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Subdivision Design, Character & Servicing "Bayside Brunswick"

(Proposed Subdivision of Lot 1 DP871093 Kingsford Drive, Brunswick Heads on behalf of Codlea Pty Ltd)

3 December 2010

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Ref No. LM080082





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# 1. Introduction

LandPartners Limited (LPL) has been commissioned by Codlea Pty Limited to prepare a Concept Plan for subdivision of Lot 1 DP871039 at Kingsford Drive, Brunswick Heads, into residential lots, open space and residential streets. The subject land is the residue parcel of the Bayside Brunswick development, south of the Brunswick Heads Village, in the Shire of Byron.

The existing developed stages of the Bayside Brunswick development adjoin the subject land to the north. The existing development consists of 143 residential lots which were created in the 1980s and 1990s and which are now fully established. The last stage of development was created by DP851902 in 1995. That plan created 66 residential lots, residential streets, neighbourhood parks, some special purpose lots and various easements. In 1997, DP871039 subdivided the residue lot of DP851902 (Lot 73) to create a small extension to one of the residential streets, Omega Circuit. The remaining Lot 1 DP871039 (31.26 ha excluding road) is the whole of the land the subject of this Concept Plan. A copy of DP871039 is included in Appendix A.

This document forms part of the Concept Plan and addresses the response of the subdivision design to engineering issues and other constraints; including zoning, topography, existing flora & fauna, cultural & heritage issues, bushfire threat, traffic and transport requirements (vehicular & pedestrian), threat of flooding, geotechnical conditions, existence of any contaminated land, groundwater conditions, stormwater drainage and earthworks requirements, and provision of water, sewerage, electricity & communications services.

# 2. Site Assessment

# 2.1 Site Location and Description

The subject land adjoins the southern edge of the existing Bayside Brunswick residential development. It is bounded on the west and south by rural lands, on the south-west by two rural residential lots and on the east by Simpsons Creek, a tidal tributary of the Brunswick River. The location of the subject land in relation to surrounding features and development is shown on the Locality Plan No. LM080082-EV1 A in Appendix A.

A road reserve traverses the land in a south-easterly direction (see DP871039 in Appendix A). This is the Old Brunswick Road and it still has a trafficable gravel pavement, although not maintained. The land north-east of the road reserve is generally heavily timbered with native trees. A portion of this timbered area adjoining Simpsons Creek is low-lying and subject to tidal inundation. The balance

of the subject land, generally south of the existing residential lots and south-west of the road reserve, is cleared with scattered trees.

## 2.2 Constraints

The subject land is affected by a number of constraints which influence the subdivision design. These constraints are legal, environmental and physical in nature and are assessed in detail in various other reports that form part of this Concept Plan submission. A summary of the major constraints are set out below: -

### Zoning

The heavily timbered portion of the subject land, generally to the north-east of the road reserve that traverses the land, is zoned environmental protection. The higher timbered areas are zoned 7(b) Coastal Habitat Zone and a low-lying area adjoining Simpsons Creek is zoned 7(a) Wetlands Zone. The 7(b) & 7(a) zones total 9.35 ha excluding the road reserve.

The remainder of the subject land is zoned 2(a) Residential Zone, with a total area of 21.91 ha excluding the road reserve. This is the only part of the subject land that can be developed and it will be referred to in this report as the *site*. The various zonings are shown in the Zoning Plan (ref. LM080082 EV3A) in Appendix A.

### Topography

The land is relatively flat ancient sand dune country, ranging in height from less than 1 metre AHD in parts of the wetlands zone, to a little over 5 metres AHD along the dunal ridges. The developable *site* consists of two dunal ridges running north-south, with the area between these ridges falling to an open drain which slopes gradually to the south, where it joins an easterly flowing drain about 200 metres south of the southern boundary of the *site*. This second drain is known as Everitts Creek and it flows to Simpsons Creek. The southerly flowing drain within the *site* is flat, with a floor level of a little under 3 metres AHD. Site contours and features are shown on the Site Analysis Plan (LM080082-DR13 A) in Appendix A.

Stormwater from the majority of the *site* travels to the central open drain, as does piped stormwater from some of the established lots and streets of the adjoining residential development. A small area in the south-eastern corner of the *site* drains north towards the wetlands zone and Simpsons Creek and a small area near the westernmost boundary of the Site drains westward to the low area to the west of the *site* and then south to Everitts Creek.

In order to maximise retention of and minimise disturbance to habitat of conservation significance, as well as to minimise earthworks, it is necessary to create a subdivision pattern that is sympathetic to the existing land form and which maintains the surface and sub-surface drainage patterns.

### **Existing Habitat**

Five separate areas of very high conservation significance were identified within the boundaries of the *site*. These areas were identified as Endangered Ecological Communities (EECs), being habitat occupied by the endangered wallum froglet. One EEC is situated adjacent to the westernmost boundary of the *site*, a cluster of three EECs is situated adjacent to the southernmost western boundary and a fifth EEC is situated towards the southern part of the eastern edge of the *site*. These EECs are shown on the Site Analysis Plan (LM080082-RD13 A) in Appendix A and were removed from the potential development footprint.

Scattered native trees occur across the *site*, with some being old-growth scribbly gums. All trees within the *site* were located by survey and classified into seven categories, from "very high conservation significance" down to "no conservation significance". It is not possible to retain all trees on the *site* and still create a meaningful and economically viable residential subdivision, so the development philosophy adopted was to preserve as many as possible of the trees in the top four categories "moderate conservation significance" to "very high conservation significance" and to sacrifice many of the trees in the bottom three categories "low-moderate conservation significance", "low conservation significance" and "no conservation significance".

### **Bushfire Threat**

As shown on the aerial overlay plan, LM080082-EV4 A in Appendix A, the *site* is bordered on the north-east by the timbered Coastal Habitat Zone. The *site* is bordered on the southernmost boundary and the westernmost boundary by rural land covered in coastal heath. The heathland also extends from the south along the southernmost western boundary and within the endangered ecological communities there, thus extending the bushfire threat. There is no threat of bushfire from the north, which is an established residential area, or from the south-west where two rural residential lots adjoin.

Protection of the EECs and protection of the proposed residential areas from the adjoining bushfire threat determined that the subdivision should be as near as practicable surrounded by perimeter streets. The bushfire Asset Protection Zones (APZs) are then contained within the road reserves of the residential streets, as shown on plan No. LM080082-DR21 B in Appendix A.

### **Existing Street Pattern**

The existing residential subdivision streets terminate at four locations around the northern boundaries of the *site*. These existing streets, Kingsford Drive (west & east), Torakina Road and Omega Circuit, need to be connected in a logical manner so as to allow sensible traffic and pedestrian flow whilst discouraging high traffic speeds.

### Other Constraints

The accompanying reports confirm that all the dwelling sites within this proposal are above the level of the Probable Maximum Flood, that there are no apparent

areas of contaminated land and that there are no cultural or heritage issues within the *site*.

## 3. Roads

# 3.1 Street Layout

The adopted street layout is shown on plan No. LM080082-RD21 A in Appendix A. This street pattern has been adopted to protect the identified Endangered Ecological Communities and to maximise retention of trees of high conservation significance, while maintaining the central drainage channel and providing perimeter roads for protection from bushfire threat.

In order to preserve a number of trees of very high conservation significance just west of proposed Lot B159, it was not desirable to make Kingsford Drive a continuous street as originally planned by previous developed stages. We propose that the short section of Kingsford Drive south of Bayside Way be re-named Bayside Way. Road No. 2 would also then be named Bayside Way, while Road No. 1 would be named Kingsford Drive. This re-naming would avoid the confusion of having two separate streets named Kingsford Drive and would only affect the address of three existing residential lots and the Lillypilly Community Pre-school.

The adopted street layout connects to all four existing street terminations and its configuration will discourage high speed traffic.

# 3.2 Road Geometry & Earthworks

All streets within this proposal will be restricted to 50 kph speed zones. They have been designed for low speed, low traffic environment. It is very unlikely that there will be any further residential development to the south of the *site* in the future, therefore all streets within the development would serve as local streets. The streets comply with the geometric requirements of the Northern Rivers Local Government Development Design Specification (AUS-SPEC).

The street layout has been assessed as satisfactorily meeting traffic requirements in the Traffic Impact Assessment Report prepared by TTM Group and dated November 2010. That report forms part of this Concept Plan submission. The TTM report also assessed the access to the entire Bayside Brunswick residential development and concluded that it was also satisfactory except for some recommended minor works to improve safety at the intersection of Bayside Way with the Old Pacific Highway.

The *site* is relatively flat and steep grades are not a problem for street or driveway design. The preliminary road design has adopted a minimum grade of 0.5% in street gutters to allow for efficient drainage. The proposed stormwater drainage pattern is shown on plan No. LM080082-RD23 A in Appendix A. Stormwater drainage is fully assessed in the Water Cycle Management Stormwater Concept

report that forms part of this Concept Plan submission. Standard pavement crossfall of 3% has been used throughout.

Conceptual earthworks are shown on plan No. LM080082-RD22 A in Appendix A. Although the areas shown subject to earthworks are quite extensive, much of the earthworks will be of minor depth (less than 250 mm). The minor re-grading is necessary to ensure that lots drain efficiently, to the streets in nearly all cases, and to ensure that there is no pooling of water. Many of the trees of high conservation significance within these areas of minor earthworks can still be retained.

Preliminary design roadworks and finished surface levels are shown on plan No. LM080082-RD24 A in Appendix A.

## 4. Services

# 4.1 Sewerage

Layout of the proposed sewerage reticulation is shown on plan No. LM080082-RD25 A in Appendix A.

The proposed sewerage system will be connected to the existing sewage pumping station located on the small lot at the south-western corner of the proposed medium density Lot B178. A desktop analysis of the system indicates that the pump station was sited and designed to pick up the future development (current proposal) with the connection point located at suitable depth and aspect. The total sewer load of the ultimate catchment will be in the vicinity of 290 equivalent tenements (ET); including approximately 90 ET from the existing development. The rising main servicing the existing pump station is of 150mm diameter and will be adequate to convey the ultimate flows.

The sewer system proposed for the subdivision will be a mixture of low pressure sewer and gravity sewer as indicated in the plan. To avoid trenching deeply into areas where the water table is shallow the far extremities of the estate will have a low pressure system (LPS) that connects to a traditional gravity system at suitable locations.

It is proposed that each lot serviced by LPS will be provided with a boundary kit at the connection point to the LPS main. The LPS pod (individual well and pump) will be installed and connected by the lot owner at the time of dwelling construction.

Sewage from the existing sewage pumping station is currently processed by the Brunswick Heads sewage treatment plant (STP), which is located north of the existing Bayside residential development and which discharges treated effluent into Simpsons Creek. This old STP cannot treat sewage to acceptable modern standards required to protect the water quality and environmental health of the Brunswick River Estuary. The Brunswick Heads STP will therefore be made redundant under

the Brunswick Area Sewerage Augmentation Scheme (BASAS) and all sewage from the Brunswick Heads area will be processed by the New Brunswick Valley STP, located at Mullumbimby. This new STP is designed to replace both the Brunswick Heads STP and the existing Mullumbimby STP, with modern technology designed to meet the population growth demands for both townships, whilst providing high quality effluent for reuse or discharge into the river at Mullumbimby.

Despite the fact that the new STP was designed to cater for the proposed subdivision, Byron Shire Council became concerned at the high level of inflow and infiltration of water into the Mullumbimby sewerage system in times of wet weather and have for some years had a moratorium on development in the catchment of the new STP.

This moratorium is the only reason that this submission is in the form of a Concept Plan rather than a Project Plan, because the moratorium would prevent approval of the latter.

The BASAS is almost complete, yet the moratorium has yet to be lifted. The agenda for Byron Shire Council Ordinary Meeting of 10 October 2010 contained the following Management Comment in regard to the moratorium: -

"... The report to the Advisory Committee noted that in November 2008 Council considered a notice of motion regarding the Mullumbimby inflow and infiltration situation and resolved in part:

That the Clause 45 moratorium currently in place in the Brunswick Valley catchment not be lifted until the Inflow/Infiltration levels measured in the Mullumbimby system do not exceed 5 X DWF during and after rainfall events. Monitoring to be conducted independent of Council.

Reports to Council in September 2009 and August 2010 have advised that the Brunswick Sewerage Augmentation Scheme when completed will be capable of collecting, transferring and treating sewage flows for all rainfall events up to the 1 in 20 year Average Recurrence Interval (ARI) event and possibly above.

A target level for the amount of inflow and infiltration into the Mullumbimby sewerage system is useful in the context of prolonging asset life and minimising energy costs. However, continuation of the Clause 45 moratorium in the Brunswick Valley on the basis of achieving a target level of inflow and infiltration is not warranted or recommended by management."

Even without the moratorium, it would be 2 to 3 years before final consent were obtained, detailed design completed, construction certificate consent obtained, construction carried out, subdivision plan registered, building approvals obtained and dwellings constructed and occupied. In light of this fact and the above comments by Council Management, we are hopeful that the moratorium will be lifted in the early part of 2011.

# 4.2 Water Reticulation

Water augmentation works were carried out as part of the first stage of the Bayside Brunswick development in the 1980s. The augmentation works allowed for a then estimate of approximately 500 ET for the complete Bayside Residential (then Village) Zone. Due to more recent environmental constraints, the final development yield will now be of the order of 350 ET. The water service infrastructure is therefore more than adequate to cater for the proposed development. Connection points for water mains of adequate size are available at the limits of the existing subdivision.

These assumptions will be confirmed by modelling that will be carried out at the detailed design stage.

# 4.3 Electricity

Underground electricity will be reticulated throughout the site. The local power supplier (Country Energy) has been aware of the Bayside Brunswick development since its inception in the 1980s and power will be available to the proposed lots. Ready connection points exist at the terminals of the streets in the adjoining established development.

## 4.4 Communications

Communications cables will typically be installed in a shared trench arrangement with the underground electricity cables. Similarly to Country Energy, Telstra has been aware of the Bayside Brunswick development since its inception and has planned for provision of communications to the development area. Ready connection points exist at the terminals of the streets in the adjoining established development.

# <u>4.5 Gas</u>

Gas is not available as a reticulated service at this site and no provision to install a network is required.

# 5. Lot Layout

# 5.1 Parks & Lifestyle Lots

Detailed dimensions and areas of all proposed lots are shown in plan No. LM080082-RD31 in Annexure A. It is intended that three parcels of land be in public ownership: -

### Lot P1 (Public Reserve)

This area of land of 1.012 ha contains an Endangered Ecological Community (EEC). It adjoins and drains into the land zoned 7(b) Coastal Habitat. It is essentially an adjunct to Lot P3 which contains all the conservation zoned land. It is intended to enhance the habitat value of this piece of land as compensation for some habitat that will be lost due to construction of the central drainage detention area within Lot P2. Properly enhanced, this lot should not be a maintenance burden for Council.

### Lot P2 (Drainage Reserve)

This area of land of 1.271 ha is required to accommodate the central drainage channel, main stormwater treatment basin and associated bioretention area. It will need to be in public (Council) ownership for maintenance purposes.

### Lot P3 (Public Reserve)

This area of land of 10.37 ha excluding road reserve contains all the 7(a) Wetlands Zone and 7(b) Coastal Habitat Zone. It also contains a small section of the land zoned 2(a) Residential in the south-western corner opposite proposed Lots B95 & B96. It is intended to provide a carpark in this corner and perhaps a picnic area adjacent to Simpsons Creek. Lot P3 will need to be in Council ownership for maintenance purposes and for best protection of the existing vegetation and habitat. Native vegetation is well established over the lot, with many mature old-growth trees and few weed species, so maintenance requirements should be minimal.

All the proposed public open spaces are subject to surveillance from the surrounding streets and lots and do not form areas likely to encourage criminal activity. The open space areas have been designed to be functional and to comply with the Crime Prevention Through Environmental Design guidelines published by the Department of Urban Affairs & Planning.

In order to minimise the maintenance burden on Council while protecting the remaining EECs and many of the trees of high conservation significance, it is intended to create two large lots, referred to as "Lifestyle Lots": -

### Lot B160

This lot is situated in the south-western corner of the *site* and contains an area of 0.94 ha. There is a satisfactory building envelope in the northern part of this lot, adjoining Road No. 1. The building envelope would be protected from bushfire by an APZ as shown on plan No. LM080082-DR21 B in Appendix A. Activities within the rest of the lot, south of the APZ, would be restricted by use of 88B Restrictions on Use and maintenance of the environmentally significant trees and the EECs would be encouraged by way of Positive Covenants.

### Lot B167

This lot is situated in the far western portion of the *site* and contains an EEC and many trees of high conservation significance. It is proposed to establish a building envelope in the south-eastern corner of this lot, adjacent to proposed Lot B166. The building envelope would be protected from bushfire by an APZ as shown on plan No. LM080082-DR21 B in Appendix A. Activities within the rest of the lot, north and west of the APZ, would be restricted by use of 88B Restrictions on Use and maintenance of the environmentally significant trees and the EEC would be encouraged by way of Positive Covenants.

# 5.2 Residential Lots, Dwelling Yield & Lot Character

Detailed dimensions and areas of all proposed lots are shown in plan No. LM080082-RD31 in Annexure A.

### Character of Existing Residential Area

The existing stages of Bayside Brunswick were created in the 1980s and 1990s, with the last residential subdivision plan being DP851902, which was registered on 11 August 1995. There are 132 conventional residential lots (Torrens Title), plus a small (11 lot) Community Title subdivision off Kingsford Drive opposite Ocean Way. All the lots are fully established. There are no medium density lots and there appear to be only three duplex lots. The total existing dwellings number 146 and most, if not all, are single storey brick and tile construction.

The latest subdivision (DP851902) created 66 residential lots with minimum area of  $450 \text{ m}^2$  and average area  $681 \text{ m}^2$ . Comparisons of the proposed subdivision pattern with that of DP851902 are set out below.

### <u>Character of Proposed Residential Subdivision</u>

Enquiries were made of Brunswick Heads Real Estate Agents in order to determine likely demand for various lot sizes and living options in the Bayside Brunswick development. Results of these enquiries can be summarised as follows: -

- There is a pent-up demand due to the fact that there have been no vacant lots available in the Brunswick Heads area for some years.
- Demand for medium density lots of any significant size is likely to be weak.
- Demand for lots in the range 450 m<sup>2</sup> to 500 m<sup>2</sup> should be solid.
- Demand for lots in the range 500 m<sup>2</sup> to 600 m<sup>2</sup> should be high.
- Demand for lots in the range 600 m<sup>2</sup> to 800 m<sup>2</sup> should be high.
- Demand for lots of greater area than 800 m<sup>2</sup> is likely to be moderate.

The Real Estate estimates of demand, the existing lot pattern, the desire to preserve as many trees of high conservation significance as possible, the engineering requirements for roads and servicing, lot orientation, access of sunlight, economic viability for both the developer and the end purchaser and input provided by local residents at the public consultation session held in the Lillypilly Community Preschool were all factors that were considered in the process of arriving at the final layout design.

It is proposed to create one medium density lot, Lot B 178 of 4967 m². This lot can accommodate 16 dwellings at 1 dwelling per 300 m². The location was chosen because it is isolated by street frontages on three sides from the other residential lots and it adjoins the 3(a) Business Zone on its other (western) side. It will be serviced by constructed footpaths and is close to the bus route and the neighbourhood park which adjoins the western boundary of the Business Zone. Demand for larger medium density lots is expected to be weak. This lot has the advantage of shape and road frontage to be readily subdivided into 3 or 4 smaller medium density lots should market forces so dictate.

A number of lots throughout the proposal have been made larger than would normally be the case, in order to preserve trees of high conservation significance. Examples of such lots are B7 and B172.

The configuration of the balance of the proposed lots was then created in accordance with the expected demand. All the lots within the smallest area range were created either facing true north (so as to maximise access to sunlight) or with open space adjoining at the rear so as to minimise any cramped feeling. All of these smaller lots have been created with a minimum frontage of 15 metres and all are rectangular. These factors ensure that conventional dwellings of reasonable size can be readily designed to fit on these lots.

### Comparison with Lots in DP851902

Set out below is a comparison between the pattern of the 66 residential lots created by DP851902 and the pattern of the 175 residential lots created by this proposal: -

Lot Area	DP851902	Proposal
450m <sup>2</sup> –500m <sup>2</sup>	11%	11%
500m <sup>2</sup> -600m <sup>2</sup>	3%	38%
$600 \text{m}^2 - 800 \text{m}^2$	75%	42%
<800m <sup>2</sup>	11%	9%

The average residential lot size in DP852092 is 681 m² compared to an average residential lot size of 616 m² in this proposal. Allowing for (say) 15 duplex dwellings, the yield from the 175 residential lots, medium density lot (16 dwellings) and 2 lifestyle lots, would be 208 dwellings. The area of the developable land, encompassing all these lots plus streets and the drainage reserve (P2) is 19.88 hectares, giving a yield of 10.6 dwellings per hectare. Considering the existing established development pattern, the environmental constraints and the amount of perimeter and other one-sided streets, this yield is considered to be adequate. The above statistics are shown in tabular form in plan No. LM080082-RD31 A in Annexure A.

# 6. Staging

In order to develop the land and release the lots in an orderly manner, it is proposed to carry out the development in stages. The proposed staging is shown in plan No. LM080082-RD30 A in Appendix A.

It is proposed to develop the land in four construction stages. In order to reduce the financial impact of Council per-lot contributions and the like and to avoid flooding the market, it is proposed that each of these construction stages would be divided into two releases, as shown in the plan. The construction stages have been designed so that earthworks, roadworks and servicing can progress in an efficient manner. The four construction stages are briefly described below: -

### Stage 1

In order to make the drainage work correctly, it is necessary to construct the central drainage reserve and its associated stormwater treatment basin in the first construction stage. The stage has also been designed to balance the earthworks cut and fill so that stockpiles and double handling can be minimised. Due to the expected pent-up demand, this stage has been designed to include more lots than in the later stages. Stage 1A will release 30 residential lots plus the medium density (16 dwelling) lot. Stage 1B will release 27 residential lots. Easements will be created over drainage lines and services as required.

### Stage 2

This stage has been designed to extend Kingsford Drive (east) so as to balance the new traffic generation and not funnel too much traffic onto Torakina Road until an alternative route is available. Its location also allows for completion of the central drainage reserve. Stage 2A will release 22 residential lots and Stage 2B will release 20 residential lots. Easements will be created over drainage lines and services as required.

### Stage 3

This stage has been located so as to allow construction of the connecting streets between stages 1 and 2. The major street pattern is then essentially complete and traffic flow will be enhanced. Stage 3A will release 22 residential lots and Stage 3B will release 23 residential lots.

### Stage 4

This stage will complete the development proposal by joining Kingsford Drive (west) to the new streets and constructing the eastern loop street. Completion of this stage will grant vehicular and pedestrian access to the proposed carpark and access to Simpsons Creek in the south-eastern corner of the development. Stage 4A will release 20 residential lots plus the 2 lifestyle lots and Stage 4B will release 11 residential lots. Easements will be created over drainage lines and services as required.

## 7. Conclusion

All environmental and engineering aspects have been considered in depth, including site constraints, geotechnical requirements, stormwater drainage and servicing. Various consultants' reports have been considered in the design process. These reports are all included in this Concept Plan submission. The final layout design of streets and lots was modified following input from local residents following a well-attended public consultation meeting held in the Lillypilly Community Pre-school adjoining the development site. These modifications were mainly concerned with directing existing overland drainage away from the existing occupied lots and re-configuring a few of the proposed lots so as to reduce the number of new neighbours adjoining some existing lots.

The lot pattern is consistent with the existing established residential area of Bayside Brunswick and with the predicted demand as estimated by local Brunswick Heads Real Estate Agents. The development footprint has avoided the identified Endangered Ecological Communities and the lot and street pattern have been designed to preserve a significant number of trees of high conservation significance.

The final dwelling yield is estimated to be 208, which will more than double the existing 146 dwellings in the Bayside Brunswick development. The final lot yield is satisfactory bearing in mind the environmental constraints

# Appendix A - Plans

DP871039

**Locality Plan** 

LM080082-EV3 A Zoning Plan

LM080082- EV4 A Aerial Overlay

LM080082-DR13 A Site Analysis Plan

LM080082-DR21 B Subdivision Lot Layout & Tree Retention Plan

LM080082-DR22 A Bulk Earthworks Concept Plan

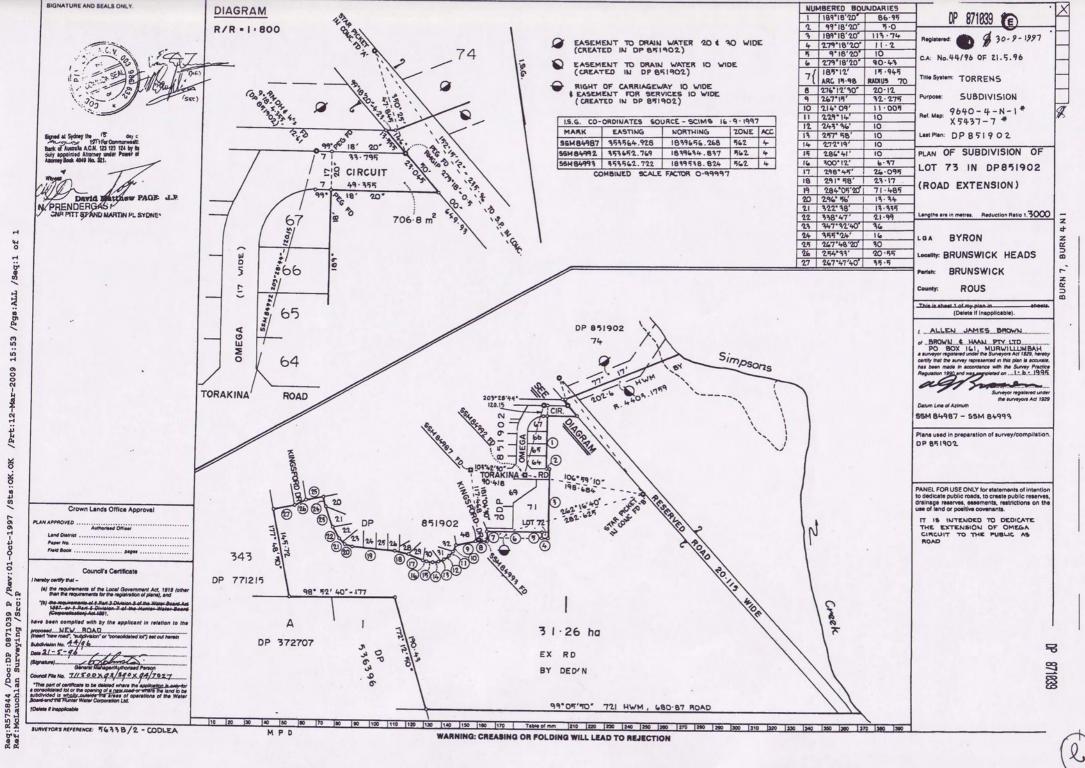
LM080082-DR23 A Stormwater Catchment & Concept Layout Plan

LM080082-DR24 A Roadworks & Levels Concept Plan

LM080082-DR25 A Water & Sewer Services Concept Plan

LM080082-DR30 A Proposed Staging Plan

LM080082-DR31 A Proposed Subdivision Lot Layout







200 0 200 400 600

Scale: 1:20,000 @ A3

Subject Site

### Source: Cadastre: Department of Lands 2008

The imagery used in this map is scanned aerial photography that has not been rectified. Any measurements should therefore be made with CAUTION as the accuracy is unknown.

Alignment of cadasrtral boundaries is approximate only.

Date: 29.07.09

Project: LM080082

# **LOCALITY MAP**

File: LM080082\_EV1A

Drawn: D

Appd: PR

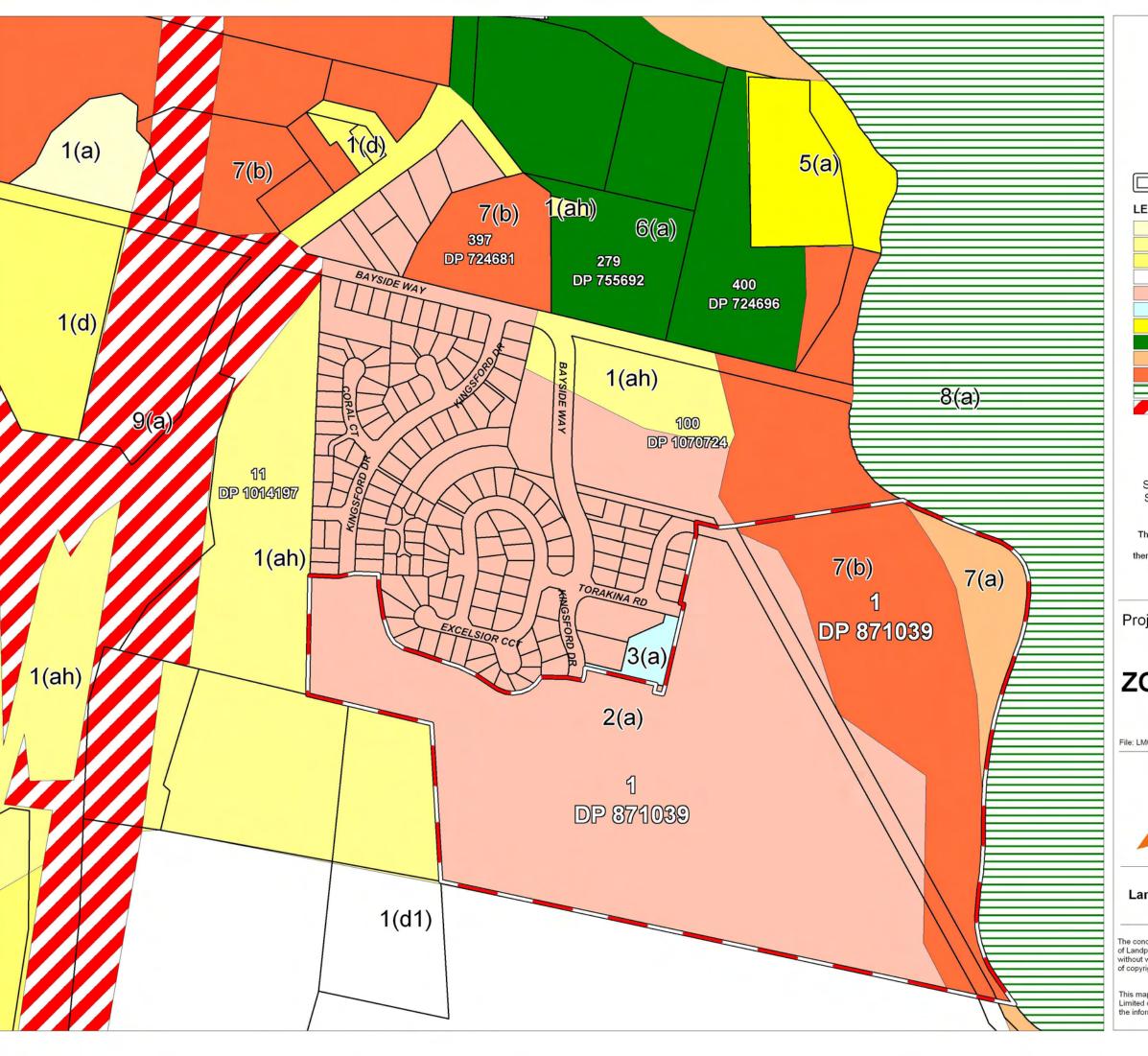


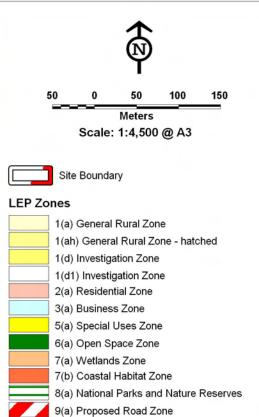
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### Source:

Cadastre: Department of Lands 2008 LEP Zones: Byon Shire Council 1988 SEPP14; Department of PLanning 2007 SEPP71:Department of PLanning 2005 Photography; Google Earth 2006

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Date: 13.08.09

Project: LM080082

# **ZONING**

File: LM080082\_EV3A

Drawn: DA

Appd: PR



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50 0 50 100 150

Scale: 1:4,000 @ A3

Cadastre
Subject Site

Source:

Cadastre: Department of Lands 2008 Photography; Department of Lands 2004

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Date: 16.09.09

Project: LM080082

# **SUBJECT SITE**

File: LM080082\_EV4A

Drawn: DA

Appd: PR

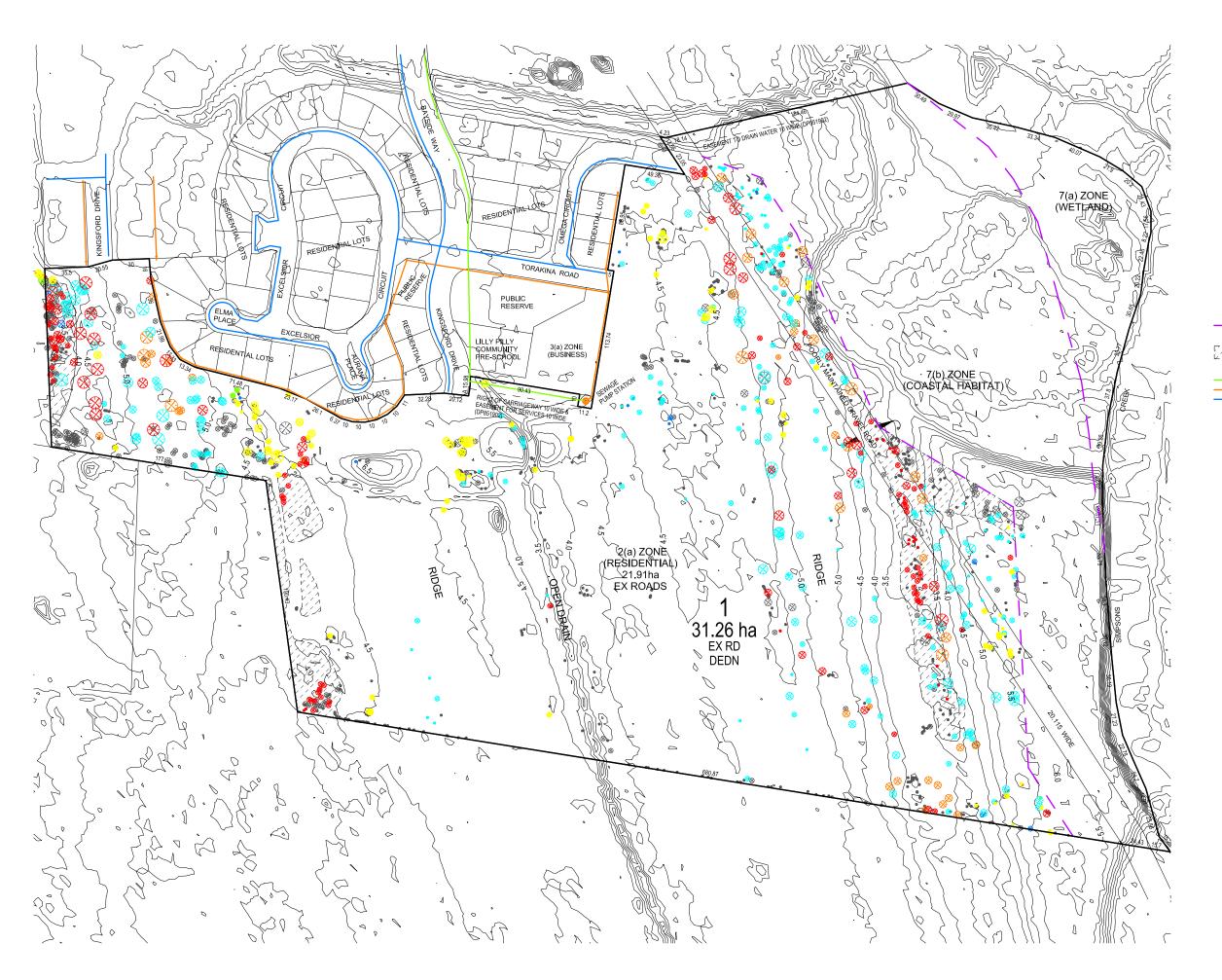


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# LEGEND TREES

Very High Conservation SignificanceHigh Conservation Significance

Moderate - High Conservation Significance
Moderate Conservation Significance Low - Moderate Conservation Significance

Support State 

Low Conservation Significance

No Conservation Significance Zoning Boundary

# 「フラー・ファー」 Very High Conservation Significance - EEC

Risingmain (approx) Gravity Sewer (approx)

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### **CODLEA Pty Ltd**

**BAYSIDE BRUNSWICK** PROPOSED URBAN SUBDIVISION BAYSIDE WAY, BRUNSWICK HEADS LOT 1 DP 871039

### SITE ANALYSIS PLAN

Contour Interval: 0.5m Existing
Scale: 1:1500 at A1 CAD file: LM080082-DR13A.dwg

Datum: AHD CiviCAD file: LM080082-Layout Design 150910.ccx



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### PROPOSED SUBDIVISION **BULK EARTHWORKS AND CUT/FILL CONCEPT PLAN**

Scale: 1:1500 at A1 Datum: AHD

CAD file: LM080082-DR22A.dwg

CivilCAD file: -



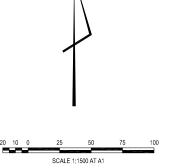
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### **CODLEA Pty Ltd**

**BAYSIDE BRUNSWICK** PROPOSED URBAN SUBDIVISION BAYSIDE WAY, BRUNSWICK HEADS LOT 1 DP 871039

### PROPOSED SUBDIVISION STORMWATER CATCHMENT AND CONCEPT LAYOUT PLAN

Scale: 1:1500 at A1

CAD file: LM080082-DR23A.dwg CivilCAD file: -

Datum: AHD



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Dwg. No. LM080082-DR23





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### **CODLEA Pty Ltd**

BAYSIDE BRUNSWICK PROPOSED URBAN SUBDIVISION **BAYSIDE WAY, BRUNSWICK HEADS** LOT 1 DP 871039

### PROPOSED SUBDIVISION **ROADWORKS AND LEVELS CONCEPT PLAN**

Scale: 1:1500 at A1

CivilCAD file: -

Datum: AHD



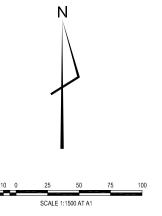
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LM080082-DR24





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### **WATER AND SEWER** SERVICES CONCEPT PLAN

Scale: 1:1500 at A1 Datum: AHD

CAD file: LM080082-DR25A.dwg

CivilCAD file: -



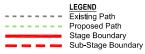
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### NUMBER OF LOTS





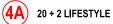
2A) 22



(3A) 22









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## **CODLEA Pty Ltd**

**BAYSIDE BRUNSWICK** PROPOSED URBAN SUBDIVISION **BAYSIDE WAY, BRUNSWICK HEADS** LOT 1 DP 871039

### PROPOSED STAGING PLAN

Scale: 1:1500 at A1 Datum: NA

CAD file: LM080082-DR30A.dwg

CivilCAD file: LM080082 Ver 5.ccx



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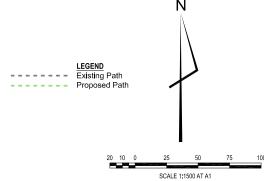
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LM080082-DR30







Land Budget					
Description	No	Area (ha)	% Total Area	Estimated Dwellings	
Public Reserve P1		1.012	3.2%		
Drainage Reserve P2		1.271	4.1%		
Public Reserve P3		10.366	33.2%		
Roads		5.674	18.1%		
Medium Density Lot	1	0.497	1.6%	16	
Lifestyle Lots	2	1.667	5.3%	2	
Residential Lots	175	10.773	34.5%	190	
	Totals	31.26	100.0%	208	

Usable Land (Medium Density, Lifestyle, Residential, Roads & Drainage Reserve) = 19.88ha Density is 10.5 dwellings per hectare

Residential Lot Mi	x			
Area Range	No	% of Total		
450m2-500m2	20	11.4%		
500m2-600m2	67	38.3%		
600m2-800m2	73	41.7%		
>800m2	15	8.6%		
	175	100.0%	Average Reside	ential Lot Area

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## **CODLEA Pty Ltd**

**BAYSIDE BRUNSWICK** PROPOSED URBAN SUBDIVISION **BAYSIDE WAY, BRUNSWICK HEADS** LOT 1 DP 871039

### PROPOSED SUBDIVISION LOT LAYOUT

Scale: 1:1500 at A1

Datum: AHD

CAD file: LM080082-DR31A.dwg

CivilCAD file: LM080082 Ver 5.ccx



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