

1 March 2023

Our ref: RL-1785-03-00

Northern Beaches Council  
1 Boondah Road  
WARRIEWOOD NSW 2102

To whom it may concern,

**RE: Review of Determination Application No. REV2022/0024 for Review of Development Consent No. DA2021/2173 Relating to Newport Surf Life Saving Club at 394 Barrenjoey Road, Newport – Supporting Information / Amendments to Application**

We write in response to the request for further information made by the Coastal Team on 28 February 2023 regarding the Review of Determination Application No. REV2022/0024, which requested a review of Development Application No. DA2021/2173 for alterations and additions and coastal protection works to Newport Surf Life Saving Club (SLSC) at 394 Barrenjoey Road, Newport. The email requested further information as follows:

*Issue: The threat to public safety and property associated with coastal inundation (wave runup and overtopping).*

*The information submitted with the application identifies a need to mitigate the impacts of inundation under current and future conditions. A range of potential structural and operational measures to address the overtopping risk to life and risk to property are outlined in the DA documentation. Generally the details are left to further design stages.*

*It is requested that the applicant provide confirmation of the specific mitigation strategies proposed to address the identified inundation risk so a condition can be drafted requiring the incorporation of the selected mitigation strategies into the detailed design of the works or operational phases of the works.*

*Without this information it is not possible for the assessment to conclude that the works will not, over the life of the works, pose or be likely to pose a threat to public safety.*

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## **Quantification of Design Criteria for Coastal Inundation Hazard**

The above approach is dependent on quantification of the relevant design criteria for the coastal inundation hazard affecting the subject site. The Coastline Risk Management Policy in the DCP requires adoption of a Coastline Planning Level (CPL) as defined in Section 6.1 of the Policy, for the 100-year Average Recurrence Interval (ARI) design storm event and considering the life of the development.

The Coastal *Engineering and Flooding Advice for Newport SLSC Clubhouse Redevelopment* report prepared by Horton Coastal Engineering (HCE, 2021; Issue 3 dated 26 August 2021) proposed CPLs for different parts of the SLSC building based on their exposure to coastal inundation hazard. The CPLs were proposed were based on estimates in WRL (2021), noting however that the authors stated that *'if the results are deemed to be critical, EurOtop (2018) recommends site specific physical modelling'*.

The applicant commits to undertaking the suggested physical modelling during detailed design for purposes of refining the proposed CPLs consistent with the requirements of Section 8.2 of Appendix 6 of the Pittwater 21 DCP. The methodology (e.g. with respect to antecedent beach volumes/profiles) would be confirmed with Council prior to undertaking the modelling. Upon completion of this task, the detailed design of the proposed coastal inundation management measures (see below) would be undertaken.

## **Coastal Inundation Risk Management Approach**

The approach to managing the risk of coastal inundation to public safety adopted for the proposal is consistent with ISO31000-2018: Risk Management – Guidelines and the requirements of the Pittwater 21 Development Control Plan (DCP) Appendix 6 – Coastline Risk Management Policy for Development in Pittwater.

Due to the function of the SLSC in providing critical surf life-saving services at Newport Beach, and noting also the other constraints on the landward relocation of the building articulated in the Options Assessment and Review report (Rhelm, 2022) appended to the Amended Statement of Environmental Effects (SEE; Rhelm and NBP, 2022), it was not considered feasible to 'avoid' the coastal inundation risk by relocating the SLSC building outside of the coastal inundation extent.

Hence, the adopted risk management approach is, in the first instance, to mitigate the risk of coastal inundation to the extent reasonable and feasible. A range of complementary measures are then proposed to appropriately manage the residual risk to public safety from coastal inundation.

**Table 1** summarises the measures that the applicant commits to delivering to manage the risk to public safety from coastal inundation hazard over the life of the works, relevant to the refined CPLs (see above). The proposed measures would be confirmed during detailed design in consultation with Council.

**Table 1 – Coastal Inundation Risk Management Measures (after Section 6.2 of HCE (2021))**

No.	Risk Management Measure	Cross-reference
<b>Mitigation Measures</b>		
1	Design and construction of staggered solid seating at the seaward and landward edges of the promenade, seaward of the retained portion of the SLSC building to reduce wave forces and inundation depths at the building.	Master set of plans prepared by Adriano Pupilli Architects: <ul style="list-style-type: none"> <li>• Drawing No. 010, Revision B 14/06/2022</li> <li>• Drawing no. 013 and 014, Revision C, 24/02/2023.</li> </ul> Buried Coastal Protection Works plans prepared by Horton Coastal Engineering and James Taylor & Assoc.: <ul style="list-style-type: none"> <li>• Drawing no. S02 and S10, Revision D, 24/8/2021</li> </ul>
2	Constructing the privacy screen at the southern end of the clubhouse from solid materials resistant to wave forces for at least 0.9m above natural ground, to reduce the potential for inundation to enter the shop/BBQ room down the southern side of the Building.	
3 (option)	If the above mitigation measures 1 and 2 are insufficient to reduce the coastal inundation hazard to an acceptable level (noting the adoption of the measures to address residual risk below), install a wider wave return wall (i.e. wider stairs or wider promenade extending further east) or install the underside of the stairs at a higher elevation.	
<b>Structural Measures to Address Residual Risk</b>		
4	Designing cross-falls on the concrete promenade seaward of the building and within the building to ensure that inundation would drain away from the building.	Master set of plans prepared by Adriano Pupilli Architects: Drawing no. 010, Revision B dated 14/06/2022.
5	Design and construct remedial measures on the seaward face of the retained portion of the SLSC building to improve structural resilience to wave forces (secondary structure on inside face such as steel stiffening plates or concrete wall).	Section 6.2.5 of HCE (2021)
6	Design and construct sufficiently thick reinforced concrete walls for the new portion of the SLSC in order to provide resilience to predicted wave forces (with storage room doors considered to be sacrificial).	
7	Using floor finishes and wall materials (up to the relevant CPL) that would withstand inundation, such as concrete and tiles.	Section 6.2.7 of HCE (2021)
8	Allowing for wave forces on glazing, or constructing glazing that faces seawards from toughened/laminated glass with appropriate fracture characteristics that present a low	

No.	Risk Management Measure	Cross-reference
	hazard when fractured, or such that it holds together when shattered.	Section 6.2.7 of HCE (2021)
9	Placing electrical fittings and outlets that could be damaged by inundation above the relevant CPL, or waterproofing them to marine grade below this.	
10	Ensuring that the lift and lift shaft includes no items that could be damaged by inundation located below 6.7m AHD (noting that the lift car could be sent to the upper level prior to a storm).	

In addition to the risk management measures in **Table 1**, the applicant commits to preparation of an Emergency Action Plan for operational phase of the proposal. The Plan would be activated in advance of and during a storm event that could result in coastal inundation impacting the promenade and/or SLSC building. As per Section 6.2.7 of HCE (2021), the Emergency Action Plan would include (but not necessarily be limited to):

- A procedure for monitoring forecasts and triggers defining when the Emergency Action Plan will be activated;
- Details of the potential impacts of a coastal storm and the relevant CPLs for the SLSC building;
- Installation of temporary fencing to prohibit public access to the SLSC precinct during the event;
- Cessation of SLSC operations and closure to the public, as well as de-mobilisation of non-essential personnel;
- A requirement to raise or relocate items or equipment that may be damaged by, or become polluting due to, inundation above the relevant CPL prior to the storm event;
- Sandbagging of ground floor entrances likely to be impacted by coastal inundation;
- Procedures for recovery from, and re-establishment of operations, following a storm event;
- Training for SLSC personnel in the Emergency Action Plan;
- Post-event review of implementation and documentation of any lessons learned;
- Periodic updating of the Emergency Action Plan, as required.

The Emergency Action Plan would be developed in consultation with Council following refinement of the CPLs and detailed design of the risk mitigation measures detailed in **Table 1**. The applicant suggests the Emergency Action Plan require endorsement by Council prior to adoption.

### Concluding Remarks

The applicant commits to implementation of the coastal inundation risk management measures detailed in this letter. It is considered that this risk management approach would reduce the threat to

public safety from coastal inundation hazard to an acceptable level. The physical modelling of coastal inundation hazard would enable to the derivation of site specific CPLs suitable to managing the risk over the life of the proposed development.

If you would like to discuss any aspect of this response in further detail, or if you have any further concerns or queries relating to the application, please do not hesitate to contact me.

Sincerely,



Tanja Mackenzie (CEnvP No. 0447)

Principal Environmental Scientist

## References

Horton Coastal Engineering [HCE] (2021), *Coastal Engineering and Flooding Advice for Newport SLSC Clubhouse Redevelopment*, Issue 3, 26 August 2021.

Rhelm (2022), *Options Assessment and Review Newport SLSC Alterations and Additions and Ancillary Works*, dated February 2023.

Rhelm and NBP (2022), *Alterations and Additions to Newport Surf Life Saving Club Amended Statement of Environmental Effects*, dated 25 November 2022.

WRL (2021), *Newport SLSC coastal engineering advice*, dated 8 July 2021.