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FINAL COMMENTS ON THE MODIFICATION OF MAJOR PROJECT 06_0063

FOR

THE PROPOSED REDEVELOPMENT OF CRONULLA MARINA

AT:

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ON BEHALF OF: **NSW DEPARTMENT OF PLANNING**
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Comments on the modifications made by the Proponent on Major Project 06_0063, Cronulla Marina Extension.

1.0 MARINA ISSUES

The revised proposal for Major Project 06_0063 is detailed on drawings numbered 01384-CS-DRG-001 Rev A and 01384-Cs-DRG-002 Rev A. In essence the design has increased in size with an increase in the maximum vessel size. We comment on the physical aspects and controls associated with the modification to the Cronulla Marina Extension Design as follows.

1.1. Size

The Marina has grown in size. The increase in marina size is due to two factors, an increase in the maximum vessel to be berthed at the marina and an increase in interior navigation channels above the minimums set by AS3962-2001. A comparison between the revised design and the original design submitted by the proponent shows that;

- The existing marina had an extension of 143m into the Bay (Southwest). This dimension was taken from the north western most extent of the Arm 'B' extension to the southwestern most extent of the mooring pen now designated No.59 and the lease line to it's southern face.
- The new revised and modified proposal, using the same reference point for this extension into the Bay, extends 155.3m southwest into the Bay. The modified design as represented by drawings numbered 01384-CS-DRG-001 Rev A and 01384-Cs-DRG-002 Rev A is 12.3m longer and hence has a 12.3m greater extension into the Bay. However;
- The original marina modification had an east-west width for Arm 'D' set at 78m.
- The proposed modified design sets this width from the eastern most extent of Arm 'D' to the western most extent at 69.7m.

- The footprint of the lease for the proposed modified redevelopment is 14,620m². The footprint of the lease for the original proposed redevelopment of Cronulla Marina is 14,457m². The revised proposal has an increase in proposed plan footprint and lease plan footprint of 163m².

In conclusion the proposed modified Cronulla Marina Redevelopment extends 12.3m further into the Bay (southwest) and extends across the Divisions of Waterways of one additional residence to the immediate west but is 8.3m narrower across Arm 'D'.

1.2. Vessel Berths Specified

Our original report discusses the need to justify vessel berth sizes. We have spent a considerable amount of time determining what suitable vessel mixes for this locality should be. The Proponent's Consultant has submitted supporting documentation justifying berth sizes as specified. We comment as follows;

- The revised documents and modified design drawings correctly count vessel berths. We note that as the four catamaran berths can be used by 8 single hull vessels with standard motor boat or yacht beams (AS3962-2001) that the vessel count be amended to read 76. This includes one additional 20m berth and three additional 15m berths. The Proponent can specify dedicated catamaran berths but as this can not be physically policed berths 32, 47, 57 and 60 should be classified as 32 & 32A, 47 & 47A, 57 & 57A and 60 & 60A. The Department of Planning should classify the marina based on these total berth numbers.
- The total percentage of vessels proposed to be berthed at a length of 15m or greater under the original proposal is 73.2%.
- The total percentage of vessels proposed to be berthed at a length of 15m or greater under the modified proposal is 75%.
- Vessel size and bulk has increased.

- Visual presence of the marina has increased.
- We note that the 20m vessels as proposed by the modified design have a cross sectional area of 76m² while the 18m vessels as proposed by the original design have a cross sectional area of 64m². The increase in visual bulk at Arm 'D' is 12m².
- The table on pages 4, 5 and 6 of WorleyParsons additional information for Cronulla Marina MP 06_0063 calls up 60 permanent berths, 23 in fixed floating berths and 37 on swing moorings. Of these 60 berths just two are 15m or greater in length and one vessel approaches 15m in length. The total percentage of vessels currently berthed at the existing marina and being close to or greater than 15m in length is just 5%, far less than the 75% proposed.
- Currently 75 usable permanent berths are proposed under the revised design (the 76th berth is a 20m slipway waiting bay). We have excluded the 20m slipway berth from the calculations and doubled berth 32, 47, 57 and 60 to arrive at 75 mooring pens. If we take all vessels close to (close being 14m and above) 15m and above from the waiting list and current berths we have 13 vessels of around 15m or greater in a 75 vessel berth marina. Again the total percentage of vessels proposed to be berthed at the proposed redeveloped marina and being close to or greater than 15m in length is just 17.3%, far less than the 75% proposed.

In conclusion although we see a need for larger vessels in most existing marinas the current vessel mix cannot be supported by current demand or those currently on waiting lists. The NSW Department of Planning will need to determine as to whether or not the proposed vessel mix is required to cater for a speculated future demand. Had our design office submitted a proposal for the redevelopment of Cronulla Marina we would have submitted the plan shown in Appendix 'A' of our review document. There is still scope to reduce the size of the marina based on vessel mix alone.

1.3. The 17 by 8.4m Barge

The Proponent proposes to moor a 17m long by 8.4m wide barge in mooring pen No.3. Should this mooring pen not have said barge moored within its confines then two 9m vessels would take up this double pen. The Department of Planning should designate this mooring pen as per the catamaran pens as a double berth. Available permanent berth numbers increase from 75 to 76 plus the 20m slipway temporary berth. We note that;

- Under AS3962-2001 the barge does not fit. Between the northern edge of the barge and Arm 'A' we require 1.5 times 17m as a minimum navigation channel. We have just 2.236m, some 23.264m less than the minimum requirement.
- AS3962-2001 infers minimum clearances between the gunwale of vessels and adjoining structures. This dimension set by Table 3.2 is 500mm clearance on each face. The pen is 8.8m wide, the barge is 8.4m wide, the pen width is 600mm too narrow and as such does not conform.

Does the Proponent intend to keep said barge in place permanently? We are unaware as to the proposed use of said barge but recommend that;

- The barge is permanent and as such part of the marina structure and not a vessel. Removing it to create a double pen at berth No.3 would require development approval in the future.

Preferably this pen should be in-filled with marina structure, or;

- Reduce the size of the barge to fit within the mooring pen and meet AS3962 -2001 requirements.

1.4. Navigation Channels

The proposed redevelopment has navigation channels set as follows;

- Between Arm 'A' and the Hardstand – N/A, casual berthing.
- Between Arms 'A' and 'B' – 11.02m between the 8m long house boats on the western edge of Arm 'A' and 9m berths on the eastern edge of Arm 'B'. AS3962-2001 requires a minimum of 1.5 times 9m or 13.5m. Mooring pens numbered 4, 5, 6, 7 & 8 need to be reduced in length to 8m for this navigation channel to meet Australian Standards.
- Between Arms 'B' and 'C' – 31.5m is detailed as an interior channel. AS3962-2001 requires 27m as a minimum and 30.6m as a preferred interior channel. This dimension can be reduced to as much as 27m reducing the total extent of the marina southwest into the Bay by 4.5m. We note the Proponents argument that catamarans will use this channel but drawings as supplied indicate twin mooring pens only and no catamaran pens.
- Between Arms 'C' and 'D' – 26.25m is detailed with a minimum of 22.5m required. Given that a dedicated catamaran berth is located within the confines of Arms 'C' and 'D' we see no issue with the increased interior channel width.

- Between Berths Numbered 1 and 2 and the adjoining public ferry wharf – a dimension of 15.852m is detailed by the proponent. The main walkway has been moved closer to the public ferry wharf by the proponent in this new modified design. Given the total distance between the eastern edge of the main walkway and the ferry wharf is 21.2m, the maximum vessel size that can be berthed in mooring pen numbered 1 and 2 is 11m long. The 12m vessel in berth number 2 needs to be downgraded to an 11m vessel and the 15m vessel in berth number 1 needs to be downgraded to an 11m vessel.

1.5. Northwestern Navigation Channel

The modified design submitted by the Proponent allows for a 30m navigation channel around the northwestern edge of Arm 'A' to service the existing public boat ramp and the proposed slipways. The channel width is the minimum required to permit a 20m vessel to access the marinas slipways.

We are expecting the head of the Bay to undergo further sedimentation. This sedimentation will reduce the navigation channel width and as such Cronulla Marina should be made responsible for any further dredging required in this locality to keep access to the slipway open.

We note that AS3962-2001 Clause 3.2.1(f) states that;

Where the area outside the marina is protected, the entrance channel should be deep enough to allow all boats that usually berth in the marina to enter at any stage of the tide. However, in areas of extreme tides the cost of excavating the channel may dictate that the larger boats cannot enter the marina at very low tides.

And

For marinas in waters of limited navigable depth, the requirement for berth and entrance channel depths should be agreed between the designer and the relevant authority.

Taking the above two paragraphs into account and minimum depth requirements (as a dimension) set by Clause 3.2 of AS3962-2001 we state the following.

- The navigation channel proposed by the Proponent along the northwestern extent of the marina, permitting navigation of vessels to the public boat ramp and the Proponents slipway is 30m wide.
- The public boat ramp currently requires a maximum navigation channel down into the Bay of 15m in width (10m vessel by 1.5m).
- The Proponents slipway, designed for a vessel up to 20m in length requires a minimum navigation channel width of 30m (20m by 1.5).
- The proposed navigation channel meets the minimum width requirements.
- We are expecting further sedimentation of the head of the Bay.
- The public boat ramp may double in size to permit two vessels to be launched at any one time. Shoalhaven City Council has just completed this upgrade at two of their public boat ramp facilities as have other Councils. Should such an upgrade be proposed by Sutherland Shire Council the minimum navigation channel width would increase to 30m, double the requirement for one boat ramp.
- The Proponent can limit 20m vessel navigation to the slipway during low tides and manage approaches to the slipways around higher tides. The public boat ramp cannot and if a zero tide falls during a weekend then there needs to be a minimum level of water in the entire navigation channel at these times.

- The 20m vessel requires a navigation channel depth of the vessel draft plus 0.3m clearance plus half the current design wave height. The minimum navigation channel depth should be 2.1m at zero tide or as represented on the Proponents drawings, a depth represented by the minus 3m contour.
- AS3962-2001 allows the Proponent to negotiate with the NSW Department of Planning to reduce this channel depth. Given the fact that the channel is used for casual berthing and the slipway we believe that the public boat ramp requirements can set minimum navigation channel depths.
- The Proponents design for the redevelopment and expansion of Cronulla Marina must not restrict further development of the public boat ramp. The public boat ramp requires a minimum water depth at zero tide of 1.2m (0.6m draft plus 0.3m half wave plus 0.3m clearance).
- The Proponents navigation channel although deep enough for their 20m vessel at high tides (should the Department permit such a reduction) is not deep enough for the future expected intensification of use at the public boat ramp. Dredging to a depth of 1.2m as a minimum in the navigation channel is recommended for the full width of 30m.
- The navigation channel will need to be marked with at the least one navigation pile.

1.6. Finger Width & Length

Previously we had found that a number of fingers between marina berths did not meet the minimum 0.8xL requirement. All fingers on all Arms are now conforming to this minimum length requirement bar the following berths;

- Berth No.8. Finger length is set by the 9m (now to be reduced as per comments above in Section 1.4 to 8m) vessel in berth No.7. Using the formula finger length = 0.8xvessel length the finger needs to be 9.6m long and not 7.8m as detailed. We do note however that we require berth No.8 to be reduced to 8m in length if it conflicts with the 'T' head at the end of Arm 'A'.

1.7. Slipway Requirements

We are still reviewing Martens report regarding the slipway. Subject to submittal of our final comments on the slipway management we comment as follows on the structure of the slipways.

- The EPA is adamant that they will not support any pumping of any water into the Bay. All water collected on the slipway concrete surface including rainwater must go to Sydney Water sewer system.
- The EPA and our office are concerned with the low level of the proposed grated drain collecting all water bound contaminates on site. We note that the slipway redevelopment proposes a grated drain at RL.0.98 (AHD). This figure when related to zero tide is equivalent to a 1.905m. Gunnamatta Bay is expecting tides as high as 2.0m this year excluding storm or wind surges. The following tides are expected this year;

  i) 1.8m high – 29 tides expected

  ii) 1.9m high – 16 tides expected

  iii) 2.0m high – 1 tide expected

- Note that the grated drains need to be located at a level that allows for a design wave at any of these high tides. At a minimum the slipways need a grated drain located at RL.1.525 (AHD) and a second lower grated drain at RL.1.225(AHD). These two figures are equal to a 2.5m tide and a 2.2m tide. In discussions with the EPA they are supportive of the two grated drain system at the above mentioned levels.

1.8. Fore & Aft Moorings

As previously discussed we are of the opinion that the four by fore-&-aft moorings be removed. These moorings limit further growth to the navigation channel for the public boat ramp and may move with further sedimentation of the Bay.

We will finalise our review of the slipways shortly. Feel free to contact our office should you have any questions.

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Joshua Stuart Parsons
Director