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Our ref: 1002 – Lot 32 Tuckeroo Ave, Mullumbimby
Your ref: #E2026/20407

24 June 2026

The General Manager
Byron Shire Council
PO Box 219 DX 20007
Mullumbimby NSW 2482

Dear Sir,

Re: Response to Byron Shire Council Stormwater Comments

Planning Proposal for Rezoning of Lot 32 DP 1169053, Tuckeroo Avenue

A Planning Proposal for the rezoning of Lot 32 DP 1169053, Tuckeroo Avenue, was prepared by Barker Ryan Stewart and lodged on the NSW Planning Portal in early 2026.

The rezoning submission included a Stormwater Assessment prepared by CivilTech Consulting Engineers, dated 16 January 2026. The key aspects of the proposed stormwater management strategy are summarised below:

- The proposed rezoning comprises medium-density residential development across the eastern portion of Tuckeroo Avenue and low-density Torrens title residential lots on the western side. The lot and building layouts submitted as part of the rezoning application are conceptual only and will be subject to detailed design during a future Development Application (DA) process.

- Stormwater quality treatment and detention measures will be provided in accordance with Byron Shire Council (BSC) Development Control Plan 2014, Chapter B3, BSC Comprehensive Guidelines for Stormwater Management, the Northern Rivers Local Government Development Design and Construction Manuals (NRLG), and applicable Water Sensitive Urban Design (WSUD) guidelines.

- Stormwater runoff from the western low-density Torrens title lots will be treated via a traditional bio-retention basin located within a drainage reserve in the south-western corner of the site. The drainage reserve will be dedicated to Byron Shire Council for ownership and maintenance. Following treatment and detention, stormwater will discharge to the existing pipe network and subsequently into the existing detention basin within Lot 1 DP 1007401. Major storm bypass flows will follow the existing overland flow path to this detention basin.

- The eastern medium-density development is proposed to utilise a non-traditional WSUD treatment train, which will be owned and maintained by the future body corporate. Following treatment and detention, stormwater will discharge to the existing stormwater network within Tuckeroo Avenue and ultimately into the existing detention basin within Lot 1 DP 1007401. Major storm bypass flows will follow the existing overland flow path south along Tuckeroo Avenue to Left Bank Road.

- Stormwater detention measures will ensure that post-development discharge rates do not exceed existing pre-development flow rates.

Byron Shire Council subsequently undertook an internal review of the submitted studies and provided comments to inform the preparation of final supporting documentation. I met with Mr Renan Solatan of Byron Shire Council on 4 June 2026 to discuss the matters raised in Council's response.

Point 1 – Legal Point of Discharge – Major System Criteria

Figure 2 of the Stormwater Assessment identifies the three principal catchments and their respective discharge points. All three catchments ultimately discharge via the existing stormwater pipe network to the detention basin located within Lot 1 DP 1007401. This basin is situated within a 30-metre-wide easement for stormwater detention created by DP 649971 for the benefit of Byron Shire Council.

The legal point of discharge for the western catchment, which has an area of approximately 12,200 m², is the existing detention basin within Lot 1 DP 1007401.

For the eastern catchments of approximately 8,400 m² and 26,200 m², major storm events may result in bypass flows exceeding the capacity of the existing inlet pits identified in Figure 2 of the Stormwater Assessment. The legal point of discharge for these catchments is Tuckeroo Avenue, with flows continuing south to the flood storage area on Left Bank Road. Preliminary assessment of the 100-year ARI flows indicates that bypass flows remain contained within the Tuckeroo Avenue road reserve.

An inter-allotment drainage system is anticipated along the western boundary of the subject site to collect roof and surface runoff and convey flows to the proposed basin. No additional easements are required for major system flows.

Point 2 – Road Drainage – Minor system criteria

Further investigations have been undertaken to assess the capacity of the existing pipe network shown in Figure 2 of the Stormwater Assessment.

The principal eastern catchment, with an area of approximately 26,200 m², drains to an existing 1200 mm x 1200 mm field inlet pit adjacent to Tuckeroo Avenue. The catchment is conveyed via an existing drainage gully traversing Lot 32 (Photo 1). Existing catchment flows

have been calculated as approximately 700 L/s for the 5-year ARI event and 1,380 L/s for the 100-year ARI event.

Photo 1 – Eastern drainage gully through lot 32 to 1200x1200 field inlet pit

Allowing for a 50% blockage factor and a maximum ponding depth of 200 mm, the inlet capacity of the field inlet pit is approximately 700 L/s. Site inspections identified an actual ponding depth of approximately 500 mm, indicating an inlet capacity that exceeds the 5-year ARI event flow.

The concrete lid of the existing kerb inlet pit was removed during inspection and the connecting stormwater pipe was measured and confirmed to be 675 mm in diameter (Photo 2). The pit is approximately 1.35 metres deep and the outlet pipe has an estimated longitudinal grade of 2.0%.

Photo 2 – Tuckeroo Ave – Kerb inlet pit with 675 outlet

At the calculated 5-year ARI flow rate of 700 L/s, the 675 mm pipe would operate at approximately 50% capacity. As identified in the previous report, the downstream outlet pipes comprise twin 900 mm diameter conduits. Their available capacity indicates that the existing underground drainage network has sufficient capacity relative to current design standards.

Based on these observations, the existing drainage network appears to satisfy the objectives of NRLG D5.09, including requirements relating to flow widths, pipe sizing, and minimum and maximum pipe velocities. Any future development will be required to ensure that post-development flows do not exceed existing pre-development flows, thereby maintaining compliance with these objectives.

Stormwater runoff from the western Torrens title lots will not be connected to the existing stormwater infrastructure within Road 2. Instead, a separate drainage system will be constructed along the northern kerb of the future Road 2 to convey runoff to the proposed bio-retention basin for treatment and detention prior to discharge to the existing detention basin. Detailed DRAINS modelling will be undertaken as part of the future DA process to demonstrate that post-development discharge rates do not exceed existing pre-development conditions.

Point 3 – Stormwater Quality

Stormwater runoff from the western low-density Torrens title lots is proposed to be treated via a traditional bio-retention basin (Basin 2) located within a drainage reserve in the south-western corner of the site. The drainage reserve will be dedicated to Byron Shire Council for ownership and maintenance.

The conceptual drainage reserve has an area of approximately 400 m². It is anticipated that the basin will incorporate block retaining walls along the lower boundary, rather than earthen embankments, to provide sufficient treatment area and storage volume.

The total catchment contributing to Basin 2 is approximately 12,200 m², with a development area of approximately 7,500 m². Based on the deemed-to-comply provisions of the Queensland Urban Stormwater Quality Planning Guidelines (2009), the basin would require approximately 120 m² of filter media area and approximately 40 m³ of detention storage. Basin 2 will include a maintenance access track from the Road 2 cul-de-sac, together with a sediment forebay and gross pollutant trap consistent with other local subdivision developments.

The eastern catchment contributing to Basin 1 is approximately 26,200 m², with an anticipated development area of approximately 15,500 m². Under deemed-to-comply provisions, sufficient area exists to accommodate approximately 230 m² of filter media and approximately 80 m³ of detention storage within a traditional bio-retention basin.

As discussed with Mr Solatan, treatment and detention infrastructure associated with Basin 1 will be privately owned and maintained by the future body corporate. To minimise maintenance requirements and maximise opportunities for ancillary uses such as additional bin storage and parking, a proprietary treatment train is likely to be adopted in lieu of a traditional bio-retention basin.

The proprietary treatment system would typically comprise:

- Primary treatment for the removal of gross pollutants and sediment through hydrodynamic separation devices such as an Atlan Vorticeptor or Atlan Ecoceptor;
- Secondary and tertiary treatment for the removal of suspended solids, heavy metals and nutrients through an AtlanBasin or equivalent treatment system; and
- Post-treatment detention using AtlanCube, TankStor or comparable systems prior to discharge into the Tuckeroo Avenue drainage network.

Both treatment and detention systems will be modelled and refined following detailed lot and unit design during the DA process. The final design will comply with Byron Shire Council's WSUD treatment and detention objectives, provide suitable long-term maintenance arrangements, and ensure that development yield and functionality are not adversely affected.

Flooding

Byron Shire Council's comments regarding flooding are consistent with the preliminary assessment undertaken by CivilTech.

Although Council's 100-year ARI, 2100 climate change flood mapping identifies flooding within the south-western corner of the site, the extent of inundation is relatively minor and no Fill Exclusion Zone applies to the subject land.

As part of any future Development Application, a detailed flood study and report will be prepared in conjunction with the detailed design of the proposed lots and drainage basins. This assessment will confirm that the development does not adversely impact neighbouring properties, that suitable flood-free access is maintained, and that all building envelopes are located at or above the required Flood Planning Level.

Should you require any further information or wish to discuss any aspect of this submission, please contact me on 0431 065 645 or via email at wade@civiltech.net.au.

Yours faithfully
CivilTech Consulting Engineers

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