

14 February 2025

RE: Multipurpose Stadium at Macquarie Point

Zancon has been requested by Macquarie Point Development Corporation (MPDC) to provide comments in response to Request For Information (RFI) items 39 and 72 dated 14 November 2024 in the Tasmanian Planning Commission (TPC) regarding their Project of State Significance (POSS) submission. The comments provided in this response are preliminary, made from the point of view of a constructability consultant and are subject to verification and confirmation by the specialist design engineering team engaged by MPDC during the detailed engineering design stage of the project.

In response to item 39 and 72, this letter provides specific information supplementary to the POSS CMP Annexure AA relating to the proposed carpark construction and how site dewatering can be managed on the project through the remaining design and construction phases of the project on the environment, surrounding land uses and infrastructure. Specifically, the potential interaction between groundwater, surface water features and proposed stormwater management for the project involving two temporary water holding ponds in place until the site permanent stormwater system is installed. Assumed likely volumes, quality, inflow rates and potential treatment and storage of groundwater requiring extraction during the construction and operation of the project have been identified from reports included with the POSS; and rates obtained by early consultation with Taswater can reasonably be considered to be 120kL/day, which will be subject to an Approval to Discharge or Reuse Water obtained from TasWater.

Response Comments

Zancon has been requested by MPDC to undertake a high-level review on the impact of timing of works for proposed underground carpark excavation and the stadium. Zancon has analysed the potential impact on timing of works for proposed underground carpark excavation and the stadium. Assumptions have been made based on ensuring the proposed underground carpark is available on completion of the stadium for event purposes from day 1 as well as for other precinct tenants/users.

Our analysis on the timing of works for the carpark indicates that the carpark perimeter retention is likely to be installed early concurrent with the stadium substructure, with carpark excavation and construction likely to commence after the stadium roof is in place. This would then allow the stadium construction the best opportunity to be completed with areas external to the stadium being utilised for materials handling access utilising the ring road around the stadium and also for tower cranes to install timber roof beams and the ETFE pillows that form the translucent roof.

The proposed underground carpark itself, subject to design finalisation, will likely require approximately 76,000m³ of material excavate which would typically generate up to 140 truck movements per day over a period of at least 30 weeks. The production rate assumed in this calculation considers the site constraints around the proposed underground carpark, which differ from the larger stadium building.



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A review of details of environmental tests¹ and borehole logs,² as well as the potential infiltration rates assessed by Aecom³ at 3,000l/day has been undertaken to approximate volumes of surface and groundwater and an appropriate method of handling the groundwater.

From the MPDC preliminary methodology and programme assumptions, we have been able to gauge the potential effect on the transfer of overflow surface water and groundwater from in and around the stadium to in and around the proposed underground carpark.

It is noted that in the Construction Management Plan for the stadium included at Annexure AA of the POSS, included indicative locations (north-east and south-east) and approximate sizes (1000m² and 1200m² respectively) of stormwater sedimentation/holding ponds that may be positioned to take advantage of the natural fall from west to east across the precinct, which are subject to change by the specialist design engineering team during the detailed engineering design stage of the project. The assumed ponds would likely be used for the storing of ground water and surface run-off water for testing, assessment and treatment if required, prior to discharge to the stormwater system or trade waste as necessary. As indicated in the CMP, an Approval to Discharge or Reuse Water will need to be obtained from TasWater, which if the water quality meets TasWater requirements (TPH, metals and salinity) may reasonably be expected to be around 120kL/day, depending on contamination and treatment requirements at the time of discharge.

A preliminary review of proposed concept proposed underground carpark drawings indicate basement level B3 to be at RL -3.3 with three (3) separate lift overruns and footings requiring excavation to RL -6.6, well below the water table. The bore hole logs (BH-009 and BH-010)⁴ show a layer of silty clay that would likely be drained during excavation and construction of the stadium. From review of the geotechnical reports,⁵ the water table appears to be at approximately RL1.5 with building piles assumed to require drilling to a depth of 14m, indicating that a significant level of dewatering will be required during excavation and construction of the proposed underground carpark which will likely be ongoing until the carpark basement retaining walls and floors are constructed, again subject to the specialist design engineering team during the detailed engineering design stage of the project

Uplift pressures will also likely need to be considered by the specialist design engineering team during the detailed engineering design stage of the project. The proposed underground carpark structures are being designed as water retaining structures with a “cut-off” wall likely required to facilitate construction. Options to be being investigated by the specialist design engineering team during the detailed engineering design stage of the project, would likely include a diaphragm wall and/or a contiguous pile wall design. The selected approach will likely present a “tanked” solution on completion of construction so that any water seeping through surrounding areas will not penetrate the proposed underground carpark basement structure once complete, but rather flow around the proposed underground carpark, with the design intent typically requiring little change to the condition or quality of the groundwater or to the flow paths.

¹ Refer POSS Appendix-LL-Site-Environment-Management-Plan-AECOM-22-October-2021.

² Refer POSS Appendix-X-Geotechnical-Interpretive-Report-WSP-July-2024.

³ Refer POSS Appendix-LL-Site-Environment-Management-Plan-AECOM-22-October-2021.

⁴ Refer Appendix-II-Geotechnical-Factual-Report-WSP-June-2024.

⁵ Ibid.



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Excavated materials for both the stadium and the proposed underground proposed underground carpark will likely be classified into one of four categories by the Environmental Consultant based on the guidelines (EPA Information Bulletin No. 105) from the Environmental Protection Authority.

Given the layout of the proposed underground proposed underground carpark and buildings above, it is our initial opinion based on our experience, which will be subject to specialist engineering during the detailed engineering design stage, that there is little spatial availability for site remediation and retention of materials onsite, and it is more likely that a future contractor and the design team may prefer for contaminated materials to be disposed off-site. The material quantities likely to be excavated and transported off site from the proposed underground carpark project could be circa. 115,000 tonnes are would likely by in addition to approximately 180,000 tonnes of material associated with the stadium (as referred to in the CMP as part of the POSS submission). The quantities are indicative and are subject to change after specialist engineering during the detailed engineering design stage.

The location of the disposal sites will reflect the nature of the materials classification as noted in the CMP – likely to be Blue Hills Road, Copping for the Level 3 contaminated waste and other tip sites at Glenorchy or McRobies Gully, South Hobart for Level 2 or lower spoil material.

Based on the assumed figures of 3,000l/day advised for water ingress in the stadium footprint, and the likely minimal infiltration rates for the proposed underground carpark, the assumed quality and nature of groundwater will require a settling pond tank and treatment plant at the proposed underground carpark location to accommodate possible contamination in the water prior to discharge into trade waste. The two settlement ponds proposed for use when building the stadium will likely become obsolete when permanent stormwater systems are installed and connected. This will allow the assumed southeast settlement pond to be used to take surface water and groundwater runoff from the proposed underground carpark site during excavation and construction of the proposed underground carpark. It may involve obtaining a licence (potentially with associated fees) for the ongoing monitoring of water quality based on the water quality being assessed.

Based on our experience on similar structures, it is unlikely that a temporary dewatering strategy involving “spears” or “local re-injection of groundwater” into the surrounding area is unlikely due to the nature of the material anticipated, and the overall quantities of water flow will be unlikely to affect any buried segments of the Hobart Rivulet nor any other receiving environments, subject confirmation by the specialist design engineering team during the detailed engineering design stage of the project.

We hope this information is sufficient for responding to matters raised by the Tasmanian Planning Commission.

Kind regards,

Adam Zantis | Zancon Managing Director