City Development

To:	Southern Regional Planning Panel		
Copy:			
From:	Jack Rixon - Mecone		
	Andre Vernez - Shoalhaven City Council		
Subject:	PPSSTH-138 - Council Reference RA21/1003 – 41 Main Rd, CAMBEWARRA - Lot 4 DP 542936 - Staged residential subdivision to create 256 Torrens Title allotments and provision of associated civil infrastructure and landscaping		
Date:	10 March 2023		
File:	RA21/1003/4	CONTACT:	Andre Vernez - 02 4429 5210

Council provides the following addendum to the submitted assessment report, addressing the matters raised in the determination meeting on 7 March 2023.

1. Flooding

a. Updated Explanation of flood free and PMF arrangements.

Council's Floodplain and Stormwater Quality Engineer provided the following response in relation to flood-free and PMF arrangements:

Flood Impact and Emergency Access

- All lots and roads of the subdivision will be constructed above the year 2100 scenario 1% Annual Exceedance Probability (AEP).

- No residential lots will be flood impacted during a PMF event. Some internal roads will be impacted by shallow (often < 0.15m deep) flood water during a PMF event which corresponds with a H1 (Generally safe for vehicles, people and buildings) hazard category.

  However, the design requirement for the road network's flood immunity is the 2100 scenario 1% AEP flood event in accordance with the Shoalhaven Development Control Plan 2014 and Engineering Design Specifications and not the PMF. The nearby existing road network, such as Moss Vale Road, will flood during a PMF event. This makes PMF an impractical standard to set for new subdivisions as surrounding existing infrastructure rarely have that level of flood immunity.

- Emergency access during the year 2100 scenario 1% AEP flood event will be achieved via Taylors Lane and Moss Vale Road through already approved subdivisions on land to the east, being SF10804 and SF10895. This has been conditioned. Refer to Condition 42(c) of the updated draft determination.

To summarise, Council is satisfied that the proposed subdivision does not introduce an unacceptable level of flood risk to future residents. The proposed mitigation measures, such as filling of the land and on-site detention, in combination with proposed development conditions of consent are considered appropriate to adequately mitigate the flood risk to an acceptable level for future residents and adjacent land in accordance with Council's guidelines and the NSW Floodplain Development Manual. All lots are above the PMF level and can, as such, not be inundated by riverine flooding. In an extreme flood event, the subdivision may become isolated for a period of time as regional and local roads are inundated.

The figures below show the pre- and post- flood extent. Although some of the land is flood impacted, Condition 42(a) of the updated draft determination has been imposed to ensure all roads are flood-free during a 1% AEP event.

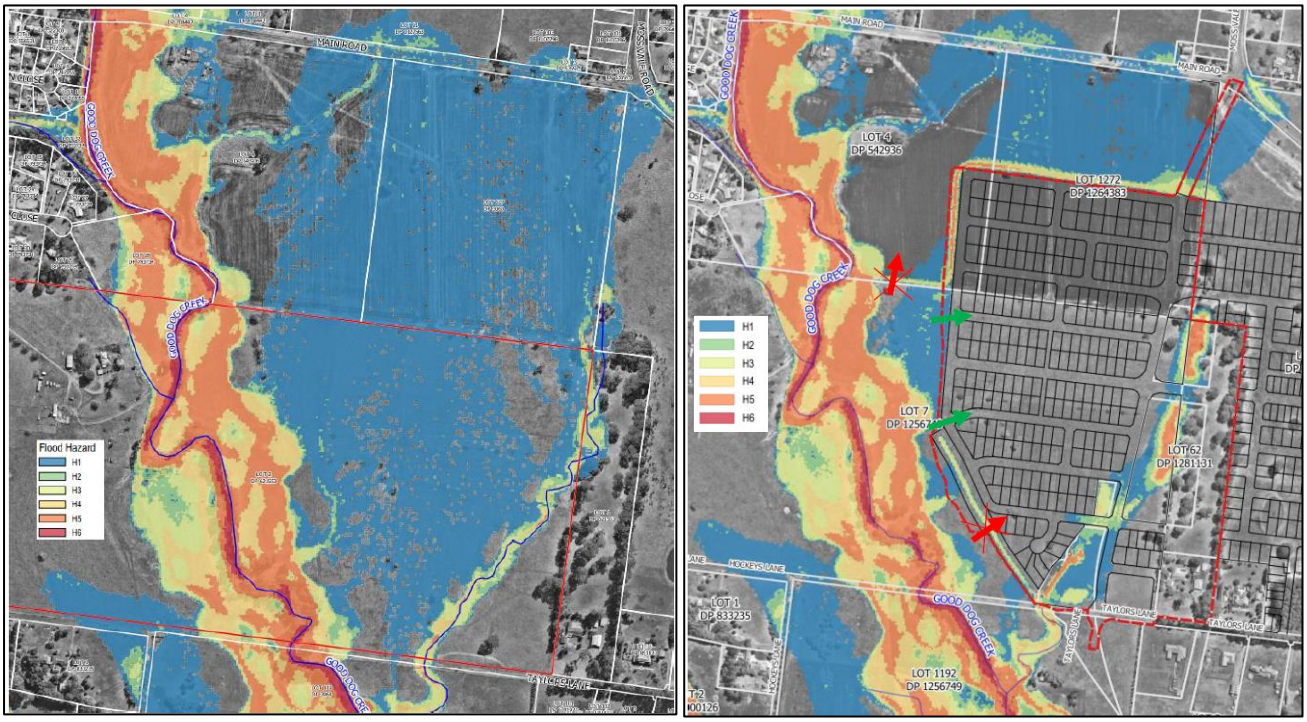

Figure 1 – Existing 1% AEP Flood hazard (left) and Proposed 1% AEP hazard showing changes to stock escape routes in 1% AEP (right)
Source: IWCMS, Maker ENG (September 2022)

b. Any Cumulative Impacts on Flood plain from Filling.

Council's Floodplain and Stormwater Quality Engineer provided the following response in relation to how cumulative impacts in the catchment from the proposed developments have been assessed.

> *'The subject site currently consists of flood prone land and is proposed to be filled to become flood-free. The hazard and hydraulic category of the existing site is Low Hazard Flood Fringe. As per the NSW Floodplain Development Manual, development of Flood Fringe areas will not have any significant effect on the pattern of flood flows and/or levels in the floodplain. The reason for this is that it does not convey significant volumes of water during floods nor is it an important area for the temporary storage of floodwater during the passage of a flood.*

Flooding of the site occurs as shallow overland flow on its way to nearest waterway, draining from a limited upstream catchment. It does not occur from riverine flooding of Good Dog Creek or Bomaderry Creek.

It has been demonstrated through flood modelling that the proposed filling of the site does not adversely impact adjacent properties and/or land within the floodplain. The proposed fill is therefore unlikely to have a significant cumulative impact within the floodplain due to the existing Low Hazard Flood Fringe classification of the local flood conditions.'

Figure 2 below identifies that no unacceptable levels of afflux is reported on adjacent properties as a result of the filling.

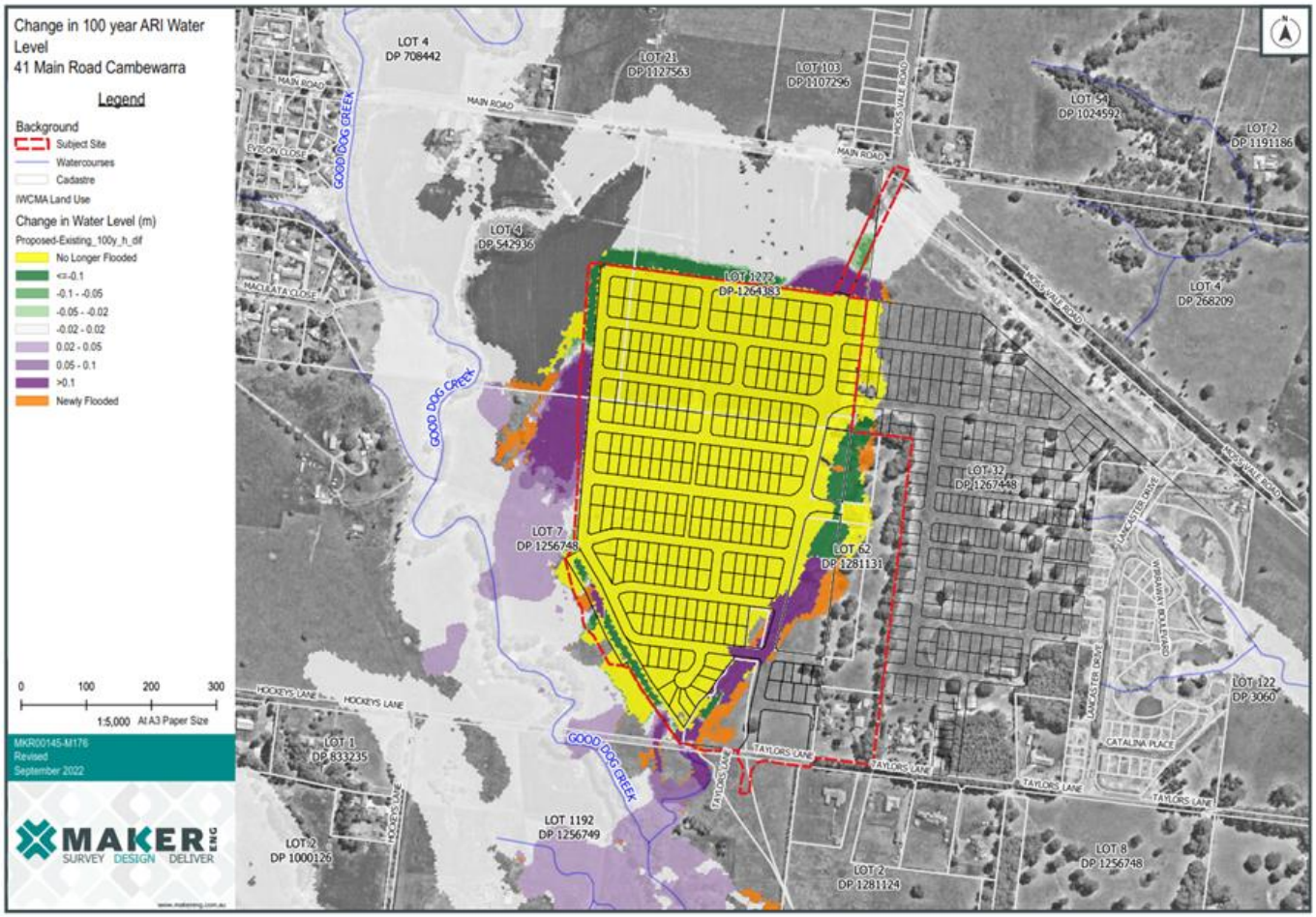

Figure 2 – Change in 100 year ARI Water Level
Source: On-Site Detention Memo, Maker ENG (October 2022)

c. Expanded Explanation of Flooding Commentary in section 18.2 of assessment report to demonstrate how flood related matters have been satisfied in conditions of consent.

Council's Floodplain and Stormwater Quality Engineer provided the following response in relation to the satisfaction of Acceptable Solution A18.2 of Chapter NB3: Moss Vale Road South Urban Release Area of the Shoalhaven Development Control Plan 2014.

Chapter NB3: Moss Vale Road South Urban Release Area	
DCP Provision	*Council Response*
A18.2 Major 'flows' are managed using dedicated overland flow paths such as open space areas, roads and riparian corridors for all flows in excess of the pipe drainage system capacity and above the 18.13% AEP (5-year Average Recurrence Interval). Management measures shall be designed to:	
a) prevent both short term and long-term inundation of habitable dwellings;	All proposed residential lots are constructed above the 1% AEP flood level.
b) control localised flooding from storm events to maintain access to lots, maintain the stability of the landform and to control erosion;	This is a stormwater management issue rather than flooding and will be managed in the detail design stage. It has been conditioned that the applicant is required to prepare a DRAINS model (stormwater modelling software) prior to the issue of a Subdivision Works Certificate, demonstrating that the proposed stormwater network has sufficient capacity. Further, the model will be required to demonstrate that any surcharging of the stormwater network will flow along the road network and open spaces with a velocity-depth product of no greater than $0.3m^2/s$ (i.e. the surcharging flow is safe).
c) habitable floor levels to have a minimum of 0.5m freeboard above the 1% AEP (100 year) flood level;	This is a general condition applied to new residential dwellings on flood prone land. However, this application is for a subdivision and not for individual dwellings. This condition will, as such, be implemented once the individual DAs are being assessed by Council.
d) ensure that any proposed filing does not cause unacceptable afflux to adjacent properties for all events up to and including the probable maximum flood;	It has been demonstrated through flood modelling by the applicant that the proposed filling does not cause unacceptable afflux to adjacent properties for all events.
e) provide for the orderly and safe evacuation of people away from rising floodwaters by providing reliable access ensuring that the water depth – velocity product is no greater than 0.3m2/s for events up to 1% AEP (100 year) storm;	All internal roads will be flood free during a 1% AEP flood event. This has been conditioned. Ultimately, access in and out of the subdivision will be through Taylors Lane (directly through this DA) and Moss Vale Road (via future developments already approved by Council).
f) provide sufficient on-site storage to match predevelopment peak flow rates for the 1% AEP (100 year) rain event. This will be achieved using detention storage within water quality features and detention basins.	On-site detention storage will be provided via rainwater tanks on individual lots and within water quality devices (wetlands). This ensures that the predevelopment peak flow is matched for all events up to and including the 1% AEP storm event. This has been demonstrated through flood modelling.

2. Confirmation there is sufficient road width to accommodate bus movements within the subdivision

Council's Development Engineer has provided the following response:

> *'Road widths have been designed in accordance with Council's DCP which foreshadowed the use of roads as bus routes (temporary and permanent).*
>
> *The applicant has provided turning paths for a 14.5m long rigid bus within the civil plan set which demonstrates the vehicle can negotiate the roundabouts at the Taylors Lane / Road 11 and Road 03 / Road 11 intersections as required for the temporary bus route shown in the DCP.'*

As such, Council is satisfied that temporary and permanent bus routes can be accommodated within the road widths identified within the proposed development.

3. **Expanded discussion regarding Indigenous cultural heritage (extend beyond tangible artifacts to also cover broader landscape cultural heritage considerations). Confirm consultation did not raise any broader landscape cultural heritage concerns.**

An assessment of the cultural heritage values is provided in Section 8 of the submitted Aboriginal Cultural Heritage Assessment Report (ACHA) for the subject site (by Austral Archaeology Pty Ltd, dated August 2022). The assessment was undertaken against the Burra Charter significance values and other relevant criteria and guidelines by other government agencies and bodies in NSW.

The assessment concluded that the study area is of low significance with respect to social, historic, scientific and aesthetic values. The following is stated within the ACHA:

> *'The study area is generally made up of suitable landforms for camping, which would have seen Aboriginal people use them for short-term stays in periods of low rainfall while passing through the area. The flat area closer to Good Dog Creek would have been an ideal camping location, with easy access to water and food resources. The site 49 Hockeys AS 2, supports this theory, the widely dispersed low density site is interesting as it provides a direct connection with the people of the past to a specific location and may provide information regarding patterning in low density artefact scatters. However, much of the information that can be obtained from the lithic analysis has already been obtained and a salvage excavation will be required to ascertain the true nature and extent of the site. As such, the study area is generally quite low in significance and representative of the many surrounding sites that have been tested. However, the presence of slightly higher densities throughout the site provides a higher significance than the surrounding isolated artefacts and artefact scatters.'*

The Development Application was referred to the Nowra Local Aboriginal Land Council on 23 December 2021. No response was received. General Terms of Approval were issued by Heritage NSW on 12 October 2022.

Based on the above, no broader landscape cultural heritage concerns have been identified for the site.

4. **Clearly articulate in the report that the DSI confirmed herbicides are at levels which are not a contamination issue.**

As noted in the executive summary of the submitted Stage 2 Detailed Site Investigation (DSI) (by ENRS, dated March 2022), it is concluded that the NATA accredited laboratory results for Contaminants of Potential Concern (CoPC) including TRHs, BTEX, PAHs, heavy metals, pesticides and herbicides were generally reported below the Site Assessment Criteria (SAC). The preliminary Areas of Environmental Concern (AECs) identified within the site were assessed as suitable for the proposed residential development and removed from the Conceptual Site Model (CSM). The DSI concludes that the site may be considered suitable for the proposed development in accordance with the former SEPP 55 (now Chapter 4 of SEPP (Resilience and Hazards) 2021).

Council's Environmental Health Officer has reviewed the Stage 2 DSI. Based on the information and site-specific data, and with the inclusion of recommendations outlined in Section 13.2 of the DSI, Council is satisfied that the site is suitable for the proposed development in accordance with the provisions of section 4.6 of SEPP (Resilience and Hazards) 2021. Conditions of consent are to be imposed in accordance with the recommendations of the DSI. Refer to Conditions 62 and 73 of the updated draft determination.

5. **Clarification of location and details of retaining wall to south east corner adjacent to unnamed creek.**

Retaining walls are proposed between the private property and the swales within the south-west corner of the site (Refer to drawing MKR00145-10-C016 at Figure 3 below). Council's City Services typically do not accept retaining walls for maintenance and liability reasons. However, Council's Development Engineer has advised that the walls could not be easily replaced in this location with a batter given that they are 2-3m high and adjacent to the stormwater swale. Note the total height of fill retained by the retaining walls is approximately 2.8m and the height of each wall is approximately 0.9m in height.

The development proposes tiered sandstone block retaining walls which can be landscaped as confirmed by the applicant.

Alternatively, a planted steep batter or relocation of the swale would be required in this location to replace the retaining walls, reducing the area of open space available and may result in hydraulic design issues with the swale.

With consideration of the above, Council considers that the proposed tiered sandstone blocks in this location are acceptable given they are acceptably maintenance friendly and that they will be gravity walls with sandstone blocks and therefore will also be highly durable.

This matter has been conditioned, requiring further details of the landscaping and fencing treatment for the tiered sandstone block wall, to be provided as part of amended landscaping design plans and specifications, and approved by the Director of City Development or their delegate at Council prior to the issue of a Subdivision Works Certificate. Refer to Condition 41 of the updated draft determination.

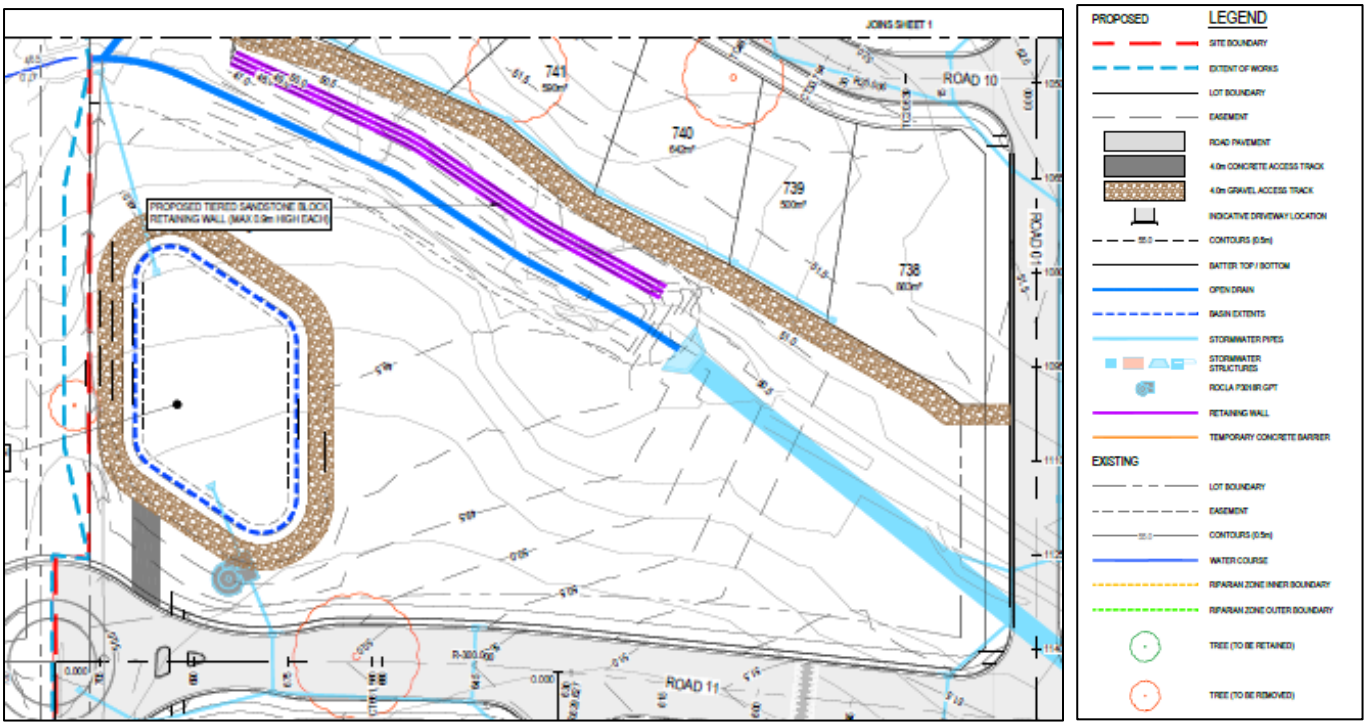

Figure 3 – Retaining Wall Structure
Source: Drawing MKR00145-10-C016, Maker ENG

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Date: 10 March 2023