9 LANDSCAPE

Prepared by

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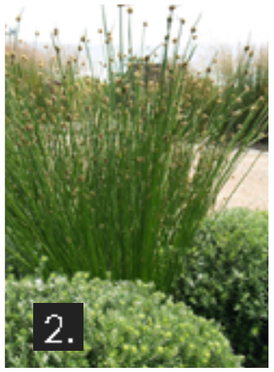
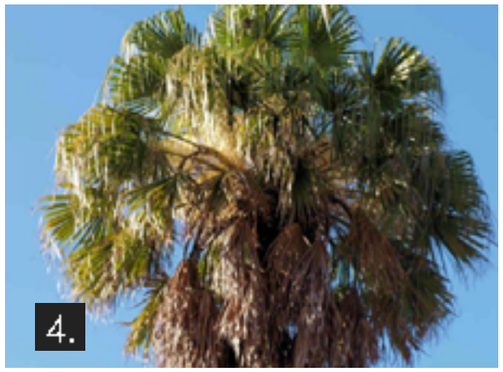
terras
landscape architects

Plant Palette 1

The landscape theme consists of two plant palettes. The first planting palette is essentially native plants, typically endemic that would be used for the areas where the site interfaces with the adjoining protected foreshore areas. This will allow the development to blend into the existing landscape and minimise any visual disparity.





LEGEND

1. Howea forsteriana |Kentia Palm|
2. Isolepsis nodosa |Knobby Club Rush|
3. Banksia integrifolia |Coast Banksia|
4. Livistona australis |Cabbage Tree Palm|
5. Asplenium oyslralasicum |Bird Nest Fern|
6. Banksia serrata |Old Man Banksia|
7. Pandanus spiralis |Screw Pine|
8. Alocasia brisbanensis |Elephant Ear|

9 LANDSCAPE

Prepared by

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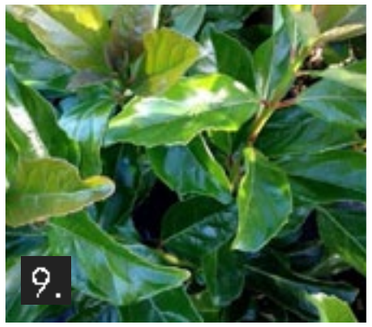
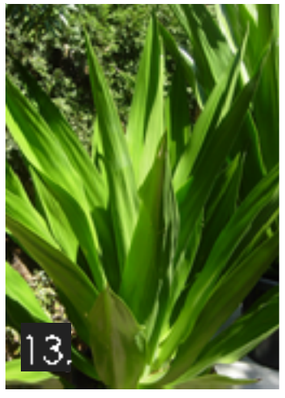
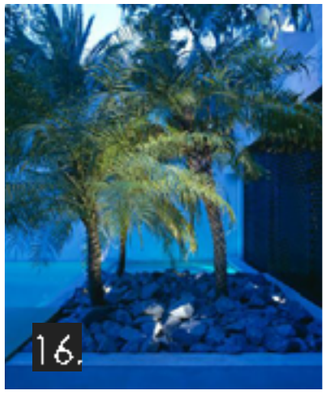
Plant Palette 2

The second planting palette is a more stylised theme to create using distinctive 'architectural' plant forms that include natives but have a wider range of plant types. All the plants need to be suited to windy exposed conditions with some salt tolerance.







EGEND

9. *Viburnum odoratissimum* [Emerald Lustre]
10. *Hibiscus filaceus 'Rubra'* [Bronze Cottonwood]
11. *Arthropodium cirratum* [Renga Lily]
12. *Senecio serpens* [Blue Chalk Sticks]
13. *Furcraea foetida* [Mauritius Hemp]
14. *Philodendron* [Congo Philodendron]
15. *Dioon spinulosum* [Gum Palm]
16. *Phoenix roebelenii* [Pygmy Date Palm]
17. *Alpinia zerumbet* [Shell Ginger]

PART B: SITE PRINCIPLE 10

10 ROADS, VEHICULAR ACCESS & PARKING

Provide for adequate, safe and efficient vehicular access to and around the site, ensuring adequate provision of parking.

Objective

To ensure adequate arrangements are in place to access the site and park based on the likely traffic volumes and parking generation and accounting also for service vehicles in order to provide for the amenity and convenience of future occupants and visitors to the site and to ensure no unreasonable off site impacts.

Guidelines

A number of external intersections have been identified as requiring upgrading as a result of cumulative traffic associated with other traffic growth or anticipated growth in the locality (and other approvals), in some cases including a component of traffic from the Trinity Point Marina and Mixed Use Development. These are now addressed through Council's adopted Section 94 Contributions Plan and also separately by arrangements from other developments. It is expected that development applications will be subject to contributions levied under adopted plans.

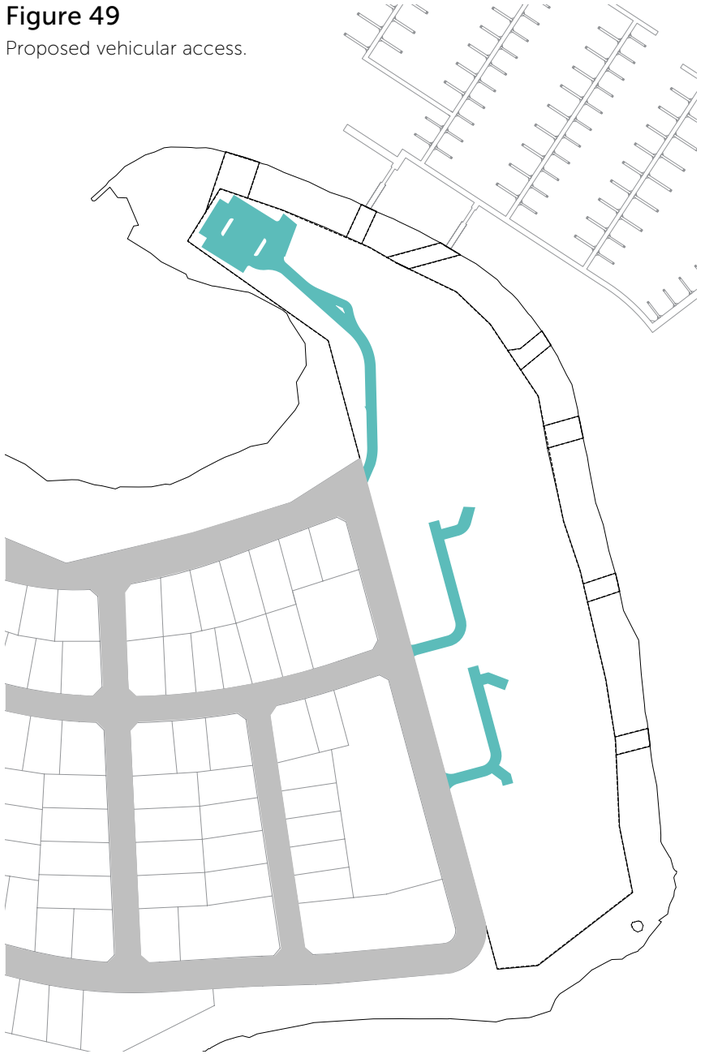
Key access and parking principles for the site include:

- Vehicular access to all areas is to be from Trinity Point Drive.
- Main access to the tourist hospitality precinct to be from the proposed roundabout at the northeast nodal point of Trinity Point Drive. No general vehicular access is proposed to the east of this nodal point. Within the tourist hospitality precinct, a two-way driveway connection along the western boundary connects the public Trinity Point Drive to the car park below the landscaped podium and the at-grade marina car park at the northern tip of the precinct.
- Main access to the tourist residential accommodation precinct is to be from two access points along the north-south length of Trinity Point Drive parallel to the western boundary of the site. Each access point will lead to an internal two-way accessway from which separated ramps into the basement parking beneath the accommodation buildings are located.
- Bus stop to be provided and constructed as part of adjacent residential subdivision for dual purpose of general public transport and tourist bus stopping (time limited).
- Development applications are to integrate other functions such as pedestrian pathways, parking and landscaping.
- This access maintains the primacy of the pedestrian links across the site and conforms to the proposed planning philosophy of buildings sited in a landscape setting.
- Parking numbers to be provided on site to address relevant Development Control Plans and comply with AS 3962-2001 (Guidelines for the Design of Marinas). Specifically for the marina (berths, marina operations, management and administration areas and marina lounge / amenities), parking is to be provided at a rate of 0.3 spaces per berth, plus 0.5 per FTE staff member. Additionally, where it is demonstrated that vehicle parking will be used to access a variety of activities within the development, or that relevant DCP rates are inappropriate, the total parking provisions may be reduced.
- A Parking Management Strategy should be prepared to manage parking on site, including during peak events within the marina and tourist hospitality precinct.
- The proposed development is to make appropriate provisions for service vehicles including the delivery of goods and collection of garbage, taking into account swept path requirements of those vehicles.
- The approved Trinity Point Drive road carriageway along the western site boundary is to be investigated for parking given the length available due to limited vehicle crossing points.

10

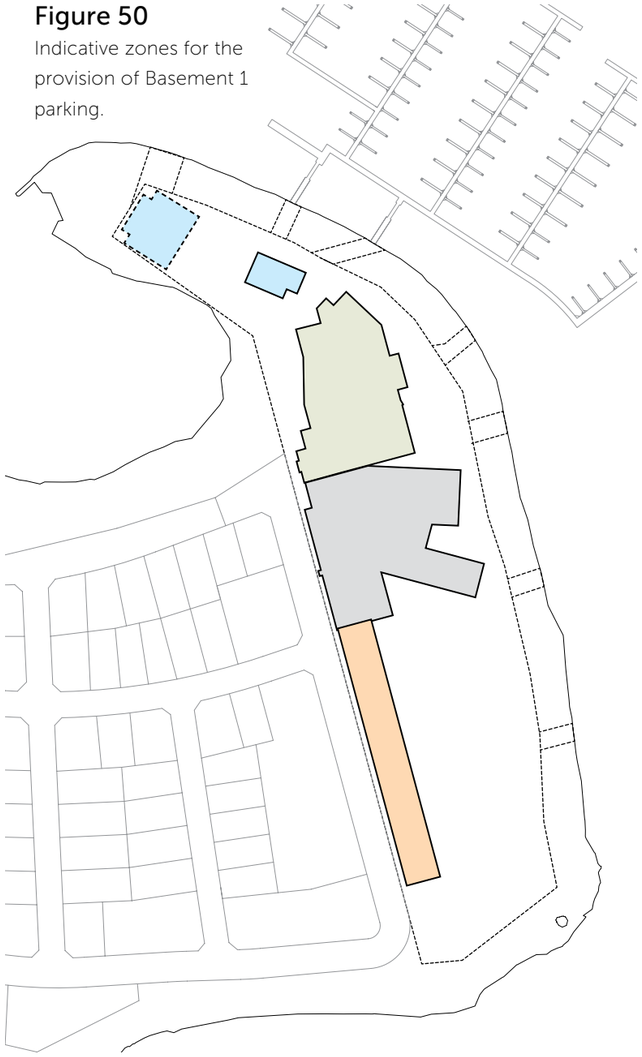
ROADS, VEHICULAR ACCESS & PARKING

Figure 49
Proposed vehicular access.



Proposed vehicular roads layout

Figure 50
Indicative zones for the provision of Basement 1 parking.



Dual-use (residential and short stay)

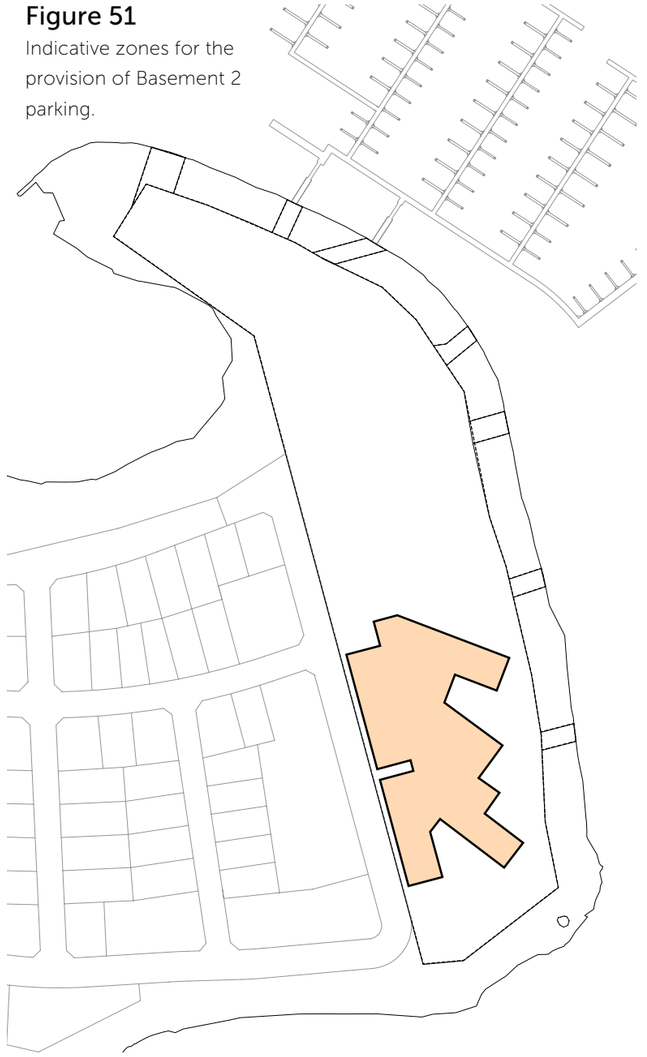
Short Stay

Tourism and hospitality

Marina, retail and other uses

Above ground parking

Figure 51
Indicative zones for the provision of Basement 2 parking.



Indicative allocations are subject to dual-use, similar across development uses, phasing, and separate development applications.

PART B: SITE PRINCIPLE 11

11 WATER MANAGEMENT

Ensure stormwater runoff is managed to limit impacts on the receiving environment.

Objective

To provide preventative measures to limit impacts on aquatic environment and lake water quality and to provide for water harvesting and re-use opportunity.

Guidelines

Stormwater Management Plans are to be provided with Development Applications, incorporating the following measures:

- Adopt a best practice water sensitive design approach, focusing on preventative and source controls where possible.
- Provide rainwater harvesting and bio-filtration swales as part of overall stormwater strategy (where deemed appropriate). Residential accommodation to achieve water efficiency targets as required by BASIX.
- Fuel storage tanks are to be designed according to authority requirements including double skinned tanks.
- All potential contaminants and their collection systems must be located so they are adequately protected from entering the lake during a 1 in 100 year flood event, plus sea level rise. This includes, but is not limited to, things such as fuel, oil separators and the like.
- Implement a water quality monitoring program during construction and for three years of marina operation (for marina only).
- Design and install sediment and erosion control structures during construction according to an erosion and sediment control plan.
- Incorporate overland flow paths as necessary.

In addition to the above, the following broad stormwater management strategies should also be considered:

- Reduce the extent of paved surfaces to maximise landscape opportunities. The reduced impervious services minimises the impact upon the catchment hydrology and reduces potential sources of waterway pollutants. Additionally, source controls including rainwater harvesting, gross pollutant traps and bio-filtration swales are to be proposed as part of an overall water quality strategy.
- Consider acid sulphate soils management, in line with a management plan, in design and construction methodologies.
- Consider groundwater implications in design and construction methodologies.

PART B: SITE PRINCIPLE 12

12 FLOODING

Ensure that the proposed buildings consider and design for the effects of flooding.

Objective

Locate buildings above flood level, with flood level to be determined with regard to sea level rise through climate change.

Guidelines

Flood planning levels have been devised taking into account frequency, still water level, wave action, potential climate change impact and design life of various components of the site.

In complying with Lake Macquarie City Council's (LMCC) *Waterway Flood Risk Management Study and Plan (June 2012),* the proposed minimum flood planning levels, which include a 500mm freeboard, are:

- Accommodation habitable floor levels: 2.82m AHD.
- Non-habitable rooms: 2.10m AHD
- Hotel foyer and hotel/marina/other uses car park: 2.36m AHD
- Restaurant: 2.82m AHD
- Tourist hospitality basement car park entry: 2.82m AHD
- Marina office, shops and commercial: 2.36m AHD.
- On-grade marina car park: 1.23m AHD

Where necessary, Development Applications relating to the tourist hospitality precinct (including the parking underneath the podium) and marina components of the project are to document broad sea level rise adaption measures and strategies available and how they have been, or can be, incorporated.

Appropriate evacuation strategies and draft evacuation plans across the tourist hospitality precinct are to be prepared and submitted with relevant development applications. Flooding in Lake Macquarie is governed by long duration rainfall events, hence a 2 to 4 day time to peak would be expected. Allowing sufficient time for flood preparation and excavation measures to be undertaken.

Adaptive Management in Response to Climate Change

- Evacuation routes to be defined above the anticipated PMF level in 100 years.
- Adoption of shorter design life for structures with adaptive capability and higher acceptable flood risk such as marina piles and marina access walkways. Piles can be extended to accommodate rising sea levels and therefore flood levels over time.

PART B: SITE PRINCIPLE 13

13 SERVICES & WASTE MANAGEMENT

To provide adequate utility infrastructure including provision for handling waste to cater for the demands of the development.

Objective

Comply with the requirements of utility and waste collection authorities.

Guidelines

Development applications are to incorporate the following measures:

- Utility infrastructure including water, sewer, electricity, telecommunications and gas is to be extended to the site.
- Services and waste collection points to be supplied throughout the development.
- Waste for the tourist hospitality precinct is to be collected from the loading bay at the northern end of the site, as well as internally within the basement car park.
- Waste from the tourist residential accommodation precinct will be collected from the internal accessway within the accommodation zone.
- Provide adequate on-site storage opportunity for waste and recycling streams commensurate with the land use types and provide adequate arrangements for regular collection (including marina).
- All chemical and fuel storages are to be designed and operated in accordance with Information Sheets 5 and 6 DECC's Environmental Action for Marinas, Boat sheds and Slipways (June 2007).
- A waste management plan to be prepared to address the building construction and operational phases of development.

Full details will be provided in any future waste management plans for specific areas.

PART B: SITE PRINCIPLE 14

14 MARINA

To provide a Marina

Objective

Having regard to the contextual analysis undertaken, the proposal aims to take advantage of the Lake for the purposes of promoting tourism to the region. This site presents that opportunity, given limited environmental constraints and impacts (no dredging required, no significant impacts on sea grass or marina species and the like) together with the unique chance to combine it with a land based marina and tourism component.

Guidelines

- Stage 1 of the marina (divided into substages) will consist of 94 berths including the breakwater. One or more subsequent stages of up to 94 additional berths may proceed subject to a range of strict assessment triggers as outlined in the Concept Approval or subsequent approvals (see also Principle 19). Other land based marina functions will also occur without being limited to specific staging of the water-based marina.
- The proposed 188-berth marina will be constructed in stages (up to 5 stages across the full marina with the 94-berth 'hold point' as defined in the Concept Approval) and designed to meet AS 3962-2001 "Guidelines for Design of Marinas". The proposed Marina will be connected to the shore based components in a manner than does not unreasonably restrict public access along the foreshore.
- The proposed marina is to be protected by an outer floating breakwall.
- Marina arms to consist of floating pontoons.
- Provisions should be made available for casual public berthing (as part of each stage) and for occasional berthing of tourist boats on the outside eastern edge of the breakwater.
- If required by authorities, a vessel exclusion zone to the south of the southern breakwater is to be to protect extensive sea grass areas.
- Berths are to be provided with water, power and lighting services.
- The marina is to provide required fire fighting equipment plus public fuel and sewage pump out facilities within Stage 1. Double skinned fuel storage tanks are to be provided on land.
- Include provisions for associated land-based facilities, marina facilities and services and service infrastructure, as well as mixed-use development and parking (refer other components of Concept Plan).
- A water quality monitoring program is to be developed for the construction phase of the water and land based marina development.
- Construction Environmental Management Plans are to be prepared (water quality, erosion and sediment, noise, acid sulphate soil management and the like).
- Operational Environmental Management Plans are to be prepared, to also include operational management of the facility.

PART B: SITE PRINCIPLE 16

16 ACOUSTICS

Ensure that the proposed development does not have an unreasonable acoustic impact on the surrounding locality and on future occupants of the site.

Objective

The proposed development to comply with relevant standards for the emission of noise.

Guidelines

Proposed development is to incorporate the following measures:

- Comply with relevant noise criteria outlined in the acoustic report *Acoustical Criteria Trinity Point Marina & Mixed Use Development*, dated *August 2014* prepared by *The Acoustic Group* for all aspects of the proposed development. It considers relevant components of Condition B5 Acoustic Principle amendments with updates to match current guiding documents.
- Further detailed acoustic reports demonstrating ability to achieve compliance with the established noise criteria and ameliorative measures to be included with future development applications. This is to include assessment of impacts on the adjoining developing residential estate.
- A Construction Noise and Vibration Management Plan is to be prepared prior to construction activity commencing.
- An Operational Noise Management Plan is to be prepared for relevant components of projects as a condition to subsequent development consents.

Noise assessments which accompany the marina project component (those which are covered by the need for an Environmental Protection Licence) are to specifically provide data analysis on the assertions relating to ambient noise, explain differential between day and evening / night periods, justify vessel sound power levels used, include a sleep disturbance assessment and consider noise from refuelling and sewage / sullage pump out operations.

PART B: SITE PRINCIPLE 17

17 SUSTAINABLE DEVELOPMENT

To ensure that the proposed development adopts appropriate sustainability measures.

Objective

The proposed development is to minimise its impact on the environment by adopting sustainable design that includes the built form as well as energy efficiency and greenhouse gas minimisation during the design, construction and operational phase of the development.

Guidelines

Proposed development should incorporate the following sustainable practices and measures:

- Relevant components of the proposed development are to be designed to meet the orientation, solar access, sun protection and cross ventilation principles of SEPP 65.
- Relevant components of the proposed development being designed to meet the requirements of Section J of the Building Code of Australia.
- Relevant components of the proposed development meeting the requirements of BASIX and the relevant certificate being included with the development application for each stage.
- The proposed development being designed and operated to minimise the emission of greenhouse gases.
- The proposed development complying with the stormwater harvesting and re-use requirements of relevant requirements.

The proposal aims to minimise its impact on the environment by adopting the following sustainable design practices:

- Optimising building orientation to maximise access to natural light and sunlight where desired
- The design and incorporation of sun shading elements such as the considered placement of overhangs
- Rainwater harvesting
- Bio-swales
- Maximising cross ventilation through the buildings
- Section J compliance to be achieved at Construction Certificate stage
- The use of low maintenance materials
- Optimising thermal efficiency through the considered selection of materials and finishes
- Extensive landscaping and deep soil throughout the site
- Natural ventilation to the basement car park where possible
- Sustainable disposal and waste management of construction materials

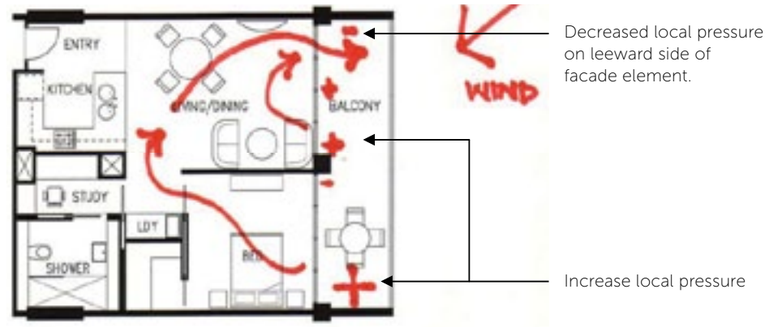


Figure 52 - Single Aspect
Reference: Steve King, *Optimising ventilation and solar access*, NEERG Seminars.

Variations in facade pressure distribution and the resultant ventilation patterns. The illustration is of a typical south facing one-bedroom unit on an upper floor, subject to southerly summer winds relatively common in Sydney. Cross ventilation is achieved in single aspect apartments through the use of recesses and protrusions in the facade.

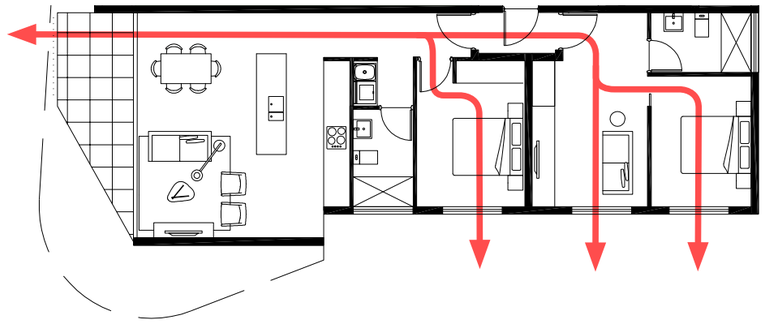


Figure 53 - Dual Aspect
Dual aspect apartment showing cross ventilation paths.

17 SUSTAINABLE DEVELOPMENT

Figure 54
Potential arrangement of single and dual aspect apartments on a typical accommodation floor. All apartments achieve cross ventilation.

Single aspect apartments achieving cross ventilation.

Dual aspect apartments achieving cross ventilation.

Figure 55
Potential arrangement of apartments satisfying SEPP 65 minimum solar access requirements.

Dual use permanent and short stay residential apartments receiving minimum solar access requirements.

18 INDIGENOUS & EUROPEAN HERITAGE

To incorporate appropriate Indigenous and European heritage management.

Objective

To minimise impacts on Indigenous and European heritage values and maximise opportunities to reinforce and interpret those values.

Guidelines: Indigenous Heritage

Community Consultation

The ongoing consultation and involvement with the development of the project shall be carried out with the Aboriginal community as represented by the Biraban and Bahtahbah Local Aboriginal Land Councils and the Awabakal Descendants Traditional Owner Aboriginal Corporation and the Awabakal Traditional Owner Aboriginal Corporation as primary stakeholders. Additional stakeholders may be availed of information as requested, and their opinions documented in the Aboriginal Heritage Management Plan.

Aboriginal Cultural Heritage Management Plan (ACHP) and Heritage Interpretation Policy

Development is carried out in accordance with an Aboriginal Cultural Heritage Management Plan and an Interpretation Policy prepared for the whole site. It shall be prepared by the proponent.

The Aboriginal Cultural Heritage Management Plan is to be a guiding document that outlines required policies and procedures. The Heritage Interpretation Policy is to be prepared and detailed to enhance the Cultural Heritage Management Plan. They are to be prepared to meet the following criteria:

- Developed in conjunction with the Aboriginal community and be based on historical data, cultural knowledge and archaeological evidence specific to Trinity Point;
- Provide procedures for ongoing Aboriginal consultation and involvement and management of any recorded sites within the Concept Plan area;
- Provide the framework for further archaeological investigations and/or salvage projects prior to impact and provide the framework for identification and management of previously unrecorded sites (excluding human remains);
- Provide a framework for the interpretation of the Aboriginal values and heritage of the site to the general public, for incorporation into overall site interpretation and into development details. This may be presented in different ways including interpretation/history devices and the display of artefacts in secure cases included within the development's interpretation/landscape strategies.
- Specify policies and actions required to mitigate and manage impacts of the proposal on Aboriginal heritage;
- Provide policies and measures for active conservation of in-situ deposits in the foreshore setback where possible;
- Be based on the recommendations of the Insite 'Trinity Point Marina Mixed Use Development Morisset Peninsula NSW, Archaeological Assessment' 30 October 2008;
- Provide measures for providing interpretation within the publicly accessible areas and protect parts of the lake foreshore land from additional increased visitation;
- Clarify the proponent's and future owners' responsibilities, financial obligations and commitments to implementing the ACHP and Interpretation Policy;
- Include timeframes for implementation of the developed policies of the ACHP for various stages of the project.

Onsite Heritage Interpretation and Management

The foreshore pathway:

- Provide controlled public access and Heritage Interpretation on site away from the more sensitive south-eastern lake shore, where sensitive aboriginal features have been observed. This is to allow them to remain in-situ without development impact.
- Retain the siting of the proposed foreshore pathway for public access within the Concept Plan / tourism zoned land on the south-eastern lake shore to address community concern about impacts of increased visitation to the sensitive foreshore edge.

Building Setback:

- Provide setback of buildings from Bluff Point to allow for space to enable some preservation of in-situ deposits, and as space for interpretation.

Salvage Excavations

Salvage excavations are to occur where there is potential for intact deposits to remain and where development footprint is to occur. This is to be limited to an additional 50m^2 in two 25m^2 excavation areas. Whilst the deposits will not be stratified, the analysis of those excavations in combination with others in the

18 INDIGENOUS & EUROPEAN HERITAGE

adjoining residential subdivision can provide a landscape analysis of the site for use in the recommended Interpretation Policy. It will add valuable information to the archaeological record of the Lake Macquarie Area.

Grader Scraps

Grader scraps prior to topsoil stripping and earthworks, only in the northern part of the site, is to be undertaken by the Aboriginal community or as determined through AHIP process. Any artefacts found during this monitoring and in the salvage excavations are to be recovered for relocation by the Aboriginal community in accordance with DECC guidelines.

Site Protection

Measures of precaution shall be implemented by the proponent to include precautions within the development proposal to ensure the recorded sites in the lake shore area are not impacted, destroyed or damaged by construction works regardless of ownership or management of the land.

Guidelines: Non-Indigenous Heritage

Development is carried out in accordance with an adopted Heritage Interpretation Policy and Implementation Plan and for the whole site the subject of this Concept Plan. It is to be prepared by the proponent and is to address the proponent's and future owners' responsibilities, financial obligations and commitments for implementation of these policies.

Heritage Interpretation Policy

- An Interpretation Policy and Implementation Plan and Management Plan is to be prepared by the proponent and adopted, drawing from the information in past historic research and heritage / archaeological assessments and investigations. The interpretation policy is to provide a framework for interpretation of the European use of the site to the general public, for incorporation into overall site interpretation and into development details.
- Interpretation of the grotto and the stone base sundial near Bluff Point is to be included in this policy and its management strategies.

Earthworks

- Monitoring of particular earthworks is to occur in the southern part of the site in the general area of the Bailey residence to record any peripheral infrastructure.
- A management plan is to specify measures for in-situ conservation and management of the grotto and the stone base sundial near Bluff Point and specify protective measures whilst development is occurring within their vicinity.

Landscaping

Existing cultural planting near Bluff Point are to be retained and managed. Interpretation of these cultural planting is to be incorporated. This is to be addressed in the Interpretation Policy.

PART B: SITE PRINCIPLE 19

19

STAGING, SUBDIVISION & MANAGEMENT

To ensure that any staging of the proposal protects key site outcomes.

Objective

To ensure that staging, subdivision, operation and management of the development is orderly.

Guidelines

The main components of the marina is to be developed in two stages, generally as described in Principle 13, being:

1. **Marina Stage One** – 94 private berths (completed in substages) on floating arms with the jetty connecting to the foreshore, fuel and pump out facilities and services, and the necessary component of the floating breakwater including casual public berthing. Stage 1 may also include service facilities (tanks and pumping stations), office, marina lounge, plus necessary access and car parking to cater for uses.

2. **Marina Stage Two** – 94 private berths (completed in substages) on floating arms, services, the additional component of the breakwater, and necessary access and car parking to cater for Stage 2 use. It is anticipated that any Concept Plan approval (and subsequent development consents) will specify the terms and requirements to enable construction of Stage 2 to proceed.

The above staging of the marina is not sequentially linked to staging of the remaining components of the land use proposal.

The remaining land based components are not subject to definite staging at this Concept Plan step as flexibility is sought. The following principles are to guide staging when it is proposed:

- It is important to create the tourist hospitality precinct in an early stage and some of the activating land uses.
- Staging of development for accommodation purposes is to be consistent with land use provisions as outlined in Principle 1 of this report. For example, in a staging sense, the cumulative number of residential accommodation units is not to exceed the cumulative number of tourist accommodation units (including hotel rooms) at any stage.
- Whilst the public pathway, spaces and their improvements will be staged, it is important that each stage provides a temporary pedestrian circulation system back to the public road network until it is replaced by subsequent final works in subsequent stages.

Development Applications are to provide details on intended subdivision, titling, operation and management of the development, and link that into management of potential conflicts between on site uses and necessary management of other operational issues such as marina operation, noise management, public domain management and maintenance and the like.

Development application/s may be lodged addressing relevant design issues such as desired character and built form essentials. Where a development application is lodged for part of the site, the established principles are to be carried through the balance of the site in future applications. Overall theming across the site must be tied together through the design of external spaces and landscaping.

The Concept Plan principles present an integrated design solution for the total site. Their success will be reliant upon a commitment to the design intent in the detail of the development to produce a high quality and integrated built form and landscape. These principles should be reflected within individual precincts, built form groupings, between precincts created by the landscaping, access network and to external interfaces. It is not however anticipated that the solution must be incorporated into only one development application, instead, the ongoing integration of the core principles whilst allowing the project to seek approvals and development of discrete components of the project with a degree of flexibility should be emphasised.

C

PART C: INDICATIVE OUTCOME

PROPOSED CONCEPT PLAN