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WESTERN AUSTRALIAN PLANNING
COMMISSION

STATE PLANNING POLICY 2.9

WATER RESOURCES

PREPARED UNDER SECTION 26 OF THE
PLANNING AND DEVELOPMENT ACT 2005
BY THE WESTERN AUSTRALIAN PLANNING COMMISSION

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WATER RESOURCES**STATE PLANNING POLICY****1. CITATION**

This is a state planning policy made under section 26 of the Planning and Development Act 2005. This policy may be cited as State Planning Policy 2.9 Water Resources.

2. INTRODUCTION AND BACKGROUND**2.1 The State's Water Resources**

Water, and more particularly, the water cycle, is the means by which all life is sustained (Commonwealth of Australia, 2002). Water is a fundamental component in sustaining the wellbeing of the community, the environment, and existing and future development.

Western Australia's water resources are among its most valuable, yet diverse assets. 'Water resources' include natural or modified features such as wetlands, waterways (rivers, streams and creeks), floodplains, foreshores, estuaries, groundwater aquifers and the wider marine environment. In addition, 'water resources' refers to water for consumptive, recreational, industrial and commercial purposes, including stormwater, wastewater, irrigation dams and drinking water catchments including reservoirs and borefields (schedule 1 has a definition of 'water resources' and a list of the water resources that may be the subject of this policy.)

Water resources have a range of values. These include ecological values, such as flora, vegetation and fauna, and human use values such as drinking water, recreation, agriculture and industry. Human use values may require a high level of protection, for example public drinking water supplies. Importantly, planning strategies, policies and statutory proposals and applications need to be adequately informed about these values, and together with consideration of other relevant planning, social and economic values ensure responsible and balanced decision making.

Our water resources are subject to a number of impacts and demands that affect both their quality and quantity. According to the Commonwealth's first overview of Australia's water resources (Commonwealth of Australia, 2001), water quality and water quantity are in overall decline at both the national and regional scales.

The (then) Water and Rivers Commission, through its Water WA—A State of Water Resources Report for Western Australia (2002), identified the issues of major concern to be:

- sustainable use of water resources;
- stream salinisation;
- nutrient enrichment of water resources;
- loss of riparian vegetation;
- erosion and sedimentation of waterways; and
- contamination of water resources.

These issues are further complicated by the existence of site-specific concerns that have significant implications for affected communities. For example, urban expansion pressures in the Perth region can lead to the loss of wetlands and drinking water sources; rising saline groundwater and associated drainage issues are effecting the productivity of agricultural lands and the livelihood of rural communities in the Wheatbelt region, as well as degrading the environment. Of further consideration is the likely impact of climate change on water resources.

An integrated approach is needed to address these issues and achieve sustainable outcomes and an acceptable 'prioritisation and balance' between competing interests. This process needs to satisfy the community's current demands for water resources while seeking the long-term protection of the environment, conservation of biodiversity and allow for carefully planned development to cater for future population and economic growth. From a water resource perspective, it will be necessary to understand the processes, functions and technicalities of the total water cycle across the state and its regions, so that the most appropriate hydrological regimes can be identified to sustain, support and protect the environment, economy and community.

Land use planning, in conjunction with other mechanisms, can assist in protecting, conserving, managing and enhancing the state's water resources.

2.2 The Policy Context

The Commonwealth Government has acknowledged the role and importance water resources have in society by recently conducting an enquiry into Australia's management of urban water. This study concluded that a national water policy should be developed with the major objective of sustainable water management (Commonwealth of Australia, 2002).

The State Government is already working towards this goal through The Western Australian State Sustainability Strategy (2003b), which commits Western Australia to pursuing sustainability through an integration of environmental protection, social advancement and economic prosperity. This vision is encapsulated in A State Water Strategy for Western Australia (2003a), which seeks to develop and protect water resources in an economically and

environmentally responsible way by providing a whole government framework for setting strategies and plans for water resources.

A number of national and state policies provide guidance on specific aspects of water quality protection and management such as the National Water Quality Management Strategy (1994 to 2001), the State Water Quality Management Strategy for Western Australia (WRC, 2001) reflecting Western Australia's timeframe and commitment to implement the National Guidelines and the Wetlands Conservation Policy for Western Australia (1997). State Planning Policy 2.9 Water Resources is consistent with the guiding principles of the above policies in a land-use planning context.

The Western Australian Planning Commission (WAPC) prepared the State Planning Strategy (WAPC, 1997), to provide the overall vision and framework in which land use planning operates, including dealing sustainably with the natural environment. One of its key strategic statements is to 'ensure that water resources are conserved and their quality protected'.

This theme is expanded in State Planning Policy 2: Environment and Natural Resources Policy (WAPC, 2003a), which sets out the broad environment and resource management policies for sustainable development, including measures for the protection and use of water resources. It recognises that effective water quality and quantity management is essential as we work towards sustainability. Under the policy, it is expected that planning strategies, schemes and decision making will identify and, where appropriate, include provisions to protect water resources.

The water resources policy is a 'second-tier' state planning policy providing additional guidance for the consideration of water resources in land use planning processes and is directly related to the overarching sector State planning policy: State Planning Policy 2 Environment and Natural Resources Policy. Therefore, it should be read and implemented in conjunction with this sector SPP. As the water resources policy does not address coastal areas or public drinking water source areas, the following second-tier SPPs should also be referred to in relation to these areas: State Planning Policy 2.6 State Coastal Policy (WAPC, 2003b) and State Planning Policy 2.7 Public Drinking Water Source Policy (WAPC, 2003c). Site-specific second-tier SPPs which may have direct relevance to specific water resources matters are: State Planning Policy 2.1 Peel-Harvey Catchment, State Planning Policy 2.2 Gnaragun Mound Crown Land, State Planning Policy 2.3 Jandakot Groundwater Protection and draft State Planning Policy Swan-Canning River System (WAPC, 2003d). As outlined in State Planning Policy 1 State Planning Framework Policy, SPPs form part of the State planning framework, which provides a hierarchy for the planning policies, strategies and guidelines and, importantly, a context for decision making on land use and development in Western Australia.

The policy provides guidance in the planning, protection and management of surface and groundwater catchments, including consideration of availability of water and waterways management, wetlands, waterways, and estuaries and their buffers, and implementation of total water cycle management principles in the land use planning system. As this policy is a second-tier SPP, under State Planning Policy 2 Environment and Natural Resources Policy, it is intended to expand the broad water resources guidance provided in that SPP. It is important to note that this policy is not restricted to ecological values. Rather, it is inclusive of all significant water resource values: economic, social, cultural and environmental.

2.3 The Policy Purpose

This policy does not impose changes to existing land use activities, which may be regulated through other legislation and processes beyond the scope of SPPs prepared under town planning legislation. As indicated above, this policy is directly related to the overarching sector policy State Planning Policy 2 Environment and Natural Resources Policy and provides clarification and additional guidance to planning decision-makers for consideration of water resources in land use planning strategies, proposals and applications, for example local and regional planning strategies, structure plans, town planning schemes and amendments, subdivisions and development applications, and other town planning mechanisms.

The purpose of this policy is to inform the WAPC, the Department for Planning and Infrastructure (DPI) and local government in the undertaking of their planning responsibilities, and in integrating and coordinating the activities of state agencies that influence the use and development of land as it relates to water resources. In particular, the policy will guide local governments and the State Administrative Tribunal regarding those aspects of state planning policy concerning the protection of water resources that should be taken into account in planning decision making.

There are many agencies with statutory responsibilities for water resources in Western Australia. This policy is a means for coordinating those agencies' activities with those of the private sector to ensure an integrated approach for the sustainable use of water resources.

The policy provides guidance for private landowners wishing to undertake development on or abutting water resources or potentially impacting on water resources. It also provides guidance for broader situations where planning decisions occur outside the town planning decision-making framework, such as for pastoral leases and indigenous and conservation estate lands.

Given the variation in water resources in the state and the range of development and use contexts that can be presented, it is important that this policy be applied to each case under consideration on its merits using the best available information and common sense. Where

there is demonstrable adverse and unacceptable impact on the quality and quantity of significant water resources, planning decision-makers should ensure that planning proposals and applications either do not proceed or are modified so that significant water resources are protected, conserved and enhanced.

3. APPLICATION OF THE POLICY

This policy applies throughout Western Australia.

4. POLICY OBJECTIVES

The objectives of this policy are to:

1. protect, conserve and enhance water resources that are identified as having significant economic, social, cultural and/or environmental values;
2. assist in ensuring the availability of suitable water resources to maintain essential requirements for human and all other biological life with attention to maintaining or improving the quality and quantity of water resources; and
3. promote and assist in the management and sustainable use of water resources.

5. POLICY MEASURES

Planning should contribute to the protection and wise management of water resources by ensuring local and regional planning strategies, structure plans, schemes, subdivisions, strata subdivision and development applications adopt the following measures.

5.1 General Measures

- (i) Protect significant environmental, recreational and cultural values of water resources.
- (ii) Aim to prevent or, where appropriate, ameliorate the following potential impacts:
 - any adverse effects on water quality and quantity and, as a minimum, proposed development should aim to maintain water quality and ensure water quantity is compatible with the receiving waters;
 - increased nutrient loads into receiving waters;
 - increased acidity and leaching of acid sulfate soils;
 - the removal of associated native vegetation important for long-term management of the water resource, particularly vegetation associated with wetlands and waterways respectively;
 - increased erosion, sedimentation and turbidity, particularly at the construction phase of development;
 - any potential adverse effects on environmental water requirements and, as a minimum, proposed development should aim to maintain natural flow regimes and variability;
 - excessive build-up of organic matter;
 - pollution and contamination;
 - salinity over and above the natural levels; and
 - any potential cumulative impacts.
- (iii) Promote improved outcomes such as:
 - environmental repair and rehabilitation of the water resource;
 - improved water quality;
 - reduction in nutrient export to receiving waters to a level lower than existing;
 - restoration of natural flow regimes and variability; and
 - use of site works such as fencing, revegetation or water monitoring.
- (iv) Inform planning actions by identifying all water resources above and below ground in the subject area, and mapping and prioritising them in terms of state, regional or local significance. Water resources to be identified include wetlands, waterways (such as rivers, streams and creeks), estuaries, groundwater and surface water catchments, dams, floodplains, foreshores and existing and future surface and groundwater drinking water catchments and sources (see schedule 1 for additional guidance).
- (v) Take into account potential impacts the water resource may have on a land use when determining the compatibility of locating a land use near natural or artificial water resource/s (for example, flooding or disease vector and nuisance insects such as mosquitoes and midges).
- (vi) Recognise and take into account State Government management strategies for water resource issues such as water protection areas, wetland protection, water provisions for environmental flow requirements, riparian management and water allocation plans. (see schedule 3 for information sources regarding these types of documents.)
- (vii) Recognise and take into account water resource management plans as required by the Rights in Water and Irrigation Act 1914.
- (viii) Recognise and take into account relevant accredited natural resource management strategies, endorsed by state government statutory authorities, that contain recommendations to address water resource matters.

5.2 Surface and Groundwater Resources

- (i) Recognise the hydrological importance of groundwater and surface catchments with regards to water management and the associated value of catchment planning on a regional, district and local scale.
- (ii) Protect, manage, conserve and enhance surface and groundwater catchments and recharge areas supporting significant ecological features or having identified environmental values, by ensuring, where possible, appropriate management or limiting inappropriate land use/s to maintain water quality and quantity for existing and future environmental and human uses.
- (iii) Ensure the availability of water resources is compatible with the future requirements of the proposed and surrounding land use through an assessment of quantity and quality requirements for both the development and the environment.
- (iv) Take into account the potential adverse impacts that development may have on catchment areas and encourage development to participate in catchment management activities.

5.3 Wetlands, Waterways and Estuaries

- (i) Protect, manage, conserve and enhance the environmental functions and values of waterways and estuaries. The natural alignment of waterways should be retained except where adjustments are unavoidable and do not compromise the natural environmental values.
- (ii) Protect, manage, conserve and enhance the environmental attributes, functions and values of significant wetlands, such as Ramsar wetlands, conservation category wetlands and wetlands identified in any relevant environmental protection policy.
- (iii) Manage, conserve and, where possible, restore the environmental attributes, functions and values of resource enhancement wetlands.
- (iv) Ensure use of best management practices in the development and use of multiple use wetlands, consistent with the principles of total water cycle management (schedule 4).
- (v) Ensure adequate and appropriate buffering of wetlands, waterways and estuaries to maintain or enhance the environmental attributes, functions and values of the water resource and minimise the impact of nearby land uses, both existing and future. (information in schedule 2 of this policy should be applied in the determination of appropriate buffering to waterways and estuaries.)

5.4 Total Water Cycle Management

- (i) Take into account total water cycle management and water-sensitive urban design principles (schedule 4) and ensure that development is consistent with current best management practices and best planning practices for the sustainable use of water resources, particularly stormwater.
- (ii) Seek to achieve no net difference in water quality and quantity, unless necessary to meet identified environmental water requirements, such that post-development water quality and quantity conditions are equal to or better than pre-development conditions.
- (iii) Promote management of the urban water cycle as a single system in which all urban water flows are recognised as a potential resource and where the interconnectedness of water supply, stormwater, wastewater, flooding, water quality, wetlands, waterways, estuaries and coastal waters is recognised.
- (iv) Maximise the opportunities for compliance with best practice stormwater management, including infiltration/detention of stormwater on site/at the source.
- (v) Promote water conservation mechanisms that increase the efficiency of the use of water, including stormwater.
- (vi) Incorporate the re-use and recycling of water, particularly stormwater and grey water, consistent with state water strategy recycling objectives. Black water reuse and recycling should be considered where deep sewerage is not available. Alternative non-potable water sources should be considered where appropriate for fit-for-purpose use.
- (vii) Promote the retention and use of local native vegetation in developments to minimise water use and maximise filtration, particularly where landscaping is proposed.

6. IMPLEMENTATION

Implementation of this policy will primarily be through local planning strategies, structure plans and town planning schemes and the day-to-day consideration of zoning, subdivision, strata subdivision and development proposals and applications, together with the actions and advice of agencies in carrying out their responsibilities. This policy will also guide the preparation and review of regional strategic plans, conservation and management plans, and other relevant plans. Information regarding application of this policy in planning decision making is outlined in schedule 1.

Local government is a key agency in the implementation of this policy but it is recognised that other agencies, such as the Department of Environment and Conservation and Department of Water, have primary roles in the gathering, analysis and supply of information to local government. This information includes the location of surface and groundwater resources, including an indication of the significance of the resource, and the location of potential flood risk areas, as well as other relevant environmental issues (schedule 3 contains a list of information sources).

The WAPC may prepare more detailed guidelines on the implementation of this policy, in consultation with local government, relevant agencies, organisations and groups to meet policy objectives. If prepared, these should be taken into account in the preparation of planning schemes, strategies and plans and in the determination of planning proposals and applications.

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- Western Australian Planning Commission (2003d), State Planning Policy Swan-Canning River System, Perth, Western Australia.

SCHEDULE 1

Guidance for Incorporation of Policy Measures into Planning Mechanisms and Decision-Making

Water resources are defined as 'water in the landscape (above and below ground) with current or potential value to the community and the environment' (WRC, 1998). Water resources that may be the subject of this policy include the following natural or modified features:

- wetland (such as a seasonal or intermittent lake, swamp, marsh, spring, dampland and tidal flat, and including significant artificial wetlands)
- waterway (such as river, stream and creek)
- estuaries
- groundwater
- surface water
- irrigation dam
- floodplain
- foreshore
- stormwater
- existing and future surface and groundwater drinking water catchments and sources (for example reservoirs and borefields) for public and private supplies
- wastewater

Existing drinking water supplies are addressed in State Planning Policy 2.7 Public Drinking Water Source Policy, and coastal and marine waters are addressed in State Planning Policy 2.6 State Coastal Planning Policy.

Addressing the requirements of this policy by local government, which includes the identification of all water resource issues in a local government area, is recognised as being a significant task. It is not anticipated, therefore, that local government be responsible for producing the information required. Most of this information, particularly with regard to the Swan Coastal Plain, exists and is available in the public domain. Some of these sources are outlined in schedule 3 of this policy. Where information is not readily available, advice should be sought from the Department of Environment and Conservation or Department of Water regarding when the information may be available. Preliminary advice may provide sufficient context and information to permit compliance with this policy at a nominal level.

The degree of work performed in implementing this policy should be appropriate for the planning action being taken. For example, where planning is occurring at a strategic level such as preparation of a regional structure plan or local planning strategy, it is anticipated that objectives, strategies and information relate to issues on a broad regional scale, dealing with water resources of regional significance rather than on a local scale. Planning for resources of local significance should then occur, based on the framework in the plan or strategy, at a more appropriate phase of planning, such as a district structure plan, outline development plan or subdivision application and approval.

Specific advice regarding implementation of this policy is provided in this schedule for:

- planning strategies and structure plans;
- town planning schemes and their amendments; and
- subdivision and development applications.

Regional, district and local planning strategies and structure plans

When water resources are a consideration in the land use planning decision-making process, they should preferably be considered first in a strategic context that reflects wider sustainability principles, so that accurate and informed decisions can be made. This will help avoid or minimise potential conflict and dispute in more detailed decision making, particularly at the development stage. It is much more efficient and cost effective to incorporate water resource issues early in the planning process than to address them later.

Addressing the requirements of this policy and incorporating them into planning strategies and structure plans should result in an integrated land use and water management strategy/plan, which will ensure protection of important water resources and facilitate development in an environmentally sound manner. An integrated strategy will also give a solid foundation for successful water resources protection and management at later stages in the planning and development approvals process.

The local planning strategy is a key strategic planning document adopted by local government and endorsed by the WAPC, which provides the direction for growth and development over a 10 to 15-year period. It is considered that this document is critical to the successful management of water resources issues and therefore this policy should be a key consideration when developing the strategy.

It is recognised that the degree, accuracy and availability of information relating to water resources varies across the state. Having consideration for the availability of information to local governments and other users, the recommended minimum requirements for water resources to be considered in planning strategies, structure plans and associated decision making are as follows.

Recommended minimum requirements

1. Water resources in the area in question should be mapped according to best available information at the time of preparing the planning strategy or structure plan (see schedule 3 for information sources). This should permit the identification of all significant water resources in the area.
2. Each type of water resource should be afforded a priority/hierarchy of significance to allow decision making to be accountable in its consideration of the resource and to give a framework for addressing the resource. The hierarchy may be relative to state, regional or local significance and should be guided by State Government advice together with community expectations. For example, the wetland classification system on the Swan Coastal Plain classifies wetlands as either conservation category, resource enhancement or multiple-use. This information is readily available from the Department of Environment and Conservation. Where the significance of the resource is not easily identifiable, the level of significance may be guided by other State Government water resource mapping or policy, and take into account environmental, social, cultural and economic considerations and be reflective of its regional and/or local context. Much of this information is available in a qualitative format from either the State Government or active community groups.
3. Where specific water resources have been identified as significant in either a state, regional or local context, identify appropriate setbacks and/or buffers to maximise protection from any adverse impacts from adjoining land uses, both existing and future. The identification of an appropriate buffer should be guided by the information in schedule 2.
4. Where the significance of the water resource is unknown (such as being on private land where access is restricted), this should be identified and recognised as such until relevant information is available through either State Government water resource mapping or as part of an application for development of the area containing the resource.

5. The groundwater and surface water catchments and sub-catchments in the area should be identified mapped where known. Where the information is available, any relevant environmental data that may influence water resources should be identified, such as existing nutrient export levels, contaminated sites, water dependent ecosystems or essential native vegetation, together with data on future public and private drinking water catchments or supply sources.

6. The availability of water resources for consumptive purposes is a primary requirement for a range of land use activities. Its availability may determine the type and intensity of land uses permissible. Drinking water source protection plans should be taken into account. In areas where water source areas for private and public use are yet to be gazetted, advice regarding the location of future water areas should be obtained from the Department of Water and strategies identified to ensure sources are protected in the future.

Proclaimed and confirmed ('in use' or 'future') public drinking water source areas should be identified using information available from the relevant water management agency. Local planning strategies (described in the Model Scheme Text) together with land use and water management strategies, should address how such areas are to be protected and managed, and guide appropriate zonings and restrictions on the types of development and minimum requirements for subdivision or special control areas. (Also, refer State Planning Policy 2.7 Public Drinking Water Source Policy, WAPC 2003)

7. Identify all floodplains and areas that are prone to surface flooding or groundwater inundation. Ensure that no development is in a flood path that could carry an increased risk to public safety or property.

8. Identify developable and non-developable areas based on environmental constraints identified in points 1 to 7 above.

9. Identify and protect a public open-space network including remnant vegetation, natural drainage lines, recreational, cultural and environmental features. Use of a multiple-use corridor approach should be considered and the design of the system should be responsive to local conditions.

10. Locate land uses that are incompatible with objectives for water resource protection an appropriate distance from the water resource. Consideration of potentially inappropriate land use practices such as clearing, stocking, fertilisation and effluent disposal is also required.

Water resource management objectives and targets

When developing planning strategies or plans, consideration should be given to incorporating relevant goals and outcomes for water quality, natural water balance, water efficiency, vegetation conservation, flood risk management, stormwater management and erosion and sediment control. These goals should be identified from existing state or local government policy and should be consistent with those contained in water management plans, wider catchment investigations, stormwater management plans, or other adopted plans or policies.

Water quality should be enhanced as a result of development through the use of water quality targets where appropriate. Derivation of water quality targets is key to the achievement of many aspects of this policy and should be accomplished in consultation with the Department for Planning and Infrastructure, the Department of Environment and Conservation, the Department of Water and other relevant stakeholders¹.

The strategy/plan should address the influences the area will have on the surrounding catchment(s) together with the influences the catchment(s) will have on the dynamics of the area. This will enable relevant land and water management issues in relation to water supply, wastewater, groundwater and surface water to be considered collectively rather than in isolation, as well as ensuring acknowledgement of their relationship to other issues such as biodiversity, urban structure and sustainability.

Planning strategies and plans should also include design principles and management measures that are to be applied to meet relevant goals where appropriate, including:

- proposed measures to manage vegetation cover and dependent ecosystems such as wetlands and riparian corridors;
- proposed measures to manage site constraints and hazards such as flooding, slope stability, reactive soils, coastal hazards, erosion hazard, salinity, acid sulfate soils and land contamination; and
- proposed measures to ensure implementation of best planning practice and best management practice to achieve effective total water cycle management and integrated urban water management (see schedule 4 for principles). The strategy should also identify opportunities for best-practice water sensitive urban design.

The strategy/plan should be guided by information from the Department of Environment and Conservation, the Department of Water (Water Resource Manager) and the Water Corporation or other relevant responsible service provider. The strategy should also identify where further work is required to support future development such as proposed residential, industrial and commercial areas. This may take the form of urban water management strategies or the like, and should address wider catchment issues and implementation of best practice water management techniques.

Regional and local government planning schemes

New planning schemes and scheme amendments must demonstrate that any proposed changes in land use will not have a significant impact on the environment. In order to ensure the protection of water resources and progression of development in a sustainable manner, it may be appropriate to prepare an environmental management plan to address the requirements of this policy. Where a strategic water resource strategy has been prepared, this should provide the foundation for the environmental management plan, which should accompany the scheme, giving the background information for proposed provisions.

Points to consider include:

1. In local government districts where water allocation is identified as an issue (Provision 5.2 (xi) SPP), the planning strategy and scheme should identify water allocation issues as an important consideration in determining location and type of development, and ensure that where it cannot be that a proposed land use has access to a viable water resource to support it, the proposal should not be supported.
2. Planning strategies and schemes should, as a minimum, afford water resources that are identified as significant economic, social and/or environmental values an appropriate level of protection the planning scheme together with scheme provisions to assist in the long-term sustainable of the resource. This may include the protection of any necessary setback and/or buffer and the requirement for the preparation of and ongoing compliance with a management plan. Where protection of a water resource is proposed, or incorporated into a development, any protection measures that may be required for long-term protection and sustainable management should be identified and approved by relevant authorities.
3. Ensure water resources that have been identified or are proposed to be protected, include adequate buffers and/or setbacks consistent with Provision 5.3 (xvii). In determining the buffer and/or setback, economic, social and environmental implications need to be considered. (See schedule 2 for additional guidance and schedule 3 for information sources.)
4. Consider use of special control areas in the protection and management of water resources. Special control areas, as provided for by the Model Scheme Text, have special provisions in a scheme that set out the purpose and objectives of the special control area, any specific development requirements, and matters to be taken into account in determining development proposals, overlapping zone and boundaries. This tool should be used where appropriate.
5. Proclaimed and confirmed (‘in use’ or ‘future’) public drinking water source areas should be protected from inappropriate development and subdivision. The areas should be identified in region and local town planning schemes based on information available from the relevant water management agency. Local planning strategies (described in the Model Scheme Text) together with land use and water management strategies, should address how such areas are to be protected and managed. Appropriate zonings with restrictions on the types of development and minimum requirements for subdivision or special control areas should be considered. Also, refer State Planning Policy 2.7 Public Drinking Water Source Policy, WAPC 2003).
6. Support implementation of water sensitive urban design, (see schedule 4 for principles) where opportunities have been identified in strategic documents, by requiring best practice through imposition of appropriate provisions.

Subdivision and development control

Guidance for decision making with regards to water resources at subdivision and development stages, particularly greenfield sites, should ideally be provided by relevant planning strategies and schemes, prepared in the context of this policy. Where no strategic document exists, consultation should occur with involved agencies, such as the Department for Planning and Infrastructure, the Department of Environment and Conservation, the Department of Water and the Water Corporation or other relevant responsible service providers, and be consistent with other relevant policies and plans.

In assessing proposed subdivision or development, a number of core considerations exist for water resources that should be taken into account to ensure sustainable decision making. While the scope and scale of these considerations may vary according to the particular characteristics of an area, the type of development and the type of water resource that may be impacted on, it is essential that a framework is provided to ensure that these matters are consistently considered throughout the state, particularly where development pressures exist.

The following are, therefore, generic considerations that should be addressed in planning decision making on subdivision and development applications where deemed relevant:

1. Where subdivision or development is proposed on a lot that contains water resources that have been identified as having significant economic, social and/or environmental values, the following should apply:
 - any development in the buffer and/or setback area should be appropriate to the primary aim of protecting the water resource; and

- where subdivision is proposed, the WAPC may impose conditions regarding the transfer of land to the Crown and the preparation and implementation of management plans to ensure the protection of wetlands and waterways in accordance with current operational policy.
2. Promote the implementation of water sensitive urban design principles for proposed or new development, including residential, industrial, commercial and special rural development, that is consistent with best practices in sustainable total water cycle management with particular regard to the functioning of stormwater management as well as the need to maximise control of stormwater at the source. Water sensitive urban design measures should recognise that development needs to be responsive to site conditions, especially in areas that have significant environmental constraints such as a high groundwater table or existing contamination.
 3. Proposed stormwater management measures will need to address water quality and quantity objectives, together with the need to balance environmental benefit and long-term cost and establish the requirements of the service provider or catchment manager who will have ultimate responsibility for the maintenance/management of the stormwater services.
 4. Consideration should be given to the following:
 - rehabilitation of the water resource/s;
 - preparation of management plan/s and any necessary site works to achieve a positive outcome (such as fencing, revegetation or water monitoring);
 - improving water quality;
 - reducing nutrient export levels into receiving waters to a level lower than the existing land use; and
 - contributing to restoring natural flow regimes and variability.
 5. Where water resources that have not been identified as being of significance but are proposed to be retained as part of a proposed development or subdivision, such as in public open space, careful consideration needs to be given to:
 - the proposed end use and function of the water resource;
 - its design and compatibility with surrounding land uses;
 - who will have ultimate responsibility for its ongoing maintenance;
 - any rehabilitation that may be required; and
 - its future management.
 6. Construction following subdivision or development approval may lead to off-site impacts on water resources resulting from a lack of adequate site management practices. This in turn may result in the erosion of exposed areas and flow paths, which would increase turbidity of stormwater and receiving waters. Inadequate site management practices also increases the potential for contamination from pollutants (for example fuels and oils) stored on site and litter. Management measures should be incorporated into the approvals process to minimise these and other impacts from construction and land development activities.

SCHEDULE 2

Guidance for the Determination of Appropriate Buffering of Waterways and Estuaries

The varied and unique nature of water resources in Western Australia requires that a flexible approach be used in planning and development where waterways and estuaries are present. The purpose of this schedule is to provide guidance regarding appropriate buffering to waterways and estuaries (policy measure 5.3 (xvii) of this SPP). The recommended guidance, which allows for some flexibility, promotes a sustainable approach to water resource planning and management. This schedule does not provide guidance for the determination of wetland buffers. At the time of writing, the Wetlands Coordinating Committee was preparing the draft Guideline for the Determination of Wetland Buffer Requirements (December 2005) and this schedule may be reviewed in the light of comment received on the guideline.

Existing mechanisms for identifying foreshore management and protection areas are generally based on a 'foreshore reserve' width of 30 m for waterways (WAPC Development Control Policy 2.3) and a 'development setback' of 50 m for estuaries (WAPC Development Control Policy 6.1). Both the waterway reserve and estuary setback policies include opportunity for flexibility (for reasons of topography, condition of banks or floodway protection), and it is recommended that this approach be used, especially where significant ecological, social or economic values are present. This will minimise the potential for loss of valuable habitat and the degradation of foreshore and waterway values.

It is not possible to specify compatible land or water activities for foreshore areas. However, in a buffer area there is a presumption against supporting any activity likely to degrade its protective function, including activities that are likely to require, cause, or result in the following: clearing, filling, mining, drainage into or out of, effluent discharge into, pollution of, or environmental harm.

Approach

It is recommended that the following approach is used to aid the determination of appropriate buffering for waterways and estuaries.

Step 1: Acquire background information and conduct preliminary investigations

- Develop an understanding of the waterway, the issues and its significance.
- Obtain aerial photos to assess vegetation complexes, waterway form, function and adjacent land uses.
- Obtain maps showing the extent of floodway and floodplains, topography, cadastral information, soils, geology and vegetation complexes.
- Obtain any relevant reports on the waterway and the region. This may include floodplain mapping, development proposals and/or flora and fauna survey reports.
- Plan an on-the-ground site visit (if required) once you are confident you have the necessary information.
- Negotiate and communicate with relevant stakeholders as required.

Step 2: Assess the values and functions of the waterway

- Identify the extent of the riparian vegetation.
- Identify the soils that support the vegetation.
- Locate the floodway and floodplain (1 in 100 year flood level, peak flow and river hydrology).
- Identify soil types prone to erosion.
- Identify landforms important to watercourse function.
- Identify valuable habitat areas.
- Investigate and identify any other factors which may influence the determination of the appropriate setback, such as Aboriginal sites, heritage sites, and residential and recreational amenity.
- Negotiate and communicate with relevant stakeholders as required.

Step 3: Identify threatening processes from adjacent or proposed land uses

- Identify foreshore distances required to ensure maintenance or enhancement of waterway values and functions.
- Negotiate and communicate with relevant stakeholders as required.

Step 4: Establish separation requirement for waterway

- Combine information and present it as a 'line' on a map.

Step 5: What other factors need to be considered?

- Identify other issues to be considered.
- Analyse any consequences and risks resulting from the proposed buffering.

Step 6: Finalise the buffer distance

Issues to consider

- Ensure the assessment process is based on protecting the agreed values of the waterway and dependent environment (which may include economic, environmental, social and cultural values) in a sustainable and equitable way.
- Select criteria based on protecting priority values from pressures; when protecting several values, preferably use whichever buffer option is largest in accordance with the precautionary principle.
- Outcomes should be based on sound research and information, and agreed to by stakeholders.

Additional information can be found in the Water and Rivers Commission (WRC) Guideline 1: Determining Foreshore Reserves, (August 2000) and WRC Water Note 23 Determining Foreshore Reserves (October 2001).

SCHEDULE 3**Information Sources****Water resources generally**

Geographic information is available from the WALIS website:

http://www.walis.wa.gov.au/walis/content/wa_atlas_popup2.html

Other information can be found on the website of the Department of Water (DoW) website (<http://www.water.wa.gov.au>) and the Department of Environment and Conservation website (<http://www.environment.wa.gov.au>). Under the 'water' heading, the Department of Environment and Conservation website contains information regarding most water resources, including wetlands, waterways (such as rivers, streams and creeks), estuaries, foreshores, groundwater, surface water, floodplains, stormwater, existing and future surface and groundwater drinking water catchments and sources and wastewater.

Water resource management plans prepared by the State Government provide useful information, particularly with regard to:

- environmental water provisions,
- the quantity of water resources available for consumption,
- water allocation limits, and
- licensing policy and principles.

This information, including management plans for water protection areas, water allocation plans and water provisions for environmental flow requirements and riparian management, are also found on the DoW website.

The Environmental Protection Authority (EPA) prepares environmental protection policies (EPP) that relate to water resources. They can be found at: <http://www.epa.wa.gov.au/policies.asp>.

In particular, the EPA website details the following:

- Swan Coastal Plain Lakes policy,
- Gngangara Mound Crown Land policy,
- Peel Inlet—Harvey Estuary policy,
- Swan and Canning rivers policy,
- South West agricultural zone wetlands policy and

The EPA also releases guidance statements regarding specific environmental factors.

<http://www.epa.wa.gov.au/template.asp?ID=14&area=EIA&Cat=Guidance+Statements>

Relevant statements are:

- Draft EPA Guidance 33 Policies, Guidelines and Criteria for Assessing Planning Schemes
- Draft EPA Guidance 48 Groundwater Environmental Management Areas
- Final EPA Guidance 28 Protection of the Lake Clifton Catchment

Groundwater

The Perth Groundwater Atlas is a valuable tool to determine the depth to the water table and aquifer thickness in the Perth metropolitan area, the DoW website home page <http://www.water.wa.gov.au>.

Outside this area, refer to the Western Australia Atlas on the WALIS website.

Other relevant documents include: Gngangara Land Use and Water Management Strategy, see WAPC website under 'publications': <http://www.wapc.wa.gov.au> and the Jandakot land use and water management strategy (WAPC, March 1995).

Drinking water

DoW web page under 'Drinking Water'. <http://drinkingwater.environment.wa.gov.au>.

State Water Quality series documents 1, 2 and 6 (published) SWQ3 is in preparation and will deal with drinking water protection specifically. WQPN LUCT WQPN Overview (background and history) WQPN private supplies Department of Environment and Conservation Policy for PDWSA (in preparation) Western Australia State Sustainability Strategy, 2003 (Section 3—protecting drinking water and aquatic systems) Western Australia State Water Strategy, 2003 (Section 8—resource protection and management)

Surface water and waterways catchments

Natural resource or catchment management strategies are a useful information source. They are produced by groups such as:

- Avon Catchment Council
- Swan Catchment Council
- South Coast Regional Initiative Planning Team
- Northern Agricultural Catchments Council
- South West Catchments Council
- Rangelands Co-ordinating NRM Group

Wetlands

The Department of Environment and Conservation Geomorphic Wetlands Swan Coastal Plain dataset can be accessed at www.walis.wa.gov.au (the Department of Environment and Conservation has A Guide to Viewing Wetland Information on the WALIS website available at <http://wetlands.environment.wa.gov.au>). This dataset provides information on wetland mapping, classification and evaluation, expressed as management categories, for wetlands on the Swan Coastal Plain from Moore River to Dunsborough.

More information about wetlands can be obtained from: <http://www.environment.wa.gov.au>

Other key information on regionally significant wetlands can be obtained from: http://www.calm.wa.gov.au/national_parks/wetlands/wa_wetlands.html which includes links to The Directory of Important Wetlands and Ramsar Convention wetlands, http://www.calm.wa.gov.au/national_parks/wetlands/wa_ramsar_sites.html and the Register of the National Estate: <http://www.ahc.gov.au/register/>

Other wetlands of importance are EPP Wetlands—wetlands included in the following EPA environmental protection policies:

Environmental Protection (South West Agriculture Zone Wetlands) Policy 1998

Environmental Protection (Swan Coastal Plain Lakes) Policy 1992

These policies are found on the EPA's website at: <http://www.epa.wa.gov.au>

For information regarding wetlands outside the Swan Coastal Plain, contact the relevant regional office of the Department of Environment and Conservation.

Consideration of the environmental component of wetland buffers and/or setbacks should take into account and be guided by relevant policies of the Wetlands Co-ordinating Committee, the EPA, the Department of Environment and Conservation and the WAPC.

Waterways and Estuaries

The Department of Environment and Conservation provides general information regarding waterways on their website at: <http://waterways.environment.wa.gov.au>

Mapping of waterways can also be accessed via the Western Australia Atlas on the WALIS website: http://www.walis.wa.gov.au/walis/content/wa_atlas_popup2.htmlThe DoW is the primary agency responsible for the identification of areas of flood risk through their program of floodplain mapping. The Department of Agriculture also has mapping available in relation to local and seasonal inundation and flooding.

Total Water Cycle Management

Total water cycle management encompasses all aspects of water sensitive urban design including water supply, sewerage, stormwater management and water recycling and reuse. It addresses water quality, water quantity and water conservation, together with other social and environmental objectives.

Most information regarding total water management focuses on stormwater; however, water conservation and water recycling and re-use are gradually increasing in prominence.

Information on water conservation and recycling can be obtained from the Water Corporation at:

http://www.watercorporation.com.au/W/waterwise_index.cfm

The Department of Environment and Conservation provides general information regarding stormwater on their website at: <http://stormwater.environment.wa.gov.au>

The Department of Environment and Conservation's Sustainable Stormwater Management Manual for Western Australia (2004) can be accessed from the Guidelines page of <http://stormwater.environment.wa.gov.au>

WAPC's Draft Operational Policy Liveable Neighbourhoods (2004) contains information regarding stormwater management and its implementation through planning and can be accessed at the WAPC website, under publications: <http://www.wapc.wa.gov.au>

Additional planning information is provided in Urban Stormwater Management Planning Bulletin 61 (WAPC, 2003) and can be accessed at the WAPC website under publications: <http://www.wapc.wa.gov.au>

Other relevant information

Acid Sulfate Soils	Western Australian Planning Commission (2003) Planning Bulletin No. 64. Department of Environment (2003) Acid Sulfate Soils Guideline Series: Identification and investigation of acid sulfate soils and groundwater; Treatment and management of disturbed acid sulfate soils and acidic ground and surface waters; Guidance for groundwater management in urban areas on acid sulfate soils; Preparation of acid sulfate soil management plan (ASSMP); and General Guidance on Managing Acid Sulfate Soils.
Land Capability	Department of Agriculture land use capability information and maps. Department of Agriculture land degradation risk information and maps especially in relation to dry land salinity risk, water and wind erosion risk and phosphorus export risk.
Miscellaneous	Department of Agriculture AGMAPS CD-ROMs for various locations. Department of Agriculture Managing Land Degradation Using Land Use Planning Processes Training Resource Manual.

SCHEDULE 4

Principles of Total Water Cycle Management and Water Sensitive Urban Design

The State Water Strategy (Government of Western Australia, 2003) identifies the need for an increased focus on total water cycle management and water sensitive urban design to improve the management of stormwater and increase the efficiency of the use of water.

Total water cycle management, recognises that water supply, stormwater and sewage services are interrelated components of catchment systems, and therefore must be dealt with using an holistic water management approach that reflects the principles of ecological

sustainability. Water efficiency, re-use and recycling are integral components of total water cycle management and should be practised when any water is extracted from river and groundwater systems (Stormwater Management Manual for Western Australia, Department of Environment, April 2004).

Integrated urban water management, similarly to total water cycle management, recognises that the urban water cycle should be managed as a single system in which all urban water flows are recognised as a potential resource and where the interconnectedness of water supply, stormwater, wastewater, flooding, water quality, wetlands, watercourses, estuaries and coastal waters is recognised. Planning to guide water resources management should be integrated with land use planning decisions to achieve more sustainable development and protection of our water resources.

Key principles of total water cycle management and integrated urban water management are:

1. Consideration of all water sources (including wastewater) in water planning, maximising the value of water resources;
2. Integration of water and land use planning;
3. The sustainable and equitable use of all water sources, having consideration of the needs of all water users including the community, industry and the environment;
4. Integration of water use and natural water processes; and
5. A whole of catchment integration of natural resource use and management.

Achievement of integrated urban water management may be facilitated through the use of water sensitive urban design techniques employed during planning, design and construction of urban developments. Water sensitive urban design, developed in Western Australia in the 1980s for urban planning and design, provides a framework for minimising the impact of urbanisation on the natural water cycle. It addresses water quality, water quantity and water conservation, together with other social and environmental objectives.

General objectives of water sensitive urban design

1. To manage a water regime.
 - Maintain appropriate aquifer levels, recharge and stream flow characteristics in accordance with assigned beneficial uses.
 - Prevent flood damage in developed areas.
 - Prevent excessive erosion of waterways, slopes and banks.
2. To maintain and, where possible, enhance water quality.
 - Minimise waterborne sediment loading.
 - Protect existing riparian vegetation
 - Minimise the export of pollutants to surface or groundwater
 - Minimise the export and impact of pollution from sewerage.
3. To encourage water conservation.
 - Minimise the import and use of scheme water.
 - Promote the use of rainwater.
 - Promote the reuse and recycling of wastewater.
 - Reduce irrigation requirements.
 - Promote opportunities for localised supply.
4. To enhance water-related environmental values.
5. To enhance water-related recreational and cultural values.

Principles of water sensitive urban design are:

- Protect natural systems—protect and enhance natural water systems in urban developments;
- Integrate stormwater treatment into the landscape—use stormwater in the landscape by incorporating multiple use corridors that maximise the visual and recreational amenity of developments;
- Protect water quality—protect the water quality draining from urban development;
- Reduce run-off and peak flows—reduce peak flows from urban developments by local detention measures and minimising impervious areas; and
- Add value while minimising development costs—minimise the drainage infrastructure cost of development.

Water sensitive urban design adopts a planning and design approach that aims to integrate the following opportunities into the built form of cities and towns:

- detention of stormwater rather than rapid conveyance;
- use of stormwater to conserve potable water;
- use of vegetation for filtering purposes;
- water-efficient landscaping;

- protection of water-related environmental, recreational and cultural values;
- localised water harvesting for various uses; and
- localised wastewater treatment systems.

The priorities established for the achievement of total water cycle management should be weighed in the context of overall urban design parameters such as residential densities, landscape amenity, commercial, education and retail facility location. The management of urban water resources can be costly in terms of both land and infrastructure requirements. It is therefore necessary to consider the most cost-effective solutions, which have maximum social, economic and environmental benefits.

By command of the Governor,

M. C. WAUCHOPE, Clerk of the Executive Council.



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