

Section 2

General Requirements

This section details how the Project addresses the Director-General's Requirements detailed in the letter from the Department of Planning dated 23 January 2009, which are listed under the General requirements category. Each of the 10 requirements is paraphrased down the left of the page, for ease of reference.

2.1 Executive Summary

This Environmental Assessment has been prepared by S J CONNELLY CPP PTY LTD and the Petersen Consulting Group for Sandy Beach Mill Pty Ltd.

The EA has been prepared following the receipt of Director-General's Environmental Assessment Requirements, which were provided in response to the lodgement of a Preliminary Environmental Assessment and Project Application for a Major Project (the Project) at Sandy Beach, within the Coffs Harbour Local Government Area.

The Project includes the creation of 42 Torrens title residential allotments, a public reserve (park) adjoining Double Crossing Creek and associated infrastructure, on the northern portion of Lot 260 DP1110719.

Lot 260 DP1110719 (which contains the site) is located approximately 20km north of the Coffs Harbour City Centre and 3km south of the Woolgoolga Town Centre. It is relatively flat, and contains a mix of forest and riparian vegetation along its northern boundary along Double Crossing Creek, with scattered trees in other locations. It has an area of 7.89 hectares and has a frontage of 284.5m to Graham Drive.

Two unsealed access roads that once served the sawmill and dwelling houses previously located on it extend across the land. The site is shown in better detail in **Plan 2 - Existing Site Survey Plan** and **Plan 3 - Aerial Photograph** both found below.

On the 19 February 2008 Coffs Harbour City Council issued Development Consent 508/07 for a staged development incorporating the site. Stage 1 of this development involved the creation of 24 Torrens title residential allotments, as well as a

residue allotment – being the remainder of Lot 260 DP1110719 – upon which the Project is proposed (Stage 2).

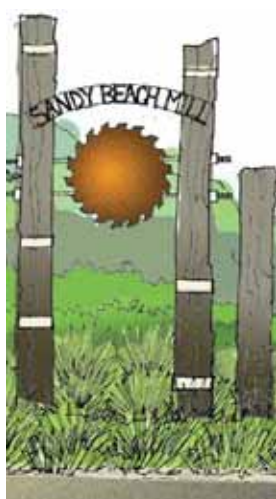
Stage 2 (the Project), included the creation of 42 Torrens title residential allotments as well as land to be dedicated to Council as a public reserve (park), incorporating part of Double Crossing Creek.

The Project is the second (and final) stage of the residential subdivision of Lot 260 DP1110719, and remains consistent with the concept given consent under Development Consent 508/07, with the exception of the consolidation of then proposed residential allotments 30 and 31. It is to be constructed following the commencement of Stage 1, in this regard services such as reticulated water, sewer, electricity and telecommunications will be extended from Stage 1 to the Project; while the roads within Stage 1 will provide access to Graham Drive.

The road layout within the Project is a simple square grid, with a perimeter road proposed separating the residential component of the Project from the public reserve (park); Double Crossing Creek which is located within this public reserve (park), is the focus for the Project.

The proposed allotments are to be Torrens title, and all are regular in shape, and of a size so as to ensure that each might easily accommodate a dwelling house.

The site was formerly used as a sawmill. Remediation works have commenced on the site in order for it to be used for residential and recreational (public reserve (park)) purposes, and in this regard a site audit statement prepared by a site auditor accredited under the Contaminated Land Management Act 1997 is being prepared. This statement is required via a deferred commencement condition applying to Development Consent 508/07 issued for Stage 1. It is anticipated that approval of the Project will include a similar requirement/condition. The Project includes a Draft Statement of Commitment which provides that the site will be remediated prior to its further development.



Traffic from the Project will ultimately require access to the Pacific Highway via Graham Drive; a Traffic Impact Study demonstrates that this intersection is capable of accommodating the additional traffic generated by the Project.

The site is bushfire prone, and the Bushfire Hazard Assessment Report prepared for the Environmental Assessment

demonstrates that certain allotments will need future dwelling houses constructed to a 'Level of Construction' 1 standard under AS3959-1999, with the remainder of allotments (dwelling houses) not required to meet any particular Level of Construction.

A Traffic Noise Assessment for the Project demonstrates that certain allotments will be affected by traffic noise. Mitigation measures including an acoustic mound and fencing are to be constructed to address this, with a covenant to be prepared requiring the preparation of an acoustic report prior to the issue of development consent for any future dwelling on one particular allotment.

A Water Quality Assessment prepared for the site demonstrates that the range of water sensitive urban design measures proposed will adequately treat stormwater generated by the Project, prior to its discharge to Double Crossing Creek. Proposed measures include the construction of a bio-retention basin within the public reserve (park).

Investigations into groundwater impacts show that the Project is unlikely to have any adverse impact on groundwater; the installation and monitoring of groundwater wells has occurred as part of the remediation of the site.

A Preliminary Cultural Heritage Assessment has been prepared for the Project. This Assessment recommends that no further cultural heritage assessments (e.g. site inspection, cultural heritage survey) are required for the Project. As well, the Assessment provides that the site does not have any non-Indigenous cultural heritage value.

Testing for acid sulfate soils indicates that soils are unlikely to have pyritic sulfur, but contain organic sulfur. The results suggest that the soils are unlikely to be acid sulfate soils. Notwithstanding, low pH values were obtained for the alluvial soil at 0.5m depth along the eastern part of the site. On this basis it has been recommended that treatment as a precautionary measure should be carried out. In addition, residual soils were found to be high acidity soils, and on this basis treatment of these soils (liming) is proposed.

An Acid Sulfate Soils Management Plan has been prepared for the Project.

Servicing (reticulated water, sewer, electricity and telecommunications) are all to be extended to the Project from Stage 1 of the wider Sandy Beach Mill residential subdivision.

The site does not have any particular geotechnical limitations, and the assessment completed in this regard provides a number of recommendations to be adhered to in developing the site.

A Flood Assessment has been completed which deals with flood risk and the impacts of sea level rise and an increase in rainfall intensity.

The Flood Assessment provides that:

- The 100-year ARI is contained in the channel of Double Crossing Creek while the PMF surcharges the bank (Low Flood Risk Zone); and
- Under climate change rainfall intensity increases greater than 10%, the 100-year ARI flood is expected to overtop the bank of Double Crossing Creek and flow through the site (remaining as a Low Flood Risk Zone).

Having regard to a high climate change scenario, two strategies present themselves, that being the imposition of a minimum floor level for dwellings combined with some site filling; or, imposition of minimum floor levels with the construction of a levee. The latter strategy requires particular consideration in terms of draining stormwater from the site, and in this regard the first strategy is recommended. Both strategies have off-site impacts in the form of a small increase in future climate flood levels of up to 50mm off site.

A Flora and Fauna Survey of the site has been undertaken, and concludes that the impact of the Project would not have a significant effect on threatened species, populations, ecological communities or their habitats due to the disturbed nature of the site and the preservation of remnant vegetation and habitats of conservation significance, fronting Double Crossing Creek.

The Survey further provides that the restoration works commenced in 2005 are showing great promise in re-establishing wildlife connections to Hearn Lake and to the hinterland, and that the Project will continue these conservation initiatives.

The Project is anticipated by various planning documents (including the Mid North Coast Regional Strategy and the Hearn Lake/Sandy Beach Development Control Plan), and has been designed having particular regard to the detailed controls of the latter document. In this regard the Project responds to the opportunities and constraints of the site, and represents a

sensible and sustainable addition to the existing village of Sandy Beach.

2.2 Scope of the Project



On the 19 February 2008 Coffs Harbour City Council issued Development Consent 508/07 for a staged development incorporating the site (**Appendix B**). Stage 1 of this development involved the creation of 24 Torrens title residential allotments, as well as a residue allotment – being the remainder of Lot 260 DP1110719 – upon which the Project is proposed (Stage 2).

Stage 2 (the Project), included the creation of 43 Torrens title residential allotments as well as land to be dedicated to Council as a public reserve (park), incorporating part of Double Crossing Creek.

The Project is the second (and final) stage of the residential subdivision of Lot 260 DP1110719, and remains consistent with the concept given consent under Development Consent 508/07, with the exception of the consolidation of residential allotments 30 and 31. It is to be constructed following the commencement of Stage 1, in this regard services such as reticulated water, sewer, electricity and telecommunications will be extended from Stage 1 to the Project; while the roads within Stage 1 will provide access to Graham Drive.

The **Subdivision Plan** in **Plan 4** below shows both Stage 1 and the Project, with Stage 1 shown to give context to the Project.

As is apparent from the **Subdivision Plan**, the Project involves the extension of the three north-south roads approved in Stage 1, with the western and eastern roads looping (Road 1) at the northern end of the site to form a perimeter road to the proposed public reserve (park).

The central road (Road 3) is continued northward from Stage 1, to intersect with this loop road.

The road layout is a simple square grid, with an east-west lane (Road 2) provided in the northern part of the site, giving rear lane access to Lots 32-41. The intention of the road layout is to provide a vista to Double Crossing Creek from most parts of the estate and to provide a safe, efficient and legible road network for residents and visitors.



- Stage 2 Sandy Beach Mill
- Lot 260 DP 1110719
- Internal road
- Existing indigenous planting
- Revegetation planting
- Existing site trees
- Avenue of street trees
- Groups of trees



- Feature tree
- Shade tree
- New Eucalyptus planting
- New Casuarina planting
- Shrub/groundcover
- Turf
- 1.2 metre pathway
- Pedestrian bridge



- Boulders/planting to swale
- Pavement
- Pedestrian zone
- Play equipment with softfall
- Picnic shelter
- Timber elements
- Bikeway as per DCP

North
0 50m
1:2500 @ A4

Source: SEE Report, S J Connelly Oct 2006 - Figure 7A
Date: July 2009
1184-328

Plan 4

SUBDIVISION PLAN

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Coupled with the allotments in Stage 1, the varied allotment size is expected to provide for a varied social mix within the estate, with sizes (in the Project) ranging from 410m² – 1360m². It is anticipated that the majority of allotments will be purchased by first homeowners, having regard to the site's location and characteristics.

The proposed allotments are to be Torrens title, and all are regular in shape, and of a size so as to ensure that each might easily accommodate a dwelling house.

Table 1 – Allotment Characteristics (below) details the staging of the wider Sandy Beach Mill estate, as well as the sizes of proposed allotments within the Project.

Table 1 – Allotment Characteristics.

Allotment	Area (m ²)	Special Characteristics
Stage 1	N/A.	N/A.
Lots 1-24	N/A.	N/A.
Stage 2 (the Project)		
25	925	
26	900	
27	870	
28	845	
29	815	
30	N/A	This allotment consolidated with Lot 31 ¹ .
31	1360	
32	450	Rear lane access
33	410	Rear lane access
34	410	Rear lane access
35	410	Rear lane access
36	450	Rear lane access
37	450	Rear lane access
38	410	Rear lane access
39	410	Rear lane access
40	410	Rear lane access
41	450	Rear lane access
42	625	Access to minor road (north)
43	625	Access to minor road (north)
44	720	
45	720	
46	720	
47	720	
48	800	
49	800	
50	800	

¹ Lot 30 was shown in the Preliminary Environmental Assessment, but has since been consolidated with Lot 31, given that the majority of it was zoned Environmental Protection 7A Habitat and Catchment.

51	800	
52	640	
53	640	
54	640	
55	630	
56	630	
57	640	
58	640	
59	640	
60	640	
61	640	
62	640	
63	630	
64	630	
65	640	
66	640	
67	640	
Public Reserve (Park)		Dedicated to Coffs Harbour City Council

The residential component of the Project has been setback from Double Crossing Creek in order to maintain a riparian buffer, to avoid flood prone land, and to allow for Asset Protection Zones. The perimeter road separating housing and the public reserve (park) will ensure that undesirable 'edge effects' to the public reserve (park) and Double Crossing Creek are avoided.

Access to the Project is via the road network in Stage 1; Stage 1 includes a single access point to Graham Drive, with Type BA intersection which can meet the required stopping sight distances.



In terms of access, Road 3 has a reserve width of 24m, designed to provide for bio-retention facilities and provide a central boulevard to Double Crossing Creek. Road 1 has a road reserve of 18m, while Road 2 has a width of 5.5m.

Two allotments will have access to Road 1 via a connecting driveway (Lots 42 and 43).

The Project includes the continuing rehabilitation of Double Crossing Creek. This involves replanting and maintaining native species, and weed removal in the riparian zone.

The rehabilitation measures already approved involve a series of strategies to maintain bank stabilisation, remove large areas of weed growth and reinstate indigenous riparian vegetation. Strategies include leaving a 3 to 5 metre corridor of weed growth at the base of Double Crossing Creek to maintain bank stability and act as a stormwater filter. Beyond this corridor,

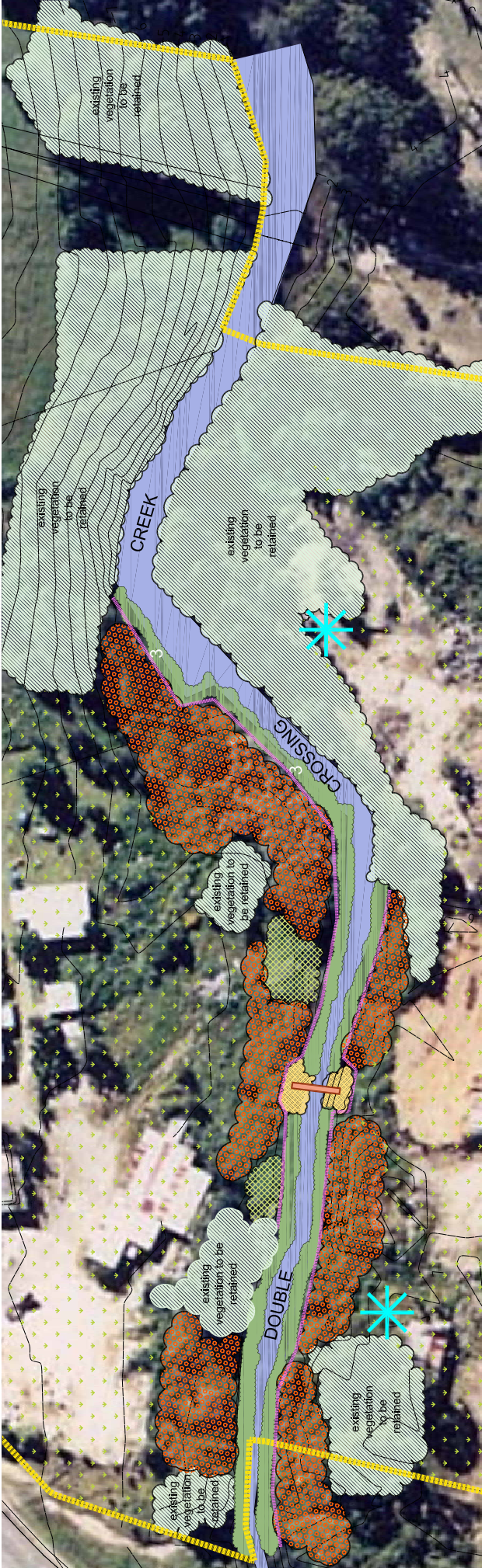
under storey weeds such as lantana will continue to be removed, and areas mulched and replanted with tubestock of native tree and under storey species. Creek rehabilitation will incorporate ongoing weed control to allow revegetation areas to become dominant over weedy areas. At particularly steep locations, a stabilisation mat (i.e. geofabric) is to be utilised with the matting pinned to the banks and holes cut for revegetation planting. These measures are outlined in **Plan 5 - Concept Vegetation Management Plan** below.

It is proposed to construct a playground within the public reserve (park), which comprises:

- Playground equipment; and
- Picnic shelters, seating and BBQ.

A pedestrian footbridge spanning Double Crossing Creek and located centrally in the public reserve (park) was proposed at the time Development Consent 508/07 was issued, and at that time, the northern property was in the ownership of SBM. Since then, the property has been sold. Given the differing ownership of the site and the northern adjoining property, it remains to be seen whether the footbridge might be able to be constructed as a matter of practicality. In this regard the northern property might never develop (or develop at a time different to that of the site). In addition, a cycleway is proposed across Double Crossing Creek, on the property adjoining the site to the east. The necessity for a pedestrian footbridge from the site to the northern adjoining property may now be unnecessary. Notwithstanding, and in order to properly address the DGR's, a specification for the pedestrian footbridge is included in **Appendix C**, with the location of the footbridge shown on **Plan 4 (Subdivision Plan)** and **Plans 6 and 7 Landscape Plans** below; and, in order to facilitate the construction of the footbridge, a sum of \$50 000 is proposed to be paid to Coffs Harbour City Council.

The lump sum amount of \$50 000 is to be paid at the time the public reserve (park) is dedicated to Coffs Harbour City Council. This payment is to be refunded (to SBM) 5 years from the date of payment, if the pedestrian footbridge has not been constructed within the 5 year time frame.



Legend

- site boundary
- existing vegetation to be retained
- strategy 1 - weed removal & revegetation
- strategy 2 - weed removal & revegetation
- strategy 3 - creek stabilisation
- strategy 4 - grass seeding
- strategy 5 - weed removal & creek stabilisation
- silt fence
- sites to be remediated

Use figured dimension in preference to scales
Please notify the Landscape Architect before proceeding if any anomaly is found between this drawing and conditions on site.

AMENDMENTS			Initial
Issue	Date	Details	
A	20.06.06	client review	JA
B	06.05.07	remediation sites indicated	JA



1:1000 @ A3
Source: Jackie Amos Landscape Architect (0603-03 Issue B)
Date: June 2009
1184-398

CREEK REHABILITATION STRATEGIES

- Strategy 1**
At accessible, stable locations weeds are to be removed using an excavator with mulcher attachment. Mulched material to be left on ground as cover. Revealed piles of topsoil to be levelled to fill any exposed holes on the banks and to create even batters for planting. Cleared areas to be replanted with tubestock of native riparian species.
- Strategy 2**
At locations where there are weeds with deeply established root systems (e.g. areas of Cane Grass & Coral trees) weeds are to be cut at ground level using an excavator with mulcher attachment or chainsaw. Stumps to be painted/sprayed with Landcare recommended treatment/chemical. Cleared areas to be revegetated with tubestock planting of native riparian species.
- Strategy 3**
Retain a 3 to 5 metre corridor of existing groundcover weeds on the lower creek bank or area immediately adjacent to the creek invert to provide a planted buffer to runoff and to maintain creek bank stability. Revegetation areas are to be established above this zone with an access left between the weed & revegetation areas to allow for the control of weeds. Individual tubestock planting of riparian trees will be located at any gaps in the weed corridor.
- Strategy 4**
Exposed areas beyond the creek banks are to be grass seeded. Prior to seeding rip areas along the contours to minimise stormwater runoff allow riplines.
- Strategy 5**
Existing steel footbridge is to be removed as part of demolition works. Install pinned hessian or similar product at locations where removal of bridge leaves banks exposed. Cut holes in stabilising fabric and plant with native riparian grasses and groundcovers.
- GENERAL STRATEGIES**
Install silt fence above the retained corridor of weeds.
Revegetation areas to be mulched with fibrous native mulch to assist in stabilising & retaining mulch to planted areas
NOTE: The locations of strategies indicates the preferred strategy to be used at each location. Some minor adjustments may need to occur on site as to the location of particular strategies as works progress and the extent and nature of weeds is revealed.

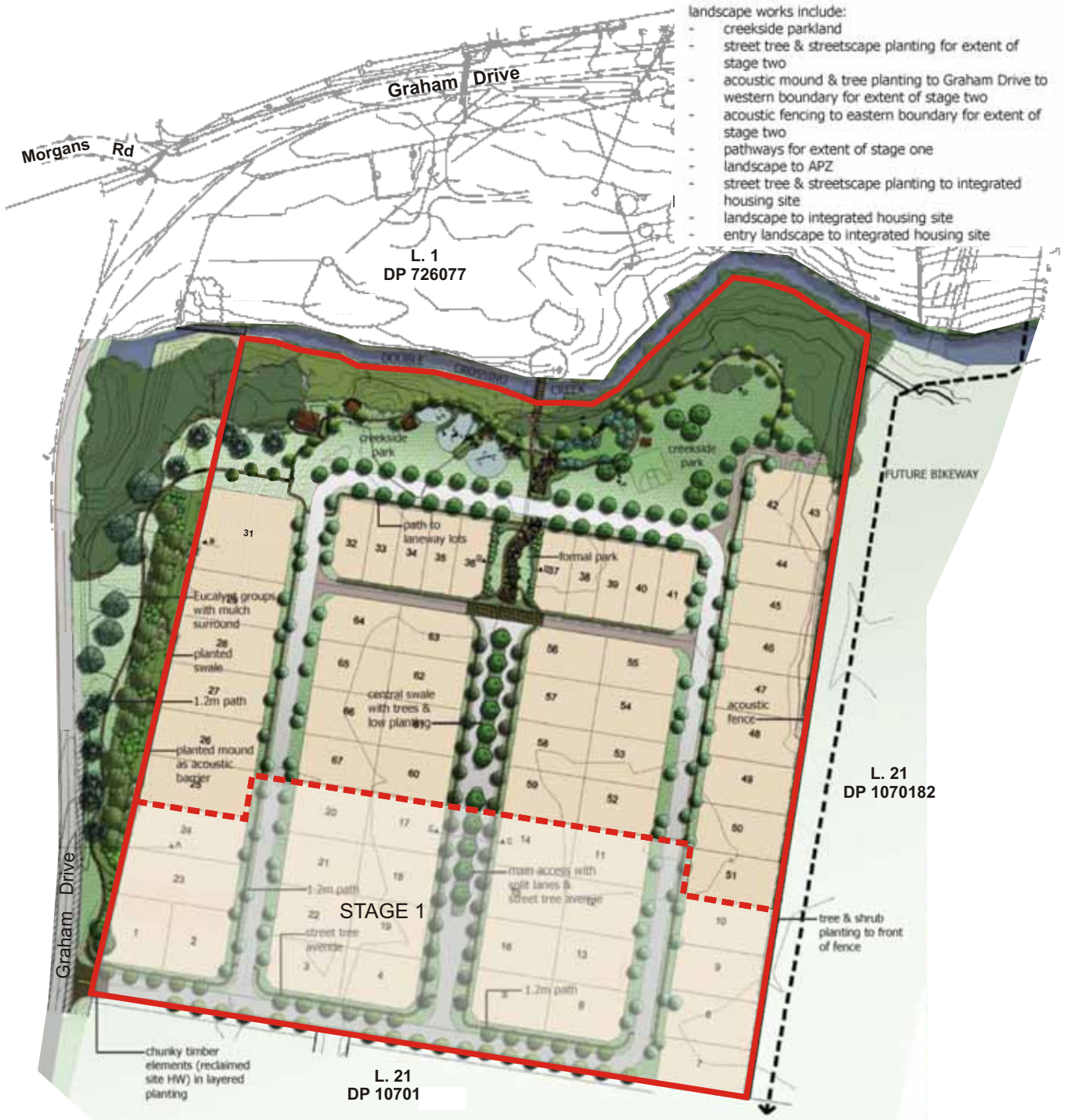
Botanical Name	Common Name
Trees & Shrubs	
Narrow-leaved Lilly Pilly	
Acmena smithii	
Alphitonia excelsa	Red Ash
Callistemon saligna	Pink Tipped Bottlebrush
Cassinia littoralis	Black She-Oak
Decaspermum humile	Silly Myrtle
Eucalyptus microcorys	Tellwood
Eucalyptus grandis	Flooded Gum
Eucalyptus propinqua	Small fruited Grey Gum
Eucalyptus robusta	Swamp Mangrove
Fraxi coronata	Sandpaper Fig
Glochidion fedrandsi	Cheese Tree
Jacksonia scoparia	Dogwood
Lepidospermum laevigatum	Coast Tea Tree
Lophosiphon confertus	Brush Box
Lophosiphon tuacensis	Swamp Turpentine
Melaleuca quinquevenerata	Black-leaved Paperbark
Sarcopharyx stipata	Sealwood
Syzygium australe	Scrub Cherry
Syzygium oleum	Blue Lilly Pilly
Tristanopsis laurina	Water Gum
Groundcovers	
Baumea acutata	Jointed Twiggrass
Blechnum indicum	Swamp Water Fern
Carex appressa	Tall Sedge
Cirsium setosica	Water Vine
Cirsium perfoliatum	Swamp Lily
Danthonia ciliolata	Flax Lily
Eriochloa acida	Common Spike-rush
Eriophorus latifolius	Worried Berry
Gahnia aspera	Red fruited Saw Sedge
Gehringia cymosum	Scrambling Lily
Hardenbergia violacea	Fine Sanpawilla
Juncus unguis	Common Rush
Lomandra hystrix	Mat Rush species
Lomandra longifolia	Mat Rush
Phylidion longirostrum	Woody Flag-rush

Jackie Amos Landscape Architect 2006
s drawing must not be relied upon for any
purpose other than that for which it was prepared
and is not to be used for or incorporated into any
third client.

Jackie Amos Landscape Architect

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Stage 2 Sandy Beach Mill
 Lot 260 DP 1110719
 Internal road
 Existing indigenous planting
 Revegetation planting
 Existing site trees
 Avenue of street trees
 Groups of trees



Feature tree
 Shade tree
 New Eucalyptus planting
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 1.2 metre pathway
 Pedestrian bridge



Boulders/planting to swale
 Pavement
 Pedestrian zone
 Play equipment with softfall
 Picnic shelter
 Timber elements
 Bikeway as per DCP



Source: SEE Report, S J Connelly Oct 2006 - Figure 7A & 7C
 Date: July 2009
 1184-328

Plan 6

LANDSCAPE PLAN - I

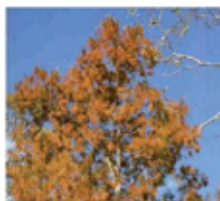
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Double Crossing Creek revegetation

Acacia melanoxylon	Blackwood
Acmena smithii	Lilly Pilly
Alphitonia excelsa	Red Ash
Angophora costata	Smooth Barked Apple
Callistemon viminalis	Weeping Bottlebrush
Carex appressa	Tall Sedge
Casurina cunninghamiana	River Oak
Casuarina glauca	Swamp She-Oak
Casuarina littoralis	Black She-Oak
Cordyline stricta	Narrow leaved Palm Lily
Dianella caerulea	Flax Lily
Corymbia intermedia	Pink Bloodwood
Eucalyptus grandis	Flooded Gum
Eucalyptus microcorys	Tallowwood
Eucalyptus pilularis	Blackbutt
Eucalyptus robusta	Swamp Mahogany
Ficus coronata	Sandpaper Fig
Gahnia sieberiana	Sedge
Leptospermum juniperinum	Prickly Tea Tree
Lomandra longifolia	Mat Rush
Lomandra hystrix	Long-leaved Mat Rush
Lophostemon confertus	Brush Box
Melaleuca quinquenervia	Broad-leaved Paperbark
Pultenea villosa	Hairy Bush Pea
Syncarpia glomulifera	Turpentine
Syzygium oleosum	Blue Lilly Pilly
Tristaniopsis laurina	Water Gum



Syzygium oleosum



Casuarina littoralis



Casuarina cunninghamiana



Eucalyptus microcorys



Eucalyptus grandis



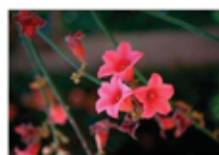
Syncarpia glomulifera

Streetscapes & Entry

Acmena smithii	Lilly Pilly
Buckinghamia celsissima	Ivory Curl Tree
Brachychiton acerifolius	Flame Tree
Brachychiton discolor	Lacebark Tree
Castanospermum australe	Black Bean
Dianella revoluta	Flax Lily cultivar
Elaeocarpus reticulatus	Blueberry Ash
Eucalyptus ptychocarpa	Summer Beauty
Flindersia australis	Crows Ash
Harpullia pendula	Tulipwood
Lophostemon confertus	Brush Box
Lomandra hystrix	Long-leaved Mat Rush
Syzygium jambos	Rose Apple
Tristaniopsis laurina	Water Gum
Xanthostemon chrysanthus	Golden Penda



Brachychiton acerifolius



Brachychiton discolor



Harpullia pendula



Syzygium jambos



Xanthostemon chrysanthus



Elaeocarpus reticulatus

Creekside Park

Acmena smithii	Lilly Pilly
Carex appressa	Tall Sedge
Backhousia citriodora	Lemon Scented Myrtle
Backhousia myrtifolia	Grey Myrtle
Grevillea robusta	Silky Oak
Jacksonia scoparia	Dogwood
Leptospermum polygalifolium	Yellow Tea Tree
Syzygium oleosum	Blue Lilly Pilly
Syzygium luehmannii	Riberry
Tristaniopsis laurina	Water Gum



Backhousia myrtifolia



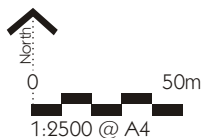
Jacksonia scoparia



Grevillea robusta



Backhousia citriodora



Source: SEE Report, S J Connelly Oct 2006 - Figure 71

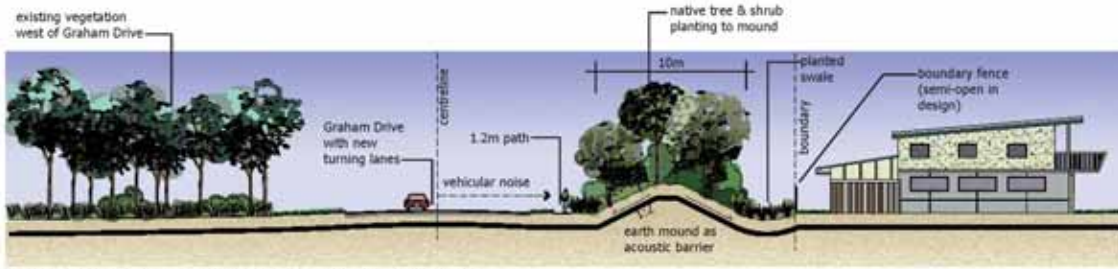
Date: July 2009

1184-328

Plan 7

LANDSCAPE PLAN - II

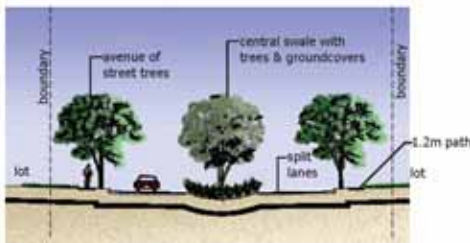
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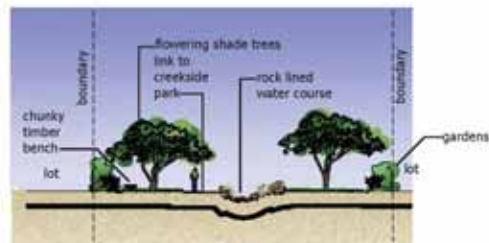
A Typical Section - Graham Drive interface & acoustic mound



B Typical Section - Graham Drive vegetation & acoustic mound



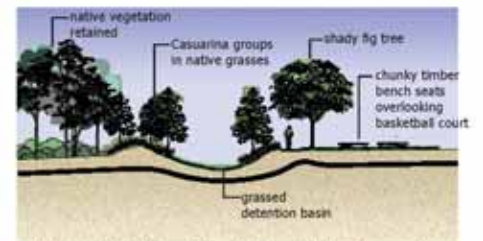
C Typical Section - main internal road



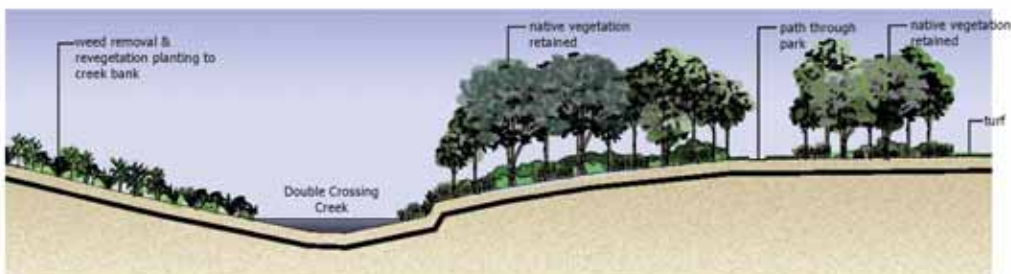
D Typical Section - formal park



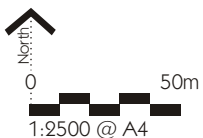
E Typical Section - Double Crossing Creek & pedestrian bridge



F Typical Section - Creekside park & stormwater detention area



G Typical Section - Creekside park & remnant vegetation



Given that the Project in part relies on the commencement of Stage 1 of the wider SBM residential development, it is prudent to note that Stage 1 includes:

- Entry Statement;
- Bus shelter;
- Cycleway connections; and
- Acoustic fence along the western edge of the site within the Graham Drive road reserve.

2.3 Site Analysis

A site analysis involves an assessment of the constraints and opportunities for the development of the land. The main constraints affecting the site and its development include:

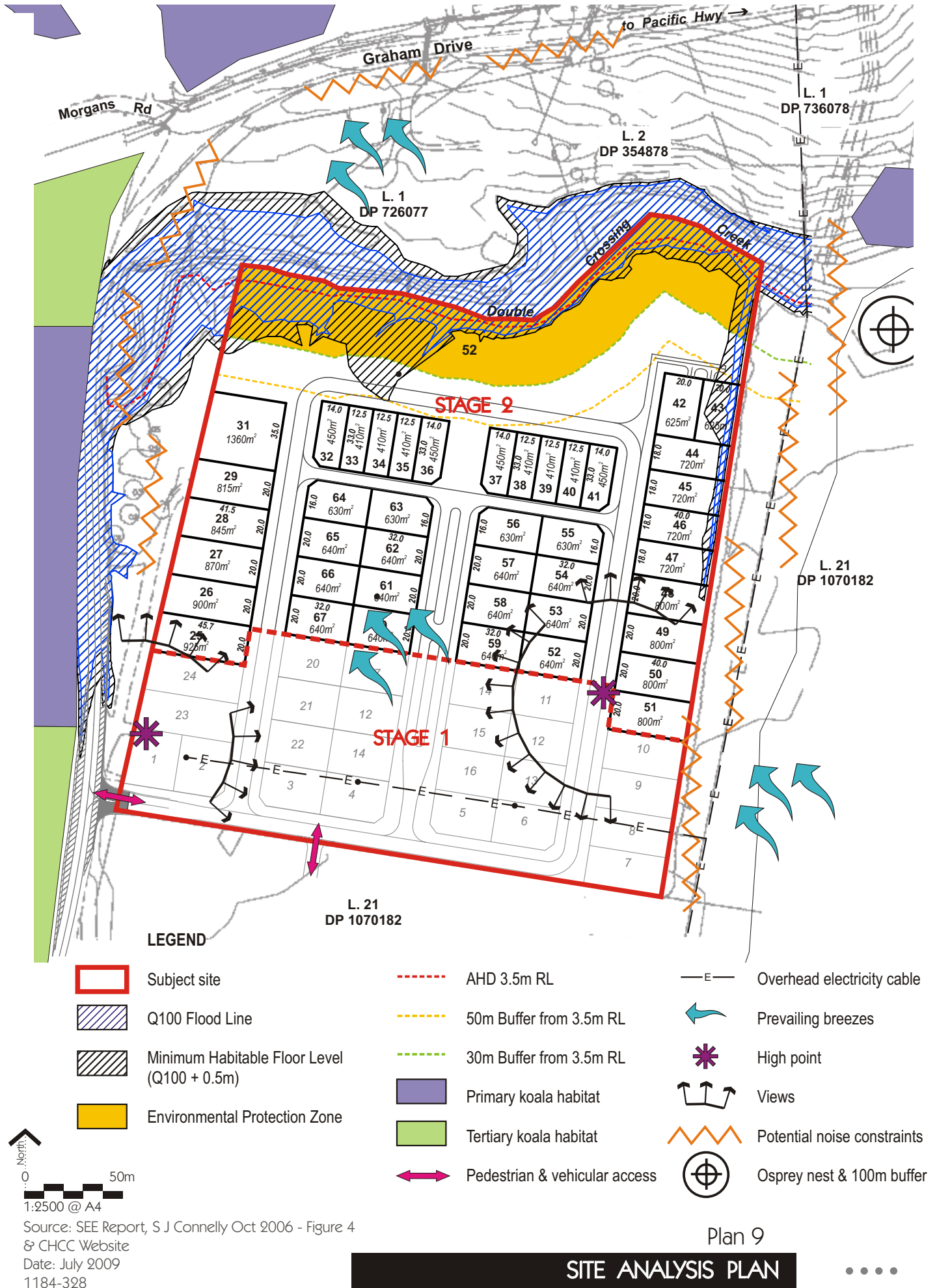
- flood levels;
- creek buffer;
- traffic noise (Pacific Highway and Graham Drive);
- access standards;
- soil characteristics;
- flora and fauna habitat;
- water main easement;
- bushfire hazard;
- proposed nearby low scale housing; and
- planning controls.

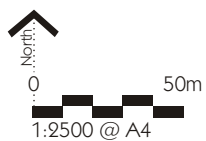
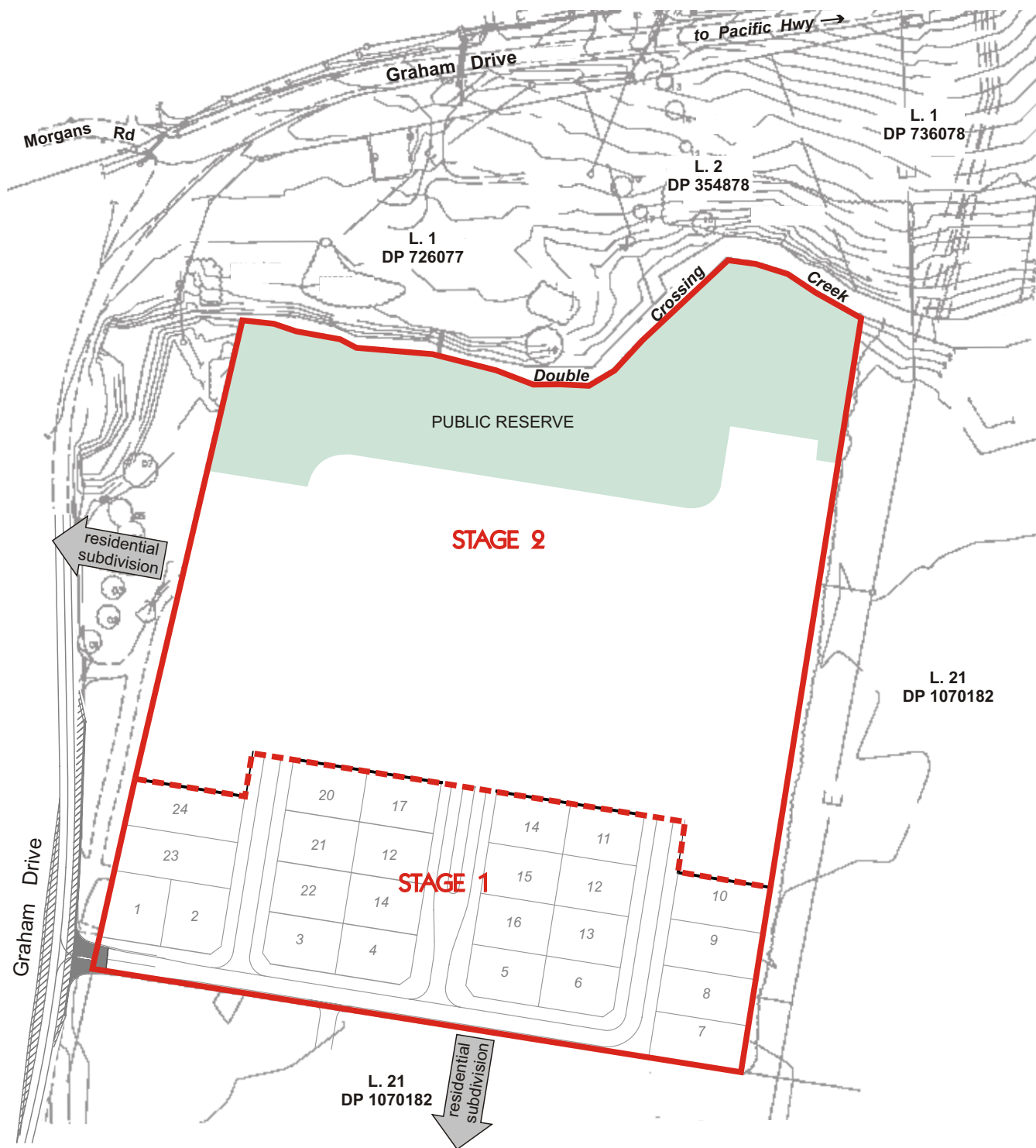
The main opportunities relate to:

- creek side setting;
- flat nature of the land;
- solar access;
- pedestrian/cyclists connections;
- history of sawmill;
- adjoining bushland;
- proximity to beach, lake, primary school; and
- potential for low density housing mix.

A **Site Analysis Plan** is shown in **Plan 9** below, which details these constraints and opportunities. These constraints and opportunities have been used to shape the Project, as has the context of the site (**Plan 10 - Locality/Context Plan**).

The main design issues that arise from the site analysis are the relationship with the future development to the south; integration with the setting of Double Crossing Creek; and, the management of water.





Source: Petersen Consulting Group
Date: July 2009
1184-328

Plan 10
LOCALITY / CONTEXT PLAN

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The alignment of Graham Drive dictates that a single access point for a collector road located as far away from Morgans Road as possible should be provided. The collector road can also conveniently service properties to the south of the site.

The site is largely flat and featureless with the exception of Double Crossing Creek which serves as the dominant natural feature. A layout that is orientated to Double Crossing Creek will contribute to creating an important sense of place within this relatively benign landscape. Moreover, the Creek's poor state presents an opportunity for rehabilitation and restoration of riparian vegetation.

The management of water within and through the site is important for the protection of the ecological integrity of Hearn's Lake and the Solitary Islands Marine Park generally. A major challenge in the urbanisation of the land is to manage water so the development of the land has a neutral or beneficial impact upon receiving waters. Adopting an upfront water sensitive urban design approach involving the collective input of urban design and water management expertise, ensures the best possible solutions are achieved. The flat nature of the site lends itself to having a treatment train of water quality measures that allow the gradual and sequential detention and filtering of stormwater.

2.4 Planning Provisions



Environmental Planning and Assessment Act (the Act) and Regulations

The Project is one to which Part 3A of the Act applies. Previously (prior to recent amendment), it fell within the coastal areas part of Schedule 2 (section 1(j)(i)) of State Environmental Planning Policy (Major Projects) 2005, and was declared to be a Major Project by the Minister on the 20 October 2008. The approval of the Minister under Division 2 of Part 3A of the Act is sought for the Project.

For background purposes, Development Application 508/07 relates to the site and was granted development consent by Coffs Harbour City Council on the 19 February 2009. The application was a "staged development application" in accordance with Division 2A of the Act, and "concept" approval was sought for the Project (Stage 2). In this regard Development Application 508/07 provided:

"The proposal is for the staged development of the subject land for residential development as described in Section 3 of this document and pursuant to Section 83A of the (EPA Act,

1979). In accordance Section 83B of the Act, the application sets out the concept proposals for the development of the whole site and includes detailed proposals for Stage 1 of the development. In accordance with Section 83C of the Act, a formal request is made for the application to be treated as a 'Staged Development' application.

A formal request is also made with respect to Clause 70A of the Regulations to the Act for deferral of the detailed information with respect to Stage 2 to a subsequent development application."

The Project is an extension of Stage 1 approved under Development Application 508/07.

NSW Coastal Policy (Coastal Policy)

Section 92 of the Environmental Planning and Assessment Regulation 2000 provides that the Coastal Policy is a relevant consideration for development in those (coastal) areas affected by the Policy; development along the coast of Coffs Harbour is subject to the Policy.

Tables 2 and 3 of the Coastal Policy provide a list of matters which should be considered in the assessment of development applications. The majority of these matters are not applicable to the Project development for various reasons (i.e. the nature of the proposed development, the location of the site). An assessment of the Project against these matters is included in **Appendix D**.

State Environmental Planning Policy (Major Development) 2005

One of the aims of this Policy is to identify development to which the development assessment and approval process under Part 3A of the Act applies.

The Policy has recently been amended such that the Project is not presently identified as a Project to which Part 3A of the Act would apply. Instead, the Project is now one to which Part 3 of the Policy applies (clause 13C (d)), and one which would be determined by a Regional Panel. However, transitional provisions provide that the Project remains a Part 3A matter, notwithstanding the recent amendment.

State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55)

Under SEPP 55 a consent authority is to consider whether the land has been contaminated by past land uses. The land is identified by Council as potentially contaminated land because of former land uses principally associated with sawmilling.

Clause 7 of SEPP 55 requires a consent authority to be satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the development before consent is granted.

Coffey Geotechnics Pty Ltd (Coffey) conducted a Phase 1 Environmental Site Assessment (ESA) which covered both Stage 1 and 2 (the Project) areas. The Phase 1 ESA included a site history, assessment of potential areas, Areas of Environmental Concern (AECs) and Chemicals of Concern (COCs) and limited sampling and analysis of site soils.

The Phase 1 ESA identified sixteen main AECs over the site and the test results showed soil contamination, particularly for total petroleum hydrocarbons and zinc, above threshold concentrations for residential use. The report recommended further sampling and analysis in the identified AECs to confirm the presence or absence of contamination and to characterise the site in accordance with NSW EPA guidelines.

Coffey's conducted a subsequent Phase 2 ESA (dated November 2007) for the Project², making a further assessment of soil and groundwater contamination across the site, with recommendations regarding further investigation and options for site management/remediation.

The conclusion of the Phase 2 ESA included the following summary:

"Due to size of the site, its history, and the number of AECs identified, it is recommended that a Remedial Action Plan (RAP) be prepared ... An RAP will allow remediation to be completed to a specified program, in accordance with relevant guidelines and advice ...

*Based on the on the results of the previous report, the field investigations and laboratory testing, it is considered that the proposed Stage 2 development area ... is currently **not***

² It is important to note that the Phase 2 ESA also covered land north of Double Crossing Creek, which is not part of the Project.

suitable for residential use with regards to soil contamination."

A copy of the Phase 2 ESA for the Project is included in **Appendix E**.

In relation to the above recommendations, it is important to note that a Remedial Action Plan (RAP) has since been prepared for Lot 260 DP1110719; a copy of this RAP is also included in **Appendix E**. As well, remediation works have commenced, and as part of the remediation process, an accredited site auditor has been engaged to produce a site audit statement for the works.

There is presently no time frame for completion of the remediation works.

It should be noted that a Controlled Activity Approval under the Water Management Act 2000 is in place for the remediation works in close proximity to Double Crossing Creek.

North Coast Regional Environmental Plan (REP)



Casuarina cunninghamiana

The REP³ includes provisions relating to development control in a number of circumstances. Clauses of the REP that are relevant to the Project include 15, 29A and 32B.

Clause 15 requires that for development adjoining a river or stream, a consent authority take into consideration a number of factors including impacts on water quality, loss of habitat, pollution impacts on the estuary, and retention of foreshore reserves.

The Project is expected to have a limited impact upon the water quality in Double Crossing Creek. The Water Quality Assessment prepared by GHD (**Appendix F**) provides that the Project will meet the water quality objectives set out in Coffs Harbour City Council's *Urban Stormwater Management Plan - 2000*. In addition, the remediation of the site has the potential to improve water quality in Double Crossing Creek, as potential contaminants are removed as part of the remediation process.

In relation to habitat, the Project is likely to improve this, as restoration and revegetation of Double Crossing Creek occurs, and the area adjacent this is dedicated to Coffs Harbour City Council as public reserve (park).

³ Now a Deemed State Environmental Planning Policy

Clause 29A states that a consent authority must not grant consent to the clearing of natural vegetation in environmental protection zones unless it is satisfied that wildlife habitats and scenery will not be adversely affected.

The Project does not propose the removal of native vegetation in an environmental protection zone.

Clause 32B applies to land to which the NSW Coastal Policy applies and requires Council to take into account:

- (a) The NSW Coast Government Policy;
- (b) The Coastline Management Manual; and
- (c) The North Coast: Design Guidelines.

The *NSW Coastal Government Policy* has been discussed above, while the *Coastline Management Manual* is discussed in the Key Issues section of this EA.

The *North Coast: Design Guidelines* were prepared to "... promote building designs that enhance and protect the north coast's unique environment." The Project is consistent with the design principles for subdivisions, providing:

- a setback to Double Crossing Creek;
- varied allotment sizes, simple in shape, suitable to accommodate a single dwelling house;
- a road network which avoids long dead-end roads;
- roads of appropriate width; and
- allotments which are clear of high erosion, flood and fire hazard areas.

City of Coffs Harbour Local Environmental Plan 2000 (LEP 2000)

Under LEP 2000 the land is zoned part Residential 2E Tourist and part Environmental Protection 7A Habitat and Catchment, as shown in **Plan 11 - Zoning Plan** below. The Environmental Protection 7A Habitat and Catchment zone extends along Double Crossing Creek for a width of approximately 50m. The remainder of the site is zoned Residential 2E Tourist.

The proposed development constitutes the "subdivision of land" which is permissible in each zone. Clause 18 of LEP 2000 provides a minimum lot size of 40 hectares in the Environmental Protection 7A Habitat and Catchment zone provided it meets the following test:

- each lot has an adequate building envelope outside the Environmental Protection 7A Habitat and Catchment zone (in the opinion of the consent authority); and
- the subdivision is desirable for achieving the long term management of the land within Environmental Protection 7A Habitat and Catchment zone.

All of the proposed allotments are located in the Residential 2E Tourist zone, with the exception of Lot 29 is zoned Environmental Protection 7A Habitat and Catchment, and it includes an adequate building envelope outside the Environmental Protection 7A Habitat and Catchment zone.

Lot 31 includes a more substantial part zoned Environmental Protection 7A Habitat and Catchment, however it too includes an adequate building envelope outside the Environmental Protection 7A Habitat and Catchment zone.

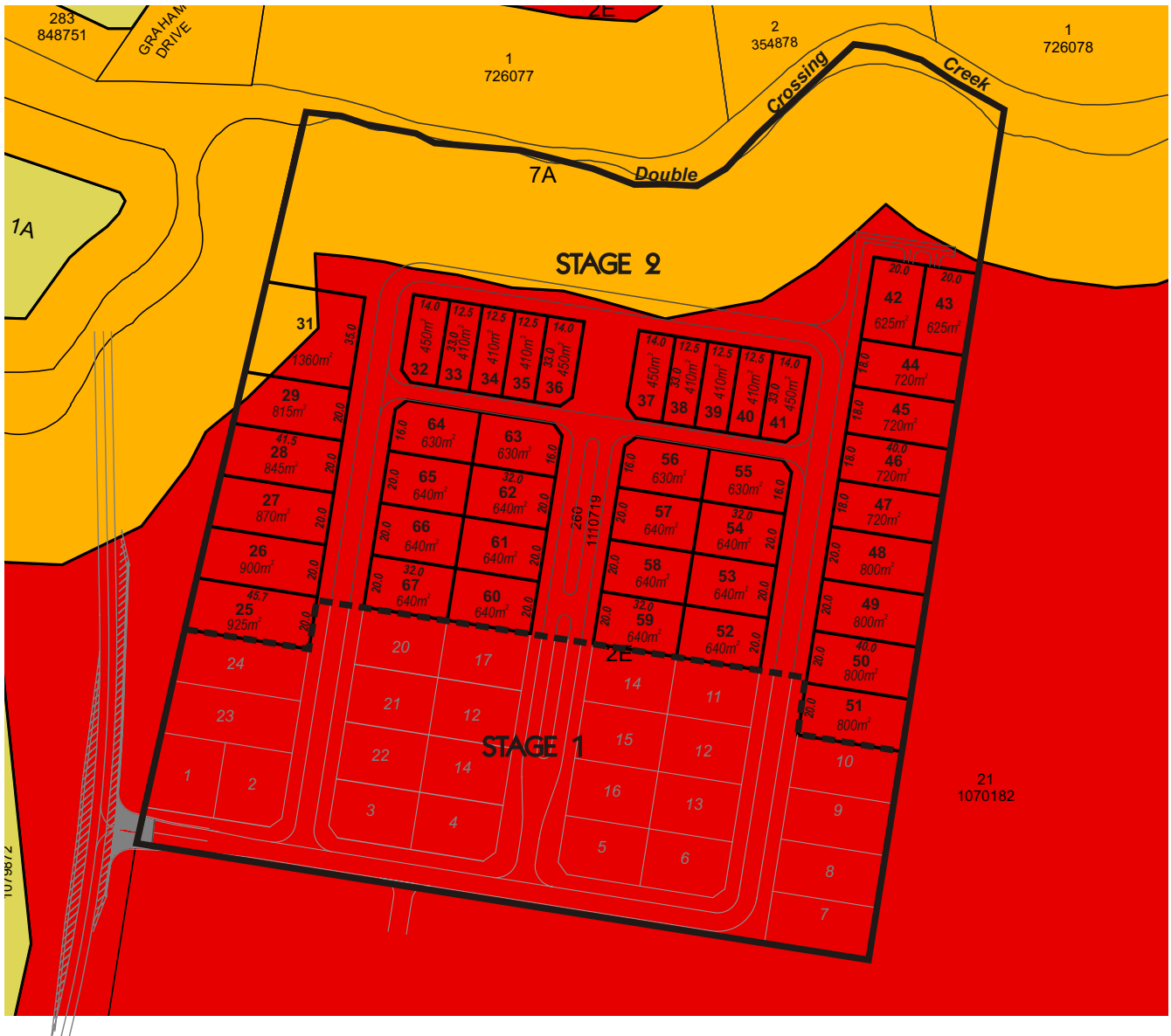
That part of proposed Lots 29 and 31 zoned Environmental Protection 7A Habitat and Catchment are cleared and have little environmental value.

As is apparent from the **Zoning Plan (Plan 11)**, that part of the Environmental Protection 7A Habitat and Catchment zone which affects Lots 29 and 31 is also irregular in shape. In order to provide a public reserve (park) of regular and functional dimensions, and in order to provide for a practical (grid) subdivision layout, the design of Lots 29 and 31 so as to include land zoned Environmental Protection 7A Habitat and Catchment zone is considered reasonable.

From a quantity (land area) perspective, it should be noted that land zoned Residential 2E is also proposed for inclusion within the public reserve (park), with this land located north of Lot 31 and lots 39-43.

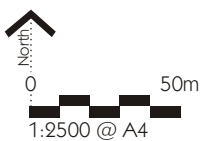
Clause 11 allows a consent authority to make, revoke and amend a Tree Preservation Order. The site is subject to Council's Tree Preservation Order, and consent is sought to remove the isolated trees located in and adjacent to Lots 43-51.

The Flora and Fauna Survey included in **Appendix G** provides that *"No threatened plant species were recorded or considered likely to occur within the development footprint due to past land disturbance."* in addition, vegetation on the site does not form part of any mapped wildlife corridor.



LEGEND

- 1A** Rural Agriculture
- 2E** Residential Tourist
- 7A** Environmental Protection - Habitat & Catchment



Source: Coffs Harbour City Council printout June 2009
Date: July 2009
1184-328

Plan 11

ZONING PLAN

....

Clause 13 requires consent for certain landform modification works involving filling or excavation. The proposed site works involve levelling of the ground and works associated with the provision of infrastructure (i.e. water, sewer, roads, electricity etc).

Given that the site is relatively level, these works will not be significant, and coupled with the implementation of sediment and erosion control measures, will not impact on Double Crossing Creek.

Clause 14 requires adequate arrangements for services to be provided for:

- water supply;
- removal and disposal of sewerage; and
- drainage.

The Project involves the construction of a gravity sewer main system within the site, and a pump station and rising main outside the site which will also service the land to the south.

The proposed sewer pump station and rising main will discharge to a gravity sewer main connected to an existing pump station located on the eastern side of the Pacific Highway; this pump station discharges to the Woolgoolga Sewage Treatment Works.

The Project involves stormwater being drained to a central swale (Road 3), which is connected to a bioretention basin located in the public reserve (park).

Under **clause 22** a consent must not be granted to the subdivision of, or the erection of a building or the carrying out of a work on, land adjoining the Solitary Islands Marine Park unless:

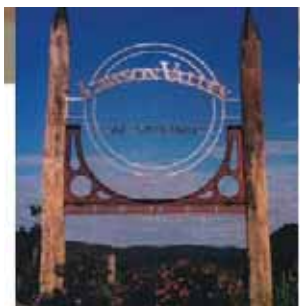
"(a) the consent authority has taken into account the following objectives of the Marine Parks Act 1997:

- (i) to conserve marine biological diversity and marine habitats by declaring and providing for the management of a comprehensive system of marine parks,*
- (ii) to maintain ecological processes in marine parks,*
- (iii) where consistent with the preceding objectives:*
 - to provide for ecologically sustainable use of fish (including commercial and recreational fishing) and marine vegetation in marine parks, and*
 - to provide opportunities for public appreciation, understanding and enjoyment of marine parks, and*

(b) where the use of the land after subdivision, erection of the building or carrying out of the work is likely to, in the opinion of the consent authority, have an effect on the plants or animals within the Marine Park and their habitat, it has consulted with the Solitary Islands Marine Park Authority."

Double Crossing Creek forms part of the Solitary Islands Marine Park.

The Project is expected to have a limited impact upon the water quality in Double Crossing Creek and as a consequence is expected to have a limited impact on the water quality of the Solitary Islands Marine Park.



The **Water Quality Assessment (Appendix F)** prepared by GHD (which includes Stage 1) provides that the Project will meet the water quality objectives set out in Coffs Harbour City Council's *Urban Stormwater Management Plan - 2000*.

In addition, the remediation of the site has the potential to improve water quality in Double Crossing Creek, as potential contaminants are removed as part of the remediation process. Notably, the Hearnese Lake Estuary Management Plan identifies the remediation of the site as a high priority to be implemented in the short term.

The Project will also return the riparian zone of Double Crossing Creek to a vegetated state that will assist in the ecology of the Creek and the Marine Park's biological diversity generally.

The Flora and Fauna Survey (**Appendix G**) also considers the impact the Project will have on Double Crossing Creek and Hearnese Lake (aquatic threatened species, habitats and endangered communities), and concludes that the Project will not have an adverse effect on these, and that *"... buffer plantings, soil erosions measures and weed control along Double Crossing Creek will, over time, enhance water quality in the Hearnese Lake Fishery."*

Clause 23 imposes requirements upon land identified on the Potential Acid Sulfate Soils Map.

The site is partly identified as Classes 3 and 4 on the Potential Acid Sulfate Soils Map.

Clause 23 provides that a person must not, without development consent, carry out works beyond 1m of ground surface for Class 3 soils, or 2m for Class 4 soils, without development consent.

This clause also provides that a consent authority must not grant a consent unless it has considered:

"(a) the adequacy of an acid sulfate soils management plan prepared for the proposed development in accordance with the Acid Sulfate Soil Manual, and

(b) the likelihood of the proposed development resulting in the discharge of acid water, and

(c) any comments received from the Department of Water and Energy within 21 days of the consent authority having sent that Department a copy of the development application and of the related acid sulfate soils management plan."

Coffey Geosciences have previously prepared a Preliminary Acid Sulfate Soils Assessment for part of Lot 260 DP1110719, as well as an Acid Sulfate Soil Management Plan, both included in the Phase 2 ESA; this document is included in **Appendix E**.

The results of the testing indicate that soils are unlikely to have pyritic sulfur, but contain organic sulfur. These results suggest that the soils are unlikely to be ASS. Notwithstanding this, low pH values were obtained for the alluvial soil at 0.5m depth along the eastern part of the site (identified by Coffey's as an area of "high probability of acid sulfate soils within 1m of the ground surface". On this basis Coffey's recommended that:

- The alluvial soils within the area of "high probability of acid sulfate soils within 1m of the ground surface" as defined by the Potential Acid Sulfate Soils Maps are unlikely to be actual or potential acid sulfate soils, but treatment as a precautionary measure should be carried out.
- The residual soils are not acid sulfate soils, but are high acidity soils. For the materials within the "high probability of acid sulfate soils within 1m of the ground surface" area, it is recommended that treatment in the form of mixing disturbed materials with 5kg lime/m³ of disturbed soil should be carried out.

An Acid Sulfate Soils Management Plan has also been prepared by Coffey's, who recommend that it be applied to the "high probability of acid sulfate soils within 1m of the ground surface" area, located in the eastern part of Lot 260 DP1110719, and that the management actions in relation to the acidic soils be implemented as part of any subsequent sediment and erosion control plan prepared for the site.

The Preliminary Acid Sulfate Soils Assessment and Acid Sulfate Soil Management Plan are discussed in the Key Issues section of this EA.

Sub-Clause 23(9) requires Council to have regard to the provisions of the Council's Floodplain Development Policy and the Floodplain Development Manual. The Project is in keeping with both these documents. Details regarding flood impacts are addressed in the Flood Assessment dated June 2009 and prepared by GHD Pty Ltd, a copy of which is included in **Appendix H**.

There are two Draft LEPs of relevance to the site, namely, Draft LEP (Amendment) No. 23 and Draft LEP (Amendment) No. 29.

Draft LEP No. 23, if gazetted, will require consent for removal of native vegetation from the site and will require vegetation clearing to be in accordance with the Vegetation Conservation Development Control Plan.

Draft LEP No. 23 is neither certain or imminent; accordingly it has not been considered in the Project.

Draft LEP No. 29 is further discussed in the Key Issues section of this EA.

2.5 Objects of the Act

(a) to encourage:

- (i) **the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,**

The Project represents the further development of the Sandy Beach village, as anticipated by the Hearn Lake/Sandy Beach DCP. It is anticipated to provide low cost housing for the community.

The Project involves the dedication of the northern part of the site to Coffs Harbour City as public reserve (park), which in turn will aid to conserve this natural area, resulting in a better (local) environment.

(ii) the promotion and co-ordination of the orderly and economic use and development of land,

The Project represents an orderly and co-ordinated use of the site. It builds on the consent provided to Stage 1 of the Sandy Beach Mill residential subdivision (southern part of the site), and is consistent with the concept for development of the site as detailed in the Hearn Lake/Sandy Beach Development Control Plan (DCP).

The Project is also considered economically sound, the site being of limited use for other purposes, having regard to its characteristics (cleared and level) and location (adjoining land also zoned for residential purposes).



(iii) the protection, provision and co-ordination of communication and utility services,

The Project will see the logical extension of services from Stage 1.

(iv) the provision of land for public purposes,

The Project is consistent with this object insofar as it includes the dedication of land as public reserve (park) to Coffs Harbour City Council, as set out in the Hearn Lake/Sandy Beach DCP.

(iv) the provision and co-ordination of community services and facilities, and

The Project is consistent with this object, insofar as it will provide a community facility in the form of a public reserve (park).

(v) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and

The Project involves developing that part of the site of little environmental value, while dedicating the riparian part of the site (including Double Crossing Creek) to Coffs Harbour City Council as public reserve (park). The riparian corridor is that part of the site of environmental value.

(vi) ecologically sustainable development, and

The Project is considered ecologically sustainable. The following factors are relevant in coming to this conclusion:

- The Project will develop land earmarked for residential purposes;
- The Project has been designed in accordance with relevant planning controls, and includes the development of the site for low density residential purposes along with the dedication of the northern portion of the site to Coffs Harbour City Council as public reserve (park);
- The site will be remediated prior to its development for residential purposes, consistent with the Hearnese Lake Estuary Management Plan;
- The Project has been designed to provide social opportunities for future residents, principally through the design of the subdivision and its focus on Double Crossing Creek; and
- The Project will encourage further development in the Sandy Beach and Woolgoolga localities, which will have wider economic impacts (multiplier effects) benefitting these communities.

(vii) (viii) the provision and maintenance of affordable housing, and

Not applicable; the Project does not propose affordable housing.

(b) to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and

While assessed at a state level, the Project is largely consistent with regional and local planning controls.

(c) to provide increased opportunity for public involvement and participation in environmental planning and assessment.

The Project is not inconsistent with this object; the PEA having been publicly exhibited, and this EA to be publicly exhibited. In addition, the Project is consistent with the Hearnese Lake/Sandy Beach DCP which has also been subject to public involvement and participation.

2.6 Impacts - NES

The Flora and Fauna Survey (**Appendix G**) provides that the Project is unlikely to significantly affect World Heritage properties, wetlands of international importance, listed threatened or endangered species, any endangered community, any listed migratory species, any Commonwealth land or any bilateral agreement between the State and Commonwealth due to the highly degraded nature of the site.

2.7 Potential Impacts and Draft Statement of Commitments

The following commitments have been produced based on the environmental assessments undertaken in preparing this EA. These commitments include detail regarding responsibility and timing, and aim to minimise any potential social, environmental or economic impacts.

1. Remediate the site to the satisfaction of Coffs Harbour City Council via the provision of a site audit statement prepared by a site auditor accredited under the Contaminated Land Management Act 1997, prior to any subdivision work being carried out on the site;
2. Carry out the Project in accordance with this EA, including all supporting documentation and reports;
3. Extend all necessary infrastructure to the site to serve the Project, including reticulated water, sewer, (underground) electricity, street lighting and telecommunications, generally as detailed in this EA and in accordance with the requirements of the relevant provider;
4. Prepare section 88B instruments where necessary for services extended to the site;
5. The public reserve (park) being rehabilitated, revegetated and embellished generally in accordance with the **Concept Vegetation Management Plan (Plan 5)** and **Landscape Plans (Plans 6, 7 and 8)**, and as approved by Coffs Harbour City Council;
6. The public reserve (park) being dedicated to Coffs Harbour City Council;
7. The acoustic mound and fencing being constructed prior to the issue of a subdivision certificate for affected allotments;

8. A Sediment and Erosion Control Plan is to be submitted to and approved by Coffs Harbour City Council, with the measures detailed in the Plan to be implemented prior to any subdivision works occurring on the site;
9. The measures outlined in the Acid Sulfate Soils Management Plan (**Appendix E**) being implemented prior to and during subdivision works on the site;
10. Water quality infrastructure being constructed throughout the Project as detailed in the Water Quality Assessment (**Appendix F**);
11. Street tree planting and landscaping being provided generally in accordance with the **Concept Vegetation Management Plan (Plan 5)** and **Landscape Plans (Plans 6, 7 and 8)**;
12. The second recommendation of the Preliminary Cultural Heritage Assessment (**Appendix I**) being implemented;
13. The specific recommendations (SR1-4) of the Bushfire Hazard Assessment Report (**Appendix J**) being implemented;
14. Contributions are to be paid in accordance with applicable Coffs Harbour City Council contribution plans, prior to the issue of the relevant subdivision certificate;
15. Acoustic fencing along the eastern and western boundaries being extended (from Stage 1), along the rear boundaries of Lots 25 and 26 and 47-50.
16. All roads are to be constructed generally in accordance with the Civil Engineering plans included in **Appendix K**, and in accordance with Coffs Harbour City Council requirements.
17. A covenant is to be prepared for proposed Lot 25 requiring the preparation of an acoustic report prior to the issue of development consent for any future dwelling on this allotment. The acoustic report is to have regard to the design, internal layout, materials and ventilation of any proposed dwelling relative to traffic noise impacts, in accordance with the Traffic Noise Assessment prepared by Atkins Acoustics (**Appendix L**).
18. Strategy 4 of the Flood Assessment (**Appendix H**) is to be implemented as part of the Project.



19. \$50 000 is to be paid to Coffs Harbour City Council for the construction of a pedestrian footbridge across Double Crossing Creek, in order to facilitate its construction. The \$50 000 is to be paid at the time the public reserve (park) is dedicated to Coffs Harbour City Council. The payment is to be refunded to the developer 5 years from the date of payment, if the footbridge has not been constructed within the 5 year time frame.

2.8 Plans and Documents

The DGR's list various plans, diagrams etc that are to be submitted with the EA. These plans and the like are listed in **Table 2 – DGR's (Plans and Documents)** below along with a statement regarding where they are to be found in the EA.

Table 2 – DGR's (Plans and Documents).

Plan/Diagram	Location
Existing Site Survey Plan	Page 4
Aerial Photograph	Page 5
Site Analysis Plan	Page 20
Locality/Context Plan	Page 21
Zoning Plan	Page 28
Subdivision Plan	Page 11
Stormwater Management Plan	Appendix F (see also Appendix K and Subdivision Plan, Concept Vegetation Plan and Landscape Plans)
Landscape Plan	Page 16, 17 & 18
Concept Vegetation Management Plan	Page 15
View Analysis	Page 53

2.9 Key Issues

The Key Issues nominated in the DGR's are addressed (assessed) in the following section. These Issues are also listed in **Table 3 – Key Issues** below, and include a section reference for ease of identification.

Table 3 – Key Issues.

Key Issue	Location Addressed (section)
Strategic Planning	
1.1	Section 2.4
1.2	Section 3.1
Subdivision Design, Layout and Desired Future Character	
2.1	Section 3.2 (see also section 2.2 and 2.4)
2.2	Section 3.2
2.3	Section 3.2(see also section 2.4)
2.4	Section 3.2
2.5	Section 3.2
2.6	Section 3.2
2.7	Section 3.2
Visual Impact	
3.1	Section 3.3
Infrastructure Provision	
4.1	Section 3.4 (see also Appendix K)
4.2	Section 3.4 (see also Appendix K)
Traffic and Access	
5.1	Section 3.5 (see also Appendix N)
5.2	Section 3.5 (see also Appendix N)
5.3	Section 3.5 (see also Appendix N)
Hazard Management and Mitigation	
Coastal Processes	
6.1	Section 3.6 (see also Appendix H)
Contamination	
6.2	Section 3.6 (see also Appendix E)
Acid Sulfate Soils	
6.3	Section 3.6 (see also Appendix E)
Bushfire	
6.4	Section 3.6 (see also Appendix J)
Geotechnical	
6.5	Section 3.6 (see also Appendix E)
Flooding	
6.6	Section 3.6 (see also Appendix H)
6.7	Section 3.6 (see also Appendix H)
Water Cycle Management	
7.1	Section 3.7 (see also Appendix F)
7.2	Section 3.7 (see also Appendix F)
7.3	Section 3.7 (see also Appendix F)
7.4	Section 3.7 (see also Appendix F)
Heritage and Archaeology	
8.1	Section 3.8 (see also Appendix I)
8.2	Section 3.8 (see also Appendix I)

Flora and Fauna	
9.1	Section 3.9 (see also Appendix G)
9.2	Section 3.9 (see also Appendix G)
9.3	Section 3.9 (see also Appendix G)
Noise	
10.1	Section 3.10 (see also Appendix L)
Riparian Corridor	
11.1	Section 3.11 (see also Appendices F and G)
11.2	Section 3.11
11.3	Section 3.11
11.4	Section 3.11 (see also Appendix C)