

22 January 2021

Kim Holt
Planning Panel Secretariat
Sydney North Planning Panel

via email: kim.holt@planning.nsw.gov.au

cc: Lashta Haidari – Principal Planner, Development Assessments via email
lashta.haidari@northernbeaches.nsw.gov.au

Dear Ms Holt,

**MODIFICATION TO DA2018/1332 - 207 & 199 FOREST WAY, BELROSE
PLANNING PANEL REF: PPSSNH-159**

This letter has been prepared on behalf of Lendlease - Retirement Living (the Applicant) to provide Sydney North Planning Panel (Planning Panel) with an overview of the modification (MOD2020/0431) proposed to the approved Development Application (DA), being DA2018/1332, at 207 and 199 Forest Way, Belrose (the site) and provides a response to the key issues raised in Council's Assessment Report to be considered by Planning Panel at its meeting on 27 January 2021.

It is noted that a referral from Council's Development Engineer was issued on 31 December 2020 recommending refusal of the modification application as a DRAINS model had not been submitted. The DRAINS model was subsequently submitted to Council on 14 January 2021 where Council declined to consider the additional information provided as the assessment report had been finalised. The DRAINS model was again submitted to Council on 20 January 2021 and it was then internally referred for review (**Appendix D**).

On this basis, the applicant requests that should Council not have completed its assessment of the DRAINS model prior to the Planning Panel meeting on 27 January 2021, that the modification application be deferred to the February Planning Panel meeting to allow for the assessment to be made.

Notwithstanding this, this letter should be read in conjunction with the following consultants reports and statements:

- Ecological Statement prepared by Keystone Ecological (**Attachment A**);
- Bushfire and Biodiversity Statement prepared by Bushfire Code and Bushfire Hazard Solutions (**Attachment B**);
- Water Management Response prepared by Cardno (**Attachment C**);
- Review of Waterway Definition prepared by Fluvial Systems (**Attachment D**); and
- Relevant email correspondence (**Attachment E**).

1.0 Overview of Proposed Modification and Reasons for Approval

The proposed modification seeks to reinstate Building D, which was conditioned to be deleted by condition 2 of DA2018/1332, for environmental reasons. In considering how to address and offset the environmental impacts identified by Council relating to Building D, the proponent has developed a robust alternate proposal for the Onsite Stormwater Detention (OSD) system which as currently approved consists of two large new stormwater ponds located adjacent to the site's two existing stormwater sedimentation ponds. This proposal, as outlined in this modification results in a considerably improved environmental outcome for the site compared with the development as currently approved.

In summary, the environmental improvements of the proposed modification are as follows:

- Consolidates and reduces the approved development footprint for the site and presents an opportunity to protect and regenerate the remnant bushland and existing watercourse in the south eastern corner of the site:
 - The two new, DA approved stormwater detention ponds with a 740m² footprint significantly extending onto native bushland, are to be replaced by underground detention tanks at Building forecourt A.
 - Reinstatement of Building D, with a 540m² footprint, over the site's upper two existing 420m² footprint sedimentation ponds, which are retained (but disconnect from any overland flow) in the current DA approval are now removed in this proposal.
 - The net retention of 400m² of native bushland directly connected to the existing bushland network. That is, 1,160m² of bushland disturbance approved compared to 760m² bushland disturbance proposed.
 - The retention of 3 additional trees than would occur under the approved DA (ie 60 trees approved compared to 63 trees proposed to be retained).
- Improves stormwater management with a solution more sensitive to the site conditions:
 - The proposed underground stormwater tank to be constructed in rock with no possible impact upon groundwater.
 - Allows for the retention and improvement of a 40m of flow path which will be improved to recreate natural, riparian conditions with native plantings along this flow path, replacing the DA approved sequence of four (4) large ponds.
- Improves Ecological outcomes:
 - Increased environmental value of the 400m of retained native bush, the additional plantings and the enhanced habitat for fauna due to its continuous connection to the adjacent offsite bushland network at the property's boundary.
- Maintains the approved bushfire Asset Protection Zones:
 - The NSW Rural Fire Service in its letter of 23 November 2020 raised no objection to the proposed reinstatement of Building D asking for no additional tree removal and refers to its previous conditions of consent issued for DA2018/1332.
- Achieves good design and social inclusion outcomes:
 - In culminating the row of 9 existing villas with the 5 units in Building D, this group of units forms a localised community more reflective of and similar to the broader village.

In summary the retention of Building D linked with the relocation of the stormwater system and the rehabilitation work on the retained bush will result in a lesser environmental impact than the approved original application (DA2018/1332) and importantly, result in an actual overall environmental net benefit.

A numerical comparison of the approved DA (DA2018/1332) and the proposed modification is shown below in **Table 1**. The table clearly illustrates that the proposed modification will result in a number of environmental improvements when compared to the approved DA and in alignment with Council's policies.

Table 1 Numerical comparison table

Numerical Comparison					
Existing Conditions		Proposed Modification		Approved DA2018/1332	
Upper sedimentation ponds	420m ²	Building D built:	540m ²	Upper sedimentation ponds retained	420m ²
Lower detention pond	220m ²	Lower detention pond retained*:	220m ²	New detention ponds built	740m ²
Total Developed:	640m²	Total Developed:	760m²	Total Developed:	1,160m²
		Net Change		Net Change	
		Existing bushland impacted:	120m ²	Existing bushland impacted:	520m ²
Existing flow path:	48m	Retained/improved flow path:	40m	Retained/improved flow path:	0m
		Retained Trees:	63	Retained Trees:	60

* could be removed via condition of consent.

For further clarity regarding the environmental improvements proposed with the subject modification application, the following figures illustrate the differences between the existing conditions (**Figure 1**), the proposed modified stormwater system (**Figure 2**) and the approved stormwater system (**Figure 3**). These figures indicate the following:

Figure 1: Existing Conditions. Shows the two upper (420m²) and one lower (220m²), existing, 30-year-old sedimentation ponds connected by 48m of natural flow path through undeveloped bushland.

Figure 2: Proposed Modification. Shows the reinstatement of Building D (540m²) largely over the existing, 30-year-old upper two sedimentation ponds (420m²) as well as the relocated stormwater system (in red) under the main development's garage forecourt. It also demonstrates the retention and enhancement of the undeveloped bush at the site boundary along with the retention and enhancement of 40m of the existing flow path.

It is noted that the Applicant is happy for the lower existing detention pond (220m²) to be removed via condition of consent as it will not serve a purpose should the modification be approved. With the removal of this pond the total developed area would be reduced to 540m², which is 100m² less than the existing predevelopment situation and 620m² less than the approved scheme.

Figure 3: Approved DA. Shows the retention of the two existing upper sedimentation ponds (420m² in area) and the lower sedimentation pond removed to make way for two new stormwater detention ponds (740m² in area).

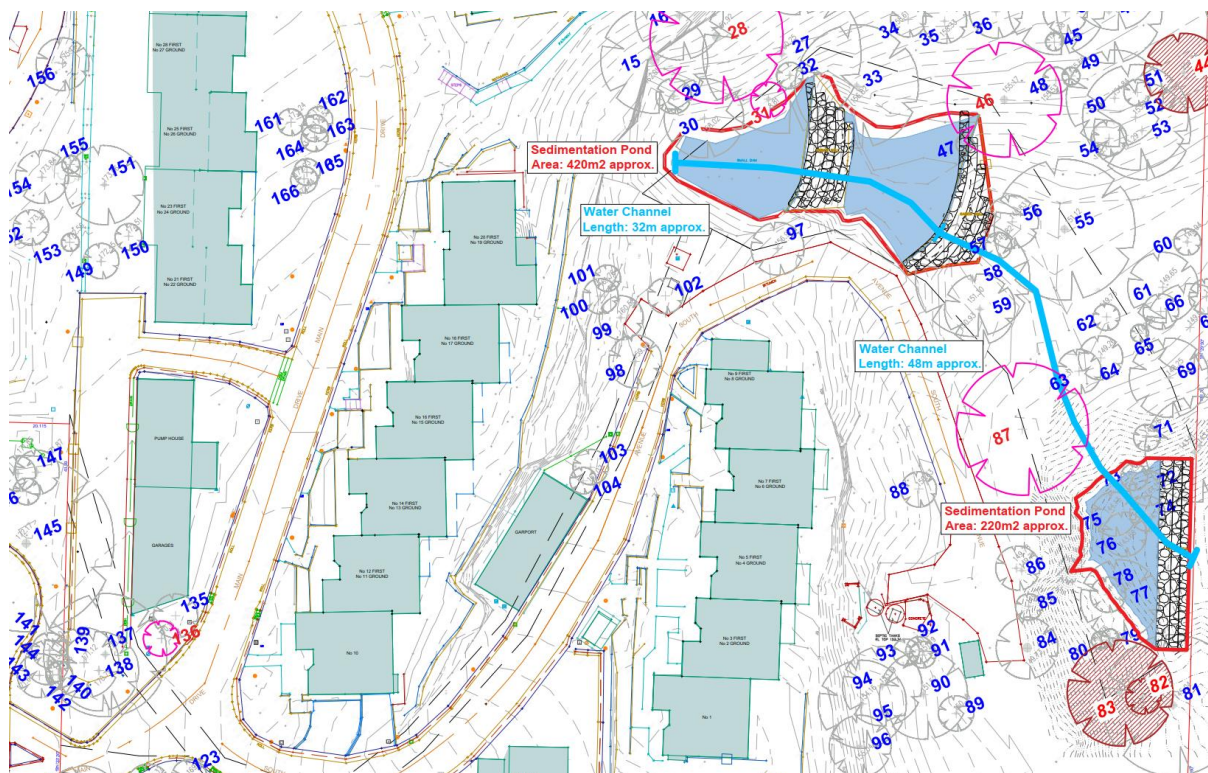


Figure 1 Glenaeon – Existing Conditions

Source: Cardno

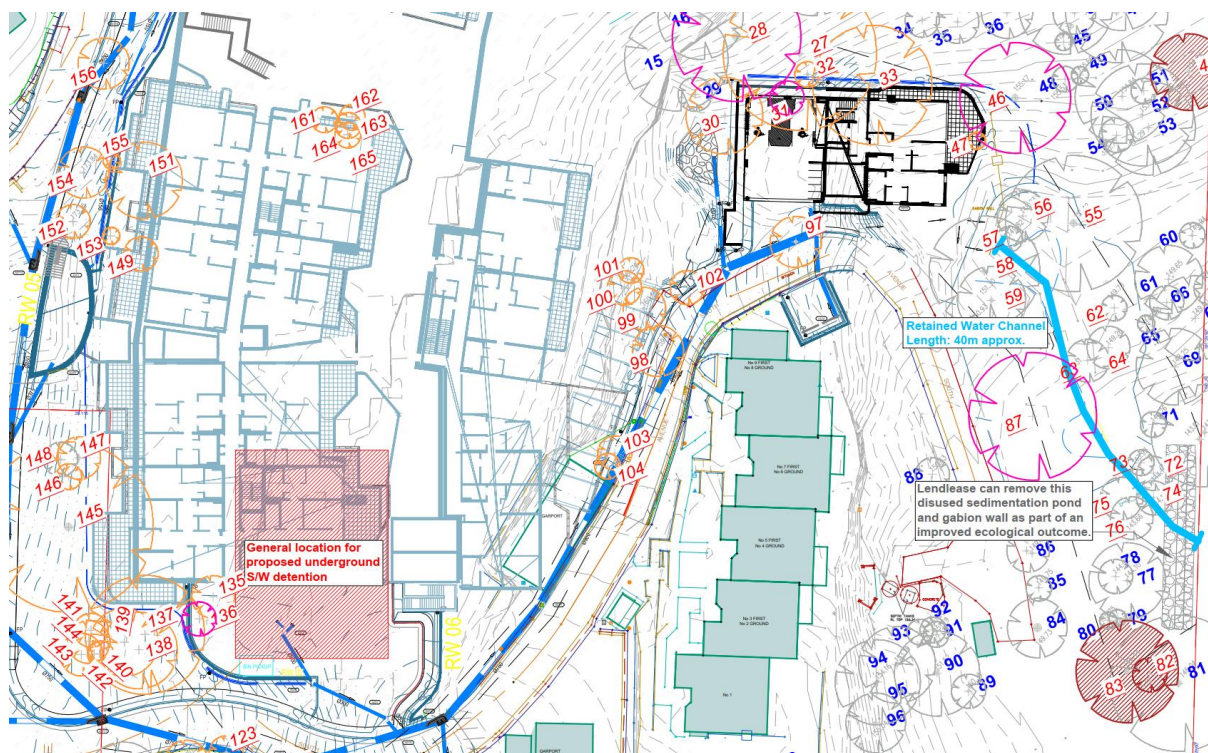


Figure 2 Glenaeon – proposed modification application (reinstatement of Building D)

Source: Cardno

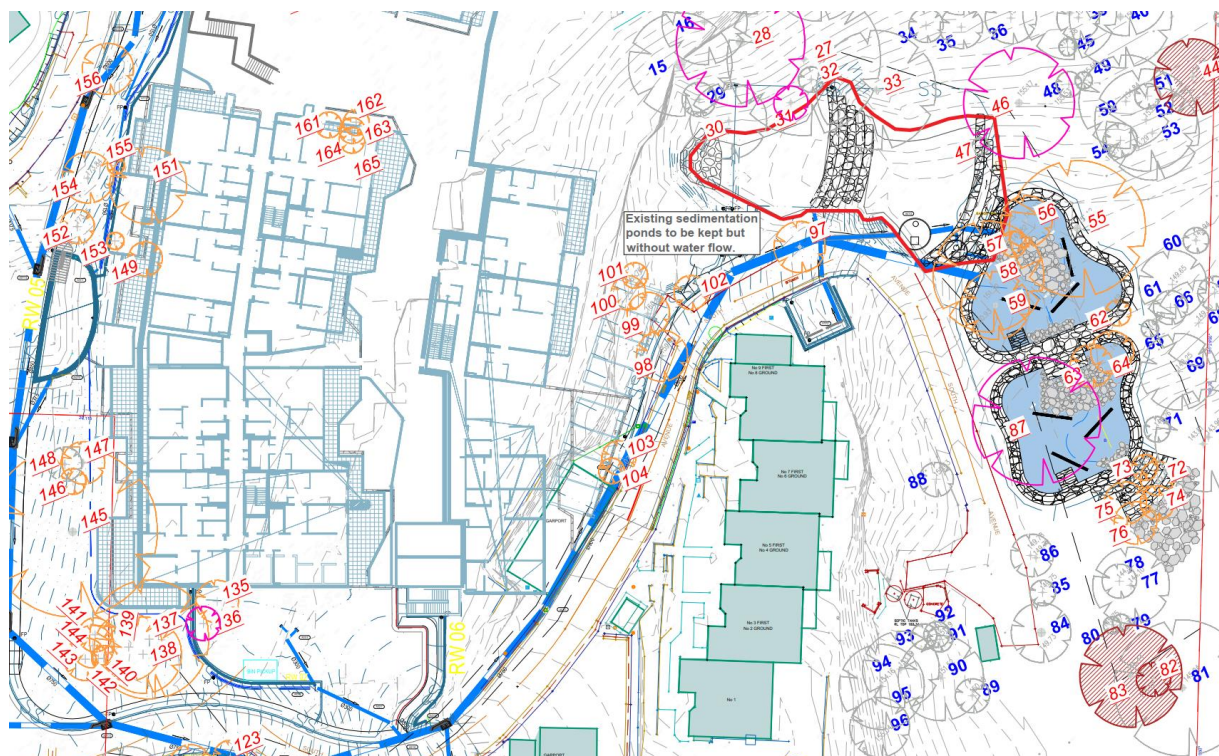


Figure 3 Glenaeon – approved DA 2018/1332

Source: Cardno

2.0 Response to Key Concerns

As summarised in Council's Planning Assessment Report, the application has been assessed with regard to section 4.55(2) of the *Environmental Planning and Assessment Act 1979*. A response to the key issues raised in Council's Assessment Report is provided in **Section 2.2** and **Section 2.3**. Supporting documentation and statements from the consultant team are referenced as applicable.

It is noted that some of the internal Council referral responses support the proposed stormwater amendments, however they do not support the reinstatement of Building D. The applicant requests that the modification is assessed as an integrated holistic application comprising the reinstatement of Building D and the associated stormwater and regeneration works proposed.

2.1 State referrals

The modification application was referred to external State bodies including Transport for NSW, Ausgrid, the Aboriginal Heritage Office and the NSW Rural Fire Services. No objections to the proposed modification were raised from any of the external referral bodies.

2.2 Response to Council Internal Referrals

Table 1: Response to key referrals

Key referrals comments	Response
Building Assessment – Fire and Disability Upgrades	
SUPPORTED The application has been investigated with respect to aspects relevant to the Building Certification and Fire Safety Department. There are no objections to approval of the development.	Support noted.
Environmental Health (Contaminated Lands)	
SUPPORTED 2018 DA referral to Environmental Health has already evaluated the contaminated land aspect of this development. No further investigation required.	Support noted.
Environmental Health (unsewered lands)	
SUPPORTED Cardno provided information regarding the wastewater management for Building D, and proposed a 43kL tank to manage the extra volume. As it has not yet been decided which tank will be used, a condition is necessary to ensure an approved tank is installed.	Support noted.
Landscape Officer Referral Response	
SUPPORTED - It is considered worthwhile that the alternate onsite stormwater detention system is approved as this presents an opportunity for bushland regeneration. - Updated arboriculture comments by Footprint Green are provided indicating that the modification proposal requires the removal of 15 existing trees, with many in close proximity to the development works area, and, regardless whether Building D is constructed or not require removal due to structurally defective characteristics or to comply with bushfire APZ standards. Additionally 11 Exempt exotic weeds species are proposed for removal by the modification proposal. - Given that existing trees are required to be removed regardless of the proposal, the opportunity exists for regeneration of bushland canopy, and subject to replacement with 15 locally native trees in proximity to Building D to reduce the built form, and compliance with section 3.7 Landscaping, and Appendix 4 - Asset Protection Zone Requirements, of Planning for Bush Fire Protection 2019, Landscape Referral provide no objection. The existing landscape features of the site such as rock outcrops are to be retained in place and/or relocated for in nearby locations where impacted by development works. - Landscape conditions 21, 39, 40, 57, and 70 remain, as related to this modification application. Condition 69 Landscape completion certification, shall be amended to include replacement canopy tree planting.	Support noted. - The applicant is happy for a condition of consent that requires an additional 15 locally native trees be planted on the 207 Forest Way site to be included, subject to meeting the APZ requirements. - Building D does not directly impact rocky habitat that has the potential to be used by microbats and is sufficiently distant from such habitats to avoid and minimise indirect disturbances. - Therefore, the proposal remains consistent with clause 56 of the Warringah LEP in that rock outcrops are avoided and less bushland is affected compared with the approved development application given the approved stormwater ponds are proposed to be removed with this modification (Attachment A).
Bushland and Biodiversity Referral Response	
<i>Stormwater (Bushfire and Biodiversity)</i> As commented as part of the pre-lodgement process, the stormwater management system proposed as part of the	Council acknowledges that the proposed modified stormwater system is an improvement from the approved system and is therefore supportive. However, in addition requests that a riparian corridor be created that would prevent the re-instatement of Building D.

modification application should be implemented. This will result in an improved environmental outcome beyond that already approved. • Incorporation of the OSD as part of the Glenaeon Renewal development provides an opportunity to rehabilitate land and establish a new upper catchment riparian system in the location of the existing and approved stormwater ponds should also be incorporated, and extended upstream for an additional ~32 metres, in place of proposed Building D.	This would fundamentally change the modification application currently before the Panel, and indeed delete a primary purpose of this proposed modification application, namely to re-instate Building D. Reinstatement of Building D will: result in the removal of the approved stormwater ponds and construction of OSD tanks under the basement parking forecourt of Building A. - Provide an off-line system for source control, thereby reducing the impact on the drainage network in South Avenue. - The new OSD tanks will be provided with filter cartridges to treat the stormwater runoff. -
<i>Ecological Statement (Bushfire and Biodiversity)</i> • The overall balance of tree retentions/removals under the approved development in comparison to the modified application is similar, with the modified proposal retaining 3 more trees. • The important habitats that are present within the eastern and south-eastern portions of the site are acknowledged by the applicant and the relevant sub-consultants. These native vegetation communities and fauna species habitats have been historically reduced to a minor portion of the overall site (<10%) from the retirement village development, and will be further impacted by the inclusion of Building D. The original reasons for refusal of Building D provided as part of the 2018 development application are still applicable to the modification application, and these are summarised in relevant sections below.	The ecological comments do not recognise the current approval on site as the basis for assessment: - The modification proposes the retention and rehabilitation of bushland where the approved and existing stormwater detention ponds are located, resulting in a net environmental benefit in terms of tree retention, native vegetation retention, disturbance of habitat, biodiversity and landform disturbance. As discussed in the modification application documentation, the site will support a complex array of distinctive environmental features, all of which will be retained: • Exposed rocky plateau: This part of the site is almost entirely developed and will retain its current character; • Rocky escarpment with overhangs: The natural part of the escarpment with rocky niches will remain untouched and is distant from the proposed Building D; • Rock outcrops: Below the escarpment are several areas of outcropping sandstone. These will remain intact, being outside of and generally distant from the location of Building D; and • Remnant bushland: Although the area occupied by naturally occurring vegetation will be managed for bushfire hazard as part of the current consent, it will remain as natural vegetation and therefore essentially maintain its current character, albeit with a less dangerous fuel load.
<i>Bushfire Impact (Bushfire and Biodiversity)</i> • The approved APZ was not supported by Biodiversity, however was included in the NSW RFS GTAs dated 17 October 2018. It is still the opinion that Building D is located closer to bush fire hazard, which exists both on the site and on the adjoining properties to the east. This native vegetation, whether assessed as Forest, a Forest remnant, or an asset protection zone is still a bush fire hazard. • Therefore the location of Building D does not comply with the objective of Planning for Bushfire Protection, nor is it in accordance with the NSW RFS pre-lodgement advice that the development should be located no closer to the bush fire hazard. This is confirmed in the BDAR which states that "The site is impacted by the potential for bushfire hazard from the connected vegetation along Snake Creek that has the potential to act as a 'fire-run'. • Previous comments from Council's Biodiversity team, in relation to the inclusion of Building D and the requirements of	As discussed in the Bushfire Statement at Attachment B, ongoing consultation has been undertaken with the NSW Rural Fire Service which has again approved the Bdg D development: - We note that Council identifies that "hazard exists as native vegetation (Forest), both on site and within the adjoining lots less than 100m to the east and south east." The result of the bushfire hazard onsite is that several existing dwellings onsite are currently located within the designated Flame Zone. - Therefore, the management of the now approved APZ results in the bushfire hazard interface being redefined to the property boundary rather than including vegetation within the subject site. - As such, the approved and formalised management of the APZ results in proposed Building D being located further from the hazard interface than other existing buildings within the subject site.

Planning for Bushfire Protection 2006 (now 2019) are still relevant. - The original Bush Fire Assessment Report (Building Code & Bushfire Hazard Solutions Pty Limited 9 August 2018) states “the radiant heat levels cannot strictly be complied with”, and this is considered to be a critical issue during fire suppression activities and during the evacuation of vulnerable people and staff in the event of an emergency. The report states that vegetation to the north is Maintained Grounds and significant environmental features are identified as proposed Building B. - The existing development already relies upon an APZ within an adjoining allotment to the south, and any further reliance on APZs to the east that would extend off site must be avoided. While it is acknowledged that the approved development includes mitigation in the form of construction of the approved buildings to current bush fire construction standards, retro-fitting of existing structures, and hazard mitigation in the form of an APZ, this isn’t justification for putting additional vulnerable occupants at increased risk from bush fire especially as there is the “likelihood of increases in the severity and frequency of natural hazards which should be taken into account in land-use planning and building decisions” (Royal Commission into National Natural Disaster Arrangements – Report Commonwealth of Australia 2020). On this basis, Building D should not be supported.	Accordingly, in the opinion of Building Code and Bushfire Hazard Solutions Consultants and the NSW Rural Fire Service, the current design of Building D is acceptable and is supportable from a bushfire perspective. Further discussion is provided at Attachment B.
<i>Assessment against WLEP 2000 (Bushfire and Biodiversity)</i> The proposed development must be planned and designed in order to address and satisfy the following two clauses of the WLEP 2000: - Clause 56 Retaining distinctive environmental features on sites, states that; - Development is to be designed to retain and complement any distinctive environmental features of its site and on adjoining and nearby land. In particular, development is to be designed to incorporate or be sympathetic to environmental features such as rock outcrops, remnant bushland and watercourses/riparian zones. Based on the scale of impacts proposed, the proposal is considered inconsistent with Clause 56 Retaining distinctive environmental features on sites of WLEP 2000. It is recommended that siting and design of any future application demonstrate that the distinctive environmental features of the site and adjoining land have been retained and that impacts have been avoided and minimised. - Clause 58 Protection of existing flora states that; - The Development is to be sited and designed to minimise the impact on remnant indigenous flora, including canopy trees and understorey vegetation, and on remnant native ground cover species. - As above, the development, including the bushfire Asset Protection Zone (APZ), vehicular access, increased stormwater runoff and ancillary structures will impact on areas that are currently represented by remnant indigenous flora, including canopy trees, understorey vegetation and native ground cover species. - Native vegetation on the site will be directly and indirectly impacted and various threatened flora and fauna species have potential habitat on the subject property. The threatened fauna species <i>Cercartetus nanus</i> Eastern Pygmy-possum has been recorded	As discussed in the Ecological Statement at Attachment A, the proposed development is consistent with clause 56 and clause 58 of the Warringah LEP. With regard to clause 56, the proposal will not impose additional ecological impacts that have not already been addressed and / or offset as part of the approved documentation. Specifically: - the rock outcrops are avoided, - less bushland is affected when compared to the approved footprint, and - the flow path will be rehabilitated which Council has also recognised as advantageous for this proposal. It is noted that both Cardno and Fluvial Systems (Mod application and Appendix C) confirm that a watercourse is not located on the site and therefore, the proposed retention and rehabilitation of this area and modified stormwater system: - will not only improve the sites ecological and natural outcome, - but will improve the drainage water quality that eventually flows into the wider catchment. With regard to clause 58, the APZ has been implemented in line with the best environmental practice and Conditions of Consent: - Council has acknowledged the merit of elements of the proposal however, has not recognised that Building D is not located where there is important biodiversity or habitat for biodiversity. - Building D does not impose the impacts as described by Council and rather, it facilitates additional benefits as summarised above. - As noted by Keystone Ecological, the modification is consistent with all legislative requirements and avoids and minimises any ecological impacts, while also protecting important habitats and landscape features.

directly adjoining the site, and suitable habitat occurs on the site. The development and ongoing modification of the APZ will not minimise impacts to indigenous flora that is also habitat for several threatened species, including fruiting Banksia species, the loss of hollows, and modification to the structure and composition of the bushland within the APZ. - With regards to the APZs, it was always understood that Building D was not the trigger for the entire village to be managed as an Inner Protection Area. The creation of an APZ across the entire lot was never supported by Bushland & Biodiversity due to the impacts to native vegetation, flora and fauna species, their habitats, and the fauna wildlife corridor. The proposal was not in accordance with the WLEP 2000 controls, especially clause 58 Protection of existing flora. Based on the information provided, the proposal is considered to be inconsistent with Clause 58 Protection of existing flora of WLEP 2000.	- It is noted that imposition of an APZ on the native bushland is not strictly consistent with the objectives of Clause 58, but it is unavoidable and a requirement that is independent of the development of Building D. In recognition of the need to minimise biodiversity impacts, the APZ works have been detailed in the Vegetation Management Plan after careful on-site consultation between the Project Ecologist, Bushfire Consultant, and Project Arborist. That process maximised the protection of the areas of highest biodiversity value (such as hollow-bearing trees) while still reducing the bushfire hazard for the vulnerable residents. Further, the vegetation management works in the APZ have been implemented carefully by experienced professionals, Dragonfly Environmental.
Riparian Lands and Creeks	
• The removal of Building D was conditioned under DA2018/1332 on the environmental impacts on this part of the site. • Building D is located just below the cliff line and directly on the watercourse forming the headwaters of Snake Creek. The cliff line marks a key transition from overland sheet flow to channelized flow forming the Snake Creek watercourse source. The location of Building D on top of the Snake Creek source is in direct contradiction of the Warringah LEP2000 - B2 Oxford Falls Valley clause 56 to protect distinctive landform features on the site. • The proposed development would negatively affect the ecological, geomorphic and landscape values of the area below the cliff line and specifically limits the opportunities to restore that section of the Snake Creek watercourse.	As discussed in the Waterways Response prepared by Cardno (included at Attachment C) and above with respect to clause 56 of the Warringah LEP, the proposed location of Building D does not result in any non-compliance with the LEP or additional or adverse environmental impacts. As referenced in Attachment D, the site does not contain a watercourse and the headwaters to Snake Creek are in fact located much further east: - The drainage line at 207 Forest Way is not regarded as a watercourse given that watercourses are unequivocally formed, flow most of the time and have continuous well defined beds and banks. - Therefore, on the basis of geomorphic and hydrologic considerations, the length of the channel is not a natural watercourse under the WLEP 2000 but rather an artificial watercourse. - Accordingly, with the inclusion of a 40m long flow path and regeneration of this area it will help to retain, improve and rediscover the distinctive environmental features on the site.
Water Management	
• This application was submitted while the Policy PL850 Water Management still applied (this has since been revised). • This policy states that Council seeks outcomes for stormwater treatment as follows: - integration of water sensitive urban design measures in new developments to address stormwater and floodplain management issues - Improve the quality of stormwater from urban development - Mimic natural stormwater flows by minimising impervious areas, reusing rainwater and stormwater and providing treatment measures that replicate the natural water cycle. • While the applicant has addressed the second point to a degree (filtration cartridges are not very effective at removed dissolved pollutants), they have not met council's objectives in terms of water sensitive urban design or replicating the natural water cycle. This can be achieved through measures that incorporate infiltration, evaporation and reuse (to reduce	A Waterways Response has been prepared by Cardno and is included at Attachment C. The response demonstrates that the proposed development complies with Council's Policy PL850 Water Management and proposes further solutions to enhance the design. Importantly, the proposed development will provide a better stormwater outcome as follows: • includes an additional 40m of natural flow path to replace the detention basins. This will increase the amount of infiltration area when compared to the original DA approval. • removes weeds along the flow path and improves the natural habitat area, while maintaining evaporation loss in the corridor. • Removal of the existing sediment basin and replacement of the detention basins with a below ground OSD tank will have minimal impact on evaporation loss.

demand on potable water supplies and reduce rainwater discharged from the site). • In addition, the conversion of detention basins to an OSD tank further reduces infiltration from the site. • Filtration cartridges will only be accepted as part of a treatment train approach that achieves water sensitive urban design as described above	• The original consent did not require rainwater tanks for approval. Notwithstanding, Building D can be fitted with a rainwater tank to provide a better outcome for water reuse. • The stormwater objectives are met using filtration cartridges in the proposed OSD tank. The results documented in the modification application are confirmed by MUSIC modelling. There have been a number of field studies completed on the effectiveness of the filter cartridges and more information can be provided if required. The application of filter cartridges is a standard industry practice in water sensitive urban design and is used extensively throughout Sydney on similar projects. • will locate the OSD tank underneath the Building A driveway which will consolidate the impervious areas rather than introducing additional impervious areas at the detention basins. • will improve natural flows from the site in comparison to the existing conditions and the approved DA in which the detention basins would have been discharging flows directly from the basin outlets.
Urban Design	
• The proposal seeks to re-in state Building D, it's deletion from the scheme having previously been upheld as a condition of consent (Condition 3) to DA2018/1332 by the Sydney North Planning Panel in their correspondence dated 1 May 2019, based on the environmental impacts on this part of the site. • Comments from Council's Biodiversity and Stormwater officers, the location of Building D, essentially offset from the main development by quite a distance and set further down the escarpment represents an overdevelopment of the site, particularly in this significant escarpment. • The building, by virtue of its isolation in the greater landscape also demonstrates little further merit that would warrant the re-instatement. • The building does little to complement the view aspects from the buildings further up the escarpment and, as noted in the applicant's Response to Reasons for Refusal April 2019 cites economic reasons for the re-instatement of the building, over any further or enhanced benefits of built form outcomes across the greater site. • The proposal is therefore unsupportable.	Building D was included in DA2018/1332 where, when referred to Council's Urban Design team for comment, there were no issues raised with regard to its location or form. Therefore, these comments are contrary with those previously issued for the approved development. Importantly, Building D is suitable on design grounds given: - Consistency with the comments raised in the Urban Design referral issued for the approved DA, - Building D is located to the immediate north of the existing nine villas and rather than being isolated, it provides a suitable neighbour and culmination of development in the street. - It comprises a compact footprint, allowing it to appropriately integrate with the surrounding built form and village life. - The modification has modestly reduced the overall development footprint by rationalising retaining walls. - The high quality architectural design and integrity of the development is consistent with the remainder of the village renewal with no changes proposed to the external finishes or materials palette. This allows the building to continue to blend with the surrounding natural environment thereby minimising any perceived visual impact. From an urban design perspective, it is important to note the following: • Building D provides small floor plates that are consistent or smaller than existing residential buildings of Glenaeon Retirement Village, • Building D presents minimal to no visual impact as it is located below the ridgeline and is largely not visible from the public domain or adjoining properties, with its low skillion roof design ensuring it is no higher than the ridgeline of the adjacent existing villas. Therefore, it does not give rise to adverse impacts upon adjoining properties or the landscape as it does not result in any overshadowing, visual privacy issues, view impacts or overdevelopment.

	• The FSR of the site with the reinstatement of Building D provides an FSR of 0.44:1 which is substantially lower than the 0.5:1 FSR that applies to the site under WLEP 2000. • Building D responds to the landscape by adopting a modest built form that is reasonably secluded as it steps down the slope; and • Building D results in overall improvements to the natural landscape and vegetation of the site over the approved DA. Through implementing the amended stormwater system, this results in an improved water quality drainage outcome for the site and through the native regeneration as proposed under this application to the rear of the site, the ecological values of Snake Creek are not only maintained but improved by the proposed development. Further to this, the proposed development is overwhelmingly consistent with clause 12 of the WLEP 2000 and the desired future character for the B2 Locality. This is because it addresses Council's concerns with regard to environmental impacts and its reinstatement does not present as an overdevelopment of the site but rather provides opportunity to improve environmental outcomes within the locality.
Development Engineer	
The modification cannot be supported for the following reasons: As required by the former Warringah Council OSD Technical specification section 3.3 Minimum Information required for all Developments Except Single Residential Dwelling Developments has not been provided. Hydraulic calculations and a hydraulic model has not been submitted for review. The preferred model to determine the site storage requirements and permitted site discharge is DRAINS. Catchment areas that drain to or by pass the On-site stormwater detention system re to be provided to Council for the DRAINS model review. Discharge outlet details are to be provided to demonstrate the prevention of scour within the riparian area.	DRAINS model has been submitted to Council consistent with its requirements. It is noted that a referral from Council's Development Engineer was issued on 31 December 2020 recommending refusal as a DRAINS model was not submitted. The DRAINS model was subsequently submitted to Council on 14 January 2021 where Council declined to consider the additional information provided as the assessment report had been finalised. The DRAINS model was again submitted to Council on 20 January 2021 and it was then internally referred for review (Appendix D). On this basis, the applicant requests that should Council not had the time to complete its assessment of the DRAINS model prior to the Planning Panel meeting on 27 January 2021, that the modification application be deferred to the February Planning Panel meeting. Correspondence with Council is included at Attachment E.

2.3 Environmental Planning Instruments

All Environmental Planning Instruments and Development Control Plans have been considered by the applicant and addressed as applicable in the DA documentation. Notwithstanding this, Council's Assessment Report maintains the opinion that the proposed development does not comply with the Desired Future Character Provision under clause 12 of the Warringah LEP as:

B2 Oxford Falls Locality

The proposed development is Category 2 development under WLEP 2000 as established by the Sydney North Planning Panel, therefore, the development must be consistent with the Desired Future Character of the B2 Oxford Falls Valley locality. In this regard, the proposed re-introduction of Building D does not satisfy the requirement of the DFC in that the natural landscape, i.e. landforms and vegetation are not protected or enhanced due to the environmental impacts associated with the location of Building D as discussed in the referral sections of this report and as detailed in the attached report on the original development application.

Based upon the above considerations, the modification application is found to be inconsistent to with the DFC statement for the B2 Oxford Falls Valley locality as it results in unacceptable impact on the vegetation and ecological values of the site.

Response: As discussed previously, the proposed modification addresses Council's concerns regarding environmental impacts and the reinstatement of Building D is consistent with the desired future character of the B2 Locality. The supporting consultants' reports submitted with the modification application and the updated statements included in this submission, reiterate that Building D does not result in any environmental impacts but rather makes improvements to the natural environment.

Therefore, given that it has been demonstrated by the Applicant that the proposed modification results in an improved environmental outcome over the approved DA that was found to be consistent with the Desired Future Character of the B2 Locality, it follows that the proposed modification also is consistent with the Desired Future Character of the B2 Locality.

3.0 Conclusion

We note that the application received a supporting submission from the Glenaeon Village Residents Committee and there were no objections, consistent with the support for the original DA. The village residents recognise and look forward to the social and environmental benefits that will arise from this proposed modification.

We look forward to the opportunity address the Sydney North Planning Panel on this item and request the information provided in this submission is provided to the Planning Panel members ahead of its meeting on 27 January 2021 for their consideration. Should you require any clarification in relation to the information or material that has been provided, please do not hesitate to contact me.

Yours sincerely



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Attention: Louise Kerr

14th January 2021

RE: DA2018/1332

This Ecological Statement is provided at the request of Lendlease in regards to a proposed modification to DA2018/1332 and in response to Council's objection dated 12/11/2020. Council's objection to the proposal is based on two clauses of the WLEP 2000, despite the proposal is being consistent with the objectives and controls of those clauses.

Clause 56 – environmental features

Council note that rock outcrops, remnant bushland, and watercourses / riparian zones are to be protected. Building D does not directly impact rocky habitat that has the potential to be used by microbats and is sufficiently distant from such habitat to avoid and minimise indirect disturbances. The modification will not impose additional ecological impacts that have not already been addressed and / or offset as part of the approved documentation.

Therefore the proposal is consistent with Clause 56 with protection of these features – rock outcrops are avoided, less bushland will be affected compared with the approved footprint, and flow paths will be rehabilitated (which is recognised by Council as an advantage of this proposal). Council's objection on the basis of Clause 56 is therefore not valid.

Clause 58 – protection of existing flora

The APZ is required and now in existence irrespective of Building D. It has been implemented in line with the best environmental practice and Conditions of Consent. Council acknowledged that 3 additional trees will be retained by this proposal in comparison with the approved development and so the proposal will deliver protection of more existing flora than the approved footprint. Council's objection on the basis of Clause 58 is not valid.

Council has acknowledged the merit of elements of the proposal (the OSD tank, rehabilitation of flow paths) yet fails to recognise that Building D is **not** located where there is important biodiversity or habitat for important biodiversity.

The proposal for Building D does not impose the impacts claimed by Council and facilitates additional benefits. It delivers an improved outcome to the approved footprint and should be supported. In my opinion, this modification is consistent with all relevant legislative requirements to avoid and minimise ecological impacts, and protects important habitats and landscape features.

Elizabeth Ashby
Principal Consultant
Keystone Ecological



Building Code & Bushfire Hazard Solutions

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General Manager
Northern Beaches Council
PO Box 82
MANLY NSW 1655

18th December 2020
Our Ref. 160107D
Council Ref: Mod2020/0431

Attn: Louise Kerr

**Re: GLENAEON RENEWAL DEVELOPMENT
PRECINCT 199 FOREST WAY & PRECINCT 207 FOREST WAY, BELROSE NSW 2085
PROPOSED BUILDING D - BIODIVERSITY RESPONSE**

Dear Louise,

This letter has been prepared by Building Code & Bushfire Hazard Solutions P/L (BCBHS) in response to the Northern Beaches Council Natural Environment Referral Response – Biodiversity in relation to this matter (dated 12/11/2020). Specifically this letter addresses the bushfire related comments.

Planning for Bush Fire Protection was developed and is administered by the NSW Rural Fire Service (RFS). The RFS has a statutory obligation to protect life, property and the environment and are subsequently the best placed to determine if compliance with PBP has been achieved or not.

The RFS have assessed the proposal, including Building D, on two separate conditions and issued their General Terms of Approval under Division 4.8 of the 'Environmental Planning and Assessment Act 1979' and Bushfire Safety Authority under section 100B of the 'Rural Fires Act 1997' (ref D18/6902, dated 17th October 2019 and ref DA20201002003631-Original-1, dated 23rd November 2020).

Collectively the entire consultation period with the RFS has seen the proposal reviewed by a Development and Assessment Officer, an Acting Team Leader, a Team Leader and the Manager of Planning and Environment Services at the NSW Rural Fire Service.

As acknowledged by Council the 'hazard exists as native vegetation (Forest), both on site and within the adjoining lots less than 100 metres to the east and south-east.' The result of the bushfire hazard onsite is that several existing dwellings onsite are currently located within the designated Flame Zone.

The management of the now approved APZ results in the bushfire 'hazard' interface being redefined to the property boundary rather than including vegetation within the subject site.

The approved formalized management of the APZ and subsequent redefined hazard interface results in proposed Building D being located further from the hazard interface than other existing buildings within the subject site.

Reference is also made by Council to the existing development relying upon an APZ within an adjoining allotment to the south. The proposal has no reliance on the informal APZ to the south of the existing village. Furthermore the proposal does not rely on any APZs that would extend off site to the east.

It is of our opinion and that of the NSW Rural Fire Service that the current design of Building D is acceptable.

Prepared by
Building Code & Bushfire Hazard Solutions



Stuart McMonnies

Manager Bushfire Section

G. D. Design in Bushfire Prone Areas.

Certificate IV Fire Technology

Fire Protection Association of Australia BPAD – L3 Accredited Practitioner

Accreditation number – BPAD9400



Our Ref: 80820328- 20 - 094
Contact: Rick Andrew

7 December 2020

Lashta Haidari
Principal Planner
Northern Beaches Council

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Dear Lashta,

**GLENAEON RETIREMENT VILLAGE MOD2020/0431
WATER MANAGEMENT REFERRAL LOT 100 DP 1114910, 207 FOREST WAY
BELROSE**

Further to the submission of the Glenaeon Retirement Village (Lot 100 DP 1114910, 207 Forest Way Belrose) Development Application modification package, Cardno has prepared this letter to respond to Council's water management referral response dated 20th November 2020.

This letter has been prepared to demonstrate compliance of the proposed design with Council's Policy PL850 Water Management, and to propose further solutions to increase the acceptability of the design. It is noted that the proposed design also complies with Council's updated Water Management for Development Policy dated 26th August 2020.

Refer to **Table 1-1** for responses to Council's referral and comments.

It is noted that Council's biodiversity assessment acknowledges under the 'Stormwater Impact' comments, that this DA modification "will result in an improved environmental outcome beyond that already approved". The proposed stormwater drainage design prepared for this DA modification has incorporated water sensitive urban design principles. The replacement of the open detention basins with a more natural overland flowpath will provide a better transition from the development site to the existing natural environment downstream and therefore would be an improvement to the approved proposal.

The items in **Table 1-1** demonstrate that the DA modification provides a better outcome in terms of water sensitive urban design and stormwater flows than the original proposal, which was approved by Council. Therefore it is not expected that Council should have any further issues with the proposed DA modification design.

Yours sincerely,



Pak Lau
Senior Civil Engineer (MIEAust CPEng NER)
for Cardno
Direct Line: +61 2 9496 7846
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Enc: Water Management Referral Response Mod2020/0431

Table 1-1

PL850– Section 8 “Protecting Our Environment” Clause	Council Referral Comment	Cardno Response
Integration of water sensitive urban design measures in new developments to address stormwater and floodplain management issues	“This can be achieved through measures that incorporate...infiltration”	○ The DA modification proposes an additional 40m of natural flowpath to replace the detention basins, increasing the amount of infiltration area available compared to the original approval. The detention basins in the original approval would be founded on rock and would offer little to no infiltration potential.
	“This can be achieved through measures that incorporate...evaporation”	○ The proposal will remove weeds along the 40m long overland flowpath. The proposal will improve the natural habitat in the area and would maintain the evaporation loss in the corridor. ○ The removal of the existing sediment basins and replacement of the proposed detention basins with a below ground OSD tank will have minimal impact on the evaporation loss. The detention basins would only provide temporary detention storage and would generally be emptied in not more than 1 hour after the largest rainfall event. There would not be any differences in evaporation losses between the two OSD strategies.
	“This can be achieved through measures that incorporate...reuse”	○ The original proposal did not require rainwater tanks for approval. However, Building D can be fitted with a rainwater tank to provide a better outcome for water reuse.
Improve the quality of stormwater from urban development	“Filtration cartridges are not very effective at removing dissolved pollutants”	○ The stormwater quality objectives in Section 8.1, Table 4 “General Stormwater Quality Requirements” are being met using filtration cartridges in the proposed OSD tank. The results are documented in the DA modification report and are confirmed by MUSIC modelling. ○ The cartridges and the Jellyfish unit proposed in the original DA are both proprietary products achieving the same improvement to the quality of stormwater from urban development. There have been a number of field studies completed on the effectiveness of the filter cartridges and more information can be provided if required. The application of filter cartridges is a standard industry practice in water sensitive urban design and is used extensively throughout Sydney on similar projects. ○ Another option is to replace the cartridges with a Jellyfish unit upstream of the proposed OSD tank, however due to the site constraints, it would be more practical to maintain the filter cartridges when they are located within the Building A driveway. ○ It is noted that sediment basins have fairly poor nutrient removal efficiencies with one study by Monash University in 2004 suggesting removal efficiencies of 50%, 20% and 50% for TSS, TN and TP for basins with low detention times. It is expected

that the nutrient removal efficiencies of the existing sediment basins would be even lower as their size is too small for the existing development and the external catchment, and due to the high porosity of the gabion baskets. Both the approved proposal and the DA modification meet Council's higher removal efficiency targets of 85%, 65% and 45% for TSS, TN and TP.

Mimic natural stormwater flows by minimising impervious areas, reusing rainwater and stormwater and providing treatment measures that replicate the natural water cycle	"Minimising impervious areas"	○ The detention basins proposed in the original approval are proposed to be founded on rock and would offer little to no infiltration potential. The Building D area is 540m² and the detention basins would be 740m². The DA modification therefore results in an additional 200m² of pervious area. ○ In the DA modification, the proposed OSD tank will be located underneath the Building A driveway, which will consolidate impervious areas rather than introducing additional impervious areas at the detention basins which are proposed to be founded on rock. ○ The DA modification proposes an additional 40m of natural flowpath to replace the detention basins, increasing the amount of infiltration area available compared to the original approval.
	"Reusing rainwater and stormwater"	○ The original proposal did not require rainwater tanks for approval. However, Building D can be fitted with a rainwater tank to provide a better outcome for water reuse.
	"Treatment measures that replicate the natural water cycle"	○ In the existing site condition, stormwater discharges from a stormwater pipe outlet as concentrated flow into two existing artificial sediment basins which consist of gabion basket embankments. The DA modification proposes an additional 40m of naturalised flowpath in place of the proposed detention basins of the original approval. This would improve the natural flows from the site in comparison to the existing condition and the original approval, in which the detention basins would have been discharging concentrated flows directly from the basin outlets.

Lendlease – Retirement Living proposed DA at 207 Forest Way, Belrose

Review of waterway definition

Dr Christopher J Gippel

May 2019

Lendlease – Retirement Living proposed DA at 207 Forest Way, Belrose. Review of waterway definition

Prepared for:

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4 May 2019

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Document History and Status

Document Lendlease – Retirement Living proposed DA at 207 Forest Way, Belrose. Review of waterway definition

Date 30/04/2019

Prepared by Christopher Gippel

Reviewed by Daniel West and Scott Mackay

Revision History

Revision	Revision Date	Details	Authorised	
			Name/Position	Signature
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B	4-May-2019	Final	Chris Gippel Director	

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1 Statement of Engagement, Qualifications and Experience

I, Christopher James Gippel, have prepared this report at the request of Lendlease – Retirement Living and Ethos Urban.

I hold a PhD in hydrology and fluvial geomorphology awarded from the University of NSW in 1989 and a BSc (Hons I) awarded from the University of Newcastle, NSW in 1982.

Since I obtained my doctorate, I have worked continuously for 29 years in the water resources sector, undertaking academic research and consultancy. My expertise is evidenced by my numerous publications in this field. I also have expertise in technical aspects of methodologies required to undertake hydrological analysis, including hydrological and hydraulic modelling, and spatial analysis (objective numerical characterisation of landforms) using Geographic Information Systems (GIS). A copy of my curriculum vitae is provided with this expert report.

Currently, my employment is:

- Consultant Hydrologist and Geomorphologist, Fluvial Systems Pty Ltd, Newcastle, a company I founded in 1999 that provides specialist services in fluvial geomorphology and hydrology to the water resources sector.
- Adjunct Senior Research Fellow, Australian Rivers Institute, Griffith University, Queensland, since 2012.

Previously I have been employed, or worked on a Fellowship, at:

- Changjiang Water Resources Protection Institute, Ministry of Water Resources (China), High-end Foreign Recruitment Programme Visiting Fellow (Sep – Oct 2013)
- College of Water Resources and Hydropower Engineering, Wuhan University (China), High-end Foreign Recruitment Programme Visiting Fellow (Nov – Dec 2013, May – Jul 2014, June – July 2015)
- Fellow in the Department of Resource Management and Geography, Melbourne School of Land and Environment, The University of Melbourne (1999 – 2012)
- The University of Melbourne (Senior Research Fellow 1990 – 1999); The University of NSW (Teaching Fellow 1985 – 1989); Adelaide University (Tutor 1983 – 1984)
- Visiting Fellow, Loughborough University (U.K.) and Exeter University (U.K.) (1992 – 1993) – Australian Bicentennial Fellowship and British Council Academic Links and Interchange Scheme Grant

This report is independent and impartial.

2 Objectives of this report

I was instructed to undertake a peer review of documentation prepared by both a Lendlease engaged consultant (Cardno) and Northern Beaches Council in relation to a development application (DA) for a seniors housing development at 207 Forest Way, Belrose (Figure 1, Figure 2) that is currently under assessment by Northern Beaches Council.

Snake Creek, catchment area 158.4 ha, is a tributary of Oxford Creek (Figure 1). The land at 207 Forest Way, Belrose is located within the upper area of the Snake Creek catchment (Figure 2).

The main objective of this report is to provide an independent opinion on whether the drainage line within 207 Forest Way constitutes a first order stream, as Council contends (Northern Beaches

Council, 2019), or is a highly disturbed area with limited extent of stream flow, the preservation of which would not meet the objectives of Part E8 Waterways and Riparian Lands within the Development Control Plan (DCP) (Warringah Council, 2011), as Cardno contends (Cardno, 2018).

A number of design elements of the proposed development relate to impact, mitigation or enhancement of attributes of water or ecosystems. From the perspective of environmental impact, these are important aspects of the proposed development, but they have been described elsewhere, and are not the subject of this review. This report has a narrow focus on the definition of the drainage lines on the property with respect to the legislation and policy considered relevant to the case. The priority of policy to this case is a planning matter that is not addressed by this report.

Daniel West, Ethos Urban, advised that consent is being sought under Warringah Local Environment Plan (WLEP) 2000 (New South Wales Government, 2017), which is the applicable Environmental Planning Instrument (EPI) on the land, of which clauses 56 and 60 are of most relevance. The Environmental Planning and Assessment Act 1979 (EP&A Act 1979) is the overarching Act for development in NSW and is relevant, but indirectly to the issue at hand. Other legislation/guidelines relevant to the case are the Water Management Act 2000 (WM Act 2000), Waterways and Riparian Lands Map, and the Warringah Creek Management Study (2004).

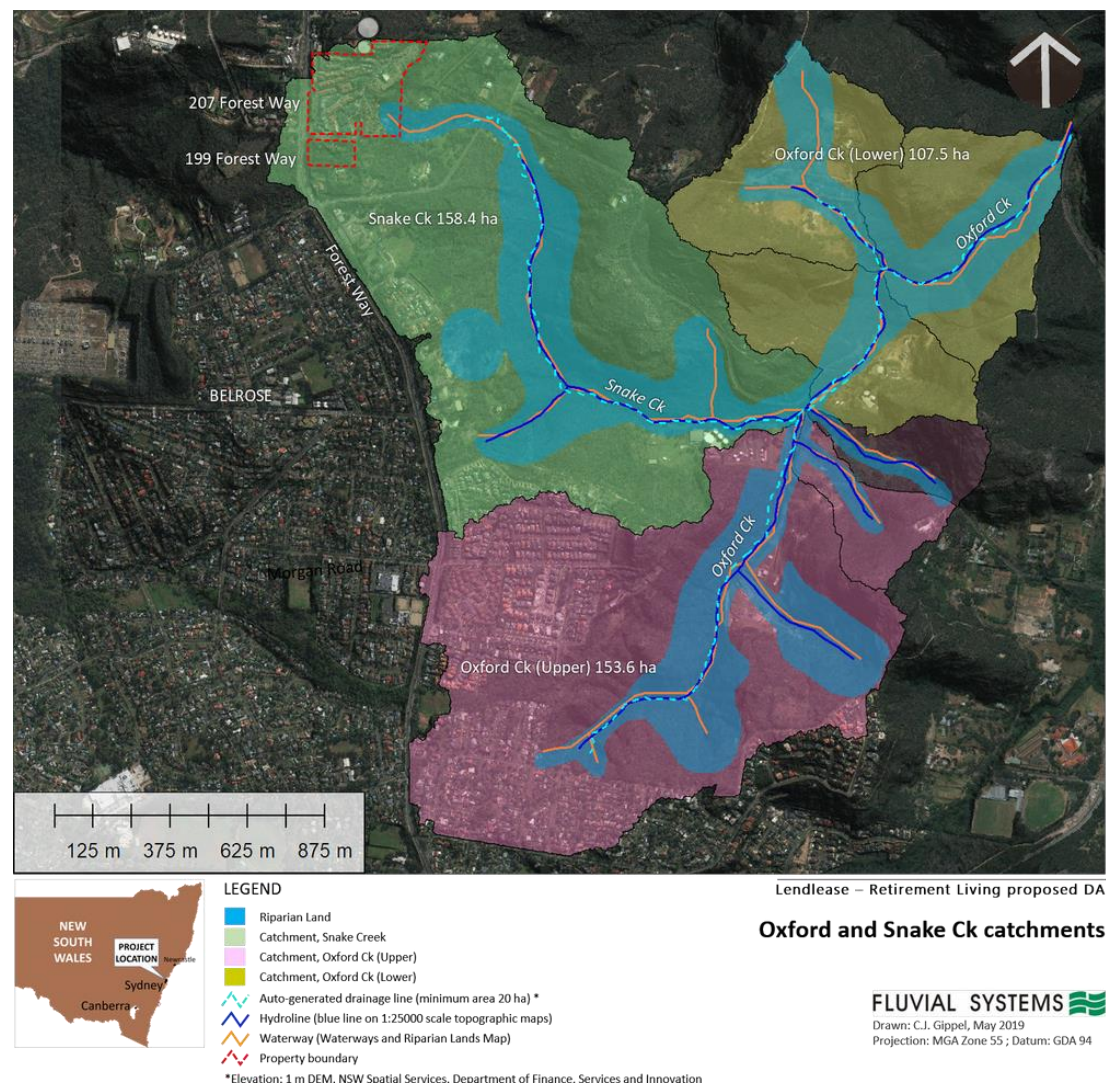


Figure 1. Location of proposed development at 207 Forest Way, Belrose, within the catchment of Snake Creek, a tributary of Oxford Creek.

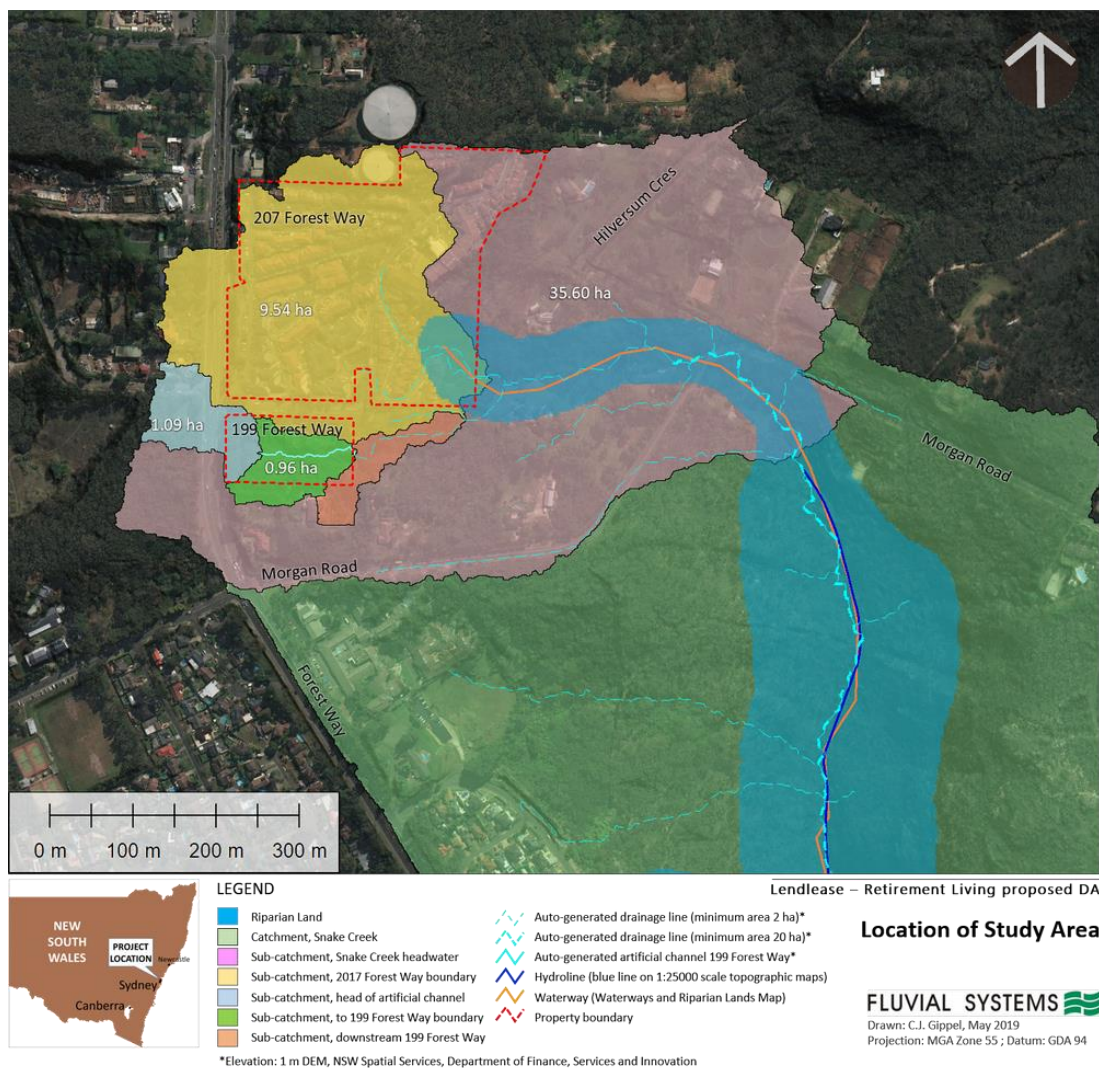


Figure 2. Location of proposed development at 207 Forest Way, Belrose, within upper part of the catchment of Snake Creek.

While Cardno (2018) included reference to Warringah LEP 2011 (New South Wales Government, 2019a) and Warringah DCP 2011 (Warringah Council, 2011), Daniel West noted that these policies do not (legally) apply to the site and are therefore not relevant for this site and surrounds. The objectives of Part E8 Waterways and Riparian Lands within the Warringah DCP are to protect, maintain and enhance ecology and biodiversity of waterways and riparian land, and applies to land identified as waterway or riparian land as shown on Warringah DCP 2011 Map Waterways and Riparian Lands, viewable at <https://services.northernbeaches.nsw.gov.au/icongis/index.html>. This map originates from Warringah Creek Management Study (2004). Thus, while Warringah DCP 2011 might not legally apply to the site, it uses the same definition of waterway as used in from Warringah Creek Management Study (2004), so the assessment by Cardno (2018) is relevant.

3 Methodology

This report is based on review of the site assessment by Cardno (2018) and response by Northern Beaches Council (2019), relevant legislation and policy documents, examination of spatial data (maps, aerial imagery, plans), and field inspection of the site on 2 April 2019.

4 Review of Waterway Definitions Under Legislation, Policy and Case Law

4.1 Warringah Local Environment Plan (WLEP) 2000

Clauses 56 and 60 of the WLEP 2000 are most relevant:

56 Retaining distinctive environmental features on sites

Development is to be designed to retain and complement any distinctive environmental features of its site and on adjoining and nearby land.

In particular, development is to be designed to incorporate or be sympathetic to environmental features such as rock outcrops, remnant bushland and watercourses.

60 Watercourses and aquatic habitat

Development is to be sited and designed to maintain and enhance natural watercourses and aquatic habitat.

Note. Development within 40 metres of a watercourse requires a permit pursuant to the Rivers and Foreshores Improvement Act 1948, from the Department of Land and Water Conservation.

Some terms in the WLEP 2000 are defined in the WLEP 2000 Dictionary

(http://www5.austlii.edu.au/au/legis/nsw/consol_reg/wlep2000316/sch99.html). While the Dictionary defines the term 'tidal waterway', and mentions the words watercourse and waterbody, definitions of these terms are not provided.

A Dictionary is provided for Warringah Local Environment Plan (WLEP) 2011 (New South Wales Government, 2019a). The WLEP 2011 Dictionary does define terms for watercourses and waterbodies:

Waterbody means a waterbody (artificial) or waterbody (natural).

Waterbody (artificial) or artificial waterbody means an artificial body of water, including any constructed waterway, canal, inlet, bay, channel, dam, pond, lake or artificial wetland, but does not include a dry detention basin or other stormwater management construction that is only intended to hold water intermittently.

Waterbody (natural) or natural waterbody means a natural body of water, whether perennial or intermittent, fresh, brackish or saline, the course of which may have been artificially modified or diverted onto a new course, and includes a river, creek, stream, lake, lagoon, natural wetland, estuary, bay, inlet or tidal waters (including the sea).

Watercourse means any river, creek, stream or chain of ponds, whether artificially modified or not, in which water usually flows, either continuously or intermittently, in a defined bed or channel, but does not include a waterbody (artificial).

Waterway means the whole or any part of a watercourse, wetland, waterbody (artificial) or waterbody (natural).

In the absence of a definition for watercourse in WLEP 2000, this report uses the definition provided in WLEP 2011. The legal validity of applying the WLEP 2011 definition to WLEP 2000 legislation was not determined by this report.

Note that although WLEP 2011 provided a definition of watercourse, it relied on the terms river, creek, stream or chain of ponds, which were not defined in detail, other than to say they had water flowing continuously or intermittently within a defined bed or channel. The definition did exclude

artificial waterbodies, and as only two types of waterbody were defined, it can be assumed that a watercourse is equivalent to a natural waterbody. Natural waterbodies include artificially modified or diverted waterbodies, but not artificial waterbodies. The distinction seems to be that in cases where an artificially modified or diverted waterbody was formerly a natural waterbody, then it remains a natural waterbody under the definition, whereas an artificial waterbody is one that is created independently of (i.e. not connected to or replacing) a former naturally occurring waterbody.

4.2 Environmental Planning and Assessment Act 1979

The Environmental Planning and Assessment Act 1979 (EP&A Act 1979) does not define the terms river, watercourse or waterbody. On the other hand, the Environmental Planning and Assessment Regulation 2000 (EP&A Regulation 2000), which contains many of the details for the various processes set out under the EP&A Act 1979, does provide definitions. This report assumes that these definitions apply under the EP&A Act 1979.

In the EP&A Regulation 2000 – Schedule 3, Part 4 - What do terms used in this Schedule mean? Under item 38 Definitions “waterbody” is defined as:

(a) a natural waterbody, including:

(i) a lake or lagoon either naturally formed or artificially modified, or

(ii) a river or stream, whether perennial or intermittent, flowing in a natural channel with an established bed or in a natural channel artificially modifying the course of the stream, or

(iii) tidal waters including any bay, estuary or inlet, or

(b) an artificial waterbody, including any constructed waterway, canal, inlet, bay, channel, dam, pond or lake, but does not include a dry detention basin or other stormwater management construction that is only intended to hold water intermittently.

Note that the above definitions are similar to those in WLEP 2011. The differences are subtle but potentially important. EP&A Regulation 2000 requires a waterbody to have an ‘established bed’, while WLEP 2011 refers to watercourses having a ‘defined bed or channel’. Definitions of these terms cannot be found in the geomorphic literature. In my opinion, these terms were likely intended to mean that a valid watercourse or waterbody would convey flow along a relatively consistent path, within banks in confined manner, as opposed to unconfined flow, referred to as sheetflow, which can notably shift its course within and between runoff events.

The clumsy wording “*in a natural channel artificially modifying the course of the stream*” in EP&A Regulation 2000 was replaced by “*the course of which may have been artificially modified or diverted onto a new course*” in WLEP 2011.

Significantly, WLEP 2011 and EP&A Regulation 2000 are consistent in not constraining the definition of a stream by hydrology, as both perennial and intermittent streams are included. This binary classification of river flow regimes is important because a version of it appears in all potentially relevant legislation, and has been the topic of expert evidence in case law. It has been argued that in academic hydrology, a third class of ‘ephemeral’ flow regime is recognised, and because EP&A Regulation 2000 does not include it along with perennial and intermittent types, then such streams are excluded from the legislation. In hydrological classification literature, ‘perennial and intermittent’ is equivalent to ‘permanent and temporary’, and the hydrological class ‘ephemeral’ is a sub-type of the primary intermittent class (Gordon et al., 2004). Furthermore, the intermittent class can be subdivided into several sub-types, not just ‘ephemeral’, depending on degree of intermittency (Gordon et al., 2004). Following from that, it is my opinion that EP&A Regulation 2000, and by association, EP&A Act 1979, WLEP 2011 and WLEP 2000, do not exclude any river or stream on the basis of its flow regime.

4.3 Water Management Act 2000

In the Water Management Act 2000 (New South Wales Government, 2019b), Dictionary, “river” is defined as:

- “(a) any watercourse, whether perennial or intermittent and whether comprising a natural channel or a natural channel artificially improved, and*
 - (b) any tributary, branch or other watercourse into or from which a watercourse referred to in paragraph (a) flows, and*
 - (c) anything declared by the regulations to be a river,*
- whether or not it also forms part of a lake or estuary, but does not include anything declared by the regulations not to be a river.”*

While an expert geomorphologist or hydrologist might be able to independently identify a waterbody that fits a scientific-based definition in the field or using aerial photographs and/or topographic data, it would be too expensive to apply routinely, and would still require a degree of subjective judgement. For the purposes of routine identification of rivers in application of the WM Act 2000, an expedient objective approach would be appropriate. Thus, it is common practice to accept the existence of a watercourse if it is represented by a blue line on a topographic map published by Land & Property Information, NSW Government. The density of blue lines on maps that designate watercourses varies with map scale. The largest scale maps available for an area, generally 1:25,000, have more blue lines marked than smaller scale maps, such as 1:50,000 and 1:100,000. This conventional practice was recognised by Taylor and Stokes (2005), who wrote that: *“Disputes regarding the determination of a watercourse are often dealt with by the Department of Infrastructure, Planning and Natural Resources (DIPNR) [now the responsibility of NSW Office of Water, NSW Department of Primary Industries], which currently uses two informal methods to determine whether a watercourse is a bona fide river or stream sensu the RFIA. If a blue line (indicating a watercourse) is present on a 1:25 000 topographic mapsheet and/or if the catchment has a minimum area of 20 ha then DIPNR expects a natural channel to be present.”*

Drainage lines and sub-catchments for Oxford Creek catchment, including Snake Creek sub-catchment, were automatically generated using the ‘Generate Watershed’ algorithm in Global Mapper GIS (Geographic Information System), with the minimum sub-catchment area set to 20 ha. This produced drainage lines that were less extensive than the 1:25,000 blue lines (hydrolines) (Figure 1), indicating that some of the catchments draining to the top of blue lines are less than 20 ha in area. This was not the case for upper Snake Creek, where the blue line was shorter than the auto-generated drainage line (Figure 2). The catchment draining to the top of the blue line was 35.60 ha. In preparing the topographic map, the cartographers decided to begin Snake Creek blue line at the base of a 10 m high, near vertical (slope up to 70 degrees) rock knickpoint (Figure 3).

Setting the ‘Generate Watershed’ algorithm minimum sub-catchment area to 2 ha generated many more drainage lines (Figure 2). This demonstrates the scale-sensitivity of defining drainage lines. It is also worth noting that the blue lines are smoothed representations of the actual stream courses, the alignments of which are much more accurately mapped by the automatic terrain analysis technique.

The practice of using 1:25,000 topographic mapsheets to identify watercourses under the WM Act 2000 is not specified in the Act itself, but is specified in associated documents. For example, in the document NSW Office of Water (2010) *“Application for approval for water supply works and/or water use, Application for Minister’s consent under section 92 of the Water Management Act 2000”*, the official definition of “river” under the WM Act 2000 is given, followed by the statement *“For the practical purposes of this application, NOW [NSW Office of Water] defines ‘river’ as any blue line on the largest topographical map of that area (ie. at least 1:25,000)”*. In another example, the document Department of Primary Industries, Office of Water (2012) *“Controlled activities on waterfront land, Guidelines for riparian corridors on waterfront land”* described a system of setting the width of vegetated riparian zones (VRZs) *“...based on watercourse order as classified under the Strahler System of ordering watercourses and using current 1:25 000 topographic maps”*.

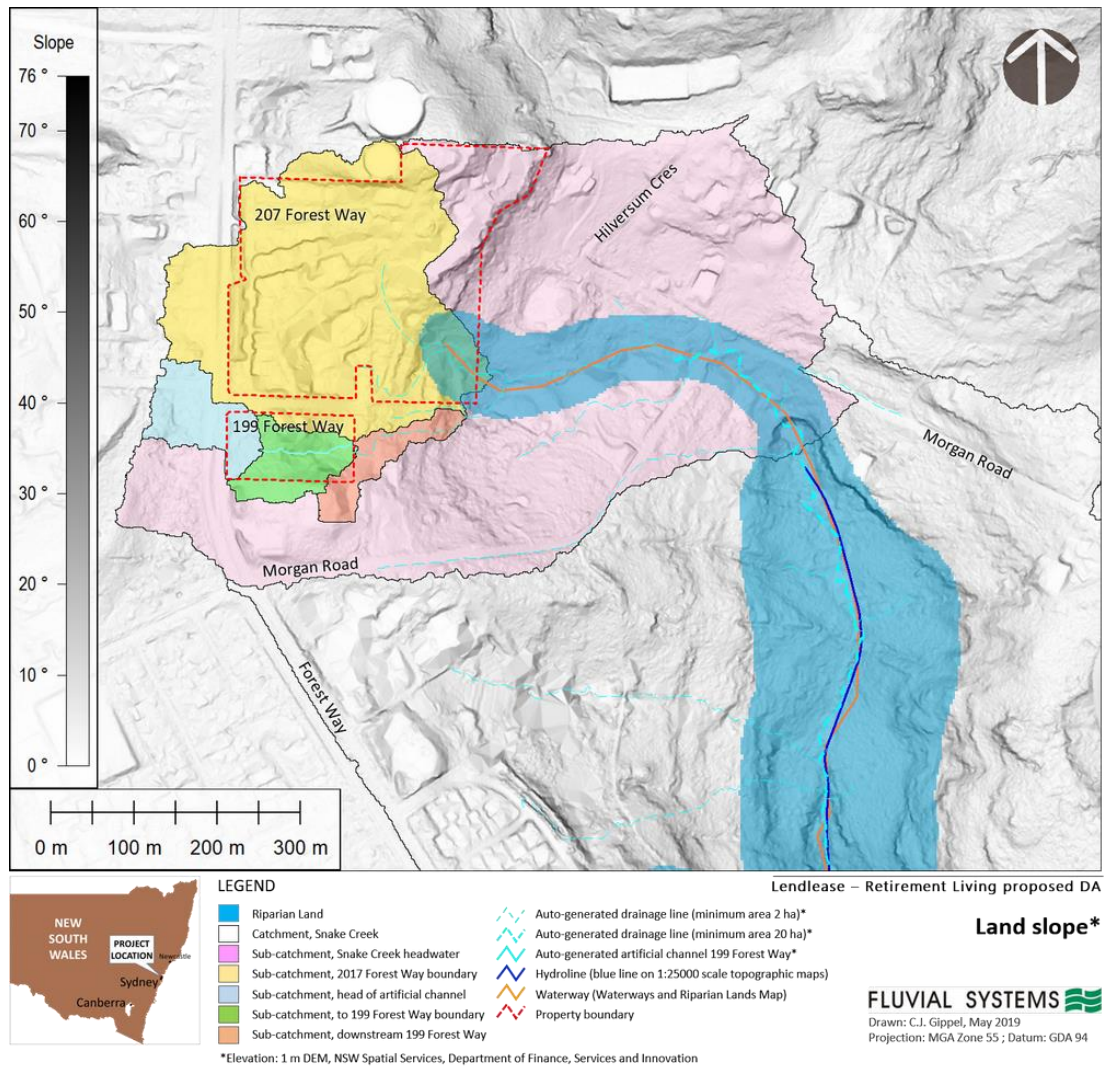


Figure 3. Slope of the upper part of the catchment of Snake Creek.

Since the time when Taylor and Stokes (2005) wrote that the practice of identifying rivers using mapped blue lines was an informal method used by the responsible agency, it has been established as a formal method used in application of the WM Act 2000 “...to assess the impact of any proposed controlled activity to ensure that no more than minimal harm will be done to waterfront land as a consequence of carrying out the controlled activity” (Department of Primary Industries, Office of Water, 2012).

As for the WLEP 2011 and EP&A Regulation 2000, the WM Act 2000 recognises two hydrological classes of waterbody in the definition of a river as “any watercourse, whether perennial or intermittent”.

4.4 Warringah Creek Management Study (2004)

The Warringah Creek Management Study (MWH, 2004) spent considerable effort defining riparian zones, but less so on defining waterbody, watercourse, or river. Although these terms were not defined, a definition for creek, and by association, watercourse, was provided (p. E28):

Creek - any watercourse, whether ephemeral, intermittent or perennial, whether on its natural course or altered by human interference, whether channelled or not. It also includes any drainage lines able to be identified by a linear vegetation assemblage reflective of regularly moist soil conditions or by a weed plume consistent with regularly moist soil conditions.

The hydrological part of this definition is similar to the definition of WLEP 2011 and EP&A Regulation 2000. The geomorphic part of the definition differs, because WLEP 2011 and EP&A Regulation 2000 require a channel shape to be present. The final part is a departure from all other legal definitions of watercourses, as it relies entirely on the presence of a certain vegetation structure.

One paragraph in MWH (2004, p. D6) provides hints about what the study included as watercourses:

The riparian zone is taken to start at the edge of the low flow channel (i.e. the edge of the water in average dry weather flow. For ephemeral streams without a defined channel, the start of the riparian zone is the creek centre line). This side steps the issue that in many of Warringah's creeks, the top of bank is difficult to define and therefore may lead to inaccuracies.

This suggests that no stream was excluded on the basis of the degree of intermittency of its hydrological regime. Also, a watercourse did not require a defined channel or a well-defined channel.

Overall, the Warringah Creek Management Study (MWH, 2004) would be expected to include more streams as valid watercourses than would be defined under WLEP 2011, EP&A Regulation 2000 and WM Act 2000.

4.5 Map of Waterways and Riparian Lands (from Warringah Creek Management Study, 2004)

The Map of Waterways and Riparian Lands originates from Warringah Creek Management Study (MWH, 2004). The Map indicates zones of riparian land that enclose waterways, as defined and mapped by MWH (2004) (Figure 1, Figure 2). The waterways mapped by MWH (2004) are broadly based on the 1:25000 blue lines (hydrolines), but most first order streams were extended upstream for a variable distance, and some new first order streams were added (Figure 1, Figure 2). The method used to extend these stream lines was not clearly stated.

It is also worth noting that the waterway lines are smoothed representations of the actual stream courses, the alignments of which were much more accurately mapped by the automatic terrain analysis technique. Also, the alignments of the waterway lines are not exactly the same as those of the blue lines, so it appears likely that the waterway lines were drawn by hand.

4.6 Warringah Council Policy, Policy No. PL 740 Waterways, Protection of Waterways and Riparian Land Policy

Warringah Council Policy No. PL 740 Waterways, Protection of Waterways and Riparian Land Policy sets out definitions and policies for protecting waterways and riparian land (Warringah Council, 2010). The definitions are virtually identical to those in the WLEP 2011 Dictionary (see above), except that creek was stated to be equivalent to watercourse, and the definition of watercourse was elaborated to include a definition of Strahler Stream Order, as follows:

Watercourse means any river, creek, stream or chain of ponds, whether artificially modified or not, in which water usually flows, either continuously or intermittently, in a defined bed or channel, but does not include a waterbody (artificial). This may include drainage lines, concrete channels and ephemeral streams. First order watercourses are those with no tributaries, second order streams form following the confluence of two first order streams, third order streams form where two second order streams meet, and so on.

Council Policy No. PL 740 also included a definition of river, taken directly from WM Act 2000 (see above). Given that this definition of river is consistent with that of watercourse, creek is equivalent to watercourse, and waterway (*the whole or any part of a watercourse*) is equivalent to watercourse, there is only need to use one term, watercourse, even though Council policy prefers to use the term waterway.

Council Policy No. PL 740 applies to all land containing watercourses and riparian land identified on Council's Map Waterways and Riparian Land. In cases where a waterway has not yet been identified

on the Map, the riparian land widths are to be applied from NSW Government Guidelines (Office of Water, 2012), which defines streams based on blue lines on 1:25:000 map sheets.

Council Policy No. PL 740 recommends that development within waterways and riparian land should be avoided. The Policy includes a paragraph with advice for situations when development is proposed within waterways and riparian land :

Where development is proposed within waterways and riparian land, a Waterway Impact Statement shall be submitted with the development application to enable Council to assess how the application meets the policy objectives, and identify potential impacts. A Waterway Impact Statement is to demonstrate to Council the development will either enhance, or as a minimum, will not adversely affect ecological function or limit opportunities to reinstate the area in the future to the greatest possible extent.

In the case of 207 Forest Way, a small area of the proposed development lies within the buffer of Snake Creek drainage network, on the end of a first order stream line that has been extended a distance of about 534 m upstream from the end of the blue line mapped on the 1:25,000 sheet (Figure 2, Figure 3). The waterway line extends about 55 m into the area of the property proposed for development. The buffer around the end of the waterway line projects over land that is already partially developed. This report assumes that the report of Cardno (2018) constitutes a Waterway Impact Statement.

4.7 Definition of watercourses using guidelines of Taylor and Stokes (2005)

Taylor and Stokes (2005) tabulated variables to use in field identification of watercourses with respect to the legislative framework that applied in NSW at the time. Their table (reproduced here as Table 1) was presented as a series of present/absent criteria that according to Taylor and Stokes (2005) are normally associated with a river. Taylor and Stokes (2005) did not indicate whether all or just some of the features had to be present for a channel to qualify as a river, but they noted that features associated with a 'normal' river system would usually include fluvial sediments, well-defined beds and banks or habitat for aquatic flora and fauna. They also noted that the criteria would generally be more applicable to lower order, e.g. first and second order tributary channels where the start of a channel or river is ambiguous.

Taylor and Stokes (2005) cited a case where the variables in Table 1 had been used in a legal dispute regarding the definition of a river (Outhet and Taylor, 2004), and it was used in another later case of *Silva v Ku-Ring-Gai Council* [2009] NSWLEC 1061. Taylor and Stokes (2005) were of the opinion that first and second order headwater drainage depressions were unlikely to be deemed bona fide 'rivers' under any of the relevant legislation, and their table of criteria (Table 1) essentially excludes them. Firstly, small headwater streams do not usually have bedforms such as pools, riffles, and sediment point bars, which are required by feature b) in Table 1. Such bedforms are more characteristic of mid-catchment and lowland alluvial streams with continuous or discontinuous floodplains. Although, this criterion could unintentionally exclude bona fide rivers, because some large rivers also lack these bedforms. Secondly, feature d) in Table 1 mentions perennial or seasonally intermittent flow, which, on the basis of Taylor and Stokes (2005) stated preference for three primary hydrological classes of stream, implicitly excludes ephemeral streams. Feature e) in Table 1 also implicitly excludes ephemeral streams. The flow regime of most first order streams would be of the ephemeral sub-type of intermittent stream, as was recognised by Taylor and Stokes (2005). The origins of the feature list (Table 1) was not explained by Taylor and Stokes (2005), but the list undoubtedly supports the exclusion of ephemeral streams as bona fide rivers for the purposes of applying the legislation. This hinges on the assumption by Taylor and Stokes (2005) that the legislation, which describes streams as 'perennial or intermittent', implicitly excludes the ephemeral sub-type of intermittent stream.

Table 1. Features associated with a ‘normal’ river system that can be used in field identification of rivers for legal purposes. Source: Taylor and Stokes (2005).

a)	Are there definable channel banks and a channel bed?
b)	Are there fluvial bedforms e.g. pools, riffles, sediment point bars etc. and if so what are they?
c)	Is there any evidence for substantial erosion from water flow within the drainage feature?
d)	Are there any spring lines that may indicate seasonally intermittent or perennial flow?
e)	Is the catchment large enough to sustain perennial or intermittent groundwater flow?
f)	Are there any indicators of prolonged wetness within the drainage feature?
g)	If surface flow is present, is it continuous and how extensive across the base of the drainage feature is it?
h)	Are there any visible habitats that might sustain aquatic fauna?
i)	Are there any aquatic flora present that would require periods of uninterrupted moisture?

4.8 Definition of watercourses in case law

In *Don Burke and [16] Others v Hawkesbury City Council & Ors* [2001] NSWLEC 222 (28 September 2001) the respondents’ expert, Dr Wayne Erskine, a fluvial geomorphologist, distinguished three hydrological stream types: perennial, intermittent and ephemeral. He defined a ‘river’ as *"a stream of flowing water that is contained within well-defined bed and banks, and that lays down water-deposited material"*. He said that an ephemeral flow regime is one where the stream flows only *"during and immediately after rain"*, but an intermittent stream flows *"for a longer period of time"*. These definitions are consistent with the definitions I provided earlier in this expert report. In this case, the Court accepted the opinion of Dr Erskine, who determined that the stream in question was ephemeral. In contrast, the other expert (Mr Rick Morse) regarded the stream as intermittent. In my opinion the primary hydrological classification of streams is binary – either perennial or intermittent – with ephemeral one of several possible sub-types of intermittent. Also, whether a stream is classified as intermittent, or in more detail as the ephemeral sub-type of intermittent, is immaterial to the EP&A Regulation 2000 (and similarly worded legislation) which uses the binary classification to define a natural waterbody as *"a river or stream, whether perennial or intermittent"*.

In an earlier case, *Knezovic v Shire of Swan-Guildford* [1968] HCA 38; (1968) 11CLR 468 (21 June 1968), the Australian High Court followed established common law definition of ‘watercourse’ for a ruling on a case in Western Australia. In paragraph 17, the decision referred to *Gartner v. Kidman* [1962] HCA 27; (1962) 108 CLR 12, where the majority of the Justices participating adopted a passage from Angell (1854) as stating the meaning at common law of a watercourse, namely:

"...a watercourse consists of bed, banks and water: yet the water need not flow continuously and there are many watercourses which are sometimes dry. There is, however, a distinction to be taken between a regular flowing stream of water which at certain seasons is dried up and those occasional bursts of water which at times of freshet or melting of ice and snow descend from the hills and inundate the country." (p. 475)

On the basis of this, in paragraph 18, Barwick CJ determined that a watercourse comprises a channel with a bed, banks, and flowing water. Barwick CJ regarded permanently flowing streams and streams that flow most of the time as proper watercourses, but he was of the opinion that infrequently flowing streams did not have the capacity to shape well-defined channels, and were thus not watercourses by meaning at common law. The morphology of a stream is closely linked to its hydrology. The more frequent is reasonably deep flow, the less likely the bed and bank surface will be covered by vegetation that binds the sediment, and the greater the depth of flow and the slope, the greater the bed shear stress, which, once a threshold is overcome, will be sufficient to scour binding vegetation. In the absence of vegetation, bed and bank sediments are more easily scoured and moved, which results in more pronounced bed and bank morphology. This is a relatively straightforward concept, but it remains difficult to unequivocally determine cases where the morphology or flow regime is borderline for watercourse, or where distinct watercourse morphology is discontinuous.

The question of channel discontinuity arose in the case of *Narrambulla Action Group v Mulwaree Council* [1966] NSWLEC 199. For the definition of watercourse, the decision by Banon J referred to the cases of *Gartner v Kidman* and *Knezovic v Shire of Swan-Guildford* (see above). One expert Dr M.C. Thoms, a fluvial geomorphologist, said that the alleged watercourse No 3a had an established bed and defined banks, although they were discontinuous. Another expert, Dr E.M. O'Loughlin, a hydrologist, supported this view, explaining that such channels are in a state of evolution, “...and may not necessarily form a continuous bed of alluvium until the channel slope flattens out...[and furthermore]...a continuous channel or bank may not be apparent, but this does not negate the fact that the creeks and tributaries are flowing in a 'natural channel with an established bed'. As described above, the channel bed may be degrading along some reaches, and aggrading along others, depending on local slope and the presence of obstructions to flow.” Referring to the evidence of O'Loughlin, Banon J noted that “while his views deserve respect, he thinks of waterbodies in a scientific way, which includes waters such as Coopers Creek, but does not fit the definitions given by the Courts, taken as they are, from European conditions.” As such, Banon J classified the stream in question as “...a drainage line with gullies to the East and West, together with intermittent ponds and flood plane, where water flows are rare intervals, under the influence of rain.” In this decision, the Court preferred expert evidence on the legal definition of watercourses which are based on European conditions, over scientific evidence concerning hydrological and geomorphological processes in Australian streams.

In the case of *Warringah Council v Ardel Limited and Anor* [2000] NSWLEC 7, the expert Dr Steven John Perrens, an engineer, referred to the definition of a river in the Rivers Act and set out the well-known passage in the judgment of Barwick CJ in *Knezovic v Shire of Swan-Guildford*. Dr Perrens attributed significance to the bed and banks in the channel as defining it as a river. However, the Court was not satisfied, on the balance of probabilities, that the bed and banks were created naturally, rather that they may have been scoured by re-directed stormwater. This case demonstrated that, although a channel may have the morphological features of a natural river, it must be the product of natural flows to be defined as a river in that location. If the natural flows would not have formed a river channel, then it is not a river. Thus, banks are important in defining a river, but banks alone do not automatically define a channel as a river.

In the case of *Silva v Ku-Ring-Gai Council* [2009] NSWLEC 1061, in his decision, Taylor C noted the importance of ephemeral streams, citing Thoms and Sheldon (2000) that “...at least 83 % of Australia's river networks are characterised by ephemeral systems that experience semi-arid to arid (dryland) climatic regimes...”. However, referring to *Narrambulla Action Group Inc v Mulwaree Council*, he pointed out that scientific definitions do not necessarily prevail in the determination and definition of what constitutes a river in the Australian sense. Nevertheless, Taylor C applied the ‘9 part test’ of Taylor and Stokes (2005) (see Table 1). Crucially, the watercourse in question had a channel with well-defined bed and banks, and modelling, ironically by the expert who claimed the watercourse was not a river, suggested that it flowed for around 80 percent of the time, which would surely qualify as an intermittent, not ephemeral, flow regime. After weighing the evidence, Taylor C found that “...the applicant has not established that there is a preponderance of evidence to show that the watercourse at 27 Miowera Road is not a river.” There seemed little doubt that the watercourse in question had characteristics of a river, with the main point of contention whether the processes that resulted in the river were natural or artificial (due to urban development and piping).

The legal arguments about definition of the term ‘river’ in Australia have not been based on thorough consideration of ecological and geomorphological processes. Rather there has been a reliance on long-standing existing definitions. These definitions date back to a time when property boundaries, flood mitigation and access to water for consumptive uses were the main river management issues; concern about ecological issues is a relatively recent phenomenon of the past 20-40 years. The definitions of ‘river’ and ‘watercourse’ in the current river management legislation are based on simple considerations of gross morphology (i.e. a river requires bed and banks and does not include the floodplain) and have either perennial or intermittent flow.

Referring to the case of *Don Burke*, where the expert Dr Wayne Erskine distinguished three primary hydrological classes of stream – perennial, intermittent and ephemeral – Taylor and Stokes (2005) argued that for the purpose of a legal definition, these three classes of river flow regime “...should form the basis for describing the characteristics of a drainage line or depression that transfers water

from hill slopes to lower ground and ultimately to the ocean or an inland basin.” On this matter I disagree with Taylor and Stokes (2005). My reasoning is that the legislation does not mention the ephemeral stream type, and well-regarded academic literature on the subject identifies two, not three, primary hydrological classes – perennial and intermittent – with the ephemeral flow regime one of several possible sub-types of the intermittent class. I also realise that alternative classification schemes are used in applied hydrology. For example, Berhanu et al. (2015) is an example where the authors used a statistical method to fit rivers in Ethiopia within three flow regime classes – ephemeral, intermittent and perennial. By assuming the validity of three primary flow classes, Taylor and Stokes (2005) argued that relevant Australian legislation, by defining waterbodies and rivers as ‘perennial or intermittent’ (in the EP&A Regulation 2000 and WM Act 2000), and not specifically including the ephemeral sub-type of stream in the definitions, therefore excluded ephemeral streams.

5 Review of Site Assessment by Cardno and Response by Northern Beaches Council

5.1 Site Assessment by Cardno

The Riparian Assessment by Cardno (2018) argued that the Map of Waterways and Riparian Lands (MWH, 2004) erred in extending the Snake Creek headwater tributary drainage line into the land covered by 207 Forest Way, Belrose (Figure 4).

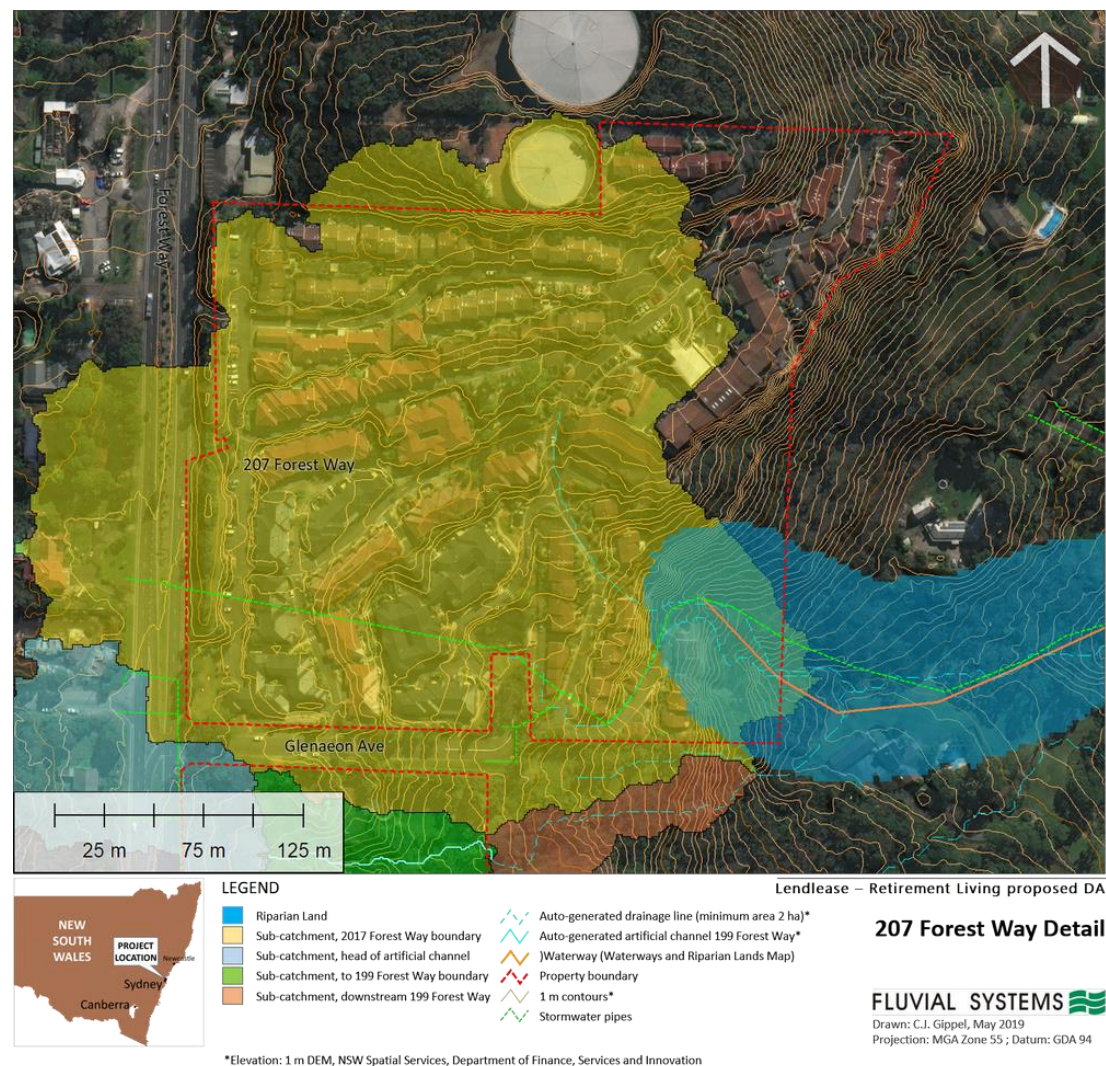


Figure 4. Detail of drainage of land around 207 Forest Way, Belrose.

Cardno (2018) accurately described the area in question as heavily modified by urbanisation and stormwater management. This includes Council-owned stormwater drainage (Figure 4) that empties to a series of three existing sedimentation basins that lie within the area of the proposed development. Downstream of the sediment basins, on the adjoining property, a dam was constructed some time between October 2012 and April 2013. The Council Waterways line projects through these structures to approximately the base of a sandstone escarpment (Figure 3, Figure 4). For a distance of about 70 m downstream of the dam, the land over which the Council Waterways line is drawn is grassed, and no channel is evident.

I agree with the conclusion of Cardno (2018) that the upper reaches of the Waterways line drawn by Council that projects into 207 Forest Way is artificial and does not possess characteristics that define a watercourse according to the legislation, policy and case law reviewed in this report. The watercourse satisfies the Warringah Creek Management Study (2004) liberal morphology and hydrology requirements, but lacks a continuous linear vegetation assemblage that could also define a watercourse.

From the perspective of WLEP 2000, EP&A Act 1979 and WM Act 2000 definitions, the issue mainly hinges on whether the section of drainage line in question is an artificial waterbody, or an artificially modified natural waterbody. Topographically, the area naturally was, and is, a runoff flow path, but nearly all land in catchments drains water downhill under storm event conditions, so a runoff path alone does not make a watercourse. According to most legal definitions of watercourse, the flow must be confined, and a channel and other characteristic properties would be present. When the 1:25,000 maps were drawn, the cartographers decided the drainage path did not possess sufficient characteristics of a watercourse to be marked as a blue line. For this reason the flow path would not normally meet the WM Act 2000 definition of a watercourse. An earlier 1917 Parish Map did draw the drainage line extending further upstream than the 1:25,000 blue line, but it stops just short of the boundary of 207 Forest Way (Figure 5).

On the basis of the variables suggested by Taylor and Stokes (2005) that define a watercourse for legal purposes (Table 1), the flow path in question would fail criteria a) to g) at least.

Case law has tended to rely on common law definitions of watercourses, which regards permanently flowing streams and streams that flow most of the time as proper watercourses. Areas where the flow is largely driven by re-directed urban stormwater (as is the case for 207 Forest Way) would not normally be considered a natural watercourse, unless a natural watercourse was there previously.

5.2 Response by Northern Beaches Council

The response to Cardno (2018) by Northern Beaches Council (2019) contends that the site contains a first order stream. This is contentious because, although the methodology for assigning stream order using the Strahler system is straightforward, the outcome depends entirely on the cartographic representation, or field identification, of the stream network. According to the Department of Lands 1:25,000 topographic mapping (a commonly used standard for defining watercourse presence or absence) there is no first order stream on the property (Figure 2). A first order stream extending into the property was drawn on a map produced by MWH (2004) as part of Warringah Creek Management Study. The basis for drawing this line was not provided in MWH (2004), but regardless, on the basis of a desktop and field assessment, Northern Beaches Council (2019) agreed that it was a watercourse and as such, the development would be contrary to Warringah Council Policy No. PL 740 Waterways, Protection of Waterways and Riparian Land Policy and WLEP 2000.

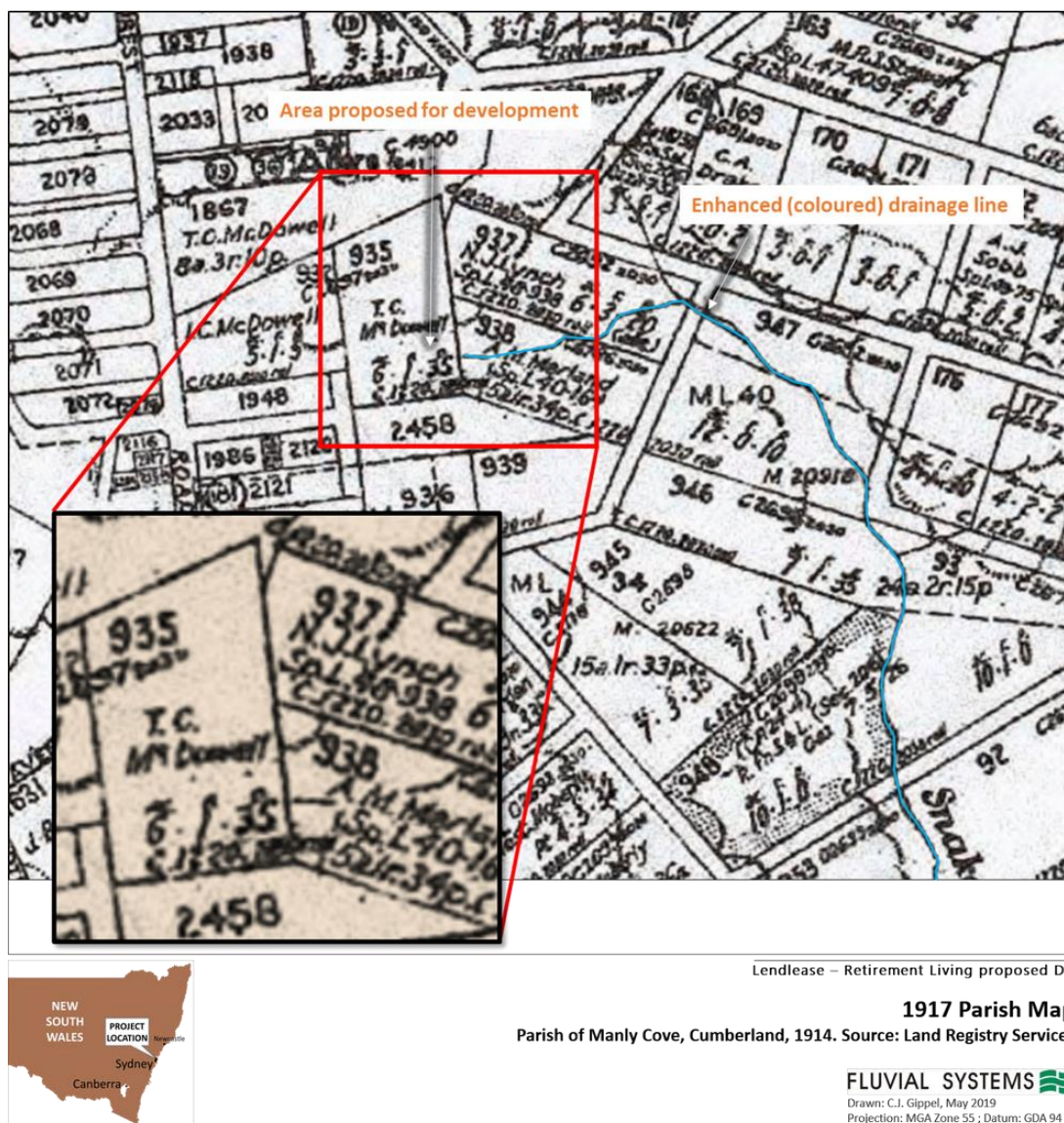


Figure 5. Parish Map of area covering location of proposed development.

6 Conclusion

Watercourses emerge from drainage paths that collect runoff from hillslopes. There is not necessarily a point along that continuum when the drainage path unequivocally transforms to a watercourse. Part of the reason for this is that watercourses are recognised as such on the basis of multiple attributes, and those attributes might change character at different locations.

Whilst it would be theoretically possible to develop a scientific method to define a point along the continuum where the stream dominantly possessed the characteristics of a watercourse, as opposed to a drainage path, this approach cannot be readily applied to the definitions of watercourse provided in legislation and policy documents, because the criteria are too few, or are not described with sufficient detail. Taylor and Stokes (2005) attempted to overcome this problem by providing a checklist of nine features that could define watercourses for legal purposes, but their use of subjective language to describe the features means that it might not be a reproducible method. Nonetheless, the drainage line on 207 Forest Way would likely fail to meet most of the criteria, which are oriented to larger streams with continuous flow and bedload transport.

Finally, when compared to case law, the drainage line on 207 Forest Way would likely not be regarded a watercourse, because the decisions have tended to regard watercourses as streams that are unequivocally naturally formed, flow most of the time and have continuous, well-defined beds and banks.

In conclusion, on the basis of geomorphic and hydrologic considerations, in my opinion, the length of stream drawn on the Map of Waterways and Riparian Lands on 207 Forest Way, Belrose is not a natural watercourse under Warringah Local Environment Plan (WLEP) 2000, but an artificial watercourse.

7 References

- Angell, A.K. 1854. A treatise on the law of watercourses: with an appendix containing statutes of flowing and forms of declarations. 5th Ed, Boston: Little, Brown.
- Berhanu, B., Seleshi, Y., Demisse, S.S. and Melesse, A.M. 2015. Flow regime classification and hydrological characterization: A case study of Ethiopian rivers. *Water* **7**: 3149-3165
- Cardno 2018. Riparian Assessment, Glenaeon Retirement Village Redevelopment. Prepared for Lendlease, 14 May.
- Department of Primary Industries, Office of Water 2012. Controlled activities on waterfront land, Guidelines for riparian corridors on waterfront land. NSW Government, Department of Primary Industries, Office of Water, July. URL: http://www.water.nsw.gov.au/_data/assets/pdf_file/0004/547222/licensing_approvals_controlled_activities_riparian_corridors.pdf (accessed 25 April 2019).
- Don Burke and [16] Others v Hawkesbury City Council & Ors [2001] NSWLEC 222 (28 September 2001). New South Wales Land and Environment Court. <http://www.austlii.edu.au/au/cases/nsw/NSWLEC/2001/222.html> (accessed 24 April 2019).
- Gartner v. Kidman [1962] HCA 27; (1962) 108 CLR 12. High Court of Australia. URL: <http://www.austlii.edu.au/au/cases/cth/HCA/1962/27.html> (accessed 24 April 2019).
- Gordon, N.D., McMahon, T.A., Finlayson, B.L., Gippel, C.J. and Nathan, R.J. 2004. Stream Hydrology: An Introduction for Ecologists. Second Edition, John Wiley & Sons, Chichester
- Knezovic v Shire of Swan-Guildford [1968] HCA 38; (1968) 11CLR 468 (21 June 1968). High Court of Australia. URL: <http://www.austlii.edu.au/au/cases/cth/HCA/1968/38.html> (accessed 24 April 2019).
- MWH 2004. Warringah Council Creek Management Study. Montgomery Watson Harza (MWH) Australia Pty Ltd in association with 4 Site Natural Solutions. Warringah Council. March.
- Narrambulla Action Group v Mulwaree Council [1966] NSWLEC 199. Land and Environment Court of New South Wales. URL: <http://www.austlii.edu.au/cgi-bin/sinodisp/au/cases/nsw/NSWLEC/1996/199.html> (accessed 24 April 2019).
- New South Wales Government 2017. Warringah Local Environmental Plan 2000. Current version for 30 June 2017 to date. URL: <https://www.legislation.nsw.gov.au/#/view/EPI/2000/690> (accessed 25 April 2019).
- New South Wales Government 2019a. Warringah Local Environmental Plan 2011. Current version for 28 February to date. URL: <https://www.legislation.nsw.gov.au/#/view/EPI/2011/649> (accessed 25 April 2019).
- Northern Beaches Council 2019. Natural Environment Referral Response – Riparian. Application Number: DA2018/1332. Updated comments dated 14/03/19 and Comments dated 26/10/18.

- NSW Government 2019b. Water Management Act 2000, as at 1 April. Act 92 of 2000. URL: http://www.austlii.edu.au/au/legis/nsw/consol_act/wma2000166/ (accessed 25 April 2019).
- NSW Office of Water 2010. Application for approval for water supply works and/or water use, Application for Minister's consent under section 92 of the Water Management Act 2000. NSW Office of Water, September. URL: http://www.water.nsw.gov.au/_data/assets/pdf_file/0006/547224/form_licence_wmaf030_water_supply_works_use.pdf (accessed 25 April 2019).
- Outhet, D. and Taylor, M.P. 2004. Lumley Creek Dam Joint expert witness report. Summary of agreements and disagreements between David Outhet and Mark Taylor as discussed during a joint site inspection on 27 January, 2004. Dobbie v. WAMC, Macquarie Research Limited, Macquarie University, North Ryde, NSW, Australia.
- Silva v Ku-Ring-Gai Council [2009] NSWLEC 1061. Land and Environment Court of New South Wales. URL: <http://www.austlii.edu.au/au/cases/nsw/NSWLEC/2009/1060.html> (accessed 24 April 2019).
- Taylor, M.P. and Stokes, R. 2005. When is a river not a river? Consideration of the legal definition of a river for geomorphologists practising in New South Wales, Australia. Australian Geographer 36(2): 183-200.
- Warringah Council 2010. Warringah Council Policy, Policy No. PL 740 Waterways, Protection of Waterways and Riparian Land Policy.
- Warringah Council 2011. Warringah Development Control Plan 2011. Warringah Council. URL: <https://eservices.northernbeaches.nsw.gov.au/ePlanning/live/pages/plan/Book.aspx?exhibit=DCP&hid=6> (accessed 25 April 2019).
- Warringah Council v Ardel Limited and Anor [2000] NSWLEC 7. Land and Environment Court of New South Wales. URL: <http://www.austlii.edu.au/au/cases/nsw/NSWLEC/2000/7.html> (accessed 24 April 2019).

From: Daniel West

Sent: Wednesday, 20 January 2021 2:53 PM

To: 'Lashta Haidari' <Lashta.Haidari@northernbeaches.nsw.gov.au>

Cc: Armstrong, Karen <Karen.Armstrong@lendlease.com>

Subject: RE: Glenaeon - Building D Modification

Hi Lashta

Prior to the upcoming Panel meeting for the Modification Application, we understand that should the Panel ~~decide to~~ approve the item, it requires draft amended conditions of consent. Will these be provided to the applicant for review prior to the meeting?

We note that the referral from Council's development engineer dated 31 December 2020 recommends refusal as a DRAINS model has not been submitted for review. The applicant was of the understanding the DRAINS model had been submitted to Council, but if this was not the case

the applicant could have provided this information straight away to the development engineer as it had already been prepared. However, this was not requested and the assessment report was finalised before the applicant was aware that Council had not received this information.

We therefore attached the DRAINS model again (as we did on 14 January 2020) and request Council's development engineer to review ahead of the Panel meeting. Presumably review and endorsement of the DRAINS model could assist the draft amended conditions of consent to be prepared.

Should you have any queries or wish to discuss, please contact me.

Kind regards

Daniel West

**ETHOS
URBAN**

Associate Director
Planning

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From: Daniel West

Sent: Friday, 15 January 2021 6:43 AM

To: Lashta Haidari <Lashta.Haidari@northernbeaches.nsw.gov.au>

Subject: RE: Glenaeon - Building D Modification

Thanks for your prompt response Lashta, will do.

Kind regards

Daniel West

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Associate Director
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Please note I will be on annual leave from 23 December to 15 January

Our office will be closed from **24th December** and will reopen on **4th January**.
We wish you a happy, safe and relaxing holiday with friends and family,
and look forward to working with you in 2021.

This email is confidential and may contain information that is confidential and privileged. If you are not the intended recipient please notify us by return email or phone, and delete the original message.

From: Lashta Haidari <Lashta.Haidari@northernbeaches.nsw.gov.au>

Sent: Thursday, 14 January 2021 9:56 AM

To: Daniel West <Dwest@ethosurban.com>

Subject: RE: Glenaeon - Building D Modification

Hi Daniel,

Happy new year and thank you for your e-mail.

As your aware, the matter is scheduled for determination on 27 January 2020 which means Council's assessment report is due to the Panel tomorrow. Therefore, Council has now finalised its assessment and the report is at its final stages of being reviewed.

Accordingly, any information you lodged for now have to be directed to the Panel.

Regards

Lashta Haidari

Acting Manager, Development Assessments

Development Assessment

t 02 8495 6485 m 0416 849 070

lashta.haidari@northernbeaches.nsw.gov.au

northernbeaches.nsw.gov.au



From: Daniel West <Dwest@ethosurban.com>

Sent: Thursday, 14 January 2021 7:36 AM

To: Lashta Haidari <Lashta.Haidari@northernbeaches.nsw.gov.au>

Subject: RE: Glenaeon - Building D Modification

Hi Lashta

Happy new year, hope you are well.

We are anticipating to provide Council with a response to Council's internal referrals from our ecologist, bushfire consultant and natural waterway consultant by tomorrow, that we are hopeful Council will consider in its assessment of the Modification application. We acknowledge that you have likely completed the assessment report to be considered by the Planning Panel at its meeting at the end of the month, and therefore request the item be deferred to the February Planning Panel meeting to allow Council time to consider it.

Also attached is the DRAINS modelling which it appears from a referral that Council's engineers have not received, but which we understand was submitted. Could this please be sent on to the relevant Council officers for consideration.

Kind regards

Daniel West

**ETHOS
URBAN**

Associate Director
Planning

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D. +61 2 9409 4904
M. +61 4 1157 0394
W. ethosurban.com

173 Sussex Street
Sydney NSW 2000



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From: Lashta Haidari <Lashta.Haidari@northernbeaches.nsw.gov.au>

Sent: Friday, 18 December 2020 12:52 PM

To: DA Admin Mailbox - Northern Beaches <DA.Admin@northernbeaches.nsw.gov.au>

Cc: Daniel West <Dwest@ethosurban.com>

Subject: FW: Glenaeon - Building D Modification

Hi,

Can this please be registered.

Thanks

Lashta Haidari

Acting Manager, Development Assessments

Development Assessment

t 02 8495 6485 m 0416 849 070

lashta.haidari@northernbeaches.nsw.gov.au

northernbeaches.nsw.gov.au

From: Daniel West <Dwest@ethosurban.com>
Sent: Friday, 18 December 2020 10:29 AM
To: Lashta Haidari <Lashta.Haidari@northernbeaches.nsw.gov.au>
Subject: Glenaeon - Building D Modification

Hi Lashta

I understand that this resident submission is not on the DA tracker on Council's website. Could this please be uploaded and considered in your assessment report.

Kind regards

Daniel West

Associate Director
Planning

T. +61 2 9956 6962
D. +61 2 9409 4904
M. +61 4 1157 0394
W. ethosurban.com

**ETHOS
URBAN**

173 Sussex Street
Sydney NSW 2000



Please note I will be on annual leave from 23 December to 15 January



Our office will be closed from **24th December** and will reopen on **4th January**.
We wish you a happy, safe and relaxing holiday with friends and family,
and look forward to working with you in 2021.

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From: Nicki Adams <Nicki.Adams@northernbeaches.nsw.gov.au>
Sent: Friday, 4 December 2020 11:32 AM
To: Mackay, Scott <Scott.Mackay@lendlease.com>
Subject: RE: [EXT]:RE: Acknowledgement of correspondence to Mayor Regan regarding bus service conditions under the DA

Thank you Mr Mackay, will ensure the right MOD is referred to

Kind regards
Nicki Adams

Nicki Adams
Executive Officer

Office of the Mayor
t 02 8495 6459 m 0408 463 498
nicki.adams@northernbeaches.nsw.gov.au
northernbeaches.nsw.gov.au



From: Mackay, Scott <Scott.Mackay@lendlease.com>
Sent: Friday, 4 December 2020 9:14 AM
To: Nicki Adams <Nicki.Adams@northernbeaches.nsw.gov.au>
Cc: David Judge <d.judge@bigpond.com>
Subject: RE: [EXT]:RE: Acknowledgement of correspondence to Mayor Regan regarding bus service conditions under the DA

Ms Adams,

I note that the Mod for Building D is Mod2020/0431 not 0508. Sorry for any confusion.

Regards Scott Mackay

Scott Mackay
Senior Development Manager, Retirement Living
Level 14, Tower Three, International Towers Sydney
Exchange Place, 300 Barangaroo Avenue, Barangaroo NSW 2000
T 02 9236 6845 | M 0448 414 748
scott.mackay@lendlease.com | www.lendlease.com.au



From: David Judge <d.judge@bigpond.com>
Sent: Thursday, 3 December 2020 2:51 PM
To: 'Nicki Adams' <Nicki.Adams@northernbeaches.nsw.gov.au>
Subject: [EXT]:RE: Acknowledgement of correspondence to Mayor Regan regarding bus service conditions under the DA

Dear Ms Adams

On the 28th October I sent the attached letter on behalf of the Residents of Glenaeon Village in support of the DA Mod202/0508 DA2018/1332..
You indicated that you would forward the letter to the Director, Planning and Place on our behalf.

I notice that the letter has not been registered on the public Record of the DA
We consider that it is important to have it lodged on the record as it is only here that our support is officially Registered.

I would be most appreciative if you could follow this through for us and have it lodge.
Please feel free to contact me if there is any Problem in getting it registered.

Regards
David Judge
Chairman, Glenaeon Residents Committee.
0427471410

From: Nicki Adams <Nicki.Adams@northernbeaches.nsw.gov.au>
Sent: Thursday, 5 November 2020 5:43 PM
To: David Judge <d.jjudge@bigpond.com>
Cc: Nicki Adams <Nicki.Adams@northernbeaches.nsw.gov.au>
Subject: Acknowledgement of correspondence to Mayor Regan regarding bus service conditions under the DA

Dear Mr Judge

Thank you for your email to Mayor Regan which I will ensure he receives a copy as soon as possible. As it relates to a condition of a DA which the Mayor is not able to intervene, I have also forwarded it to the Director, Planning and Place and have asked on behalf of the Mayor for further consideration to be given to the issue you have raised. A response will be provided to you.

Kind regards
Nicki

Nicki Adams
Executive Officer

Office of the Mayor
t 02 8495 6459 m 0408 463 498
nicki.adams@northernbeaches.nsw.gov.au
northernbeaches.nsw.gov.au



From: David Judge <d.jjudge@bigpond.com>
Sent: Thursday, 5 November 2020 3:25 PM

To: Nicki Adams <Nicki.Adams@northernbeaches.nsw.gov.au>

Subject: FW: Automatic reply: Glenaeon Residents. support to Block Ddocx.docx

Hi Nicki

I am hoping you can forward this attached letter to Michael and the appropriate department head for me on behalf of the Residents at Glenaeon Retirement Village. Belrose.

Many Thanks

Regards

David

Northern Beaches Council

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