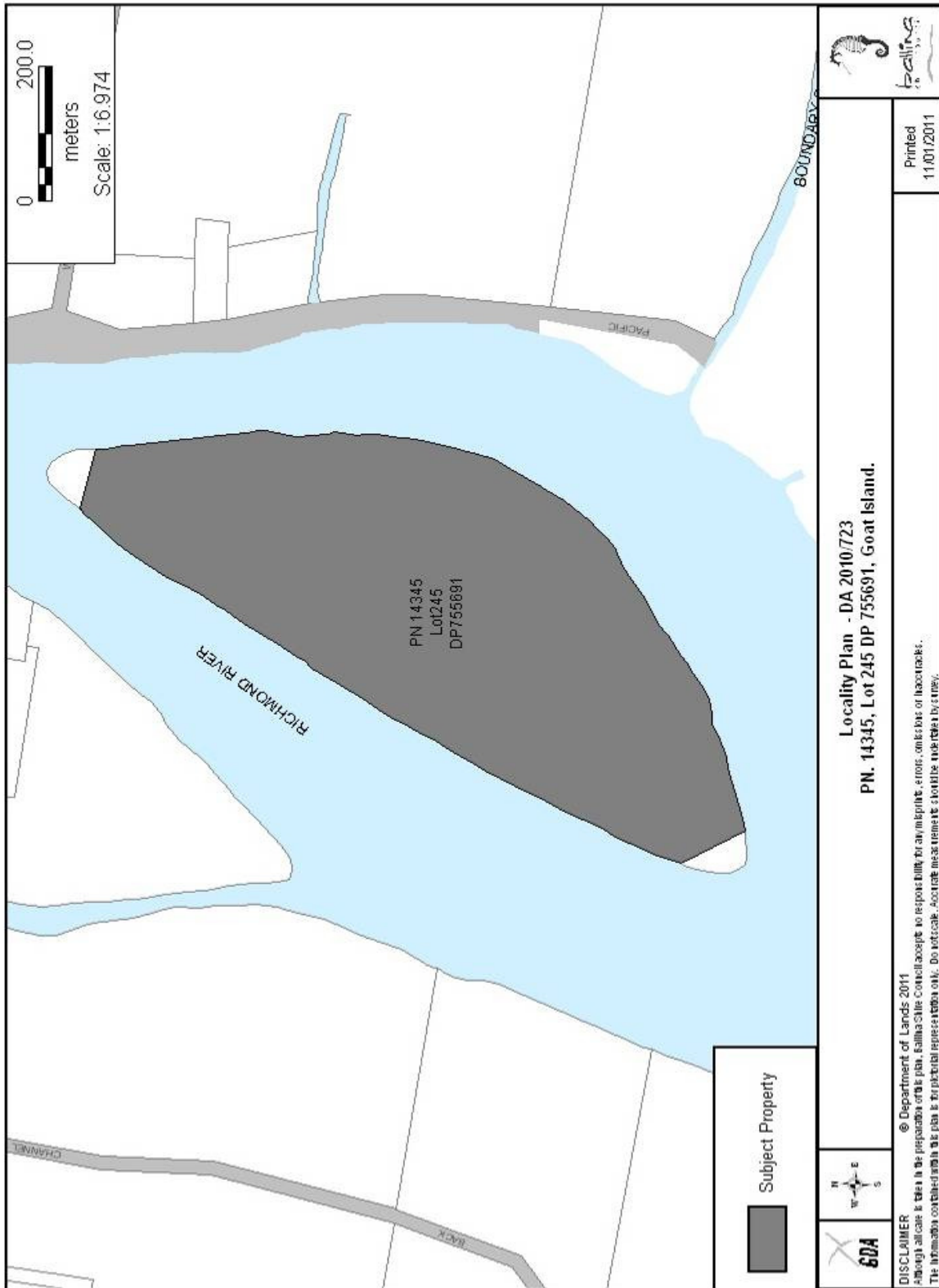


8.2 **DA 2010/723 - Goat Island**



NOTES: ALL CONTRACTORS: These drawings are for general building permit purposes and are not intended to be used for construction without the approval of the relevant authorities. All building work to be carried out in accordance with the Building Code of Australia 2010.

AS 1288 - 1984 Glass in Buildings - Selection and Installation
AS 1582 - 1992 Design and Installation of Steel Roof and Wall
AS 1584 - 1989 National Timber Framing Code
AS 1591 - 1986 National Code of Practice - Construction
AS 1592 - 1986 National Code of Practice - Design
AS 3566 - 2004 Frames for Subterranean Retention
AS 3750 - 1994 Waterproofing of Wet Areas in Residential
AS 3799 - 1993 Sprocklecoats for Rendering
AS 4055 - 1992 Wind Loadings for Rendering

Supply & install all necessary fittings and fixtures in strict accordance with manufacturer's current printed instructions.

WATER SERVICES:
All construction services shown hereon have been located where possible for the purpose of providing a clear indication of the location of services and all services prior to any excavation, demolition or construction on the site.

Refer to approved council drainage plans for drainage and sewerage details, all sewerage and drainage to be in compliance with BCA parts 3.2.1 & 3.2.2, as well as AS/NZS 3500.

The external finished surface surrounding the building must be drained to meet the Council's requirements for drainage and sewerage details. The height of the external finished surface must be a minimum of 150mm below the lowest sanitary fixture.

Connect downpipes to local sump of drainage, 100mm diameter U.P.V.C. stormwater pipe with a minimum fall of 1:80, discharge to the satisfaction of the relevant authority.

2 downpipes max. to each 100mm stormwater pipe, surface holes to be 100mm diameter, any underside piping to have an inspection opening at 500mm ends, it is to be 100mm sewer grade piping with no joints under 500mm.

POULTRICURE / STAIN PREVENTIVE:
Sump(s) to establish boundary & set out building. All dimensions are subject to site survey.

All set and fall to conform to part 3.1.1 of 2005 BCA and local authority requirements. Building platforms and details to drain away from building as per figure 3.1.1.2.

GLAZING:
All glazing to be used in all doors and windows, minimum height of floor within 300mm of a door and 450mm from the floor, all glazing to be in accordance with AS 1288, 1 & 2. The location, specifications to the glazing must be indicated on the drawings by an accredited fabricator.

VENTILATION:
Provide natural light and ventilation in accordance with clause 14.4 of the BCA.

TERRACES:
Terrace profiles as per AS 3560.1 and a durable roller shell be placed in the higher than indicated type of finish and required periodical maintenance, then & arrange later performance.

SKIN FINISHES:
Refer to relevant standards for the selection of finishes. Minimum thickness to horizontal surfaces shall be 10mm and vertical surfaces shall be 13mm, and conform to AS 2601.1 and AS 2601.2. The location, specifications to the finishes must be indicated on the drawings by an accredited fabricator.

WALL FINISHES:
One layer of full depth plaster 750. One layer of sand coat with a DFT of 1200. Maximum plaster as per the Manufacturer's specifications. All surfaces to have a smooth finish. Sump under perimeter finished to 20mm above ground level. All wall finishes to be in accordance with AS 3560.1 & 2. The location, specifications to the finishes must be indicated on the drawings by an accredited fabricator.

STAIRS / BALUSTRADES:
Stair requirements: Min. tread 240mm, Min. Rise 115mm, Max. Rise 190mm, Max. Tread 300mm, Max. Rise 175mm, Treads to be Non-Slip Finish. Space between open Treads Max 125mm. Treads to be Non-Slip Finish in accordance with AS 1192.

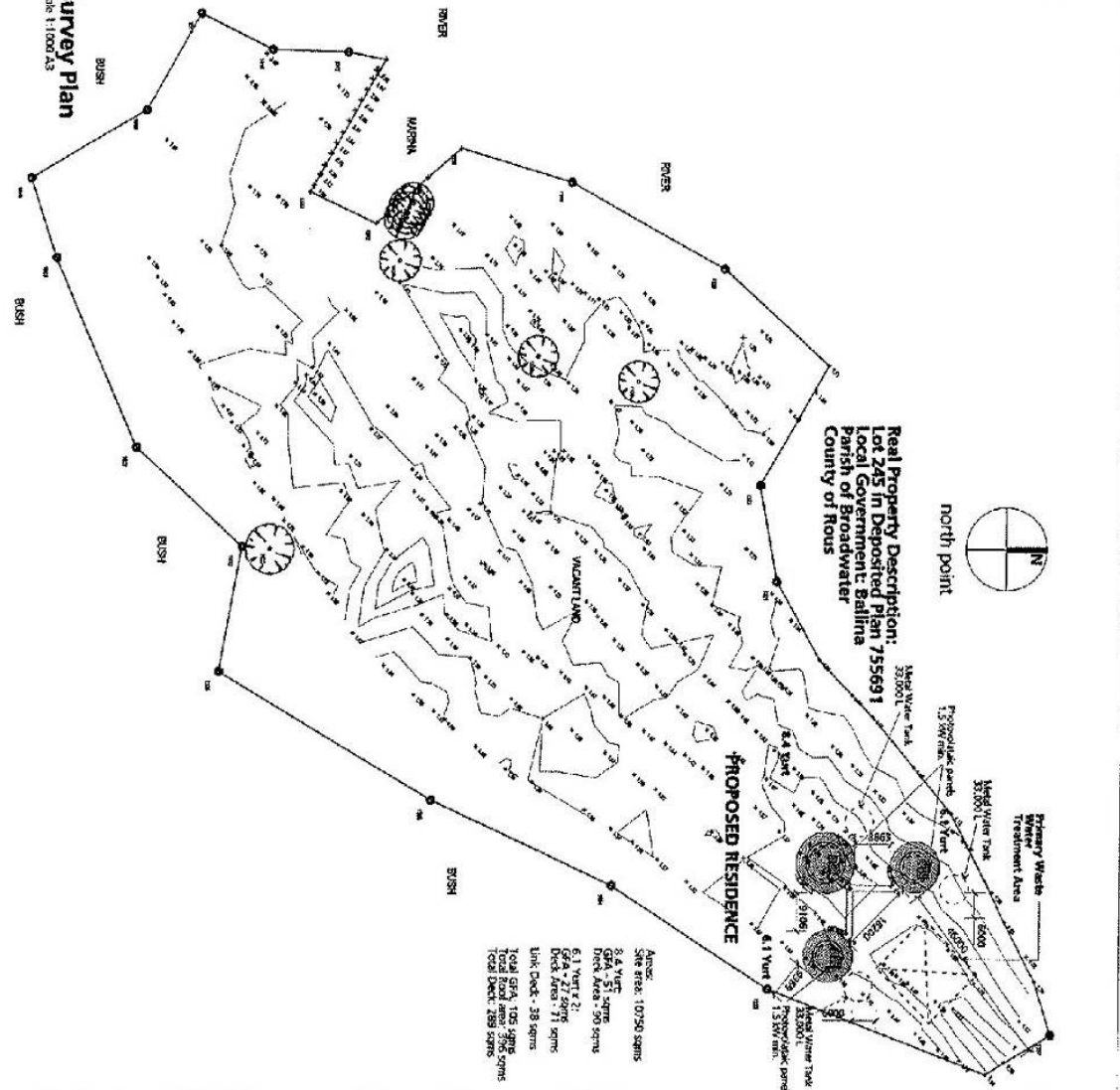
All hand water alarms to AS 3786, adjacent to sleeping areas.

All hand water alarms to AS 3786, adjacent to sleeping areas.

All hand water alarms to AS 3786, adjacent to sleeping areas.

All hand water alarms to AS 3786, adjacent to sleeping areas.

All hand water alarms to AS 3786, adjacent to sleeping areas.



revision	date	drawn	description
A	21.05.10	MRC	Initial Issue
B	26.05.10	TQ	Murt locations revised
C	02.06.10	TQ	WWW location revised
D	28.06.10	TQ	Notes on PV and water tanks

Site Plan
drawing title
client / job name **G & M Couch**
Lot 245 - Goat Island - Ballina

job reference
scale **1:1000 @ A3**

drawing number **COU-BAL-10**
revision **D**

drawn **MRC**

0m 20m 40m 60m 80m 100m

FOR APPROVAL

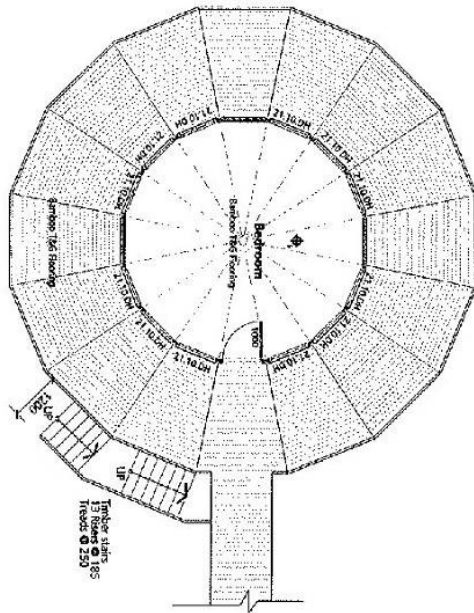
Do not scale from drawings unless by agreement with QUBD. Use typical dimensions only. Check all dimensions, levels, setbacks and specifications prior to commencing works. Client liable to ensure that all building work conforms to the Building Code of Australia 2006, Australian Standards, Building Regulations and Local Planning Requirements. Any discrepancies should be reported to QUBD in writing for comparison with other relevant consultation information. This drawing is the copyright of QUBD Pty Ltd. and must not be copied or reproduced in part or in whole without the express permission of QUBD Pty Ltd.

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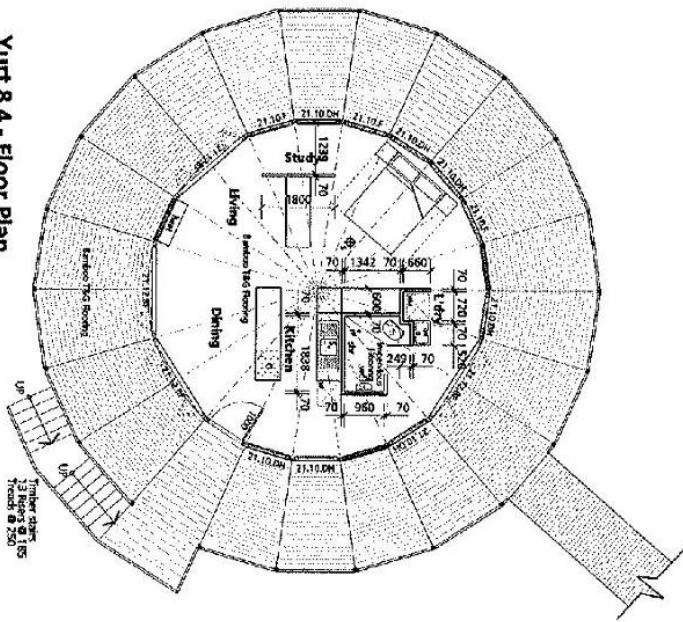
LEGEND:
 Hatched areas: floor screed
 Thin solid lines: floor works
 Thick solid lines: walls
 Dashed lines: formwork
 Dotted lines: timber joists
 Thin solid lines: timber framing
 Thin solid lines: timber cladding
 Thin solid lines: timber roof cladding
 Thin solid lines: timber roof cladding
 Thin solid lines: timber roof cladding

UT 1.3/2.1 - Mitchell Ave 1, 1300 High, 2100 From Other - Steps for level 1.100
 0.875 - 3/10 Drive Cliff Dr (1.570) - as above for level 1.100
 0.875 - 3/10 Drive Cliff Dr (1.570) - as above for level 1.100

Yurt 6.1 - Floor Plan



Yurt 8.4 - Floor Plan



revision	date	drawn	description
A	20.05.11	MRC	Initial Issue
B	09.06.10	MRC	Issue for approval

Floor Plans

drawing title
G & M Couch
Lot 245 - Goat Island - Ballina

COU-BAL-20 B
 drawing number revision

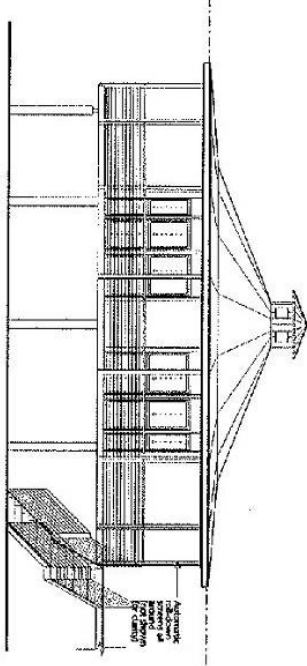
scale
1:100 @ A3 drawn
 MRC

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 ABN: 62 133 602 605 BSA License No: 1152243

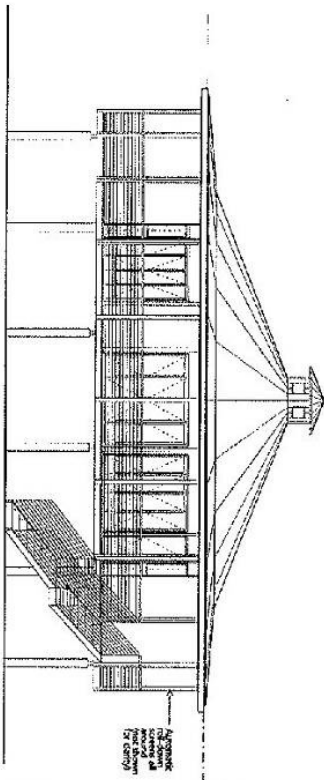


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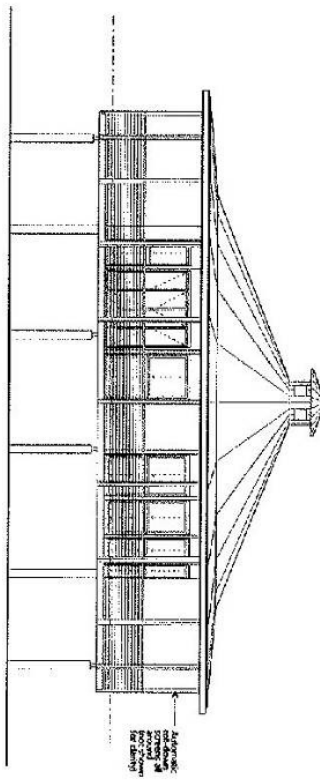
6.1m Yurt - Bedroom Typical Elevation



8.4m Yurt - South Elevation



8.4m Yurt - North Elevation



revision	date	drawn	description
A	21.05.10	MRC	Initial Issue
B	09.06.10	MRC	Issue for approval

Elevations

drawing title

COU-BAL-30 B
drawing number revision

client / job name

job reference

scale

drawn

**G & M Couch
Lot 245 - Goat Island - Ballina**

1:100 @ A3

MRC

Use these forms in accordance with agreement with BSA. Use figures in metric only. Check all dimensions, levels, colours and specifications prior to commencing work. Owner liable to ensure that all building works conform to the Building Code of Australia 2003, Australian Standards, Building Regulations and town planning requirements. Any discrepancies should be reported. Drawing to be used in conjunction with other relevant construction information. This drawing is the copyright of Qubd Pty Ltd and is not to be copied or reproduced in any form without the express consent of Qubd Pty Ltd.



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FOR APPROVAL



4. Principal Development Issues

4.1 Heritage

Aboriginal heritage is important in this area with the Cabbage Tree Island Aboriginal settlement being located less than 1km north of Goat Island. The AHIMS search undertaken for Goat Island identified one mythological site (Appendix E). This site is a special women's place that is associated with fertility. It is located in dense vegetation at the northern end of the island and is well away from the dwelling site. The application will not impact on this site in any way.

The Jali Aboriginal Land Council has been consulted and a representative visited the site on 22 May 2010 in the company of the owners. The Jali's written response is attached as Appendix F. Essentially they have no objection to the dwelling being erected as proposed but would like to be present at the earthworks stage to check if any artefacts are discovered by this disturbance. The owner has agreed to this and arrangements will be made to notify the local Aboriginal community when earthworks are to commence. If artefacts or objects are discovered during earthworks then work will cease, DECCW will be notified and further consultation and assessment will be required in accordance with the *National Parks and Wildlife Act, 1974*.

European occupation of the Goat Island commenced prior to 1921 as the survey of the island at this date already shows it being used for sugar cane, small crops, a dwelling, shed and fences. Records show that it was granted as freehold to Russell Tasman Smith of Broadwater who was a soldier returning from the 1st World War. The 1921 survey is attached at Appendix G.

The dwelling on the western side of Goat Island was burnt down some time after 1991 and there is little evidence of it left. The sheds that remain are not proposed to be removed. There are two large mango trees that were associated with the dwelling and these are proposed to be retained. The dwelling site selected for this application has no evidence of any European structures and was in an area used for agriculture. Should any heritage items or artefacts be uncovered during earthworks then they will be documented and assessed on merit.

4.2 Flooding

The subject site is entirely within flood liable land. A survey undertaken in January 2010 shows that the height in AHD of the existing ground level on the island in the cleared area at the southern end is quite variable (Appendix H). Generally the ground level is between 1.3m AHD and 2.3m AHD which is similar to the ground levels on Cabbage Tree Island. The natural ground level at the location of the proposed dwelling is approximately 2.0m AHD.

The most relevant flooding information is from the work undertaken by Ballina Shire Council on the Wardell and Cabbage Tree areas including the following:

- ▶ Wardell and Cabbage Tree Island Flood Study, BSC, Nov 2007;
- ▶ Wardell and Cabbage Tree Island Floodplain Risk Management Study, Feb 2007; and
- ▶ Draft Cabbage Tree Island Floodplain Risk Management Plan, Oct 2009.

Applying the information in these documents it is reasonable to conclude the following in relation to flooding on Goat Island:



- ▀ It is susceptible to flooding from the Richmond River in floods of a 5 year recurrence level or higher;
- ▀ Peak flood levels for a 5 year recurrence flood would be approximately 1.85 m AHD;
- ▀ Peak flood levels for a 10 year recurrence flood would be approximately 2.32 m AHD;
- ▀ Peak flood levels for a 100 year recurrence flood would be approximately 3.38 m AHD;
- ▀ Peak flood levels for a probable maximum flood would be approximately 4.94 m AHD;
- ▀ Flood velocities would vary across the island between 0.31 m/s in a 5 year recurrence flood to as high as 1.03 m/s in a 100 year recurrence flood;
- ▀ Flood hazard (a function of depth and velocity) across the island varies from very high to high, medium and in one small area low in a 100 year recurrence flood;
- ▀ The flood hazard for the surrounding river channels is extreme in a 100 year recurrence flood;
- ▀ BSC requires a minimum fill level in its draft Ballina LEP 2010 of 3.7m AHD for any dwellings;
- ▀ BSC requires floor levels for any dwellings to be 0.5m above the minimum fill level i.e 4.2m AHD on this site; and
- ▀ The key issues are the erection of a dwelling in a high hazard flood area; the residual flood problem; and the emergency response in times of flood.

Dwellings in a High Hazard Flood Areas

The Draft Cabbage Tree Island Floodplain Risk Management Plan, Oct 2009 is the best guide as to how Council might consider proposed dwellings in flood prone river islands. The plan recommends that additional residential dwellings be prohibited on Cabbage Tree Island but that community buildings may be built subject to flood compatible materials and other standards being met. It is not clear from this plan if dwelling replacement would be permitted or if replacement dwellings would be additional residential dwellings. Unless Council is going to refuse future applications to replace existing dwellings as they become aged, then it is reasonable to assume that replacement dwellings are not additional dwellings and would be permitted.

In the case of Goat Island, there has been a dwelling erected on the island since at least before 1921 and it was there (surviving the 1954 and 1974 floods) until it was burnt down some time after 1991. The dwelling the subject of this application is a replacement dwelling for the one burnt down and is not an additional dwelling as referred to in the Draft Cabbage Tree Island Floodplain Risk Management Plan. Referring to the definitions in the Glossary of the Draft Cabbage Tree Island Floodplain Risk Management Plan the subject application fits most easily with the term redevelopment being "*redevelopment: refers to rebuilding in an area*". If redevelopment is to be permitted on Cabbage Tree Island then it should be permitted on Goat Island.

In the subject application the proposed fill level for the location of the dwelling is 3.7m AHD and the proposed floor level is 6.1m AHD. Both these levels meet Council's requirements even considering sea level rise, freeboard and the probable maximum flood. The location proposed is



far safer than the previous location and has better protection from extreme velocities and flood debris from the dense vegetation surrounding it. It is located on a natural high spot on the island and the fill required to raise this area can be easily scraped up from the surrounding cleared land. This means that the filling of the house site (which is a very small area) does not decrease the flood capacity of the Richmond River floodplain.

So although the dwelling is to be located in a high hazard flood area, it will meet the minimum fill level of 3.7m AHD and have a floor level that exceeds the probable maximum flood. In the event of a 100 year recurrence flood there will be no damage to the dwelling or any public infrastructure. The method of construction and scale of the development will ensure that the dwelling will not impact on flood behaviour on Goat Island or any other nearby land.

The Residual Flood Problem

The residual flood problem is based on the fact that the adopted design flood of a 100 year recurrence can be exceeded on rare occasions and damage can result. In this case the floor level of the dwelling will be located above the probable maximum flood and damage to the dwelling even in a probable maximum flood is unlikely. It is accepted that the composting toilet system that is located below the elevated dwelling would be affected by such an event however, it is a robust structure that will be properly secured and is unlikely to be damaged. Flood damage should be minimal even in a probable maximum flood. No damage to public infrastructure is expected in a probable maximum flood.

Emergency Response in Times of Flood

In most situations the key to effective emergency response in times of flood is to get people to safety before it becomes dangerous for emergency personnel to do so. Getting yourself to safety without assistance is the ideal situation. On Cabbage Tree Island there are 170 people including the aged and very young and they are linked by a bridge and road back to Wardell and beyond in floods up to the 10 year recurrence level. So residents typically have motor vehicles and community transport on the island that they can use to evacuate safely as long as they leave before the flood exceeds the 10 year recurrence level. It is unlikely that an evacuation of this size could take place without some outside assistance.

Goat Island is quite different in that there is no access by motor vehicle at any time and all access to the island is by boat. This means that there is always a boat at the island if a flood warning is issued and any persons on the island can leave early and without assistance. In the case of a flood event approaching the island would get approximately 10 hours warning from the Coraki flood gauge and this is ample time to make things secure and travel by boat for approximately 5 minutes to the nearest boat ramp just south of Andersons Creek, where a vehicle and trailer would be parked (the owners of this ramp have already given permission for this). This would enable residents to travel safely via the Pacific Highway to Wardell, Ballina or Alstonville to safety. Leaving early would ensure that there is minimal velocity in the river and that there is minimal flood debris.

An alternate option is to park the vehicle on the main land on the western side of Goat Island adjacent to a private boat ramp (the owners have already given permission for this) and travel safely via Back Channel Road to Wardell, Ballina or Alstonville to safety. The journey from Goat Island to this boat ramp is less than 5 minutes by boat.



A third option is to park the vehicle on the main land at the East Wardell boat ramp and get access to the Pacific Highway at Wardell. This would require a 15 minute boat journey depending on visibility and flood debris.

Goat Island has a secure and sheltered boat access point that would ensure that the owner's boat would be safely available when a flood warning is issued. The flood evacuation plan (Appendix I) requires that the island be evacuated as soon as a low level flood warning is issued for Coraki (5 year recurrence) and that the local Ballina SES be notified that there is no one on the island at this time. The evacuation route would be as shown in the flood evacuation plan. Leaving the island early means there will be no flood water over the island that would inhibit the residents walking to the boat.

4.3 Onsite Waste Water Disposal

A composting toilet with a minimal flush system is proposed as the only toilet provided for the dwelling. It will be constructed as part of stage 1. A grey water system will be installed to allow disposal of water from the kitchen, bathroom and laundry. Details of the composting toilet and grey water disposal are in Appendix D.

4.4 Mosquito Management

The property is located in coastal plain and lowlands as defined by Ballina Shire Combined DCP, Chapter 11. However it is not in an area defined as high risk. In accordance with the DCP requirements, effective insect screening will be applied to all windows doors and other openings of the residential premises. The proposed dwelling will have verandas which will be completely screened from insects enabling an outdoor area to continue to be enjoyed during periods of elevated mosquito activity. Having all habitable structures fully screened is compliant with the DCP.

4.5 Dwelling Entitlement

A dwelling house is permissible development in the 1(b) Rural – Secondary Agricultural Land Zone under the Ballina Local Environmental Plan (LEP) 1987. However, clause 12 of LEP 1987 was modified on 26 June 2009 and this has affected the dwelling entitlement for Goat Island. Prior to 26 June 2009, clause 12 (3A) stated:

"(3A) Notwithstanding the provisions of subclause (3), the council may consent to the erection of a dwelling-house on an allotment of land that was lawfully created before the appointed day and upon which a dwelling-house could lawfully have been erected immediately prior to the appointed day."

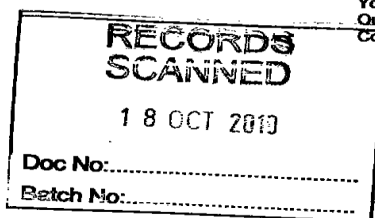
Sub clause 3A has now been repealed. This means that a dwelling can only be erected on Goat Island if Council considers that a variation to the 40 ha minimum lot size contained in clause 12 (3) (a) (ii) is warranted. A variation to the 40 ha development standard requires an objection to be lodged under SEPP No. 1 and it also requires the concurrence of the Director General of Planning because the proposed variation is more than 10 % of the standard. A SEPP 1 Objection is attached at Appendix J.



The General Manager
Ballina Shire Council
PO Box 450
BALLINA NSW 2478

Attention: Mr Lachlan Sims

30 September 2010



Your reference: AL294
Our reference: Toong Chin, 66270233
Contact:

Dear Mr Sims

DA 2010/723 – PROPOSED DWELLING ON GOAT ISLAND

I refer to your email of 17 September 2010 seeking the Department's comment on a proposal to erect a dwelling on Goat Island which is located midstream between Broadwater and Wardell in the Richmond River.

Table 9 and 11 of the 2004 Wardell and Cabbage Tree Island Flood Study provides the following flood information in the river channel at Goat Island:

Table with 6 columns: Peak Flood Level (m AHD) and Peak Velocity (m/s) for 5 Year, 20 Year, and 100 Year return periods.

Figure 16 of the same report indicates the provisional flood hazard in the river surrounding Goat Island during a 1 in 100 year recurrence flood as extreme, and on the island itself as between high and very high.

- possible danger to personal safety
able bodied adults would have difficulty in wading to safety
potential for significant structural damage to buildings

The proposal has clearly considered the flood risks in Goat Island, ie, fill the house pad to 3.7m AHD (above the 1 in 100 year recurrence flood level), design the dwelling on posts which are capable of withstanding floods and with a floor level of 6.1m AHD which is above the Probable Maximum Flood level of 5.0m AHD, and when a flood occurs the occupants would watch the development of the flood at Coraki and evacuate by boat well before it arrives.

In 2009 Council completed a floodplain risk management plan for Cabbage Tree Island. Measures recommended in the plan include a revision to Council's Policy Statement No.11 to prohibit the development of new dwellings on Cabbage Tree Island.

C/- PO Box 856 Alstonville NSW 2477
Tel: (02) 6627 0200 Fax: (02) 6628 3937
ABN 30 841 387 271
www.environment.nsw.gov.au

Goat Island is adjacent to Cabbage Tree Island and is very similar in its exposure to the high flood risk from the Richmond River. For this reason the floodplain risk management plan for Cabbage Tree Island should provide guidance in assessing this development application.

The only means of evacuation from Goat Island is by boat, often considered as an even more precarious mode of transport than road in times of flood. The consequence of fast flowing floodwater and therefore the risk of accident and loss of life would be high. It is therefore difficult to see how approval of this development would accord with the general thrust of the Cabbage Tree Island floodplain risk management plan.

If you wish to discuss any aspects of the letter please contact me on 66270233.

Yours sincerely



Toong CHIN
Senior Natural Resource Officer
Urban and Coastal Water Programs, North Coast
Climate Change, Policy and Programs