

## **Ku-ring-gai Council**

**Project Title:** Water Management Development Control Plan

**Project Summary:** Development of a new Water Management Development Control Plan (DCP) in accordance with the principles of Water Sensitive Urban Design (WSUD) that will supersede the existing Stormwater Management Manual (1993)

### **Project Objectives:**

1. The project aims to produce a DCP, acceptable to all stakeholders, that provides for the management of water at all stages of the cycle in accordance with the principles of WSUD.
2. In order to ensure an appropriate response to the different needs and constraints of any given development site, and to ensure that the central importance of the environment is recognised, the project team is to determine the optimum means of ensuring that the controls included in the DCP are outcome-focussed and site-specific.
3. The project aims to increase communication between internal and external stakeholders and to ensure mutual understanding of their needs and preferences in relation to water management.
4. The project aims to produce and implement a DCP that is appropriate in terms of public health, risk management, environmental quality and aesthetics.
5. It is also important that the DCP is written in such a way as to facilitate understanding by all stakeholders and to enable merit assessment of proposals by Council staff.

### **Project Outcomes**

#### ***Organisational:***

1. Prior to the start of the project, work relating to water management was being undertaken by Council staff in a variety of different departments. However, the tasks were being carried out largely in isolation, with little communication between staff engaged in on-ground work (eg. engineering and open space), assessment tasks and planning. In many instances, staff were unaware of other people's responsibilities, did not know other employees by sight or, occasionally, did not know of the existence of certain positions related to their own.

The project began by bringing together staff from four different departments with experience / responsibilities in catchment management, drainage, water infrastructure design, development assessment (engineering), landscape architecture, strategic planning, environmental management, environmental compliance and geographical information systems. As well as providing a forum for introducing staff to each other, this was an opportunity for staff to begin discussing mutual needs, interests and strategic directions in the context of water management.

The project has contributed significantly to the broadening of relationships, particularly between engineers in the different Council departments. Staff

are now generally aware of other employees' experience, knowledge and views on the different aspects of water management. While it is clear that staff backgrounds often result in very different views on certain controversial topics, the project has served to increase respect and understanding between employees for other opinions, to create a forum for discussion of these topics and to create awareness about the advantages in consulting other departments when making certain decisions.

As the project continues, staff will continue to be involved in round-table discussions about water management and it is expected that, with the new awareness of others' roles, this communication will continue beyond the life of the project.

2. An important aspect of the project has been communication with Councillors about water management and the direction of the DCP. This has involved reports to Council as well as a presentation and opportunity for discussion and has resulted in two positive outcomes:
  - Councillors at Ku-ring-gai now have an improved understanding of WSUD and the goals of the Council staff with respect to WSUD principles and the DCP. Further to this, the Councillors have indicated their support for a DCP written in accordance with these principles.
  - Councillors have acknowledged the progress of staff in the development of the DCP and have resolved unanimously to support the structure and content of the DCP as drafted to date.

### ***Environmental:***

1. At the beginning of the project it was clear that many of the team members had been exposed to only traditional responses to water problems. It has been the responsibility of the project leaders to introduce their colleagues to new concepts in water management, including through reading material, round-table discussion and opportunities to attend seminars run both in-house and externally.

Although, at this point in the project, a variety of opinions still exist within the project team, it is clear that many of those involved are now thinking more broadly about water management and are far more accepting of the principles of water management. Generally, staff now recognise that a number of engineering responses other than on-site detention, including 'softer' solutions, may be appropriate and that utilising a number of approaches to water management at a single development site may be advantageous in terms of both risk and efficiency.

The acceptance by staff of the principles of WSUD is expected to have a great environmental benefit because:

- the DCP will now more consistently include environmental objectives and controls and
  - staff using the DCP will be more likely to uphold and enforce the principles espoused by the DCP.
2. Local government DCPs commonly include environment-based objectives, but less common is the follow-through of including controls that are environmentally sound. There is often little relationship in DCPs

between the objectives and the controls and, where environmental controls are included, they are often found under a separate banner rather than incorporated into the document as a whole and generally appear to have been included as an afterthought. Such documents tend to reflect a lack of environmental responsibility. It is rare, however, to find a DCP that incorporates environmental principles throughout, unless is about an environmental topic such as 'sustainability'.

Ku-ring-gai Council's team therefore determined that a successful outcome for the DCP would be the incorporation of environmental principles throughout the document, with all controls clearly reflecting the Council's determination to adhere to the principles of WSUD. Although the DCP is not yet complete, the sections that have been drafted are consistent with this decision, with each control directly relating to one or more of the stated objectives.

This means that the DCP, once adopted, will make a significant contribution to ensuring that water management at new developments in Ku-ring-gai is environmentally responsible rather than simply paying lip-service to the concepts of WSUD.

***Technical:***

1. The water management controls currently in place for the Ku-ring-gai local government area are single-discipline based and contain few elements that encourage an environmentally sensitive response to water management problems. Specifically, on-site detention is the only stormwater management method detailed in the Stormwater Management Manual (1993), while rainwater tanks are only required by Council officers under certain circumstances that are not detailed in any Council policy. Development proposals in Ku-ring-gai are commonly not appropriate to the local area or to the catchments and existing Council policy does not encourage anything better.

The greatest challenge for the project team was to determine the optimum means of ensuring that controls contained in the DCP would be sufficiently flexible to enable appropriate responses to site constraints and opportunities. It was also necessary to ensure that applications submitted to Council in accordance with the DCP could be assessed on merit, but without compromise to the speed or ease with which proposals can usually be assessed.

As a solution, the project team developed the idea of a 'matrix', which would help to ensure that the results of the site analysis, the location of the development site within the catchment and the development type proposed would all be used to appropriately plan and design a development. Although the form of this matrix requires further discussion with staff and other stakeholders, the intention of the matrix is that it will provide all users of the DCP with a clear understanding of the types of water management responses (for the total water cycle) that would be appropriate and/or essential for their proposed development.

The project team considers that the matrix, by requiring site-specific design responses, will result in a far higher proportion of true WSUD proposals being submitted to Council, as innovation in water management

is unlikely to be limited by DCP controls and poor management practices will no longer be achievable under Council policy.

2. One of the principal questions to be answered before the completion of the DCP was the degree to which on-site retention (OSR) could be used on a development site to reduce flows to natural waterways in Ku-ring-gai. This information was necessary as it would contribute to determining the extent to which OSR should be required in the different types of new developments.

A consultant was commissioned to study this question, taking into account different options for the use of retained (tank) water in toilet, laundry and garden. The results of this study have recently been received by Council and indicate that OSR is unlikely to be able to contribute significantly to reducing stormwater flows to natural streams, even over a period of thirty years (with projected development in Ku-ring-gai factored into calculations) if it is only applied to new and infill development.

Nevertheless, the study was able to indicate the optimum tank sizes for multi-unit and single dwellings for certain water conservation purposes. This information will be used in the Water Management DCP.

### ***Transferable:***

A primary element of the project has been determining the optimum means of efficiently and usefully involving staff. It is important to recognise that each team member has a unique set of skills, knowledge and experience.

However, also of great relevance is the team member's level of interest in any given topic as well as their availability (in terms of overall workload). In this way, where a number of people have similar expertise in a particular field, it has been seen as preferable that those who are less interested in the topic not be involved.

At the start of the project, the whole group began by listing elements that they considered to be of importance in the DCP. A sheet listing each of these elements was then distributed to each team member, who indicated both their knowledge/skill level *and* their level of interest in each topic. Based upon the results of these questions, smaller groups were formed within the project team, linking similar topics and involving people from a variety of backgrounds. Setting up teams based on these criteria has helped to ensure that the people involved in the development of the DCP take part actively in the meetings and do not resent the imposition on their time that the project has required. It is recommended that other Councils, in such projects:

- determine skills, interest levels, availability and commitment of participants
- encourage ongoing input and feedback via several mechanisms (email, telephone, meetings, etc.)

### ***Difficulties Encountered:***

1. The principal difficulty encountered to date has been the minimal knowledge on the part of many participants of principles of WSUD and their lack of trust in alternatives to standard / historical engineering responses. Although the team does not now have a homogenous definition of 'good' engineering practice with respect to all elements of the

water cycle and its management, there is considerably greater agreement and WSUD is now a term that is understood by all members of the team.

A variety of communication techniques were used to overcome this difficulty, including the distribution of reading material, team meetings that were structured to enable lively discussion and providing all team members with the opportunity to attend workshops, talks (including in-house) and seminars relevant to their roles. Over time, staff who were initially less accepting of alternative practices have begun to suggest trials, or the inclusion in the DCP, of water management options that accord with the principles of WSUD.

2. A second difficulty encountered has been the lack of time the project team have to participate in the project. It has been important to recognise that everyone involved is already busy working on their standard jobs and that, although the development of a Water Management DCP is required by Council's management plan, the task is only identified in the Management Plan for one person (the project coordinator), her manager and his director as a personal responsibility.

Now in the middle of the project, the team members are taking a great deal more interest in the project as, owing to discussions in which they have been involved, they are able to see the relevance to their own positions. Further, by dividing the team into smaller topic groups, it has been unnecessary for each person to attend all meetings. Rather, people are only invited to meetings when they are expected to be able to participate usefully, but all participants are generally kept informed of the progress of other groups.

#### **Team Members:**

- Greg Piconi, Director (Technical Services)
- Ian Taylor, Manager Support Services (Technical Services)
- Eng Tan, Drainage / Assets Engineer (Technical Services)
- Kathy Hawken, Development Engineer (Environmental & Regulatory Services)
- Robin Howard, Team Leader Development Engineers (Environmental & Reg Services)
- Steven Head, Director (Open Space)
- Geoff Bird, Team Leader, Landscape Assessment (Open Space)
- Peter Davies, Catchment and Sustainability Manager (Open Space)
- Antony Fabbro, Manager Strategic Planning (Planning and Environment)
- Guy Paroissien, Manager Environmental Policy (Planning and Environment)
- Chris Carloss, Snr Environmental Planning & Projects Officer (Planning & Environment)
- Louise O'Flynn, Student Planner (Planning and Environment) – has recently left
- Katherine Lustig, Environmental Planner (Planning and Environment)

#### **Team Leader details:**

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