



THE ENTRANCE PENINSULA

COMMUNITY PRECINCT

ENCOMPASSING: THE ENTRANCE; THE ENTRANCE NORTH; LONG JETTY TOOWOON BAY; BLUE BAY; SHELLY BEACH & MAGENTA

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06 April, 2011

Michael Whittaker
The General Manager,
Wyong Shire Council,
PO Box 20,
Wyong 2259

Subject: **SUBMISSION ON TUGGERAH LAKES FLOODPLAIN
RISK MANAGEMENT STUDY.**

Dear Michael,

This submission is TEPCP's response to Tuggerah Lakes Floodplain Risk Management Study. In our response TEPCP has accepted the NSW State Governments directive to establish a conservative 0.9 metre sea level rise into the flooding risk assessment and the consequences of setting a Possible Maximum Flood (PMF) at this level.

While the study deals with the whole of the management process for the floodplain surrounding Tuggerah Lakes this submission deals mainly with the impact on The Entrance Peninsula Precincts floodplain management areas, The Entrance-Long Jetty and The Entrance North areas, which are two of the areas most severely impacted by flooding. That said, if Council can address our concerns it will be addressing most of the community concerns in the whole floodplain.

TEPCP has identified a critical number of issues in reducing the risk of floods impacting upon our community. Set out below are a number of recommendations from TEPCP and we request that Council consider adopting these recommendations in Stage 3 of the process, the development of the Tuggerah Lakes Risk Management Plan. The recommendations include measures that can be implemented to control future development in flood affected areas and measures that can be implemented to protect existing properties, such as protection of the sewerage system, improvements to the levy at North Entrance and ensuring the sand bar at The Entrance channel is not too high to cause a rise in floodwater in the lake.

RECOMMENDATION

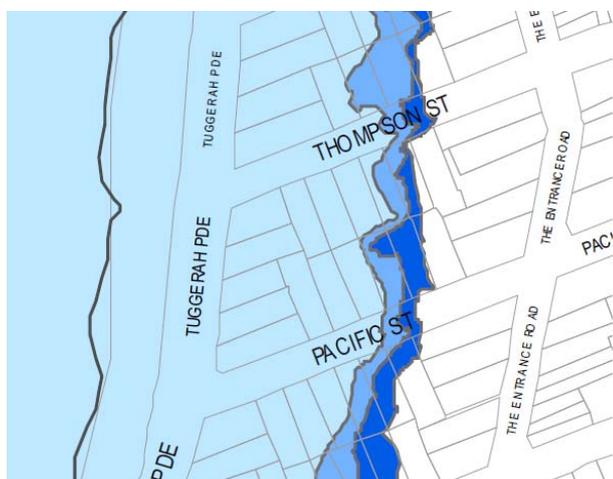
TEPCP also has serious concerns that Council has separated the Tuggerah Lakes Floodplain Risk Management Study from the Coastline Management Study and Plan. The impacts of flooding and coastal erosion on the Entrance Peninsula Precinct Community are severe and we request that consideration be given to an integrated approach in the management of these impacts.

FLOOD RELATED DEVELOPMENT CONTROLS

The study states that: *the simplest and most effective measure to protect future development is to raise the Flood Planning Level or FPL to account for climate change.*¹

TEPCP considers that the following options should not be implemented in a blanket fashion:

- *All new developments must include a sea level rise component of 0.9m in the Flood Planning Level,*
- *The Section 149 certificates should be modified to include text on the potential implications of climate change,*
- *There should be no increase in the current density of residential development unless there is flood free access to suitable high ground in the 100 year ARI event plus 0.9m sea level rise.*²



Ninety years into the future is a long way to plan for. In flood prone areas the proposed life of the structure, its future depreciated value, need to be considered in approvals together with *restricting development to the lowest residential zoning.*³ *House raising as a means by which a new house can be built at the existing FPL but is constructed in such a manner that it can be raised in the future as climate change impacts occur*⁴ is preferred to a piece-meal approach can lead to dis-harmony within the community where there are some raised properties and some non raised properties.

Development Site, (the Long Jetty Town Centre Extension) being considered suitable for inclusion into the Comprehensive LEP because this site is severely impacted by Sea Level Rise Projections.

On 21 November, 2010, TEPCP drew to Council's attention our concerns about an Iconic

RECOMMENDATION

TEPCP requests that a Staged Approach to implementation be adopted in conjunction with the results of the Coastal Management Plan.

TEPCP proposes that development in Long Jetty's flood prone areas be restricted to the lowest level of residential zoning or zoning suitable for caravan parks that can be easily evacuated. The impact of flooding on the Iconic Developments sites of The Entrance (The Entrance Resort) and at North Entrance, (Dunleith Tourist Park) are a concern and flooding needs the be addressed as part of The Entrance Master Planning process.

¹ Tuggerah F R M Study.docx:10 February 2011 PAGE 73

² Tuggerah F R M Study.docx:10 February 2011 PAGE 77

³ Tuggerah F R M Study.docx:10 February 2011 PAGE 75

⁴ Tuggerah F R M Study.docx:10 February 2011 PAGE 74

It is considered that the planned retreat option for flood prone land in The Entrance Peninsula Area would be premature and needs to be an option that is monitored and implemented only when the need arises in the future.

REVIEWING FLOOD PLANNING LEVELS

Accurate recordings of lake levels have only been available since installation of the Toukley and Killarney Vale gauges in 1985⁵.

RECOMMENDATION

The need to carefully monitor the lake level at frequent intervals, to allow a regular review of the Flood Planning Level or FPL every 3 to 5 years, to account for climate change, is very important. The FPL can then be amended up or down as need be. This action by Council is strongly recommended.

LEVEES, FLOOD GATES AND PUMPS

The North Entrance area is protected from inundation from the Pacific Ocean by the coastal dune system (up to 13 mAHD). Wilfred Barrett Drive (constructed in approximately 1965) forms a levee (road level at approximately 2.5 mAHD based on the ALS) preventing inundation from an elevated lake level. In the south, between the northern approaches to the bridge and the sand dunes, there is no defined levee bank but ground levels are generally above 2.5 mAHD.

Inundation from elevated lake levels (to the level of Wilfred Barrett Drive and ground levels near Link Road) is prevented by the flap gates as long as they operate as designed. There is a risk flap gates may fail and be stuck open or shut for a number of reasons including:

- *human interference (children),*
- *Council has advised that there are vandalism and maintenance issues with the flap gates,*
- *vegetation or other debris (wood, weed growth at the outlet),*
- *rust or corrosion.*

The only practical way to ensure that the gates operate as designed is by a rigorous inspection and awareness program.⁶

TEPCP's North Entrance members believe that Wyong Council has a very poor maintenance record when it comes to the maintenance of these flood protection flap gates.

RECOMMENDATION

We consider that Council in its flood awareness campaign should consider appointing volunteer flood wardens who monitor these devices and that consideration be given to having a rapid response system where gully pits can be quickly sand bagged to a level that would prevent flood water flowing into North Entrance Streets from these gully Pits. This method was seen to be effective in protecting levy protected areas in northern NSW and Queensland in the recent devastating floods.

The State Government should be requested to make the Central Coast Highway flood free by raising *Wilfred Barrett Drive to the PMF Level (2.7 m AHD)⁷.*

⁵ Tuggerah F R M Study.docx:10 February 2011 PAGE 6

⁶ Tuggerah F R M Study.docx:10 February 2011 PAGE 44

MAINTENANCE OF SERVICES

The report states: *more frequent inundation during floods, as a consequence of a sea level rise, will impact on the maintenance of services (mainly roads but presumably many other services as well, such as sewer, gas and electricity).*⁸

RECOMMENDATION

TEPCP considers that flood proofing the sewer system to be of the highest priority. A funding strategy must be found urgently to undertake works that will prevent raw sewerage discharging into Tuggerah Lakes as occurred in the 2007 floods.

THE ENTRANCE CHANNEL:

TEPCP has carefully considered the study and have noted that *water levels in the lake are primarily controlled by the entrance channel which connects Tuggerah Lake to the ocean.*⁹

We also note that *since mid 1993 Council has initiated a policy of maintaining a permanently open entrance by regular dredging of the entrance channel. The criteria for maintaining an open entrance were established in September 1990 and include:*

- *a 40 m wide channel at 0 m AHD with an invert at -1.5 m to -2.0 mAHD,*
- *the channel is to be maintained in a relatively fixed position on the beach, approximately 200 m north of the exposed rock shelf, aligned perpendicular to the beach line,*
- *the system must have the flexibility to undertake dredging if the entrance channel migrates to the south,*
- *the sand which is removed is to be returned to the beach north of the entrance.*¹⁰

If the entrance to Tuggerah Lakes becomes blocked by sand build up (formation of a berm) then floodwaters will pond to the height of the berm before any outflow occurs.

TEPCP is also aware that *the current best-practice for managing ICOLLs is for the opening/closing regime to be self-maintaining, as far as possible, with human intervention only when there is likely to be a significant adverse social impact.*¹¹

The study also reveals that ***dredging is not likely to significantly impact peak flood levels in the lake and that there is very limited justification for dredging of the entrance to Tuggerah Lakes in terms of reducing flood damages and other measures may provide a greater benefit cost ratio in reducing flood damages.***¹²

The result of *providing a fully open channel (250 m wide to -1m AHD) will provide a significant reduction in flood levels (a 100 year ARI event becomes a 20 year ARI event) and would reduce the 100 year ARI damages by approximately 80%.*¹³

⁷ Tuggerah F R M Study.docx:10 February 2011 PAGE 46

⁸ Tuggerah F R M Study.docx:10 February 2011 PAGE 76

⁹ Tuggerah F R M Study.docx:10 February 2011 PAGE 14

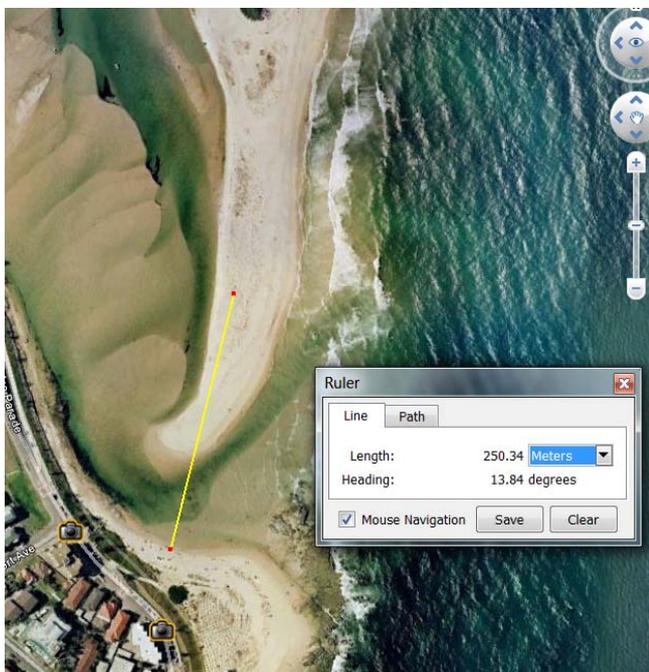
¹⁰ Tuggerah F R M Study.docx:10 February 2011 PAGE 10

¹¹ Tuggerah F R M Study.docx:10 February 2011 PAGE 37

¹² Tuggerah F R M Study.docx:10 February 2011 PAGE 41

¹³ Tuggerah F R M Study.docx:10 February 2011 PAGE 49

This is significant flood reduction. It is recognized that this is a costly option and difficult for Council to achieve.



2004 Caterpillar 615C II

\$239,000*



At Terrigal Lagoon and at Shoalhaven Heads the respective Councils have an entrance management policy which ensures that a nominated berm level is maintained through excavation by bulldozer.¹⁴

RECOMMENDATION

TEPCP requests that Council seriously considers- that by permanently maintaining a modified berm level 0.1m above the normal level of the lake to provide a 250m wide sand bar that is soon over topped in time of flooding as a good and achievable compromise to trying to open the channel itself.

This option has the following benefits:

- Adequate warning time is not an issues.
- A self elevating scrapper could be purchased by Council to remove the sand and spread it on North Entrance Beach at a cost less than one years dredging.
- The rate of rise of Tuggerah Lake: Above (say) 1.0 m AHD where the equipment would become bogged is not an issue.
- It is a safe option. The equipment and labour would work in a fine and calm weather, not in the harsh environment (rain, wind, ocean waves, rising water level, possibly darkness). that trying to open the channel in time of flood would involve.
- There is a very low risk to life and loss of equipment.

¹⁴ Tuggerah F R M Study.docx:10 February 2011 PAGE 40

- It is a better option than channel dredging because it would be more effective in reducing flood levels.
- It is a more cost effective option to dredging than spending \$400,000.00 per year on dredging

RECOMMENDATIONS

TPCPC recommends that Study should also address in detail the implications of flooding on the community. It is of great concern that this Report is certainly to have a serious impact on the future of our region. Such impacts include :

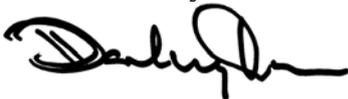
- Insurance premiums
- Value of Properties
- Future investment in new developments
- Effect on Tourism
- Effect on Business Growth
- Sustainable population

RECOMMENDATION

TEPCP requests that Council seriously considers deferring accepting the Tuggerah Lakes Floodplain Risk Management Study until after the Coastline Management Study and Plan has also been exhibited so that the combined implications on our community can be assessed in total.

We thank you for the opportunity to comment on the Study and trust that the issues and recommendations that TPCPC have presented, will be given serious consideration and acted upon appropriately. A response to our submission would be appreciated

Yours Sincerely



Douglas Darlington

Secretary

The Entrance Community Precinct Committee

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