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207 FOREST WAY - RIPARIAN ASSESSMENT

Cardno has provided riparian and geomorphic advice to Lendlease at 207 Forest Way as part of the Glenaeon Renewal project. This statement addresses the changes to riparian values that would result from the approved development application (DA2018/1332) versus a proposed redesign of the stormwater system for the project.

The existing drainage network is characterised by the presence of three large gabion sediment basins. Two of these basins are located within the footprint of the proposed Building D and one downstream at the site boundary. Below the first two sediment basins there is general flow pathways towards the site boundary and the last sediment basin. The southern embankment of the upper two basins is primarily comprised of fill from previous construction of South Avenue. Construction of the upper two basins required significant earthworks and disturbance to any pre-existing landform. This portion of the site is a constructed landscape for the purposes of stormwater management and no longer a natural landscape feature resembling, in a meaningful way, its pre-developed state. All water flow observed in this area was due to pipes channelling flows through the gabion walls. The assessment carried out by Cardno in 2018 did not identify features such as a defined channel with bed and banks or riparian vegetation within Lot 207 that comprise a watercourse or land that meets the features of a riparian corridor. Thus, Cardno's original assessment concluded that the subject land did not meet the definition of riparian land.

Under the approved DA, Building D was not approved but the proposed new stormwater drainage system was. The approved drainage system would include the retention of the three existing sediment basins and the construction of two detention ponds to treat site runoff to meet Council's water quality design requirements. Under the approved design, approximately 48m of flow path downstream of the current uppermost sediment basins would be removed and replaced with the new detention ponds, leaving no natural flow path. Channels would be constructed to allow stormwater to flow through the sediment basins without treatment, and then through the detention ponds to the property boundary. The construction of the additional detention ponds would also result in approximately 740m² of newly disturbed area.

While the approved DA represents an improvement to the existing drainage system by improving downstream water quality through a more ecologically sensitive design of the detention ponds, it would remove any natural flow paths for stormwater to the property boundary.

Lendlease is now proposing a new stormwater management solution to further improve project ecological outcomes. To meet the requirements of Warringah Council Policy No. 740 *Protection of Waterways and Riparian Land*, a Waterways Impact Statement (WIS) has been prepared by Cardno to accompany the proposed new design. This WIS addresses comments made by Council in the Pre-Lodgement Advice dated 19th September 2019 concerning the environmental values of the site, and proposes future improvements of the downstream flow path.

Under the proposed redesign, stormwater would be treated on site beneath the driveway forecourt to Building A. Treated stormwater would then flow toward Building D, and then to the property boundary along a rehabilitated flow path. The two uppermost existing sediment basins would be removed for construction of Building D. Construction of

Building D would result in only approximately 40m² of newly disturbed area compared to 740 m² for the approved DA. The newly rehabilitated flow path would be designed with riparian and aquatic ecology principles in mind. The banks would be planted with appropriate local riparian species to enhance the ecological values of the flow path and to create a riparian corridor that would be consistent with high quality corridors in the region. The improved flow path would be approximately 40m in length, which is a substantial improvement to the approved design with no rehabilitated flow path present.

In summary:

Existing drainage: Approximately 48m of poorly maintained flow path, consisting of invasive species, with piped water flow, three large gabion wall sediment ponds, poorly drained, primarily vegetated with weeds with minimal riparian values.

Approved DA: Retention of the sediment basins, which no longer have a role in improving water quality as they are circumvented, resulting in abandoned infrastructure. Construction of two new detention ponds to the property boundary, removing remaining 48m of existing flow paths and impacting 740m² of new area, removing opportunities to incorporate aquatic and riparian values into the ponds in future. Provides no natural flow path for establishing riparian corridor.

Redesigned proposal: Incorporating the stormwater treatment system to be contained under the approved Building A driveway rather than impacting 740m² of existing bushland, provides for approximately 40m of land suitable for establishment of a flow path that reflects the values of a natural upper catchment flow path including native vegetation as well as improving connectivity to the downstream riparian land. Utilised the footprint of the existing man made sediment basins for construction and footprint of Building D.

The redesigned proposal provides for an improved environmental outcome compared to the existing land use and approved DA.

Yours sincerely,



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for Cardno

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