

17 April 2013

Ian Hayson  
C/- Urbis  
Tower 2, Level 23, Darling Park  
201 Sussex Street  
Sydney NSW 2000

Attention: Ian Cady, Associate Director

Dear Ian,

**Avon Road, Pymble (MP 08\_0207 and MP 010\_0219)**

Further to our meeting with the DOPI today, this letter addresses the three issues raised with respect to stormwater and riparian management which were:-

- stormwater water quality pollutant reduction targets;
- Controlled Activity Approval objectives;
- building setback from proposed basin.

#### **1. Stormwater Water Quality Pollutant Reduction Targets**

The industry best practice in terms of stormwater water quality treatment targets is described in a number of documents and the targets vary depending on the source. One document is the Landcom (now UrbanGrowth) WSUD Book 1 guidelines. The NSW EPA refer to this guideline for information on stormwater treatment. The Federal EPA in the form of the Department of Environment, Water, Heritage and Arts prepared in June 2009 a national guideline entitled Evaluating Options for WSUD – A National Guide. The pollutant removal targets in these documents are presented in Table 1 along with the targets recommended by the Ku-ring-gai Council in DCP 47 and the targets adopted for this development.

Table 1 Guideline Pollutant Reduction Targets

| Source                 | Reduction Targets % |    |     |
|------------------------|---------------------|----|-----|
|                        | TP                  | TN | TSS |
| Landcom                | 65                  | 45 | 85  |
| Federal EPA            | 60                  | 45 | 80  |
| Ku-ring-gai<br>Council | 45                  | 45 | 80  |
| Subject<br>Development | 61                  | 51 | 83  |

It is evident from this table that the pollutant reduction targets adopted for this development match industry best practice targets and exceed the requirements of Ku ring gai Council.

## 2. CAA Objectives

The objectives of the CAA guidelines are to:-

- achieve a stable watercourse;
- minimize impacts on downstream water quality;
- enhance the ecological value of the riparian area.

Our letter dated 5 April 2013 to Ian Hayson (copy attached) explains in detail how the proposed rehabilitation of the corridor through the site would greatly enhance the stability, water quality and ecology of the corridor. In doing this, it will meet (if not far exceed) the objectives of the CAA guidelines.

The proposed re-establishment of the understorey vegetation and the slowing of flows into the drainage line would stabilise the watercourse. Flow outlets will be designed as WSUD features with appropriate stabilisation works.

Runoff from the site would be treated along with flow from upstream areas to reduce the pollutant load in runoff downstream of the site. This will contribute to the long term improvement in the water quality of downstream receiving waters.

Both terrestrial and aquatic habitats would be greatly enhanced along the corridor. The stability of the watercourse and the incorporation of temporary water storage in an ephemeral wetland environment would contribute to this improvement. The reduction in pollutant load in runoff through the corridor would also assist to improve the aquatic habitat value. Further comments on the ecology would be provided by Anne Clements.

In summary, the proposed rehabilitated corridor would readily meet the CAA guideline objectives.

## 3. Building setback from the Basin

The building setback from the basin is not a significant issue because access, maintenance and construction issues can be readily addressed at the detailed design stage. Many basins such as WSUD features are designed partly around apartments / commercial buildings. A good example is the large wetland designed around the commercial building in the Norwest Business Park on Norwest Boulevard.

Yours faithfully

A handwritten signature in black ink, appearing to read 'Mark Tooker', is written over a large, stylized, handwritten letter 'M' that spans across the signature line.

Mark Tooker

5 April 2013

Ian Hayson  
C/- Urbis  
Tower 2, Level 23, Darling Park  
201 Sussex Street  
Sydney NSW 2000

Attention: Ian Cady, Associate Director

Dear Sir,

**Avon Road, Pymble (MP 08\_0207 and MP 010\_0219)**

This letter has been prepared in response to the letter from the Department of Primary Industries including comments from the NSW Office of Water (NOW) regarding the Preferred Project Report for the above project. This letter has been structured based on the headings in the NOW comments.

**1. Riparian Land**

I have been working in the area of stream identification, rehabilitation and management for over 20 years and am well aware of the government requirements and techniques applied with respect to urban development and stream restoration.

While I determined that the site did not contain a river, stream or riparian corridor as defined by the NOW Controlled Activity Approval (CAA) guidelines, I considered (in concert with Anne Clements who I have worked collaboratively on many rehabilitation projects) that the proposed development presented a great opportunity to rehabilitate an important tree community with a sustainable understorey and a stable drainage line to assist create valuable habitat and passive open space area. The vision I saw for this area was expressed in many sections of my report as follows:

- Page 3 – *“The Stormwater Drainage Concept Plan has been derived incorporating WSUD features and formulated in concert with the Landscape Plan (refer Figure 4) in order to create a natural environment along the drainage line through the site which uses water and vegetation to enhance habitats and water quality. This will form an environment which will contribute to the long term improvement in water quality and environmental quality of the streams downstream of the site. It will also provide a significant passive recreational feature for the local residents.”*
- Page 4 – *“demonstrates significant works will be undertaken to re establish the Blue Gum forest and understorey along with natural features and ponds to embellish the habitat quality (both terrestrial and aquatic). It will create a significant endemic bushland corridor through the site to the benefit of the environment and local residents.”*

- Page 7 – “The Landscape Plan for the development has been formulated in workshop with the ecologist, bushfire, arborist and hydrologist specialists to create a natural and stable environment which maximises the ecological and water sensitive design outcomes as well as being an attractive area for passive recreation (refer Figure 4).

*The Landscape Plan would involve clearing all the weeds and regeneration of the Blue Gum High Forest understorey to stabilise the valley floor. The steep upper third of the site would incorporate an intermittent cascading pool system in the drainage line to slow down the runoff and create aquatic habitat features with macrophyte planting to improve water quality. The lower two thirds of the site would incorporate a vegetated and rocky drainage line to further enhance habitats and a pond with a macrophyte upper third to provide diversity of habitat and water quality treatment. The pond would be designed as a wet and dry feature to accommodate variations in rainfall patterns. The Landscape Plan would provide a valuable environmental outcome for this valley and the local residents.”*

Even though I consider that the CAA guidelines are not applicable to this site, I have clearly adopted the general principles and objectives of these guidelines in terms of the proposed embellishments.

The CAA guidelines issued in 1 July 2012 sought to simplify the assessment of streams, riparian corridors and rivers under the Water Management Act by using the blue lines on the 1:25000 topographic plans as defining streams and stream order and hence defining where the guidelines were applicable. I used the topographic plans to establish that there was no blue line on the site. However, I have enough experience to realise that it is essential in this assessment to inspect the site and understand its location within the catchment.

As well as considering the absence of a blue line on the 1:25000 topographic plan for the site, I have undertaken a comprehensive inspection of the site and the upper catchment to understand the nature of the site. This is described in Section 5 of my report on pages 9 and 10.

It was evident from the inspection that there were no banks along this drainage line and as such it is not classified as a river under the Water Management Act and importantly, in terms of the CAA guidelines it is also not classified as a riparian corridor. The definition of a riparian corridor in the CAA guidelines includes a channel comprising of banks.

Furthermore, it is considered that the site does not contain a first order stream as classified under the Strahler System. The CAA guidelines define the “Stream Order” to be the watercourse order as classified under the Strahler System based on the 1:25000 topographic plans. As such, the CAA guidelines are not applicable to the subject site. Therefore, the proposal for the basins on line is acceptable and they do not require an equivalent vegetated riparian zone for the stream order as recommended in the NOW letter.

The NOW letter recommends that having an online water quality basin is not consistent with the CAA guidelines and there will be problems with algae blooms etc. Given that the CAA guidelines are not applicable to the site then they are not relevant to having an online water quality basin. In addition, it appears that NOW have misunderstood the nature of these basins. They will only retain water for a short period after rainfall as they will gradually be drained. In the quote from page 7 of my report (see above), the basins/ponds “*would be designed as a wet and dry feature*”. These would be designed as ephemeral features which will be dry most of the time and will pond water after rainfall. Therefore, there would be no problems with algae blooms and weeds would be managed as part of the maintenance plan.

The NOW letter refers to the need to have a natural drainage line through the site and not rock lined. Reference to rock lining occurs on Figure 2 of Appendix A of my report which is an error. In the body of my report is a description of what is intended.

- Page 10 - *“The development proposes to reduce the runoff volume from the site as well detain and treat runoff to control peak flow rates and pollutant load. The Landscape Plan demonstrates that the drainage line will have a natural and stable form with significant enhancement of flora and fauna habitats. The width of landscaping corridor through the site will vary from 30m to 55m which is very generous for a site at the top end of a catchment.”*
- Page 16 - *“The Stormwater Drainage Concept Plan is complemented by the Landscape Plan which removes the extensive weeds, embellishes the Blue Gum Forest and understorey and establishes habitat for a range of fauna. The Plan uses natural features such as pools, ponds and vegetation to slow flows and improve the water quality of flows from areas upstream of the site. This would further enhance the habitat quality through the site as well as contribute to the long term improvement in water quality in streams downstream of the site. This enhanced natural valley forest setting can then be an important component of the local environment to be enjoyed by the local residents.”*

NOW has interpreted Figure 25 in the PPR to show mown grass immediately adjacent to the drainage line. Given the description above that is certainly not our intention. The plans support revegetation of the understorey with native vegetation.

In summary, while the CAA guidelines are not considered applicable on the site, you can appreciate that our vision for the site is in general accord with the general desires of the guidelines to form a rehabilitated corridor with a stable natural drainage line within a restored Blue Gum bushland with extensive understorey vegetation. This would provide considerably improved runoff water quality to downstream watercourses as well contributing to a significant improvement in the habitat quality and passive recreational opportunities on the site.

## **2. Groundwater**

NOW establishes that the proposed development would not have a significant impact on groundwater in the area. We would agree with this conclusion.

### **3. Water Licensing**

#### **(i) Surface Water**

The basins/ponds proposed with this development would not prevent flow downstream as they would only trap runoff temporarily during rainfall and would allow this water to gradually drain to downstream areas. As such, the Maximum Harvestable Right Dam Capacity (MHRDC) is not applicable to this development and therefore a licence would not be required.

Notwithstanding this, the volume of the ponds/basins/pools would total, subject to detailed design, between 0.2ML and 0.3ML. This is significantly less than NOW's estimated allowance for the site of 1 ML and even on this measure the development would not require a licence.

#### **(ii) Groundwater**

As suggested by NOW, if in the detailed design it is evident that the project requires dewatering or interception of groundwater in the construction of the basements, then the relevant approvals would be sought.

Yours faithfully

**Mark Tooker**