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02/09/2024

MR Angus Gordon
- 46 Taiyul RD
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RE: DA2021/2173 - 394 Barrenjoey Road NEWPORT NSW 2106

Newport Surf Club Submission for the LEC hearing on the Reconsideration of the Panel's decision.

A. D. Gordon OAM

EXECUTIVE SUMMARY

This submission is a modification of the document I previously lodged for the reconsideration by the Panel. The modifications in this submission take into account the recently proposed changes to the seawall design and the modifications required to cope with the wave forces from overtopping water during storm events, as per the consultants' reports.

It is noted that based on the information contained in the revised consultants' reports, the project has now escalated to have a total cost, including the modified seawall, of around \$10M. Haskoning (8.24) quotes the estimated current building cost estimate, excluding the coastal protection works and GST, would now be approximately \$6.0M. The proposed coastal protection works are estimated to cost an additional \$4M.

Council still lists the cost of project as being the previous sum of \$7,365, 226.00. Both Haskoning (6.8.24) and Rhelm (8.24) make the point that given the proposed design Council will also need to provide operational funds to undertake beach scraping and beach nourishment to ensure safe access from the clubhouse to the beach at times when the beach is below the stair/bleacher level of RL 3 or the ramp level of RL4.

It is also noted that Council not the Newport Surf Life Savings Club is the applicant for the purpose of the Development Application as Council is the owner of the building. There are unfortunately a number of matters of apparent confusion within Council. Staff seem to have generated artificial constraints, as the regulator, on itself as the applicant, without any consideration the holistic outcome involving the likely impacts on the Club, the beach and the public, and the probity of doing so. The Club has become the unwitting "meat in the sandwich" between the Councils multiple roles and conflicts of interest. This has resulted in Members of the Club and the community laudably supporting the Club and criticizing the Planning Panel's decision without realizing that Council was the applicant and that it was the issues Council failed to adequately address, and the constraints it artificially imposed on the project that led to the refusal decision by the NSW State appointed Planning Panel; a Panel which included three recognised experienced coastal managers.

The fundamental reasons for the refusal can best be understood by close inspection of a "Figure 20" of the Horton Coastal Engineering (HCE) report (taken from the Worley Parsons coastal vulnerability report and included later in this submission). This figure shows that as time progresses the shoreline of the Newport beach will progressively retreat landward making the current clubhouse more vulnerable to erosion events, and to increasing oceanic over wash and flooding of the clubhouse and it surrounds. The fundamental problem the Figure 20 highlights is that the clubhouse is in a vulnerable location and if the clubhouse is defended with the currently proposed seawall the protected clubhouse region will progressively emerge as a headland splitting the beach in two, whether or not there is still a clubhouse on the site. Further the clubhouse will

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also increasingly suffer oceanic flooding from the sea around the sides and back of the building as the seawall is outflanked. Basically, the thinking behind the proposal focusses on today's situation without demonstrating an understanding of the implications of future conditions.

For example, the recent Haskoning report (6.8.24) puts forward a credible argument for selecting a 60 year design life of the building, and the design criteria required for the seawall to achieve the protection needed for the building to reach its design life at an acceptable level of risk. Presuming the building achieves its design life it is considered likely, based on the wall design criteria, that the wall itself will still be in a workable condition at the end of the 60 year period and would be difficult and expensive to remove. Hence the future evolution of the headland type feature at the clubhouse site is likely to persist past the 60 years. That is, there is an important difference between the design life of the clubhouse and the design life of the seawall intended to protect the clubhouse. This is an apparently esoteric point but in fact is a critical determinant of which design life to use for which component being considered.

While the building may currently seem to be in a "reasonable" location; the lessons of the May 1974 event seem to have been forgotten with time. Despite numerous attempts to address issues on an ad hoc basis, with a range of options it is the Haskoning report (6.8.24) that appears to provide a solution for possible clubhouse protection with a recurved wave deflecting parapet wall along with significant strengthening of the clubhouse wall especially the section not protected by the parapet wall. Importantly, the Haskoning report, in discussing the findings of the model testing, states:

"roller shutters originally proposed to be located along the seaward face of the new northern section of the building would be damaged unless protected by wave return walls or relocated from the seaward face"

That is, access to the storage area of the northern portion of the building would be severely limited by either a parapet wall or a reinforced concrete front wall without openings. It isn't apparent the club is aware of this as it would undoubtedly provide difficulties whereby equipment including surf craft stored in the northern portion of the building would have to be taken out into the carpark through openings in the western wall.

It is noted that the Water Research Laboratories (WRL, 8.24) studies on wave overtopping demonstrate the need for the proposed recurved deflector parapet wall on the top of the secant wall and the need for the building, particularly the unprotected northern portion, to be designed to resist the wave forces. However, it would seem WRL (8.24) was not asked to provide a "recommended design" rather that it was asked to test various scenarios regarding wave deflection and impacts forces. The range of tables followed by the very brief "Conclusions" (WRL, 8.24) attests to this. It would seem that the disjointed approach adopted by Council has failed to recognise the conflicting opinions in regard to management of overtopping along the northern section beyond the parapet wave reflecting wall.

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It is noted that the rationale for the 1050m height of the wave parapet does not appear to be based on the modelling, which as the photographs clearly demonstrate, would suggest a greater height is required. However, it would seem the height of the wall may have been based on options discussed in earlier reports that a parapet could also incorporate seating.

The photographs in both the WRL (8.24) report and the Haskoning (6.8.24) demonstrate the significant wave overtopping that the various proposed options experienced during the modelling at WRL (8.24). They also highlight likely forces on the northern section of the building. The structural engineers report (Partridge 20.8.21) states "The existing structure, in its current condition, will not resist the design wave loading as noted in the WRL or Horton reports". They also state "The storage room doors would be considered as sacrificial unless measures were installed to reduce wave forces on the new portion of the building". However, the Haskoning (6.8.24) report, prepared after the model testing by WRL states the "roller shutters originally proposed to be located along the seaward face of the new northern section of the building would be damaged unless protected by wave return walls or relocated from the seaward face". A significantly different finding to that of Partridge (20.8.21), and one that has important implications for the club's operations.

In terms of the DA under consideration the Objects and requirements of the NSW 2016 Coast Act provide for matters such as not only the impact of the coastal processes on the structure but also the impact of the structure on the coastal processes and public beach amenity to be considered for the "life of the structure". However, the latter requirement seems to have been overlooked. Nor has the potential ill effects of the seawall on access from the clubhouse to the beach as recession takes place been adequately considered. Again there is confusion in understanding what "the life of the structure" means.

Further the implications of locking up sand behind the wall on the storm demand for sand at the southern end of the beach and at Bilgola (as covered in this submission) has also been overlooked. It would seem that Council has effectively, and conveniently, disregarded the Coastal Act and the associated SEPP along with PS-21-009 and the adverse impacts of the seawall proposal on the coastal processes of the Newport/Bilgola embayment. There are

better solutions that do not have the same adverse impacts as those of the current DA and which can satisfy the dictates of the Coastal Act and SEPP and would provide the Club with the additions they have identified are needed.

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INTRODUCTION

As a society we seem to have difficulty in learning about, and understanding, the inappropriateness of building and continued investment in assets, particularly expensive and important community assets, in vulnerable locations. This is regardless as to whether that vulnerability is due to the hazards of coastal erosion, floods or bushfire. The current Council DA for upgrading the Newport Surf Club is a testament to this, as is Council's challenge to the decision of the Planning Panel, a State Government authority with expert coastal management members. All this has been compounded by Council's confusion as to how to competently manage its consultants and conflicts of interest generated by its multiple role as the regulator and the applicant.

In reconsidering the Planning Panel's refusal of the Newport Surf Club's clubhouse upgrade proposal, it is useful to consider the context of the clubhouse in terms of its relationship to the Newport beach and embayment, the history of clubhouse re- developments on the northern beaches and the objects and objectives of the 2016 Coastal Management Act and associated 2018 SEPP (now incorporated into the Resilience and Hazards SEPP).

While it is vital that clubhouse facilities be regularly upgraded not only to accommodate the changing rescue equipment but also to continue to maintain and attract new members to ensure beach safety for the overall community. However, these upgrades should not adversely impact on the very beach the Club is there to service nor put at risk the increasing threat to the Club operations due to developing future vulnerabilities in the life of the clubhouse.

Unfortunately, it is clear the Council has failed to recognise, the likely adverse impacts over time on both the beach and the club by requiring the current clubhouse building to be protected by a seawall. In doing so it has placed the Club in a difficult position by encouraging a development which will demonstrably produce an outcome which is contrary to the Objects, and requirements of the NSW Coastal Act, the future operations of the Club and the community's enjoyment of the beach.

There are better solutions had Council a better understanding of coastal processes and future changes in those processes as a result of climate change as the Objects of the Coastal Act enunciate. Leadership in strategic relocation of assets over time is arguably a role for councils.

BACKGROUND IN BRIEF TO SURF CLUBHOUSES ON THE NORTHERN BEACHES

Surf lifesaving has a vital role in risk managing the community's enjoyment of the beach and surf environment. It also provides key surf advice and lifesaving training to a wide range of volunteers. In addition, the clubs are important social centers for community activities. Given their primary lifesaving functions surf club clubhouses have historically been located as close as possible to the beach so that their equipment and in particular their rescue craft are readily accessible.

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On the Northern Beaches many clubhouses are in relatively sheltered locations at the ends of beaches. Some however have little choice but to be in potentially more vulnerable exposed locations. Over the years some clubhouses have suffered damage at different times, and for different reasons. For example, at the other end of the Northern Beaches the Manly SLSC clubhouse has had to be relocated and totally reconstructed, on three occasions, for differing reasons.

The storms of the late 1960s and early 1970s, particularly the two 1974 storms (May and June) demonstrated the vulnerability of five clubhouses, Freshwater, Long Reef, North Narrabeen, Bungan and Newport. The damage at Freshwater, Bungan and Newport was similar with the beach frontage of the clubhouse being undermined and overtopping waves entering the building causing damage to the buildings themselves, and the stored equipment. Long Reef was an unusual case as, although difficult to believe today, the waves broke down the boathouse door and entered the clubhouse building. But in this case, this was due to the northward deflection of the Dee Why lagoon entrance during the storms which removed the protective buffer of the dunes in front of the clubhouse. A

relatively simple solution involved the subsequent redirection of the lagoon entrance and the re-establishment of the dune buffer. This buffer meant the clubhouse could be sensibly upgraded in place, as has occurred. With both Freshwater and Bungan, after consideration of the potential future damage to the buildings and the amenity of the beach, the decision was taken to adopt a "managed retreat" approach by confining the upgrading and redevelopment to the landward side of the existing clubhouse. It was accepted that over time the old clubhouses would likely be lost in severe storms like the 1974 events or worse. The concept was that the new structures associated with the redevelopments, although connected to the existing building, could stand-alone once the old building was lost. The design featured a "breakaway" connection so the old building could be lost without damage to the new building but that to all intents and purposes the buildings were integrated for the time being. This approach meant that no further attempts were made to protect the existing buildings as it was recognised that such protection would eventually compromise the public amenity of the beach and the operations of the SLSC. However, importantly, the existing buildings, albeit reduced in size in the case of Freshwater, were allowed to remain for the time being while they stayed functional. North Narrabeen clubhouse is an interesting example of managed retreat where the old two-story clubhouse was approximately the same size as the current Newport clubhouse. It was in a similar coastal exposure location at the front of the current car park immediately adjacent to the active beach, and away from any headland protection. While of a similar size, location, and function as Newport clubhouse the building itself had little architectural merit. CZM & P 2024/002 5 2nd September 2024

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When it came to upgrading and repairing the North Narrabeen Clubhouse building the decision was taken to totally remove it and construct a new clubhouse to the north of the carpark and further inland, next to Birdwood Park, ensuring there was sufficient dune buffer between the clubhouse and the likely beach fluctuations associated with future storm action and the likely shoreline recession during the life of the new building.

The old North Narrabeen Clubhouse on the old site, before the new club was constructed.

All these decisions were based on a philosophy of minimizing the likely future adverse impact of the clubhouse on the coastal processes of the beach, the communities' beach amenity, and the vulnerability of the clubhouse asset given the public funds invested in these buildings. The decisions were the joint outcome of considerations between the Councils involved (historically Manly, Warringah and Pittwater), the State Government and the community. I was involved in all these projects. I also observed, firsthand as a coastal engineer, the two 1974 storms and their impacts on the beaches and clubhouses.

Unfortunately, while seeking to establish a representative "design life" for surf clubhouses based on historical data Haskoning (6.8.24) seems to have overlooked, or not been aware of, some of the information on some of the clubhouses. Setting that aside however, it is my view that the projected 60 year design life concept Haskoning arrived at for the Newport Clubhouse is not unreasonable. Although mentioned, the "appetite for risk" is a matter that has an important impact on the issues surrounding the seawall. It would seem the Council has a poor understanding of this matter and hence the subsequent consultants reports they have had prepared are driven by Council's poor understanding of development in vulnerable coastal areas and what "design life" means in terms of the clubhouse itself as compared to that of the structure protecting it.

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A number of other surf club buildings on the Northern Beaches will face the same dilemma in the future but for present the Council appears to have determined there is still sufficient dune buffer in front of these clubhouses. It is important to recognise that with a couple of exceptions, the surf club clubhouses on the Northern Beaches are community buildings that are the overall responsibility of the Northern Beaches Council. Unfortunately, Council no longer seems to have a comprehensive asset management strategy for these buildings. Previous strategies as detailed in past documents appear to have been replaced by an ad hoc approach which is most unhelpful for surf clubs, like that at Newport, wishing to upgrade their facilities and for responsible investment of the significant public funds required to upgrade these community assets.

RELEVANT NEWPORT LESSONS LEARNT FROM THE 1974 MAJOR STORM EVENTS

During May 1974 with a follow-up storm in June, Sydney experienced the worst storm damage in living memory, but not necessarily the worst storms possible. The May East Coast Low (ECL) developed on the NSW south coast on an easterly moving weather front. The intense ECL tracked north parallel to the coast, somewhat offshore generating waves of a "significant wave height" of approximately 10m and a maximum height believed to be close to 20m. It eventually dissipated after crossing the coast north of Port Stephens. While the damage was widespread, because of

its northerly direction of travel, the northern ends of the beach embayments suffered the most damage. The follow-up June storm damage was due to a large Low-pressure system centred in the Tasman that built on the earlier May event. It is important to understand that different storms from different directions can produce very different results on an embayment such as that at Newport/Bilgola.

Bilgola May 1974. Some rocks were originally placed following a 1967 storm
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From a coastal sediment process point of view Bilgola Beach, although apparently separated from Newport by a small headland is actually part of the same sediment embayment "compartment" when the offshore reefs are taken into account. The attached map shows Avalon and Bungan compartments (respectively north and south of the Newport/Bilgola sediment compartment) are sand units separated by significant offshore reefs (shown as brown) and that the Newport/Bilgola compartment is separated from the other two by large reef features. However, the reef separating Newport and Bilgola is a comparatively minor coastal process feature. Further the map shows the limited amount of sand in each embayment compartment and hence their vulnerability to coastal erosion and longer-term shoreline recession. The limited volume of sand available for involvement in the natural beach fluctuation process in the Newport/Bilgola compartment is currently evidenced by the erosion of the southern foreshore. In August 2024 a relatively minor storm exposed emergency coastal protection works put in place just over a year ago in front of residential buildings at the southern end of the beach (See photograph). The evidence is clear, there is already insufficient sand in the Newport/Bilgola compartment to absorb storm events and so locking up some of what should be part of the active sand for the natural beach fluctuations by the construction of a wall to protect the clubhouse has broader consequences for properties other than the clubhouse.

Photo of exposed emergency coastal protection works in front of residences at southern Newport - Gordon, photo taken 25 August 2024.

The intensity and direction of movement of any storm is a key factor, along with the offshore reef configuration, in determining the degree of damage and wave overtopping at any location within an embayment. In May 1974 although Newport suffered erosion both in the southern and center regions Bilgola, being the northernmost part of the embayment unfortunately suffered far worse. The SLSC clubhouse at Bilgola had fortunately been built in the sheltered southern corner and was set back from the seawall

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so only suffered minor overtopping damage. However, the Newport clubhouse, on that occasion, while not being as exposed as some, suffered erosion and significant wave overtopping with damage to the clubhouse and the equipment housed within. It is noted that Rhelm in their report (8.24) does not seem to be aware of the damage to the building in 1974 even though the photographs below show it.

Avalon

Bilgola Newport

Bungan

Newport Embayment

Map showing Newport/Bilgola sediment embayment and reef system Land green. Seabed - brown reef, yellow sand, orange shelly sand (from Gordon, Hoffman)

As shown in the Newport/Bilgola sediment embayment the sand appears to be contained by the reefs and the long-term sediment volumes in this compartment do not appear to have changed suggesting no long-term shoreline recession. However, this result does not take into account the beach nourishment that took place following the 1974 events when additional sand was brought in from dredging in southern Pittwater, under the State's Beach Improvement Grant funding aimed at restoring the beaches after the 1974 damage.

Looking to the future the unknown is the likely impacts of climate change. While the potential for shoreline recession due to sea level rise is now recognised a more subtle but important factor is the increase in ocean acidification currently being measured. This increased acidification is believed to be responsible for both dissolving shell material but also inhibiting its production. The extensive reef systems off Newport Beach are potentially the reason why the beach "sand" at Newport is over 50% shell, albeit as fine particles and hence Newport is potentially vulnerable to an emerging threat. That is not to say the shell content in the sand will suddenly disappear but rather over time its volume may well decrease.

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While the role of shell production and potential impacts of loss due to acidification are yet to be well understood sufficient studies exist to raise awareness of the potential impacts. Given the uncertainties involved an adaptive approach to vulnerable asset management would seem a more rational approach than to utilise fixed engineering structures like seawalls.

PROPOSED NEWPORT UPGRADE

The evidence provided in the supporting documents for the Newport DA indicates that at the very early stages of the redevelopment concept, Pittwater Council naively, and contrary to the 1985 formal advice based on Public Works vulnerability studies, informed the Club that it would not favorably consider the progressive relocation of the clubhouse in a landward direction. Hence the current SLSC DA focused on upgrading the existing building. Further, again based on Council's naive advice, required the building to have substantial protection against erosion and undermining, without recognizing the consequences on the coastal processes and beach amenity. That is selective understanding and focus on consequences rather than a holistic understanding. The frustration of the Club members is therefore very understandable given they had originally, as stated at the Panel hearing, sought to consider a landward extension but had been reportedly advised that this would not be favorably considered by Council. This was despite there being some 20m on the landward side of the building between it and the children's' playground. It is noted that the maximum total width of the entire current clubhouse, including outstanding "wings" (is only 11 metres) and that to the immediate north of the building there is one of the largest beachside car parks on the Northern Beaches.

ISSUES

This submission is focused on the coastal erosion and recession affecting Newport Beach and the impact of the wall on the beach, the beach amenity and the impact of the coastal process on the clubhouse including wave overtopping. No comment is made regarding the club's desire to upgrade their facilities as the author is of the view this desire is commendable and therefore supported in principle.

EROSION and SHORELINE RECESSION IMPLICATIONS

The vulnerability of the current clubhouse and the potential future erosion and recession lines for Newport Beach are presented in "Figure 20" of the Horton Coastal Engineering's (HCE) report of August 2021. "Figure 20" was determined by previous coastal process and vulnerability studies undertaken for Council. These hazard vulnerability lines clearly show the existing clubhouse is not only currently vulnerable but that over time, if protected with a seawall, will emerge as a new "headland" as the beach recedes around it.

The information presented in the "Figure 20" predicts that during a severe storm, and over time, as shoreline recession progresses, any seawall protective measure

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for the existing building will result in the loss of the beach in front and the dunes alongside of the clubhouse, dividing the present beach feature in two. Further, as recession proceeds the proposed seawall will be increasingly outflanked. Importantly the wall also has potential adverse consequences for residences at South Newport and at Bilgola, as sand locked behind the wall is denied to the natural beach fluctuations which occur during storms. This can be expected to increased storm demand at the unprotected areas of the beach.

THE PROPOSED SEAWALL IS A SIGNIFICANT BREACH OF THE OBJECTS OF THE 2016 COASTAL ACT AND NOT IN THE INTEREST OF THE CLUB OR THE COMMUNITY.

"Figure 20" provides support for the argument that the clubhouse is already vulnerable to damage (red line), wave overtopping and inundation. The blue "Immediate Wave Runup" on the diagram shows the potential extent of wave over wash during a severe storm under current conditions, not just on the clubhouse but also for surrounding areas. It should be noted that during the 1974 May storm the wave over wash did impact directly on the clubhouse, its contents and on the region either side of the building.

The information presented by HCE focusses on the role of the "Secant wall" and rock toe in protection of the current structure from coastal erosion. The updated version of the wall layout does much the same but includes more detail and a promenade wall in the Haskoning report (6.8.24) Interestingly the "return wings" on either end of the wall are designed to cope with "end effects" under current conditions. That is, the design does not appear to include provisions for the anticipate the potential shoreline recession postulated in "Figure 20", as the returns are obviously too short. Importantly, while the impact of coastal processes on the structure is considered in the DA documents the adverse impact of the seawall on the public amenity of Newport Beach during the "life of the structure", as required by the NSW Coastal Act and SEPP appears to have had only cursory treatment; it being noted that the wall design criteria indicates it is likely to have a much longer design life than the 60 years the building has been designed for.

Figure extracted from Haskoning (6.8.24) showing a plan view of the secant wall, bleachers, stairs and wave parapet and the end returns to accommodate anticipated outflanking under current conditions, but not future shoreline recession during the "life of the structure"(the life of the wall, not the building)

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Figure also extracted from Haskoning (6.8.24) showing details indicating the 3 to 4 m vertical drop onto the beach from the stairs and the ramp when beach is eroded.

Taken from HCE report 26 August 2021 - As determined by Worley Parsons 2015 CZM & P 2024/002 12 2nd September 2024

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The earlier HCE report includes some artists impressions of the secant wall and steps (this image is repeated in the recent WRL 8.24 report). It is noted that being an earlier concept it does not include the parapet recurve wave deflector and apparently retains the rocks in front of the clubhouse. Unfortunately, there is no updated version in the Haskoning (6.8.24) report however this earlier artist impression is useful when considering the text of the various reports.

From Horton Coastal Engineering 16 November 2020 also included in WRL 8.24

When compared to the other "artists impressions" in the Horton report (16.11.20) this appears to suggest it represents the most eroded version. However, when compared to photos taken immediately after the May 1974 storm (Gordon) and the photo in HCE report (26.8.21) which it is believed was taken a short time after the June 1974 storm demonstrate the "artists impression" is more than "optimistic" and does not represent what the clubhouse protective measures would look like after a severe storm, nor in the longer term following the predicted shoreline recession and climate change impacts (as required to be considered by the 2016 Coastal Act). Clearly not only the impact on the beach has been underestimated but also the adverse impact on the Club's readily access to the beach, particularly for surf craft, as demonstrated by the photo of Kingscliff clubhouse building shown further below. Interestingly, the beach profile information used to support the DA is somewhat misleading in that the 1974 profile is clearly incorrect when compared to the available contemporary photography. The 1974 profile suggests significantly less erosion than the photographs evidence demonstrates. This brings into question the credibility of the other profile data shown and apparently used for the design considerations. Profile data of this nature must always be used with caution as often the profiles are measured some time (often months) after storm events and following a beach recovery phase, and therefore do not provide reliable information on the actual beach erosion during, and immediately after storm events. They are therefore of limited use as input for the seawall design and the interpretation of beach response.

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Photo taken on Sunday morning 26th May 1974 near low tide (Gordon)

Importantly, the 1974 profile fails to show that even in a repeated 1974 event(s) there would be a vertical drop in front of the proposed steps (as per the artists impression) of several metres. The secant piles would be exposed, and beach access made difficult for the club and in particular for the launching of surf craft. Apart from that there would be a significant impact on the beach amenity for the community.

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Beach profiles from Water Research Laboratory UNSW report to Council 8 July 2021

The following photo shows the "Secant" wall protecting Kingscliff surf club. Sometimes the sand level in front of the wall is higher whereas at other times the beach is so low that ready beach access along in front of the wall is impossible. The failure to learn from the Kingscliff real-life example demonstrates Northern Beaches Council's lack of experience and understanding of coastal engineering.

Photo of Kingscliff SLSC Secant wall (Gordon)

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WAVE OVERTOPPING

I met with Northern Beaches Council on 3rd March 2021 to express concerns regarding the proposed seawall

protection proposed as part of the then project to expand the clubhouse. The potential adverse impacts of the proposed beachfront extension of the clubhouse were expressed along with the potential longer term "end effects" of the proposed seawall on the adjacent dune and beach system. However, a very critical issue raised was the fact that in 1974 the clubhouse suffered damage as a result of direct wave impact because the existing clubhouse is at too low a level. I expressed concern was that the proposed wall would not relieve this situation and in fact could exacerbate the hazard. I note that design did not feature a parapet wave reflecting wall.

At the meeting I recommended that to properly understand the issue Council engage WRL to undertake a relatively simple physical modelling project. The aim would be to demonstrate the potential problems the seawall could cause in terms of wave impact on the clubhouse and its contents and to develop a solution.

By following the "paper trail" of reports and submissions it would seem HCE was originally engaged to simply undertake the design of a seawall that would prevent undermining of the Newport Clubhouse. There appears to be no early consideration of the potential for wave overtopping nor the overall impacts a seawall might have on beach use and clubhouse operations. When these deficiencies were brought to the attention of the Council, some 3 years ago, instead of re-appraising the design, attempts were made to generate a range of speculative ad hoc works that might be retrofitted to the seawall design in an attempt to address the overtopping. Alternatively, to accept the overtopping waves and consider proposals to strengthen the building to withstand the overtopping and wave flow through. The obvious problem being the age of the building and that it was constructed on strip footings, not piles meant this was impracticable.

During discussions with Council more than 3 years ago this author pointed out that it was internationally recognised sound practice to physically model test any proposals for managing the overtopping to both seek the optimal design solution to limit overtopping and to determine the residual wave impact forces on the structure and building so they could be design for accordingly. This view was subsequently reiterated by WRL in their early report (2021). However rather than follow this internationally recommended approach Council continued with a process of engaging consultants to make desktop assessments of the pot pourri of options. It is noted that after 3 years Council has at last engaged WRL to undertake model testing however the WRL report (8.24) presents a number of model tests they were requested to undertaken on a range of configurations however it would appear WRL was not engaged to provide their recommended outcome. The "Conclusions" section of the report reflects this.

As demonstrated by the photographs in the WRL (8.24) report and those in Haskoning (6.8.24) wave overtopping during storm conditions is likely to be significant without any deflector wall (first two photos below) and even with the proposed 1050 m high parapet wall overtopping is still significant (third photo). These photos were extracted from the two reports referred to above.

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It should be noted that in regard to the overtopping physical modelling using waves provides a useful comparison between different options however the modelling needs to be understood as being an input to a coastal engineering assessment as other factors such as strong onshore winds that are usually associated with storm wave conditions add to the actual volume and force of overtopping waters. So physical modelling alone is insufficient in determining forces on structures.

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In considering the current proposal it is noted that the concrete path in front of the Newport clubhouse is reportedly at a level of between 5m and 5.5m AHD. AHD is approximately mean sea level at Newport. During a 1974 type storm event that focused on the clubhouse experience dictates that overtopping waves could be expected to reach up to +7m AHD (this is not spray but actual waves). The extent of expected wave over wash is indicated by the above model testing results. Based on the evidence presented by HCE and by WRL the wave height overtopping of the footpath, and hence wave impact on the building during an extreme storm affecting Newport could be expected to be due to a wave of 1.5m to 2m height unless arrangements are made to extend wave protection above that offered by the secant wall. The proposed solution appears to be a wave deflection wall of only 1050 m height. That is, not the full height required to prevent overtopping.

Importantly the Haskoning report prepared after the model testing (6.8.24) states:

"The key findings, leading from the testing included:

- it would be necessary to incorporate parapet walls seaward of the section of the existing SLSC building which is to be retained to mitigate structural damage due to wave overtopping.
- roller shutters originally proposed to be located along the seaward face of the new northern section of the

building would be damaged unless protected by wave return walls or relocated from the seaward face.
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- a solid reinforced concrete wall could be satisfactorily designed for wave forces along the seaward side of the new northern section of the building, without introduction of parapet walls.
- management of pedestrians on the promenade would be necessary at times of storms to ensure safety. "

A relatively recent example of the extent of wave over wash and spray that can occur is shown in the following photo taken at Collaroy on the night of 6th June 2016 (the night after the peak of the storm). The Ground level at this site is between 6.5m and 7m AHD. The property in the photograph had a near vertical sea wall of concrete blocks with some toe rocks. The photo is included to provide an indication of what can happen and importantly the risk some people take during storm events, even if they probably should have known better. Hence the concern that what is now proposed as a low parapet wall only extending for part of the building is contrary to the intent of the Coastal ACT, and in particular the intent of the Objects of the Act. In regard to the example discussed above the offshore wave height at the time was approximately 60% of that during the 1974 storm. On the 2016 occasion for a number of reasons including storm travel direction and hence reef sheltering effect, Newport was not exposed to the level of damage as occurred in 1974.

Collaroy 6 June 2016 wave overtopping and spray with ground level 6.5 to 7m AHD (Gordon) - Even SES trained officers were caught unaware of the extent of the overtopping.

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FURTHER COMMENT ON THE SECANT WALL

As shown above, the Haskoning report (6.8.24) shows the secant wall topped with a combination of bleachers and steps leading from the promenade at RL 5.5 in front of the clubhouse down to RL3.22 leaving an implied vertical drop of exposed secant piles, after storm erosion, of over 3 m. Hence no safe pedestrian access from the clubhouse to the beach until natural or mechanical recovery of the beach level occurs.

The figures contained in the Haskoning report also indicates that the secant wall fronting the clubhouse will require permeant ground anchors at 1.5m centers along the length of the secant wall. That is a total of 36 permeant anchors extending approximately 14m landward of the secant wall with 8m of this being under the building itself (as measured from the figures in the report but presumably yet to be determined).

There does not appear to be an engineer's report as to the likely impact of drilling and fixing these anchors in place on the existing aged building structure, particularly the impacts of underboring during the construction phase.

Of some importance are the sections of the secant wall extending past the clubhouse to take in the Norfolk Island Pines to the immediate north and south of the clubhouse. Again, the secant pile wall is shown to require ground anchors however in this case the ground anchors are shown extending into what would appear to be the root area of these Norfolk Island Pines. In the case of the northern pine approximately 4 ground anchors are shown as potentially impacting on the root area. And in the case of the southern pine 10 ground anchors are shown to be intersecting the root area.

There does not appear to be an arborists report on the likely impact of the installation of the proposed permeant ground anchors being drilled into the root areas on the health of the two Norfolk Island Pines.

Interestingly there also seems to be little detail on how access to the proposed northern ramp will impact on the northern Norfolk Island Pine.

In regard to the ramp, it is incorporated into the secant wall as shown in the diagram in the Haskoning report and is shown finishing on the beach end at RL 4.6m which means that on an eroded beach profile there would be a vertical drop of 4.6m from the end of the ramp to the beach. This means no practical access for boats until significant natural or mechanical beach recovery occurs.

SUMMARY

The applicant for the Newport clubhouse upgrade DA was/is Northern Beaches Council because the clubhouse is a public building owned, and therefore risk managed, by Council. Council, being the Applicant has to have a clear understanding of its potential

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conflicts of interest and the need to ensure consultants are engaged to provide holistic packages, not to simply respond to disconnected, or partially disconnected briefs as issues arise.

It would appear that HCE was originally engaged by Council to simply design a seawall to manage the undermining of the clubhouse due to the type of erosion experienced in 1974. Wave inundation of the clubhouse, the impact of a seawall type solution on the present and future beach, access issues and compliance with the Coastal Act, the associated SEPP and the Planning circulars on the subject do not seem to have been part of the original brief. Once these matters were raised with Council, they were subsequently dealt with in a somewhat ad hoc manner which failed to enable a comprehensive integrated solution to be achieved for the key issues. In regard to wave overtopping and flooding of the clubhouse, for example, the early responses were a range of suggestions without providing adequate information on the likely additional costs and design constraints associated with each of the several suggestions.

The somewhat piecemeal end product would seem to be an artifact of how Council engaged HCE and WRL, and others from time to time. The ad hoc and inadequate end product unfortunately demonstrates that Council did not understand the advice it was receiving. It is important to note that over time HCE reports and those of WRL seem to have attempted to have Council realise the likely issues by including relevant information, but that Council failed to understand and respond appropriately. For example, Council was advised by WRL and an external specialist that the proposed alternate proposals aimed at managing the potential significant wave overtopping, the resulting inundation of the clubhouse and impacts on the building should be physically model tested to determine their effectiveness, their likely additional cost and the residual wave impact forces on the clubhouse, or any new addition to the structure to manage overtopping. Although physical model testing is a standard engineering practice recommended in international literature for the type of proposals at Newport Council chose to repeatedly disregard this advice for a period of 3 years.

Similarly, Council has repeatedly failed to identify the likely adverse impacts of the proposal seawall on the existing clubhouse on the beach amenity and the performance of the coastal compartment over time as required by the 2016 Coastal Act and accompanying SEPP. Regardless of the information as to both erosion and long-term recession there appears to be nothing detailing expectations over "the life of the structure" as required by the Coastal Act. Again, Council still doesn't seem to understand that the life of the clubhouse is different from the life of the coastal structure and that the likelihood is the seawall structure will far outlive the clubhouse and hence a very different view is required to address the requirements and intent of the Coastal Act.

THE QUESTION....Is there an ANSWER?

The underlying question that must be asked is why not follow the lead of Freshwater and Bungan and leave the existing Newport clubhouse in place and accept that at some time in the future it is likely to be damaged albeit somewhat protected by the undesigned and
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poorly constructed rock work put in place after the 1974 storms. The existing clubhouse could be modestly upgraded as required to maintain its relevance while recognizing its eventual fate. Given the currently proposed seawall involves a very significant expenditure, of several millions of dollars, the savings achieved by adopting the proposed approach could be applied to construct a substantial new extension/clubhouse as a piled structure on the landward side of the existing building. This new extension being configured so as to become part of a future new clubhouse facility when the existing building is lost. The new structure could be constructed so that its floor level was above that of both terrestrial and oceanic flooding.

It should be noted that the likely savings of not constructing a seawall will be far greater than in the current DA estimate as the cost of concrete has substantially escalated in the recent past and the original costing did not include the extra work required to manage the wave overtopping issue, which is likely to be substantial regardless of what "option" is eventually adopted.

For those who are concerned that the above proposal potentially violates the findings of the heritage studies should carefully read those reports themselves and not rely on the Council's misrepresentations of the findings. The real heritage issue, as well covered in the studies, is the importance of the Surf Life Saving Club, that is, the people and their culture, not the building which is described in the heritage studies as the third clubhouse at Newport and a poor example of the "Mediterranean style". Further, the heritage studies recognise the existing clubhouse has been significantly compromised over time by both external and internal modifications.

In summary, the Club could construct a substantial new extension/clubhouse which better fits its needs from the savings that can be realised by not constructing the suboptimal seawall. It would appear the seawall is a structure that Council seems to believe is essential to protect its confused understanding of the "heritage" of the Club and that Council has failed to realise that its confused understanding and priorities will result in a substantial adverse impact to the public beach amenity and the operations of the Club and potentially to residences at Bilgola and south

Newport.

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