



# Water Management Plan

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# Adelaide Hills Council Water Management Plan

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## 2 Introduction

### 2.1 Council leading by example

Water is widely recognised as a valuable resource requiring careful management and ongoing protection. Council plays a vital role in water management directly through its own water use and in managing public assets, and indirectly through influencing the community's attitudes and actions. It is therefore important that Council manages the way it uses and cares for water in a manner that is environmentally, socially and financially responsible, to lead by example and influence its community to become more sustainable.

### 2.2 Purpose and development of this Plan

A key direction of Council's current Strategic Plan and its Environmental Sustainability Framework is to investigate, analyse and prepare a water management plan. This Water Management Plan (the Plan) addresses those directions.

The purpose of this Plan is to build a better understanding of where and how water is used on Council-owned land, its buildings and its facilities. The Plan identifies issues and opportunities for improvement with the aim of safeguarding water resources into the future.

This Plan focuses on adopting an integrated approach to managing water resources to ensure a sustainable and resilient future. It provides direction for sustainable and integrated management of water resources, including Council's use of potable water, treated wastewater and stormwater, and groundwater (water underground). It does this by providing a framework for Council to become more 'water-sensitive' and thereby increase its value and protection of water resources.

Addressing the above issues will put Council in a strong position to manage its own water sustainably, provide community leadership, and demonstrate support for local, state and national water initiatives.

The Plan has been developed through Council's Sustainability team, with input from an informal group of Council staff that are involved in water management in some way, known as the Water Group. The Plan has been developed on the basis of known available information, such as Council reports and data, examples of other water management plans, and feedback on issues and opportunities from the Water Group and the Sustainability Advisory Group.

### 2.3 Why is water sustainability important?

Water is a valuable resource and it is vulnerable to over-use, contamination, and environmental degradation. Water demands, water supply and water quality can easily become out of balance. Water supply schemes, plans to manage stormwater and groundwater can lose significance when considered in isolation to each other. It is therefore important that Council has a well-coordinated and integrated approach to managing water.

A sustainable approach to using and managing water is important in addressing the pressures of demand and key issues, such as water security, building resilience to climate change, rising cost of mains water, meeting environmental and regulatory requirements associated with water resources.

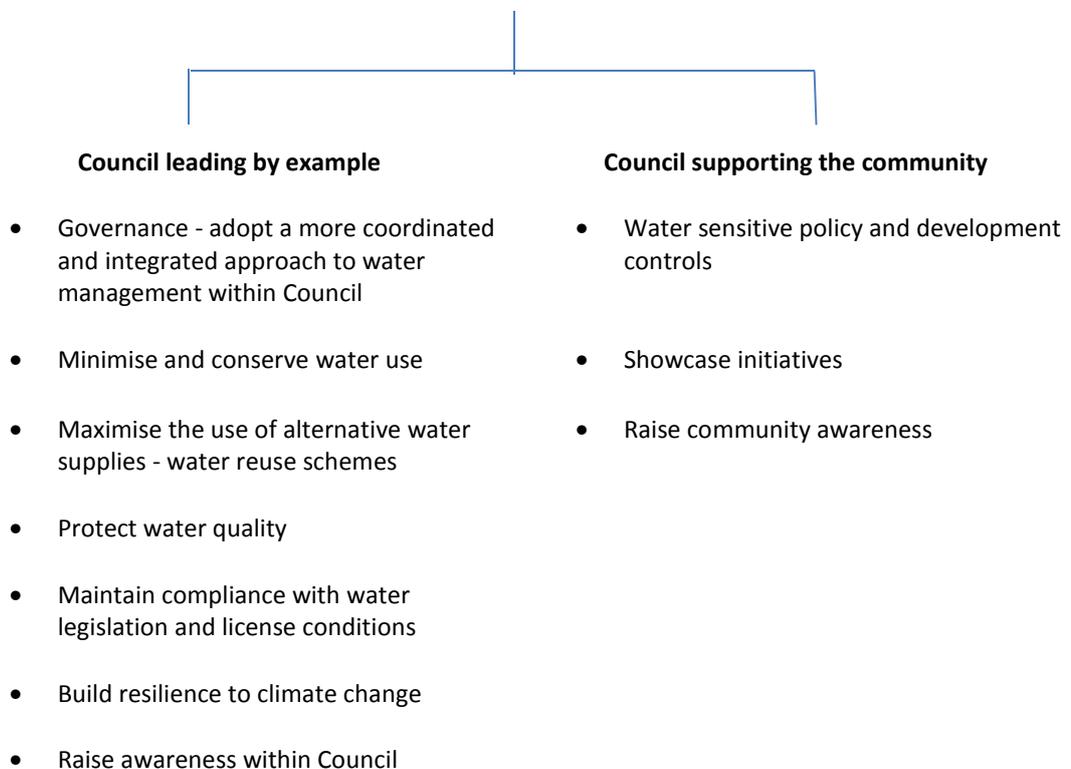
Council has operational and legislative responsibilities relating to using and managing water, whether that water is above ground or underground, such as using bore water in a sustainable manner and in accordance with the 'rules' of the Water Allocation Plan.

In addition, the impacts of climate change are likely to result in warmer temperatures, more days of extreme heat, lower average rainfall, and greater intensity of rainfall events. These conditions will affect the availability and quality of water resources in the Adelaide Hills. It is therefore important for Council to build resilience to these changes through focusing on sustainable use and management of water.

## 2.4 Objectives

**Overall goal**  
**Ensure an integrated and sustainable approach to water management to facilitate better environmental, social and financial outcomes**

**Objectives**



## 3 Adelaide Hills Council area

### 3.1 Location and Character

The Adelaide Hills Council is located in the Southern Mt Lofty Ranges covering an area of 795 km<sup>2</sup>, extending from Mt Bold reservoir in the south to One Tree Hill in the north, and from the Hills Face escarpment in the west to the eastern escarpment of the Mt Lofty Ranges.

The Adelaide Hills is a unique and attractive area with rolling hills, extensive areas of natural vegetation, and a wide variety of rural and pastoral activities. It's a premier tourist and recreational destination due its close proximity to the metro area and scenic landscapes and iconic towns. It is also considered to be the food bowl of Adelaide with fruit and vegetables, dairy and meat production. Although it is predominantly rural in character, there is considerable low-density residential development.

Population growth in the Council area is not expected to be as high as other parts of Adelaide and much of the region has development controls in place associated with the Hills Face and Watershed (Primary Production) Zones. The majority of Council (89%) lies within the Mt Lofty Ranges Watershed, which supplies around 60% of metropolitan Adelaide's water supply, and therefore safeguarding water quality is a high priority to ensure the sustainable development of the State.

The district holds special significance as a major environmental and recreational asset, as well as a prime South Australian tourist attraction.

### 3.2 Policy and Planning Context

#### ***State's Water for Good plan***

The State's Water for Good plan (2009) aims to safeguard water supplies, and includes actions aimed at improved use of water, such as through water sensitive urban design (WSUD), reusing wastewater and stormwater and water saving measures.

#### ***Water Allocation Plan and Bore Licenses***

To ensure water resources are used sustainably, the water resources of the Western Mount Lofty Ranges are protected by prescription and a Water Allocation Plan (WAP) for this area is in place. The WAP provides a set of rules on how the water resource can be used, such as using bores to extract groundwater. The WAP requires each bore to be licensed. The license provides information on the amount of water that can be used, as well as monitoring and reporting of water usage requirements.

#### ***Water Affecting Activities***

In relation to surface water, some activities in a watercourse or floodplain can have adverse impacts on the health and condition of water resources and the ecosystems that depend on them, as well as on other water users. These are called water affecting activities and include:

- Construction or enlargement of dams or structures to collect or divert water
- Building of structures, obstructing or depositing solid materials in a watercourse, lake or floodplain (e.g. erosion control, construction of water crossings or dumping material)
- Excavating material from a watercourse, lake or floodplain (e.g. excavating or cleaning soaks, waterholes and on-stream dams)
- Destroying vegetation in a watercourse, lake or floodplain (e.g. removal of reeds)

- Draining or discharging water or brine into a watercourse or lake (e.g. desalination waste, stormwater including urban discharge, drainage and salinity control)
- Drilling, deepening and back filling wells, bores and groundwater access trenches
- Use of effluent or water imported to an area for commercial activities, e.g. irrigation

A permit is required from the relevant NRM Board prior to undertaking such activities under the NRM Act. To assist councils a set of best practice operating procedures has been developed which reduces 'red tape', whilst helping councils understand their obligations and options under the NRM Act when undertaking works in a watercourse. Further information on water affecting activities and best operating procedures, and to determine if a permit is required, can be obtained from the local NRM Board, such as the Natural Resources - Adelaide & Mount Lofty Ranges. The following website provides more information:

<http://www.naturalresources.sa.gov.au/adelaidemtloftyranges/water/managing-water/water-affecting-activities>

#### ***Other state planning tools***

Other state planning tools used for the planning and management of water include the 30 Year Plan for Greater Adelaide which in relation to water aims to protect water supply catchments and the watershed by preventing development in areas that are rated high-risk, and ensure that new developments have a beneficial, or at least neutral, impact on water quality in the watershed. It also promotes WSUD techniques in new developments to protect water quality and seek water efficiencies. These initiatives are also promoted in the "Stormwater Strategy - The Future of Stormwater Management" and the program "Water Sensitive SA".

#### ***Climate change strategies and plans***

South Australia's Climate Change Strategy (2015) sets a framework for building resilience to the impacts of climate change. Almost all types of major infrastructure in South Australia are likely to be at risk from storms, coastal inundation, flooding, higher temperatures and increased bushfire frequency. In relation to water, the expected changing rainfall patterns and higher evaporation rates are likely to pose challenges for South Australia's water supplies, including the reservoirs located with the Adelaide Hills Council area.

The State Government is partnering with regional leaders to deliver regional climate change adaptation plans. One of these adaptation plans is the Regional Climate Change Adaptation Plan for the Adelaide Hills, Fleurieu Peninsula and Kangaroo Island region. This Adaptation Plan is being developed through the 'Resilient Hills and Coasts' (RH&C) project. The project is a collaborative effort with councils in the region (including Adelaide Hills Council), NRM Boards, and State and federal governments. The focus of the project is to make sure that the region remains a strong and vibrant place to live, work and visit and that businesses, communities and environments can respond positively to the challenges and opportunities presented by a changing climate. The Adaptation Plan provides the foundation for a coordinated and collaborative response to climate change impacts and identifies priorities for adaptation across the RH&C region. The regional adaptation priorities for the RH&C region include (amongst others) water quality improvement measures, especially in relation to stormwater. Water quality improvement will require continued investment in water sensitive urban design, stormwater retention areas and water recycling. Important aspects of this project are the collaborative and coordinated response to climate change, and the opportunities to share information, resources, responsibilities and actions.

### ***Council's planning framework***

As most of Council's area is within the Mt Lofty Ranges Watershed, Council's planning framework has a strong focus on water quality and managing landuse activities to protect the ongoing health of the watershed, as well as the area's rural character, and biodiversity values.

Council's current Strategic Plan includes several goals and objectives relating to water and its sustainability (a new Strategic plan will be released in November 2016). Specifically, it identifies the need to develop and implement a water resources strategy to conserve and manage water in line with the State Government's Water for Good Plan and agricultural needs. Further, the plan includes:

- Reuse opportunities;
- Stormwater harvesting;
- Maintenance of environmental flows;
- Protection or improvement of water quality;
- Reduction in water use by Council;
- Water allocation planning; and
- Inclusion of Water Sensitive Urban Design principles in developments.

This Water Management Plan aims to address most of these issues, if not all.

In addition to the Strategic Plan, Council's planning policies and development controls play a role in using and managing water resources in an integrated and sustainable manner. Council's Development Plan (28 April 2016) provides development controls and guidance to protect and manage water resources sustainably, such as through water sensitive urban design techniques, catchment water management, and water quality protection. The Development Plan and other planning tools are reviewed regularly to ensure their relevance and their effectiveness.

### **3.3 Roles and Responsibilities of Water Management**

The roles and responsibilities of managing water in South Australia are assigned to several Government agencies and authorities, including Council. A summary of key responsibilities is provided below in Table 1.

**Table 1 - Responsibilities for water management**

<b>Water Resource/ Issue</b>	<b>Responsibility Authority</b>
Water infrastructure, supply	SA Water Council Department of Environment, Water and Natural Resources (DEWNR)
Water quality	Environment Protection Authority (EPA) Natural Resources Adelaide and Mt Lofty Ranges (AMLR) SA Health SA Water
Stormwater and flooding	Council Department of Planning, Transport and Infrastructure (DPTI) DEWNR State Emergency Services (SES)
Water use/access - licenses and permits	DEWNR Natural Resources AMLR

This Water Management Plan seeks ways to improve Council’s internal management of water by reviewing departmental roles and responsibilities and improving coordination and integration across these departments.

Within Council there are staff from different departments that have a role in managing water, as summarised below in Table 2.

**Table 2 - Council’s current internal responsibilities for water management**

<b>Council department</b>	<b>Responsibilities</b>
<b>Corporate Services</b> (Property Services)	Management of buildings and facilities Lease arrangements Management and maintenance of bores (assets) Approval of SA Water accounts Maintenance of buildings/facilities Cemeteries and retirement villages
<b>Engineering and Assets</b> (Parks and Reserves)	Irrigation of open spaces and turf management (of council managed sites) Bore meter readings Maintenance of reserves and landscaping
<b>Engineering and Assets</b> (Engineering – civil projects)	Stormwater management, WSUD
<b>Strategy and Development</b> (Waste and Regulatory Services)	Mount Lofty Ranges Waste Control Project (onsite wastewater systems) Community Wastewater Management Scheme (CWMS) regulatory Wastewater reuse
<b>Engineering and Assets</b> (Infrastructure maintenance)	Road and stormwater maintenance
<b>Engineering and Assets</b> (Sustainability)	Water sustainability - preparation of Water Management Plan
<b>Corporate Services</b> (Finance)	Payment of SA Water accounts
<b>Corporate Services</b> (Information Systems (Records))	Receipt and internal allocation of accounts and correspondence
<b>Strategy and Development</b> (Planning)	Planning policy and development controls

There are also external organisations, such as sporting clubs, that use Council’s bore water for irrigating ovals and other grounds.

## 4 Council's Use of Water Resources

### 4.1 Overview

This chapter provides information on Council's use and management of water, and identifies potential opportunities for improvement, such as irrigation efficiencies, water savings, maximising the reuse of water, protecting water quality, and ensuring Council meets its legislative responsibilities.

Council uses water within its buildings, on public land and at other facilities. The community has expectations that public assets are maintained at a high level, such as sporting ovals, recreational areas and township streetscapes.

As outlined earlier in this document, there are many departments within Council that play a role in using and managing water, and it's important that these activities are well coordinated amongst staff. Council is improving its coordination of water management by assigning specific roles and responsibilities amongst staff. This integrated approach to water management within Council will help improve the way water is valued, used, and managed. It will facilitate the sharing of information which will help to identify issues as they arise, enable opportunities for improvement, and therefore facilitate the sustainable use of water.

Council has recently introduced a computerised system of recording water usage from the mains supply and from its bores. This information will help identify trends in water usage and identify any anomalies which could then be investigated in a timely and coordinated manner, such as pipe leakages or over watering. This system will enable Council to better track its sustainability performance.

### 4.2 The Big Picture

Council uses several sources of water for its land, buildings and facilities. These include:

- Mains water supply
- Groundwater – via bores
- Wastewater reuse
- Rainwater

Council owns a range of properties, such as buildings, land and facilities. It is responsible for managing the use of water at many of these properties.

One of the key sources of water used by Council is the mains water supply provided by SA Water. This water provides domestic water supply for many of Council's buildings and facilities, such as Council offices, libraries, some retirement homes, as well as watering of some areas of landscapes and public open spaces, such as some ovals.

The way mains water and bore water is used at each site is not fully understood, particularly where the water is used by a community group. It's important that Council understands water usage at each site, ensures best practice is applied, such as water efficient irrigation techniques at the ovals, and water efficient appliances are used within building, etc. Conducting a water audit would be a useful step in identifying areas for improved water use efficiencies, such as water efficient devices for taps, showerheads, dishwashers, toilets. There may also be opportunities to plumb rainwater tanks to toilets to reduce the use of mains water.

Monitoring water use can help identify issues and anomalies, such as variations in SA Water accounts or bore meter readings, and ensuring appropriate corrective action is implemented in a timely manner.

Council needs to ensure the region maintains its position as a premier tourist destination. This often means the amenity of townships is to be maintained at high level, such as the entry statements and streetscapes of Stirling and Aldgate. To a large extent this is achieved by maintaining streetscapes with high quality landscaping and the planting of annuals which require irrigation. To reduce water use, Council could explore options to rationalise the planting of annuals, e.g. only plant annuals at township entry points, rather than along the main streets. Council could also explore alternatives to planting annuals with plants that have lower water needs, such as native species. In addition to less water, native species may offer less maintenance requirements (such as weeding, fertilising, pest control, etc), and help increase biodiversity values.

The local community also has expectations that sporting/recreational grounds will be maintained at a high standard. Some of these are watered using mains, while others use bore water. Mains water is also used to grow new turf at public places that have been affected by the hosting of public events. Adjustments to the timing of the public events may provide opportunities for the turf to recover between events and therefore the need to grow new turf could be reduced, along with water usage.

The rising costs of water and the desire to reduce dependence on main water supplies has led to Council to implement water saving initiatives, such as drip irrigation and other efficient watering systems at some locations. The effectiveness of irrigation systems may be further improved by introducing a central irrigation control system and ensuring that sprinklers are not active during rainfall events.

The Conservation Council of SA with the Office for Recreation and Sport has developed the 'Sustainability Guide for Sport and Recreational Clubs' which aims to help clubs save energy and water while reducing utilities costs. This guide, or aspects of it, may be useful in identifying opportunities to conserve water in Council owned buildings/facilities as well as raising awareness amongst Council staff and the community.

### 4.3 Groundwater (use of bores)

#### 4.4.1 Water Allocation Plan and Licenses

The Western Mount Lofty Ranges was declared a prescribed water resource under the Natural Resources Management Act 2004 (NRM Act), which means it is considered to be an important water resource that requires protecting and sustainable management to provide security for all water users, now and into the future. A prescribed water resource requires a water allocation plan (WAP) which is a legal document that sets out rules for managing and using the water. The WAP for the Western Mount Lofty Ranges Prescribed Water Resources Area was adopted on 17 September 2013. It sets the amount of water that will be available, how that water may be allocated to users, and the types of activities that are permitted with that water.

The Water Allocation Plan requires a water licence to be issued for using the groundwater, and a yearly water allocation for each bore is assigned. The license for each bore sets out how much water can be used per annum, and requires water usage to be reported to DEWNR, usually on an annual basis. Meters are therefore required to be fitted to each bore so that water usage can be monitored and reported. The meter readings highlight if over-extraction has occurred. This information also provides input into scientific studies undertaken by DEWNR in monitoring the ongoing health and

availability of water. More detailed DEWNR information on metering requirements is provided in Appendix A of this document.

#### 4.4.2 Council's use of groundwater

Council currently has licensed bores situated within the WAP area, and therefore they are subject to the 'rules' of the Water Allocation Plan and the conditions of each license. Council has meters on all its bores to monitor usage, except for one bore which has space restrictions at the bore that make it difficult to install a meter. This issue is currently being addressed in collaboration with DEWNR to determine an alternative location to place the meter. Most of these bores are operated by external community organisations.

There are bores licensed to external organisations but are situated on Council-owned land. As not much is known about how this bore water is used, it is recommended that Council work with the community groups to ensure usage is compliant with the WAP and bore license conditions, particularly where Council is the license holder. This may result a review of irrigation regimes and turf management to identify any opportunities to improve water use efficiencies and to raise the profile of sustainability.

The IPOS Code of Practice provides guidance on irrigation efficiencies, minimising wastage, improving irrigation system performance, maintaining turf quality, and potential cost savings. Information on IPOS and associated Code of Practice is provided in Appendix B of this Plan.

#### 4.5 Wastewater reuse

##### *Wastewater treatment*

Adelaide Hills Council provides Community Wastewater Management Systems (CWMS) services to customers in Birdwood, Mt Torrens, Kersbrook, Charleston, Verdun, Woodside and some parts of Stirling. The CWMS network transports wastewater from customers' septic tanks to these treatment facilities. Wastewater from Council's CWMS at Birdwood, Kersbrook and Mount Torrens is treated and disposed of by Council owned and operated treatment facilities. Wastewater from CWMS systems in Charleston, Woodside, Verdun and Stirling is collected through Council infrastructure and disposed of through SA Water owned treatment facilities.

As part of providing wastewater treatment to customers, Council is a licenced water retailer pursuant with the *Water Industry Act 2012*. Council is required to submit reports to the following organisations:

- Essential Service Commission of SA (ESCOSA);
- Environment Protection Agency (EPA);
- SA Health; and
- Office of the Technical Regulator (OTR).

It is also noted that Council also has a role in ensuring the wastewater for reuse complies with legislative requirements, such as being fit for purpose.

##### *Wastewater reuse*

Reusing wastewater is an important aspect of reducing reliance on the River Murray for water.

The total amount of wastewater from Council's owned CWMS's is 127.8ML and of this amount 83.2ML is reused. A breakdown of this is provided on the following page.

- Birdwood CWMS produces approximately 60.0ML
  - 27ML is disposed into a woodlot
  - 11ML is reused for irrigating Birdwood Oval
  - 21ML is reused to irrigate a local vineyard
- Kersbrook CWMS produces 23.8ML
  - 23ML is reused to irrigate the Kersbrook Oval
- Stirling CWMS produces 9.4ML (no reuse)
- Verdun CWMS produces 8.7ML (no reuse)
- Woodside CWMS produces 25 ML (no reuse)

There may be opportunities to reuse wastewater from SA Water’s Bird in Hand and Heathfield Wastewater Treatment Plants to irrigate nearby Council owned facilities such as ovals. Large areas of sports grounds in Woodside are currently irrigated by bore water and the benefits of substituting this with treated wastewater should be explored.

## 4.6 Stormwater reuse

### *Overview*

Council’s stormwater system largely consists of natural overland flows and a limited pipe network within urban areas. Stormwater from most of the Adelaide Hills Council area drains into Adelaide’s drinking water reservoirs, such as the Mt Bold and the Kangaroo Creek reservoirs.

Council’s Development Plan currently provides development controls and guidance to protect the quality of stormwater, such as through water sensitive urban design techniques. The Development Plan could be further improved by providing more guidance on minimum storage capacity of rainwater tanks, whilst complying with the requirements of the Water Allocation Plan and the protection of the watershed, and how this water could be reused onsite.

Stormwater drainage studies have been undertaken for some of the towns, such as Lobethal, Birdwood, Balhannah, and Gumeracha is planned. The focus of stormwater management has predominantly been on addressing drainage and flooding issues, while other issues such as reuse and water quality have not been such a high priority.

There are several Government Agencies that have responsibilities for certain aspects of stormwater management, such as the NRM Board, the Stormwater Management Authority and Water Sensitive SA. It may be useful to explore opportunities for future management with such organisations.

In relation to rainwater, Council currently uses rainwater at two of its buildings in Norton Summit.

### *Stormwater reuse*

Stormwater is a valuable resource that has the potential to provide an alternative water supply to the mains water, which can help alleviate the pressure on other water resources in South Australia.

Council plays a prominent role in land use planning and development and is in a good position to promote the inclusion of WSUD to the wider community, such as developers, to ensure new developments are planned to be water efficient and use best practice stormwater management.

If stormwater is properly treated, it can be reused for a range of purposes, such as watering parks and gardens, water for flushing toilets, and agricultural water supply. The water is required to be

treated prior to some uses, such as through wetlands, and the availability of sufficient space for this can be problematic within the townships of the Adelaide Hills area.

Passive irrigation techniques enable the watering plants by channelling water from adjacent roads or other hard surfaces to them, such as carparks. Runoff can be directed into biofiltration pits which filter out pollutants and provide a source of water for vegetation. Another example is permeable paving and other types of landscaping materials (mulch, gravel, permeable paving), in preference to concrete/hard paving. Council already has an example of WSUD in Stirling where pervious paving allows water to infiltrate the ground and water the trees and other vegetation.

The Natural Resources AMLR Board has a target of reusing stormwater by 75% in the region in the next 20 years. It also works with partners to undertake a range of stormwater related projects such as water sensitive urban design, providing funds for and/or undertake infrastructure projects to improve stormwater quality and management. It would therefore be worthwhile involving the Natural Resources AMLR Board in exploring options to reuse stormwater and improve water quality in the Council area, as well as exploring the potential funding contributions.

Rainwater tanks play a role in water conservation by providing an alternative source of water to irrigate gardens, toilet flushing and laundry use. They can also contribute to flood control (approximately one third of the tank volume). Rainwater tanks are generally applied at the lot level, but can be applied at the street level in larger development projects. Within the Adelaide Hills Council area the storage capacity of the tanks needs to comply with rules of the Water Allocation Plan, as well as the Development Act 1993 and the Building Code. It would be useful to explore options to capture rainwater to supply water at Council's public toilets and landscaped areas to reduce reliance on the mains water supply and to safeguard supplies that may be affected by climate change impacts.

#### 4.7 Water quality

The catchments of the Mount Lofty Ranges (the Watershed) are a significant source of drinking water for Adelaide, as well as having environmental values and agricultural values. It is therefore vital that these catchments are kept free from contamination.

In South Australia, water quality protection is the responsibility of all levels of government, landholders and the public. A range of legislation is in place to protect water resources, such as the South Australian Public Health Act 2011, the Natural Resources Management Act 2004, the Environment Protection Act 1993 and the Environment Protection (Water Quality) Policy 2003, as well as regulations, policies, and codes of practice.

A significant portion of the Adelaide Hills Council area is within the Watershed area. Effluent from failing on-site wastewater systems, such as septic tank systems, is a common problem in this area, and threatens the health of drinking water supplies. Adelaide Hills Council has been playing a key role in addressing this issue by facilitating upgrades to on-site wastewater systems, through the Mount Lofty Ranges Waste Control Project. A ten year review of this project was undertaken in 2011 which determined that it was valuable and justified in reducing pollution to drinking water catchments. Despite the good work that has been accomplished, there still remains a contamination risk in the towns of Stirling, Aldgate, Bridgewater and Crafers, as well as some of the smaller towns in the Adelaide Hills Council area. It is therefore important that Council continues to support actions to safeguard water quality, such as ongoing participation in the Mount Lofty Ranges Waste Control Project.

Council's Development Plan currently provides development controls and guidance to protect quality, such as water sensitive urban design techniques and development siting requirements.

Rainfall events can result in pollutants washing into stormwater drains and watercourses, which lead into the state's drinking water reservoirs. Some of the pollutants are generated from hard surfaces and road runoff, some are from waste/ litter or from the washing of substances down the stormwater drain, and some are from failing on-site wastewater systems. These pollutants can harm the ecology of downstream environments and human health.

Stormwater quality in South Australia is protected under the Environment Protection Act 1993 and the Environment Protection (Water Quality) Policy 2003 provides stormwater quality targets for South Australia. In addition, the State Government has introduced targets to reduce the percentage of pollutants in stormwater through the WSUD Guidelines.

The WSUD Technical Manual for the Greater Adelaide Region (December 2010) provides guidance on WSUD techniques to protect or improve the quality of stormwater. Another source of information and guidance is the Water Sensitive SA capacity building program. This program provides stakeholders with the support to achieve best water sensitive urban design outcomes.

The installation of gross pollutant traps, rain gardens, biofiltration pits, detention basins and wetlands are examples of methods of intercepting stormwater runoff and trapping pollutants. Community awareness and behaviour change are also important factors in preventing pollutants from entering the stormwater system. In the Council area there are some stormwater detention basins and a couple of gross pollutant traps which provide some flood control and water quality benefits. There may be more opportunities for WSUD treatments, such as in carparks, streetscapes (road verges), parkland areas; and centre medians, etc. Illustrative examples are provided below.



Carpark biofiltration system



Road verge biofiltration pits



Porous paving

It may be beneficial for Council to explore opportunities for WSUD to reduce erosion and to protect water quality, particularly due to the Watershed and the likely impacts of climate change.

The State's Stormwater Management Authority also plays a role in managing stormwater and has a funding program to assist councils. The Authority has recently prioritised stormwater management planning in SA. Included in the list of priorities are the towns of Crafers, Aldgate and Bridgewater, as medium priorities, on the basis of concerns of stormwater runoff to natural watercourses and ultimately Mount Bold reservoir. On this basis Council could explore stormwater management opportunities with the Authority, which may include part funding of projects.

## 5 Opportunities to Improve Water Management

The key water management issues and opportunities to improve water management are summarised below.

- Council is improving the way it manages water by better coordinating water related tasks amongst Council staff. Assigning clear responsibilities and integrating the way Council uses and manages water is likely to result in the identification of opportunities for improved management and fulfilment of its legislative responsibilities, such as reporting to DEWNR on annual bore water use. Lead responsibilities for actions are proposed in the Implementation Plan in Chapter 5.
- Council is improving the way it tracks water usage and this will help to identify areas of overuse, wastage and unnecessary expenditure.
- Council does not currently have a complete understanding of how water is used and managed at all of its properties, particularly the properties managed by community groups. Council needs to work collaboratively with its own staff as well as these community groups to understand usage and seek opportunities to improve water efficiencies. A review of lease arrangements with external bodies may also identify ways to improve the way water is used to achieve water sustainability. A water audit of Council buildings will also identify water saving opportunities.
- As Council is legally responsible for complying with its bore licenses, it's important that it monitors water usage and ensures extraction is within the allocated volume. Some of these bores are used by community groups and therefore Council needs to work closely with those groups to ensure they understand the water use limitations, and also to seek water efficiencies where possible.
- The community has high expectations that township local amenities, streetscapes, sporting ovals, and recreational areas will be maintained at a high standard, which may not necessarily be sustainable in the long term.
- Council plants annuals that can have high watering and maintenance requirements. This potentially is at conflict with the objectives of sustainable water management. Council may wish to consider alternative species such as natives that have low water needs and lead by example in the community.
- Council (and the community) is encouraged to build resilience to climate change impacts by understanding impacts to water supplies and water quality and use water more conservatively.
- There may be opportunities to reuse more wastewater from the wastewater management systems, particularly to irrigate ovals that currently rely on mains or bore water supplies. The use of rainwater could also be explored to reduce dependence on mains water and bore water.
- Council has a role in protecting water quality and support the SA Government's programs of improving water quality and reducing contamination in the watershed – by complying with legislation and codes of practice. This issue mainly relates to on-site wastewater systems, however there are water quality requirements associated with stormwater and environmental and public health issues associated with reusing water.
- WSUD provides multiple benefits for water management. Consideration should be given to WSUD options as part of Council's asset maintenance and replacement programs, as well

as in assessing development applications. Staff training in WSUD techniques may assist in facilitating this process, particularly Council engineers and planners. It is important that staff have an adequate knowledge basis for decision making on development and water management issues, and have access to planning 'tools' to facilitate this, such as WSUD factsheets, planning assessment checklists, and training.

- Council should actively engage with water management authorities to ensure it has access to information, such as compliance issues, water management programs, technologies, potential funding and partnering opportunities. Suggested authorities and issues are provided in Appendix C of this Plan.
- Council has a leadership role in the community and therefore needs to adopt best practice, ensure its use and management of water is appropriate, and seek ways to influence others.

These issues are addressed by a number of opportunities/ actions which are linked to the water management objectives. The actions are interconnected and help reinforce the objectives. Many of the opportunities presented support more than one objective. These opportunities will enable Council to lead by example and in doing so encourage the community to adopt best practice in water use and demand management.

The actions and priorities are outlined in Chapter 5.

## 6 Implementation Plan

Details for implementing the actions are provided below in Table 3.

**Table 3 - Implementation Plan**

Objective	Action	Target/Measure of performance	Resources required	Priority • High • Medium • Low	Lead responsibility within Council
<b>Governance - Adopt an integrated approach to water management within Council</b>	<b>Define a water management governance structure and assign responsibilities</b>	Agree upon water management governance structure and responsibilities.	Staff time	High (Immediate)	<b>Engineering and Assets</b> - Sustainability Team with Corporate Services
<b>Minimise and conserve Council's use of water</b>	<b>Improve irrigation efficiencies -</b> <ul style="list-style-type: none"> <li>Review irrigation practices and explore opportunities to improve irrigation efficiencies (such as IPOS Code of Practice for sporting/recreation grounds) by Council and by other organisations</li> <li>Communicate the rules of the Water Allocation Plan and bore licenses to community groups using Council's bore water, and seek ways to improve irrigation efficiencies</li> <li>Implement Turf and Irrigation Management Plans for sporting/recreation grounds (eg IPOS Code of Practice)</li> <li>Explore feasibility and benefits of establishing a central irrigation control system</li> </ul>	Meetings held with community groups and information communicated	Staff time - Sustainability Team; with other staff from Recreation, Property, Parks and Gardens, Consultation.	High	<b>Engineering and Assets</b> - Sustainability Team
		Turf/Irrigation Management Plans developed	Staff time - Parks and Gardens team time or engage a specialist consultant (\$)	Medium	<b>Engineering and Assets</b> - Parks and Gardens Team
		Cost benefit analysis	Staff time – Parks and Gardens		<b>Engineering and Assets</b> - Parks and Gardens Team
	<b>Incorporate water efficiencies into procurement processes</b>	Processes updated/ developed	Staff time	Medium	<b>Corporate Services</b> -
	<b>Review the timing of holding public events to enable grass to rejuvenate between events</b>	Planning/ coordination meeting between Council staff (eg Parks and Rec staff and events staff)	Staff time	High	<b>Engineering and Assets</b> - Parks and Garden Team with Communications Team
	<b>Determine if annuals should still be planted -</b> <ul style="list-style-type: none"> <li>Determine extent and timing of current regime of planting annuals</li> <li>Reach agreement on Council position (this may lead to rationalising the planting of annuals, or replace with alternative plants that are more 'waterwise')</li> </ul>	Map current planting areas and regime	Staff time	Medium	<b>Engineering and Assets</b> - Parks and Garden Team
	Seek advice from senior council staff and feedback from Elected Members	Staff time and meetings with Elected Members	TBA		
	Seek examples of suitable species from Council's biodiversity team and Parks and Gardens team.	Staff time	TBA		
	Identify areas to replace annuals (if supported).				
<b>Develop a complete understanding of how water is used and managed by Council and external groups at all of Council's properties (building, facilities and land) and review leases to identify improvements to water sustainability</b>	Develop a complete list and identify possible improvements to leases	Staff time	High	<b>Engineering and Assets</b> - Sustainability Team with Property Team	
<b>Undertake a water audit of buildings/ facilities to identify opportunities for improved water efficiencies</b>	Completed Audit	Staff time and specialist consultant (\$)	High	<b>Engineering and Assets</b> - Sustainability Team with Property Team	

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Implementation Plan (continued)

Objective	Action	Target/Measure of performance	Resources required	Priority • High • Medium • Low	Lead responsibility within Council
	<b>Track Council's water usage and expenses –</b> <ul style="list-style-type: none"> <li>Develop inventory of council's annual water usage</li> <li>Develop baseline information on current water usage</li> <li>Maintain accurate records</li> <li>Explore anomalies</li> </ul>	Annual inventory of Council's water consumption, analysed by facility type and site.  Database established  Water usage reports  Analyse water usage reports, invoices, meter readings	Staff time  Staff time, new database – external consultant (\$)  Staff time  Staff time	High (and ongoing)  High  Medium  Medium	<b>Engineering and Assets</b> - Sustainability Team with Property Team
Maximise the use of alternative water supplies (water reuse)	<b>Maximise wastewater reuse by identifying the volume of wastewater available for reuse and seek potential uses for that water</b>	Opportunities identified	Staff time	Medium	<b>Waste, Health &amp; Regulatory Services</b>
	<b>Maximise the use of rainwater to reduce reliance on mains water and bore water</b>	Opportunities identified	Staff time	Low	<b>Engineering and Assets</b>
	<b>Maximise the reuse of stormwater as part of the asset management and replacement program</b>	Add to agenda for asset team meeting  Develop procedure to include reuse as part of asset management and replacement program	Staff time  Staff time	Medium  Medium	<b>Engineering and Assets</b> -
	<b>Raise council staff awareness of WSUD options aimed at supplementing water supplies</b>	Training and awareness sessions	Staff time, \$ for training	Low	<b>Engineering and Assets</b>
Protect water quality	<b>Raise council staff awareness of WSUD options aimed at improving water quality</b>	Training and awareness sessions	Staff time, \$ for training	Low	<b>Engineering and Assets</b> - with Strategy and Development
	<b>Develop WSUD information and planning tools</b>	Develop planning 'tools' such as WSUD factsheets and planning. Hold meeting with Water Sensitive SA	Staff time, Water Sensitive SA	Low	<b>Strategy and Development</b> with <b>Engineering and Assets</b>
	<b>Participate in water quality improvement programs and seek partnering opportunities with other Authorities</b>	Hold meetings, identify opportunities	Staff time	Low	Various
Maintain compliance with Water Allocation Plan and bore licenses	<b>Communicate the rules of the Water Allocation Plan to community groups using bores, and seek ways to improve irrigation efficiencies</b>	Meet with community groups	Staff time	High	<b>Engineering and Assets</b> - Sustainability Team , Recreation and Sport with Property Team
	<b>Maintain meters on all bores</b>	Regular inspections	Staff time	Medium	<b>Engineering and Assets</b> - Sustainability Team , with Property Team
	<b>Monitor water usage and report annually to DEWNR</b>	Annual reporting of meter readings to DEWNR	Staff time	Low	<b>Engineering and Assets</b> - Sustainability Team
	<b>Address any non-compliance issues as they arise</b>		Staff time	Medium	<b>Engineering and Assets</b> Sustainability Team , Recreation and Sport with Property Team
Build resilience to climate change	<b>Provide ongoing support and participation in regional climate change programs and initiatives</b>	Continue to fund the 'Resilient Hills and Coasts' program and undertake actions arising from recommendations	Staff time, \$ for Project Coordinator	Medium	<b>Engineering and Assets</b> - Sustainability Team
Lead by example and raise awareness	<b>Promote and seek behaviour change towards sustainable water use/management -</b> <ul style="list-style-type: none"> <li>Internal - Educate Council staff and Elected Members on sustainable water use/management initiatives</li> <li>External - Promote initiatives on Council's website and community newsletter updates, etc</li> <li>Meet with community groups using council bores</li> </ul>	WSUD factsheets for planning staff; news items in Council's in-house webpage; agenda item for Council meetings. News items.  Improved management/ use of bore water	Staff time	Medium  Medium  High	<b>Engineering and Assets</b> Sustainability Team with Communications Team and Strategy and Development <b>Engineering and Assets</b> Sustainability Team (with others from Council)

## 7 Glossary of Terms

<b>Acronym</b>	<b>Definition</b>
<b>AMLR</b>	Adelaide and Mount Lofty Ranges
<b>CRC</b>	Cooperative Research Centre
<b>CWMS</b>	Community Wastewater Management Scheme
<b>DEWNR</b>	Department for Environment, Water and Natural Resources
<b>EPA</b>	Environment Protection Authority
<b>ESCOSA</b>	Essential Services Commission of South Australia
<b>IPOS</b>	Irrigated Public Open Space
<b>NRM</b>	Natural Resource Management
<b>OTR</b>	Office of the Technical Regulator
<b>RH&amp;C</b>	Resilient Hills and Coasts
<b>WAP</b>	Water Allocation Planning
<b>WSUD</b>	Water Sensitive Urban Design

## 8 References

Adelaide Hills Council “Bore summary, Nov 2013”, internal document

Adelaide Hills Council “Bradwood Park water bore info, Feb 2015”, internal document

Adelaide Hills Council “Development Plan”, consolidated April 2016

Adelaide Hills Council “Memo 18 Sept 2014 to the Executive Leadership Team re: Bore water use of Council land”, internal document

Adelaide Hills Council “State of the District Report 2011”

Code of Practice - Irrigated Public Open Space (2015)

Environment Protection (Water Quality) Policy 2015

Government of South Australia “Water allocation Plan for the Western Mount Lofty Ranges” 2013

Government of South Australia “Water For Good” 2009

Government of South Australia “South Australia’s Climate Changes Strategy 2015 – 2050”

Natural Resources Management Act 2004

Stormwater Management Authority “Priorities for Stormwater Management in South Australia 2016 – 2020”

Water Sensitive Urban Design Technical Manual for the Greater Adelaide Region, December 2010

## **Appendices**

## Appendix A - Information on meter readings and reporting to DEWNR

### **Bore Meters**

Bores are required to be fitted with a meter (at the owners expense) to measure water use and ensure the volume used is within the water allocation amount.

Meters are to comply with the "South Australian Licensed Water Use Meter Specification", installed by an accredited water meter installer, and the "Meter Implementation Guide for the Western Mount Lofty Ranges" which provides detailed information regarding meters.

Meters are not to be removed without Ministerial authorisation, nor interfered with. DEWNR must be notified immediately if a meter fails to measure or record the quantity, or if there is any other reason to suspect a meter problem.

The "Meter Implementation Guide" provides information on penalties for failing to comply with water licenses. Penalties are either an expiation notice which has a penalty of \$750 or a maximum fine of either a sum calculated at the prescribed rate for each kilolitre of water taken or used, or \$35,000 for a person or \$70,000 for a corporation. Failure to comply with a licence condition is a contravention of section 127(6) of the NRM Act, whichever is the greater.

### **Water meter self-reads in prescribed water areas**

#### ***Read your meter:***

1 – 14 July and submit by 31 July Check your licence or works approval to see how often you need to submit a self-read. It will be at least annually

#### ***Steps -***

- You will need your: instrument number (water licence/works approval), instrument holder name (exactly as it is on the licence) and meter serial number.
- Open the meter reading form. It can be used on any mobile device and follow the instructions.
- Enter one name only on the form, even if you have more than one name recorded on your licence.
- Record the volume displayed on your meter. For more help you can download the 'how to read your meter' fact sheet.
- Take a photo of your meter when you do your read. This can easily be attached to the form.
- Call your local office if you are unable to use the on-line form.

DEWNR's '**How to read your meter**' information is provided on the following page. DEWNR's online '**Meter reading form**' is also provided. The link to the online website is here: <https://forms.business.gov.au/smartforms/sa-dfw/meter-reading-form/>

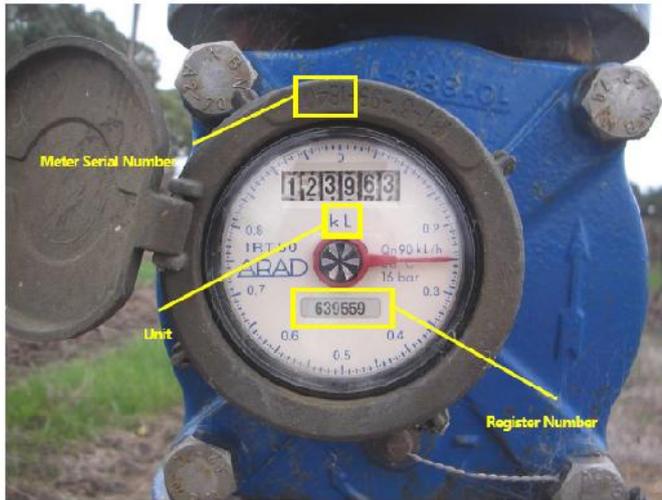
# How To Read Your Meter: Mechanical Meters

Some licensed water sources will need to be fitted with a water meter to accurately measure water use and ensure the volume used remains within water allocations. Measuring water used from licensed sources is an important tool in managing the resource and will help secure a sustainable future for water resources.

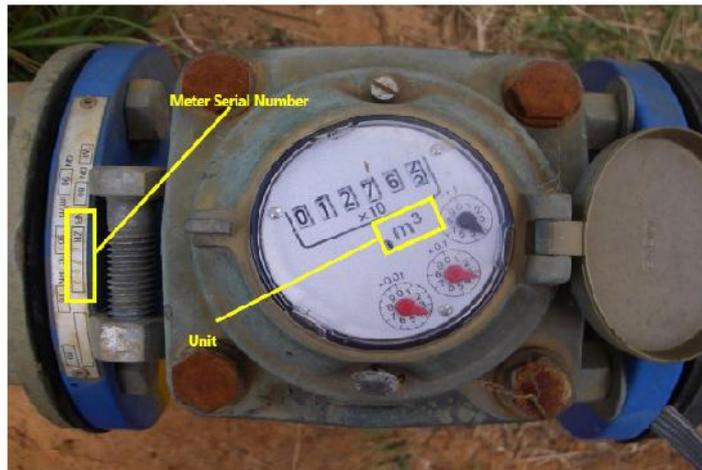
A condition of some water licences requires the licensee to supply meter reads to the Department. To comply with this condition you can complete an online *Meter Reading Form*. The link to this form is on the next page.

There are a number of different types of meters on the market; however, this fact sheet aims to assist you with reading the two most common forms of meters and identifying the meter serial number and actual meter read.

The meter below is a 6 digit x10 mm meter. The meter serial number is located on the outer rim of the register. **The meter serial number is 1840 and the meter reading is 123963 kL.**



The meter below is a 7 digit x10 mm meter. The meter serial number is located on the flange. The x10 label indicates that an additional digit needs to be added to the end of the number displayed in the window to give a reading in m<sup>3</sup> (kL). **The meter serial number is 6797 and the meter reading is 0127624 kL.**



If you are unsure of how to read your meter, or where to find the the location of the meter serial number, please contact the Department by telephoning (08) 8463 6876 or emailing [DEWNRWaterLicensing@sa.gov.au](mailto:DEWNRWaterLicensing@sa.gov.au). The easiest way for us to provide you with accurate advice is for you to supply a photo of your meter.

You can access the online *Meter Reading Form* by going to [www.environment.sa.gov.au/WaterMeterReading](http://www.environment.sa.gov.au/WaterMeterReading).

## Meter reading form –

**Business**  
business.gov.au

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### Form: Meter Reading Form

**Description**

- You do not have to complete the form in one session, you can save it using the **Save and Close** button (located underneath the form **Tracking Code**).
  - Use the **Tracking Code** to re-open the form and complete it at a later stage. This can be done on a different computer or mobile device.
  - You can also email the **Tracking Code** to someone else to complete and submit the form on your behalf.
- If you are able to provide a photograph of a meter face then please do so, as this will assist us to verify your meter readings.
  - Try to ensure any photographs include a clear view of the meter dials.
  - You will be prompted to attach photographs after you press the form's **Submit** button
  - Each attachment must be no larger than 10 Mbytes and in total no more than 50 Mbytes.
- Ensure that you press the form's **Continue** button when you are finished attaching photos.
  - Only then is the form submission complete.**
  - A copy of the completed form can be downloaded and printed.
- To make it easier to access this form in the future it may be useful for you to save this webpage.
  - If you are using a PC or Laptop we recommend you save this webpage as a **Favourite** or **Bookmark**.
  - If you are using a **Mobile Phone** or **Tablet** we recommend you save this webpage by using the "Add To Home Screen" functionality on your device.

[Complete Form](#)

Open a previously saved form:

[Open Saved Form](#)

**Service Provided By**

**Government of South Australia**  
Department of Environment,  
Water and Natural Resources  
**Department of Environment, Water and Natural Resources**  
Phone: 18 4463 6876

Privacy, accessibility and legal notices can be viewed at the Agency website.

This form hosting and delivery service is provided by The Department of Industry, Innovation and Science. Privacy information regarding the management of this hosting service can be viewed at business.gov.au.



## Appendix B - Information on effective irrigation and the 'IPOS - Code of Practice'

Refer to SA Water website –

### **Resources for effective irrigation management**

SA Water has developed a number of tools to help manage the irrigation of open spaces and to improve its water efficiency.

SA Water has a dedicated Business Relations team for business support that will come to your place of business and help you to identify water efficiency opportunities. Contact Business Relations directly on (08) 7424 3753.

More information can be found on the SA Water website –

<https://www.sawater.com.au/business/products-and-services/water-efficiency-audits>

### **Code of Practice – Irrigated Public Open Space (IPOS)**

SA Water is the host organisation for the Code of Practice – Irrigated Public Open Space (IPOS). The Code and support tools are accessible on the SA Water website at:

<https://www.sawater.com.au/business/products-and-services/irrigated-public-open-spacesipos>

The adoption of the Code will provide significant benefits to the organisation and the broader community. Increased water use efficiency will provide quality landscapes, including turf surfaces, with savings in potable water and contribute to the sustainability of irrigated sites. The IPOS Code of Practice provides a template that can be used by open-space managers to ensure the planning, management and reporting of water consumption in the urban environment is based on sound principles applied consistently at all levels of management. The Code is important because it gives you the tools and reporting models you need to work out best practice irrigation management.

There are basically six steps to the process outlined within the Code of Practice, those being:

- 1.** Implement a strategic approach to irrigation management underpinned by a policy statement and commitment by an organisation to appropriately resource and manage the irrigation of the sites under their control.
- 2.** Ensure that systems are functioning to the appropriate performance standard with periodic system audits and ongoing regular maintenance to the physical infrastructure.
- 3.** Ensure that an appropriate horticultural maintenance program is in place to maintain soil structures and turf nutrient requirements.
- 4.** Determine the baseline irrigation requirement, which is based on long-term average climatic data, to set the monthly irrigation schedule.
- 5.** Amend the base irrigation schedule on a regular basis to account for climatic variance in any given season to the long-term average. This will ensure that the turf is receiving the water requirement to maintain it at the appropriate quality level.
- 6.** Monitor irrigation water consumption against irrigation requirements and report on irrigation efficiency and turf quality.

## **Code of Practice Irrigated Public Open Space Operational Guide (2015)**

The Operational Guide provides a simplified version to assist effective turf and irrigation management. The guide will assist you to achieve acceptable standards of irrigation efficiency, effective cost management/monitoring, minimise wastage and provide a functional turf surface.

The Guide is designed to assist those who are responsible for the irrigation management of sports grounds but are not considered professional irrigation managers. Typically this situation applies to small local government councils, sports clubs and some schools.

Turf and irrigation management requires multiple skills and comprehensive knowledge of a wide range of areas. The Code of Practice – Irrigated Public Open Space details the principles of best practice in this area.

This guide provides a simplified version to assist in sound turf and irrigation management. The aim of this guide is to assist irrigation managers achieve acceptable standards of irrigation efficiency, effective cost management/monitoring, minimise wastage and provide a functional turf surface.

Link to the Operation Guide is here -

[https://www.sawater.com.au/\\_data/assets/pdf\\_file/0020/40493/Code\\_of\\_Practice\\_Irrigated\\_Public\\_Open\\_Space\\_201015\\_standard.pdf](https://www.sawater.com.au/_data/assets/pdf_file/0020/40493/Code_of_Practice_Irrigated_Public_Open_Space_201015_standard.pdf)

## Appendix C - Relevant Authorities

Initiate discussions with Government agencies to address water management issues –

- DEWNR to ensure compliance with WAP (bores)
- Natural Resources AMLR Board to clarify Council's options to reuse stormwater in the WAP area
- EPA/Health SA/ Natural Resources AMLR Board regarding watershed protection issues
- Goyder Institute to discuss options/programs for alternative water sources for fit-for-purpose water supplies, such as stormwater harvesting and WSUD, wastewater recycling and desalination
- SA Water, EPA and Health SA regarding reuse of wastewater
- Water Sensitive SA and CRC for Water Sensitive Cities regarding WSUD