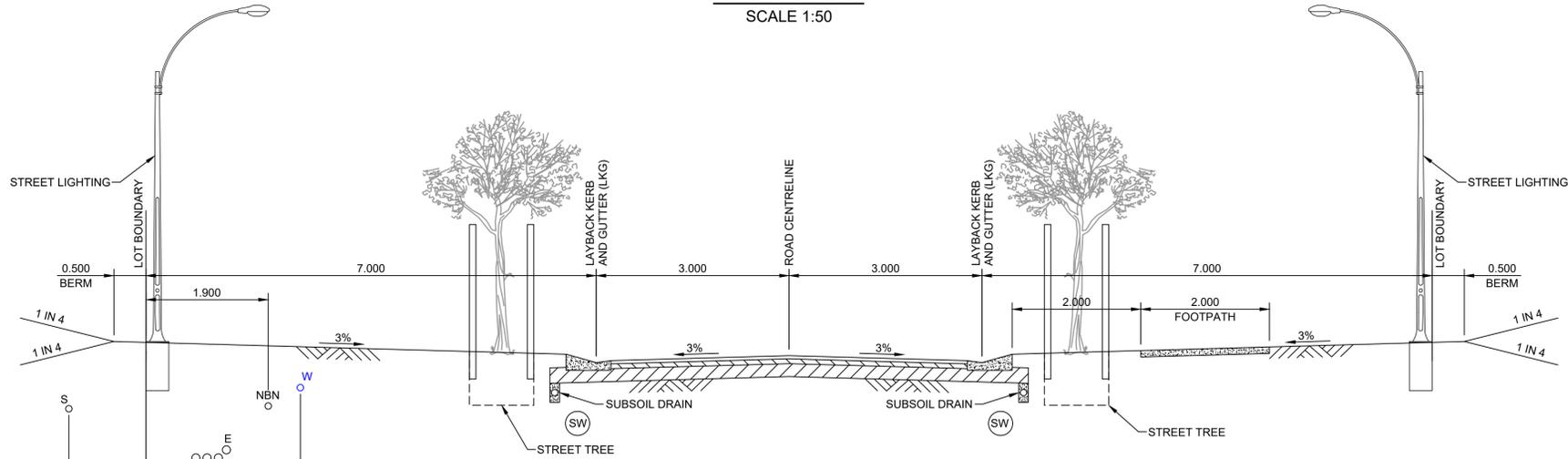
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RATIO: <b>1:50</b> (AT A1 ORIGINAL)	DATUM: AUSTRALIAN HEIGHT DATUM	SURVEY DESIGN DRAWN CHECK'D	APS CJG CJG MJP	REV =	DESCRIPTION	BY	DATE	<p>PRELIMINARY TYPICAL ROAD CROSS SECTIONS PLAN SHEET 02 OVER CULBURRA ROAD AT CULBURRA BEACH FOR SEALARK PTY LTD</p>	DRAWING STATUS <b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION PURPOSES
	ORIGIN: SSM RL	DATE OF PLAN: MARCH 2020							DRAWING NUMBER <b>25405-121</b>

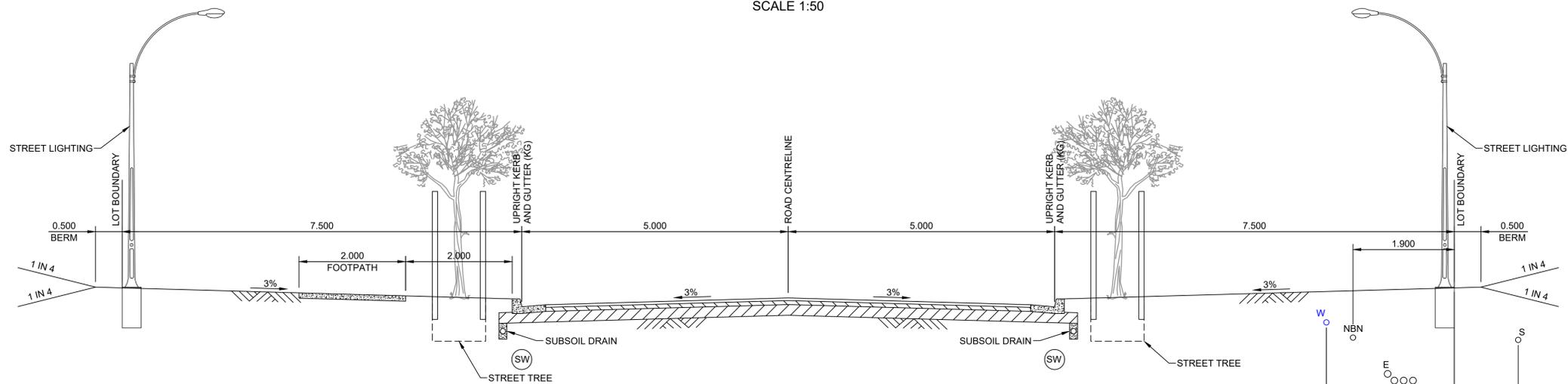
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**TYPICAL 6m ROAD IN 20m ROAD RESERVE CROSS SECTION FOR ROAD 05**  
SCALE 1:50

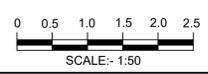


**TYPICAL 6m ROAD IN 20m ROAD RESERVE CROSS SECTION FOR ROAD 06**  
SCALE 1:50



**TYPICAL 10m ROAD IN 25m ROAD RESERVE CROSS SECTION FOR ROAD 07**  
SCALE 1:50

**NOTE:**  
FOOTPATHS SHOWN ON CROSS SECTIONS ARE FOR INFORMATION ONLY. SEE LAYOUT PLANS FOR CLARIFICATION OF FOOTPATH LOCATION THROUGH SUBDIVISION.

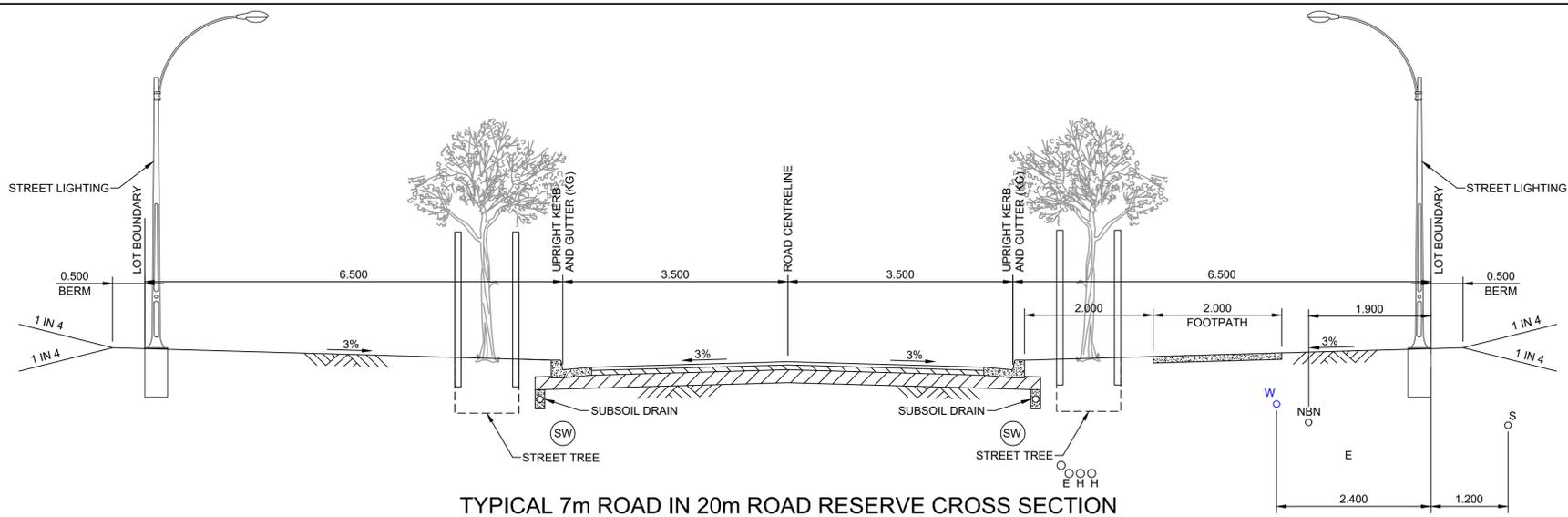


**BEWARE!**

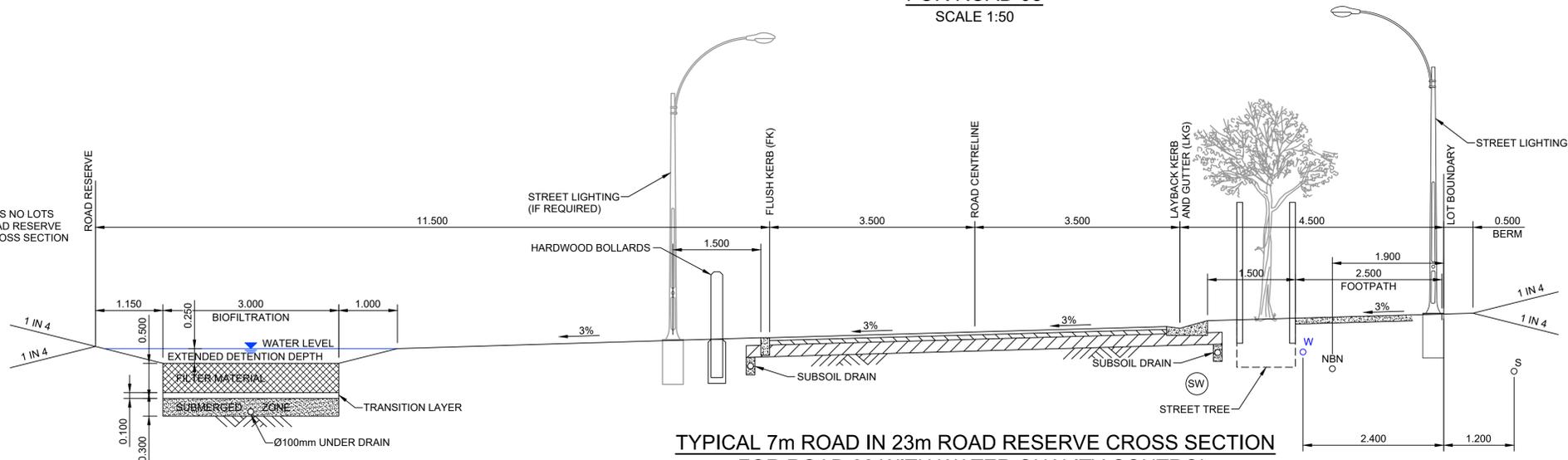
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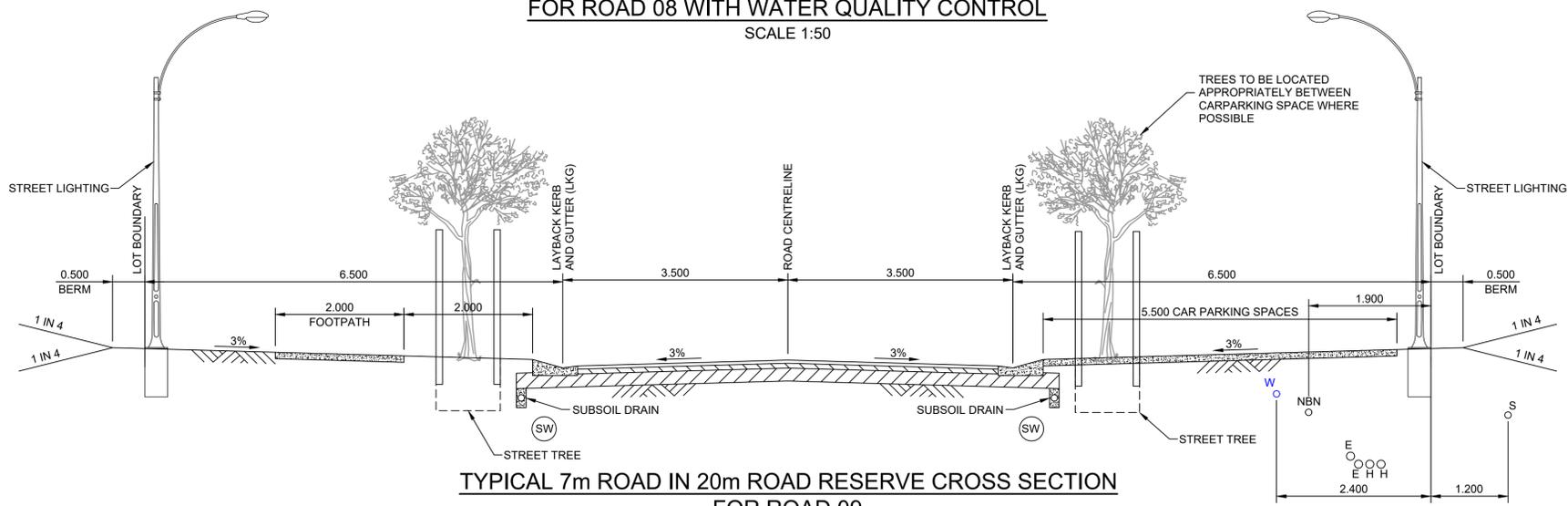
RATIO: <b>1:50</b> (AT A1 ORIGINAL)	DATUM: AUSTRALIAN HEIGHT DATUM	SURVEY DESIGN DRAWN CHECK'D	APS CJG CJG MJP	REV =	DESCRIPTION	BY	DATE	<b>allen price &amp; scarratts pty ltd</b> land and development consultants Nowra Office: 75 Plunkett Street, Nowra NSW 2541 Kiama Office: 1/28 Bong Bong Street, Kiama NSW 2533 phone: (02) 4421 6544 consultants@allenprice.com.au www.allenprice.com.au	<b>PRELIMINARY TYPICAL ROAD CROSS SECTIONS PLAN</b> <b>SHEET 03</b> <b>OVER CULBURRA ROAD</b> <b>AT CULBURRA BEACH</b> <b>FOR SEALARK PTY LTD</b>	DRAWING STATUS <b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION PURPOSES
	DATE OF PLAN: MARCH 2020									DRAWING NUMBER <b>25405-122</b>



TYPICAL 7m ROAD IN 20m ROAD RESERVE CROSS SECTION  
FOR ROAD 08  
SCALE 1:50



TYPICAL 7m ROAD IN 23m ROAD RESERVE CROSS SECTION  
FOR ROAD 08 WITH WATER QUALITY CONTROL  
SCALE 1:50



TYPICAL 7m ROAD IN 20m ROAD RESERVE CROSS SECTION  
FOR ROAD 09  
SCALE 1:50

**NOTE:**  
FOOTPATHS SHOWN ON CROSS SECTIONS ARE FOR INFORMATION ONLY. SEE LAYOUT PLANS FOR CLARIFICATION OF FOOTPATH LOCATION THROUGH SUBDIVISION.



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RATIO:  
**1:50**  
(AT A1 ORIGINAL)

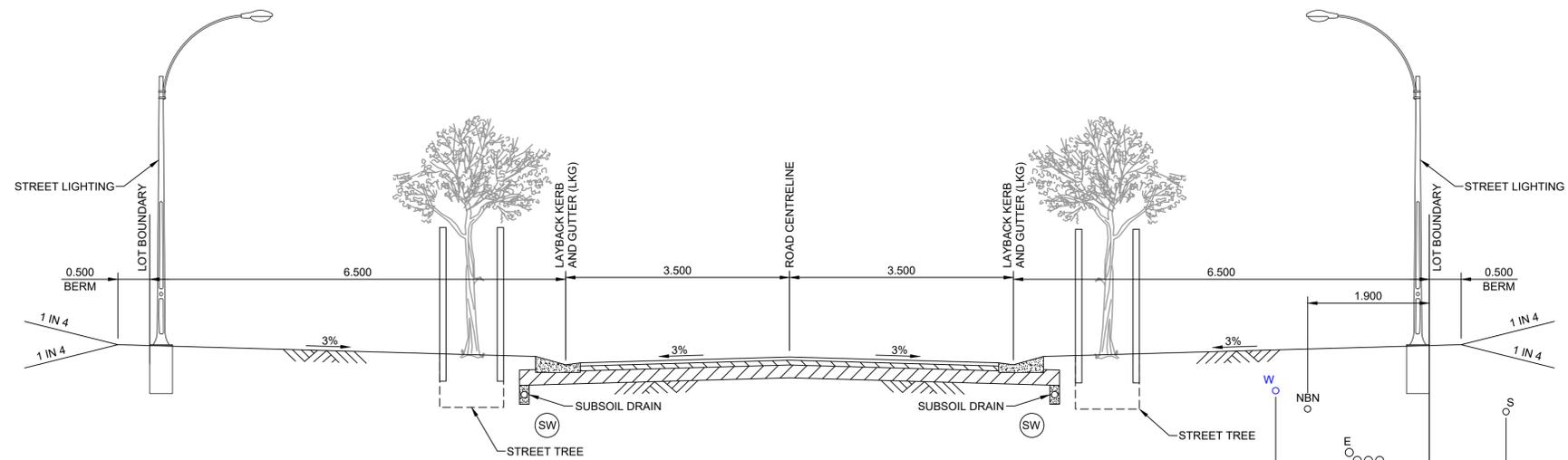
DATUM:  
AUSTRALIAN HEIGHT DATUM  
ORIGIN: SSM  
RL  
DATE OF PLAN: MARCH 2020

SURVEY	APS	REV	DESCRIPTION	BY	DATE
DESIGN	CJG				
DRAWN	CJG				
CHECK'D	MJP				

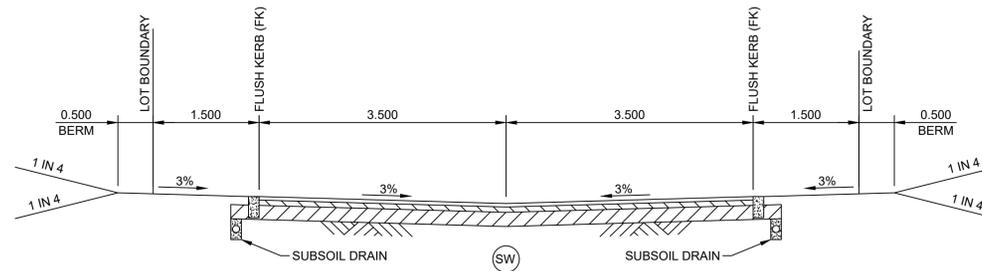
**allen price & scarratts pty ltd**  
land and development consultants  
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Kiama Office: 1/28 Bong Bong Street, Kiama NSW 2533  
phone: (02) 4421 6544  
consultants@allenprice.com.au www.allenprice.com.au

PRELIMINARY TYPICAL ROAD CROSS SECTIONS PLAN  
SHEET 04  
OVER CULBURRA ROAD  
AT CULBURRA BEACH  
FOR SEALARK PTY LTD

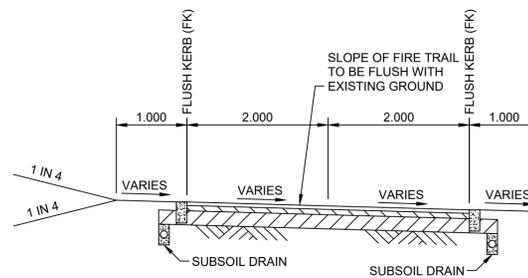
DRAWING STATUS <b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION PURPOSES	
DRAWING NUMBER <b>25405-123</b>	SHEET <b>24</b> OF <b>29</b> REVISION <b>P1</b>



**TYPICAL 7m ROAD IN 20m ROAD RESERVE CROSS SECTION  
FOR ROAD 10**  
SCALE 1:50



**TYPICAL 7m ROAD IN 10m ROAD RESERVE CROSS SECTION  
FOR ACCESS ROAD 01**  
SCALE 1:50



**TYPICAL 4m FIRE TRAIL PRIVATE PROPERTY/PUBLIC RESERVE CROSS SECTION  
FOR EMERGENCY EGRESS ROUTE 01 AND 02**  
SCALE 1:50

**NOTE:**  
FOOTPATHS SHOWN ON CROSS SECTIONS ARE FOR INFORMATION ONLY. SEE LAYOUT PLANS FOR CLARIFICATION OF FOOTPATH LOCATION THROUGH SUBDIVISION.

**PROFESSIONAL STANDARDS SCHEME**  
Liability limited by a scheme approved under Professional Standards Legislation

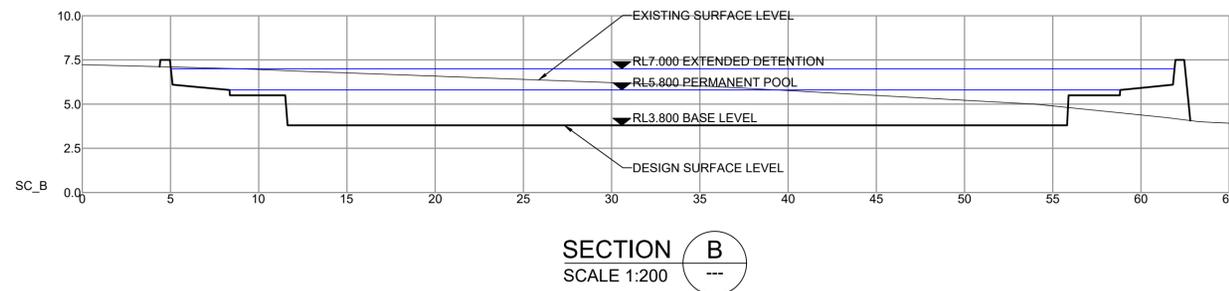
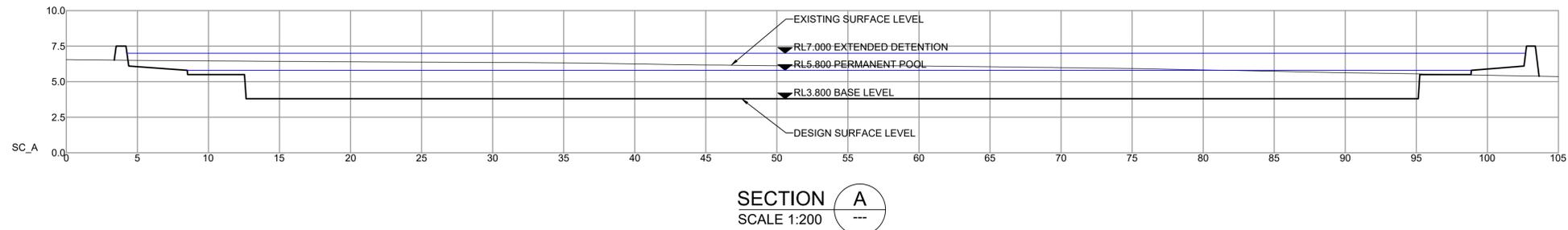
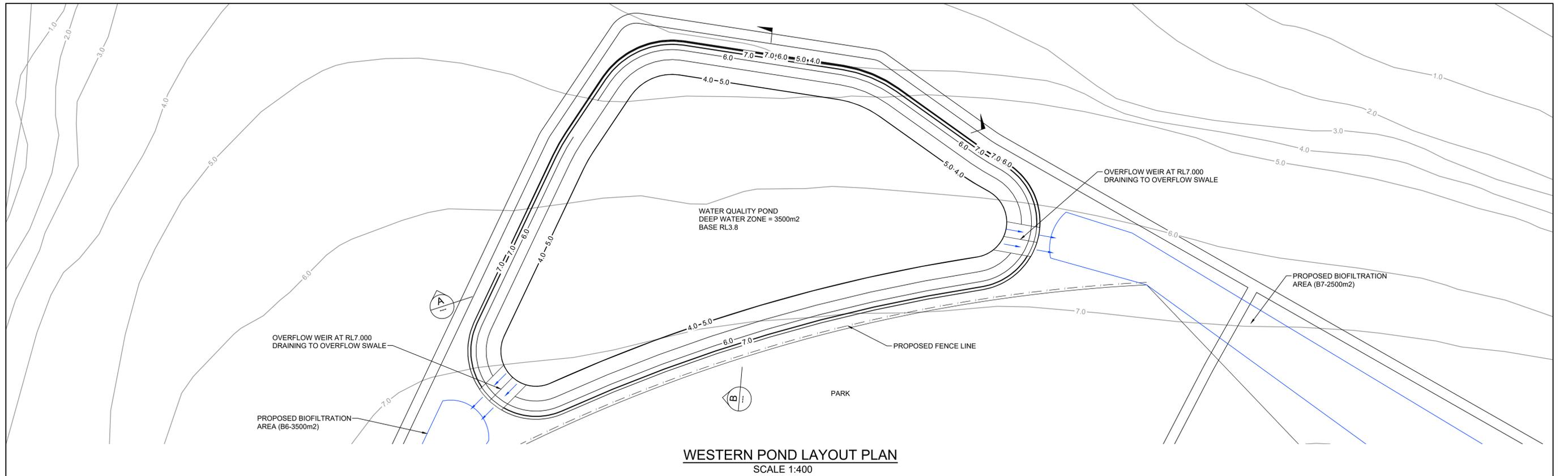


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THE CONTRACTOR IS TO VERIFY THE LOCATION OF ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF CONSTRUCTION AND SHALL BE RESPONSIBLE, AT THE CONTRACTOR'S EXPENSE, FOR ANY REPAIRS TO DAMAGE CAUSED DURING CONSTRUCTION.

RATIO: <b>1:50</b> (AT A1 ORIGINAL)	DATUM: AUSTRALIAN HEIGHT DATUM	SURVEY DESIGN	APS CJG	REV =	DESCRIPTION	BY	DATE	<p>allen price &amp; scarratts pty ltd land and development consultants Nowra Office: 75 Plunkett Street, Nowra NSW 2541 Kiama Office: 1/28 Bong Bong Street, Kiama NSW 2533 phone: (02) 4421 6544 consultants@allenprice.com.au www.allenprice.com.au</p>	<b>PRELIMINARY TYPICAL ROAD CROSS SECTIONS PLAN SHEET 05 OVER CULBURRA ROAD AT CULBURRA BEACH FOR SEALARK PTY LTD</b>	DRAWING STATUS <b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION PURPOSES
	ORIGIN: SSM RL	DRAWN CHECK'D	CJG MJP	DATE OF PLAN: MARCH 2020						DRAWING NUMBER <b>25405-124</b>



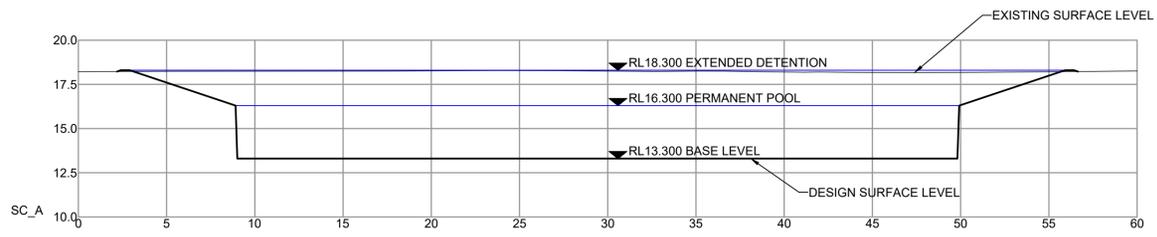
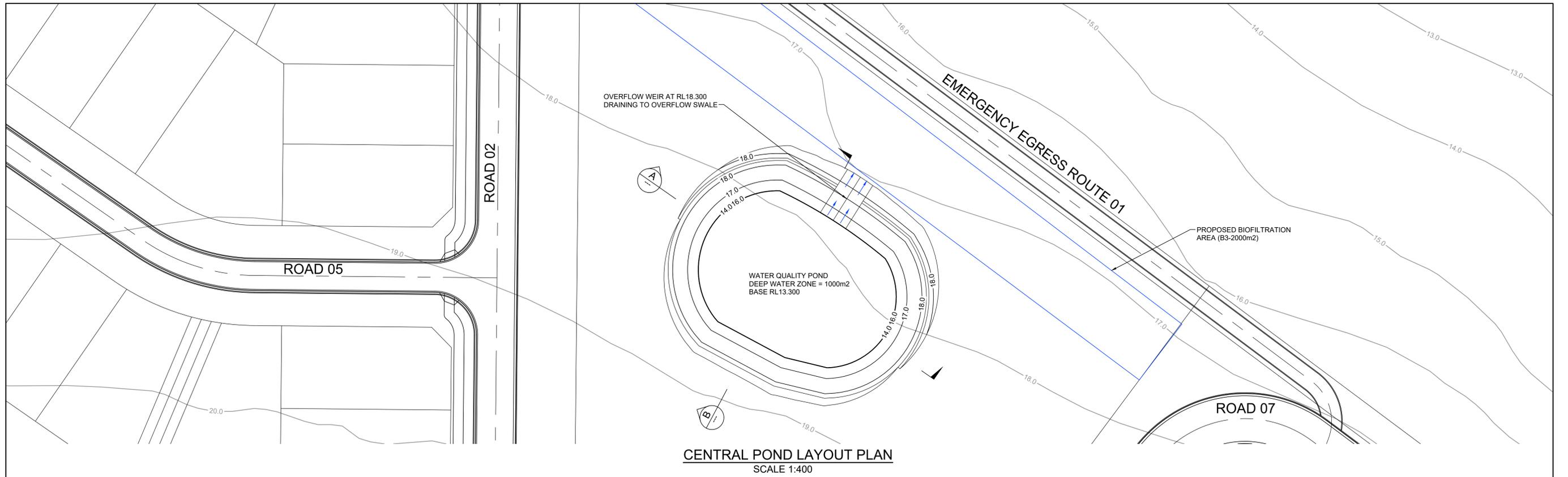
**BEWARE!**

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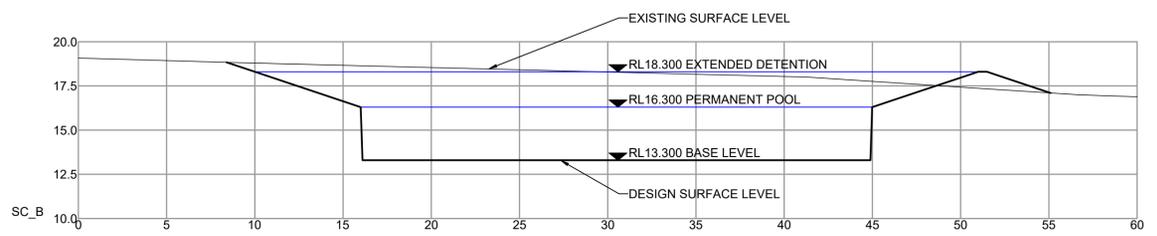
**PROFESSIONAL STANDARDS SCHEME**

Liability limited by a scheme approved under Professional Standards Legislation

RATIO: <b>AS NOTED</b> (AT A1 ORIGINAL)	DATUM: AUSTRALIAN HEIGHT DATUM	SURVEY DESIGN	APS CJG	REV =	DESCRIPTION	BY	DATE	<p>allen price &amp; scarratts pty ltd land and development consultants Nowra Office: 75 Plunkett Street, Nowra NSW 2541 Kiama Office: 1/28 Bong Bong Street, Kiama NSW 2533 phone:(02) 4421 6544 consultants@allenprice.com.au www.allenprice.com.au</p>	<b>WESTERN POND CONCEPT LAYOUT PLAN</b>  <b>OVER CULBURRA ROAD</b> <b>AT CULBURRA BEACH</b> <b>FOR SEALARK PTY LTD</b>	DRAWING STATUS <b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION PURPOSES
	ORIGIN: SSM RL	DRAWN CJG	CHECK'D MJP	DATE OF PLAN: MARCH 2020	DRAWING NUMBER <b>25405-125</b>	SHEET <b>26</b> OF <b>29</b>	REVISION <b>P1</b>			



SECTION A  
SCALE 1:200



SECTION B  
SCALE 1:200

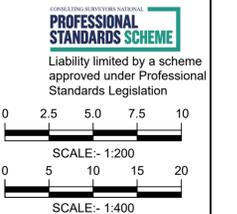
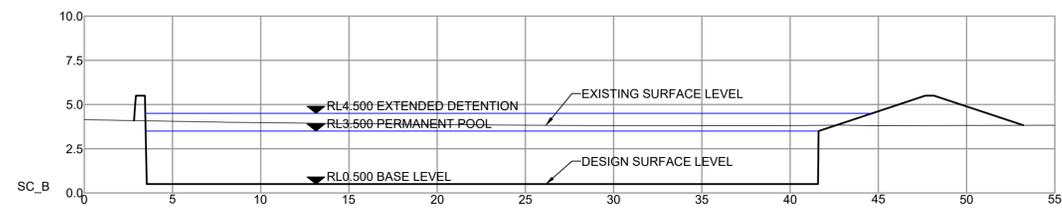
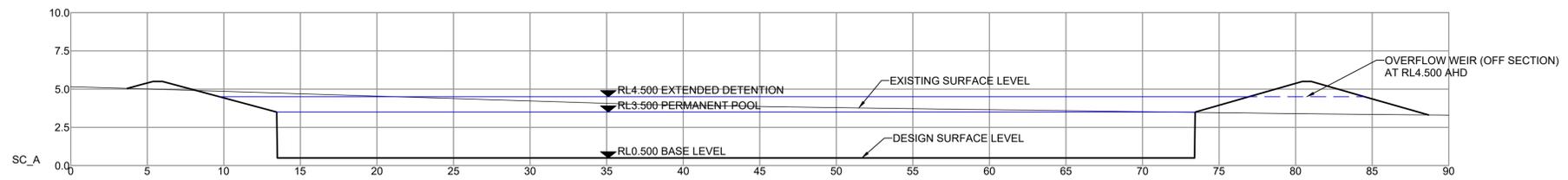
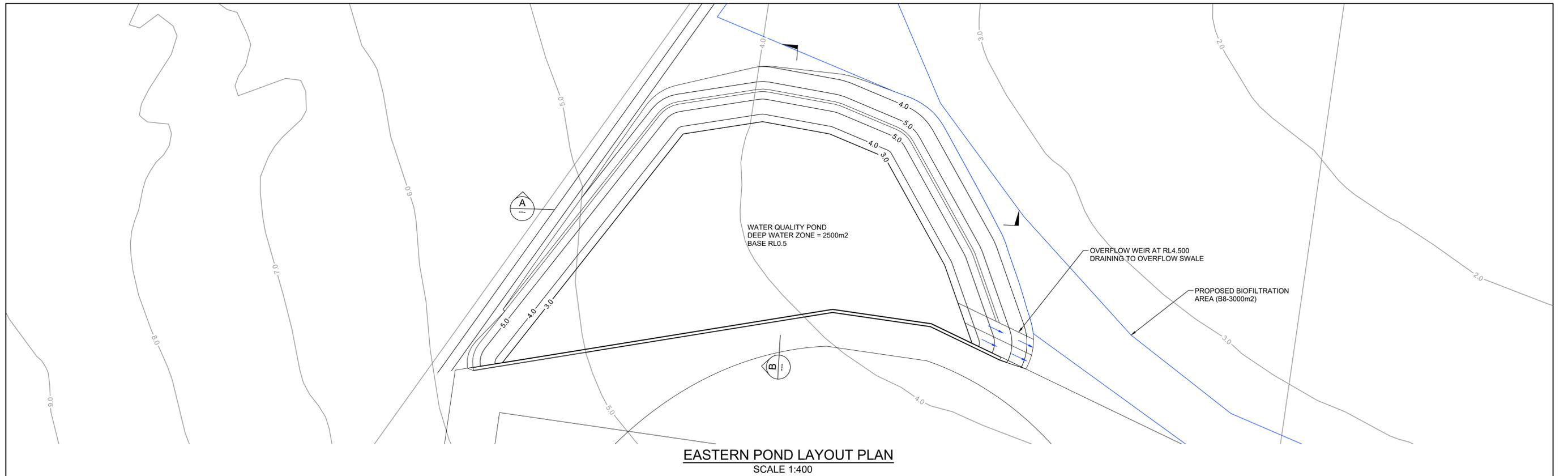
**PROFESSIONAL STANDARDS SCHEME**  
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RATIO: <b>AS NOTED</b> (AT A1 ORIGINAL)	DATUM: AUSTRALIAN HEIGHT DATUM	SURVEY DESIGN	APS CJG	REV =	DESCRIPTION	BY	DATE	<p>allen price &amp; scarratts pty ltd land and development consultants Nowra Office: 75 Plunkett Street, Nowra NSW 2541 Kiama Office: 1/28 Bong Bong Street, Kiama NSW 2533 phone:(02) 4421 6544 consultants@allenprice.com.au www.allenprice.com.au</p>	CENTRAL POND CONCEPT LAYOUT PLAN  OVER CULBURRA ROAD AT CULBURRA BEACH FOR SEALARK PTY LTD	DRAWING STATUS <b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION PURPOSES
	ORIGIN: SSM RL	DRAWN CJG	CHECK'D MJP	DATE OF PLAN: MARCH 2020	DRAWING NUMBER <b>25405-126</b>	SHEET 27 OF 29	REVISION P1			



**BEWARE!**

THE CONTRACTOR IS TO VERIFY THE LOCATION OF ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF CONSTRUCTION AND SHALL BE RESPONSIBLE, AT THE CONTRACTOR'S EXPENSE, FOR ANY REPAIRS TO DAMAGE CAUSED DURING CONSTRUCTION.

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RATIO: <b>AS NOTED</b> (AT A1 ORIGINAL)	DATUM: AUSTRALIAN HEIGHT DATUM	SURVEY DESIGN	APS CJG	REV =	DESCRIPTION	BY	DATE	<p>allen price &amp; scarratts pty ltd land and development consultants Nowra Office: 75 Plunkett Street, Nowra NSW 2541 Kiama Office: 1/28 Bong Bong Street, Kiama NSW 2533 phone:(02) 4421 6544 consultants@allenprice.com.au www.allenprice.com.au</p>	<b>EASTERN POND CONCEPT LAYOUT PLAN</b>  <b>OVER CULBURRA ROAD</b> <b>AT CULBURRA BEACH</b> <b>FOR SEALARK PTY LTD</b>	DRAWING STATUS <b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION PURPOSES
	ORIGIN: SSM RL	DRAWN CJG	CHECK'D MJP	DATE OF PLAN: MARCH 2020	DRAWING NUMBER <b>25405-127</b>	SHEET <b>28</b> OF <b>29</b>	REVISION <b>P1</b>			

