Government of Western Australia
Department of Water

Water quality protection note 88
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Looking after all our water needs

Rural tourist accommodation

Background

The Department of Water is responsible for managing and protecting the State's water resources. It is also a lead agency for water conservation and reuse.

In recent years there has been a trend for traditional agricultural enterprises to diversify the use of their land in order to remain sustainable. Rural tourist accommodation is one of the alternative uses.

This note provides the Department of Water's advice on how to address the possible adverse impacts of such proposals on sensitive water resources.

Potential impacts from rural tourist accommodation include turbidity; pathogens (disease causing micro-organisms; elevated nutrients associated with on-site management of domestic wastewater and animal wastes; and chemicals applied to surrounding landscape areas.

Development proposals should also consider the requirements of the Western Australian Planning Commission's State planning policy 2.5 *Agricultural and rural land use planning* which states that "*All impacts associated with these tourist activities must be contained on-site".*

Given their rural nature, it is unlikely that these lands will be connected to public wastewater disposal infrastructure. This means that on-site wastewater disposal systems will be required. A public drinking water supply is also not likely to be available, making the landowner responsible for providing a safe, reliable on-site drinking water supply.

This note is intended to inform industry operators, government officers, environmental consultants and community members on water quality protection aspects of this activity including initial planning, design, construction, operation and potential closure.

Appendices provide additional background and technical advice as follows:

A. Information on sensitive water resources, note limitations and updates
B. Relevant statutes and administering agencies
C. Case study – assessing rural tourist accommodation proposals, followed by references and further reading, note disclaimer and how to provide feedback.

Scope

This note applies to proposed tourist accommodation on rural land that is located within or close to a sensitive water resource. The term rural in this note refers to land defined by planning schemes for its rural nature, with lot sizes above four hectares. Rural tourist accommodation in this note includes bed and breakfast or farm stays that share the wastewater facilities of the primary dwelling; a farm worker dwelling; and chalets, cabins, bungalows or demountable units that would be expected to be serviced by their own wastewater systems.

The planning section of your relevant local government authority can advise you on appropriate zoning and approvals required for specific locations.

This note does not apply to hotels, motels, hostels, caravan parks, camping grounds, mining camps or temporary dwellings such as caravans and tents. It does not cover accommodation on land that is zoned special rural or rural residential, or accommodation that is remote from sensitive water resources.

Advice and recommendations

Local government planning approvals and considerations

1 When considering the suitability of land for tourist and holiday accommodation, you should initially contact the planning section of the relevant local government. Advice may be obtained on the appropriateness of the proposed land use from a planning and environmental point of view, and on statutory constraints and processes that need to be followed. For advice on the details needed by the Department of Water to assess a proposal, see Appendix D.

Protecting private drinking water supplies

2 Where your proposal relies on a private water supply you will need to ensure that your water source is adequately protected. Our Water quality protection note (WQPN) 41 *Private water supplies,* WQPN 9 *Community drinking water sources* and WQPN 48 *Water supplies (non-potable) for rural lots* provide more detailed guidance advice (reference 5b).

3 It is important to know what land uses and activities occur in the recharge area of your drinking water bore as this will alert you to possible contamination risks. A suitable sampling, testing and treatment routine will need to be implemented by the landowner to ensure the safety of drinking water. The Department of Health has prepared brochures on rainwater tanks and bores to help you protect your drinking water.

Proposals within public drinking water source areas

Our management of Public drinking water source areas (PDWSA) is described at Appendix A. These catchments need multi barrier protection from contamination.

In country areas, PDWSA are defined in planning legislation as special control areas. These areas identify where a community's drinking water comes from, and allows the Department to prepare drinking water source protection plans.

A register of PDWSA in Western Australia is available at < www.water.wa.gov.au > select *tools and data* > *maps and atlases* > *geographic data atlas* > *environment* > *PDWSA*. Copies of existing public drinking water protection reports can be accessed at < www.water.wa.gov.au > select *publications> series browse* > *water source protection plans.*

For details of the above statutes and associated regulatory measures, see Appendix B.

The compatibility of rural tourist accommodation with a PDWSA is shown in Table 1, which is an extract from our WQPN 25 – *Land use compatibility in public drinking water source areas*. Please note that land with rural zoning normally has a P2 classification. It may be assigned a P1 classification if is it determined to be of strategic importance to a public water supply. Occasionally it will be assigned a P3 classification to reflect current or proposed planning authority decisions.

Table 1 – Recommended compatibility of rural tourist accommodation in a PDWSA

Model Scheme Text & interpreted type of land use	P1 areas	P2 areas	P3 areas
Bed and Breakfast (includes farm-stay) within a single dwelling on property	Compatible with conditions[6]	Acceptable	Acceptable
Additional detached accommodation (e.g. rural chalets)	Incompatible	Compatible with conditions [4, 8]	Acceptable

Footnotes

[4] In P2 areas: conditions may apply to density of dwellings (i.e. hectares per dwelling).

[6] May be approved if occupancy is of equivalent size to a single dwelling household (i.e. less than 10 people– defined by capacity of a septic tank based on-site wastewater treatment system).

[8] Lots should only be created where land capability assessment shows that effective on-site soakage of treated wastewater can be achieved. Conditions apply to location of wastewater disposal systems in areas with poor land drainage and/or a shallow depth to groundwater, animals are held or fertiliser is applied. Alternative wastewater treatment systems, where approved by the Department of Health, may be accepted with ongoing maintenance requirements.

4 Within P1 areas designated in source protection plans, bed and breakfast and farm-stays are compatible with conditions, provided no more than 10 people are accommodated (this includes both permanent residents and guests). This recognises that the wastewater system for a single dwelling on a rural lot is able to deal with the wastewater from 10 people. The department would not generally support rural tourist accommodation above this level in P1 areas in order to avoid the risk of contaminating the water resource.

5 Within P2 areas, rural holiday accommodation is either acceptable or compatible with conditions. The key factors for additional detached accommodation are the carrying capacity of the land (in relation to nitrogen loads) and separation distances to sensitive water resources (see Table 2).

6 Within P3 areas, rural tourist accommodation is acceptable subject to local government planning requirements.

7 A case study is provided in Appendix C. It explains factors that need to be considered in the assessment of rural tourist accommodation. The case study is subject to refinement and adoption of more sophisticated assessment tools.

Wastewater disposal issues

In most cases farms having tourist accommodation will not be connected to public wastewater disposal infrastructure.

8 Poorly designed or operated on-site wastewater disposal systems can result in contaminants and pathogens entering sensitive water resources, including both public and private drinking water supplies. Therefore drinking water supply sources should be located up-gradient from potential contamination sources such as wastewater disposal systems. Our WQPN 70 *Wastewater treatment – on-site domestic systems* and WQPN 41 *Private drinking water supplies* provide supporting guidance.

9 Effluent from on-site wastewater systems should be dispersed (irrigated by above or below ground systems) over an area able to deal with issues such as nutrient loading, erosion, distances to sensitive water resources etc. As a guide a 1600 m^2 area is recommended.

Location of on-site wastewater disposal systems

Table 2: Recommended criteria for on-site wastewater treatment systems

Feature	Recommended buffer	Comments
Bore(s) for household use	100m distance from bore to a wastewater system	To protect water from chemicals or pathogens that may impact on human health.
Waterways	100 metres from waterways and other water bodies (e.g. dams and soaks) to a wastewater system	To protect the water quality (and ecosystem value) of these features
Groundwater table	The lowest component of the disposal system should be at least 2 metres above the end of wet season water table	To ensure wastewater system works effectively
Slope of land	On-site wastewater disposal may occur on land not exceeding a natural slope of one in five (vertical : horizontal)	To ensure wastewater system works effectively. For proposals steeper than this engineering of a suitable gradient may be allowed to facilitate on-site wastewater disposal.
Inundation/flooding	On-site wastewater disposal sites should not be subject to inundation or flooding at a probability greater than once in ten years	To ensure wastewater system works effectively

Near waterways

10 Five waterways management areas have been declared in the *Waterways Conservation Act 1976* to provide special protection to estuaries and their associated waterways that are considered especially vulnerable to degradation. These areas are the Albany Waterways, Avon River, Leschenault Inlet, Peel-Harvey Estuary, and Wilson Inlet. If a development is located within a waterways management area, pre-development approval in writing is needed from this department. Information on waterway values and the location of these management areas can be obtained by contacting our local regional office (see the 'Contact us' section at <www.water.wa.gov.au>

11 Facilities should not be established on land subject to seasonal flooding or within defined floodplains.

12 Adequate horizontal separation distances should be maintained between all land use facilities and natural waterways to minimise the risk of degradation of water quality. These separation distances are determined on the basis of the waterway values, vulnerability and biophysical criteria (see the references and further reading section for supporting information). For advice on buffer selection, see our WQPN 6 – *Vegetated buffers to sensitive water resources*.

Within the Swan River Trust management area

13 Approval from the Minister for Environment is required for any land based or water based development within or abutting the Swan, Canning, Helena and Southern Rivers and adjoining lands within the management area established via the *Swan River Trust Act 1988* and managed under the *Swan and Canning Rivers Management Act 2006*. For submission details see the website < www.swanrivertrust.wa.gov.au > or phone the Trust on 9278 0900.

Applications for development outside the management area, but likely to affect waters within the area, should be referred by regulatory authorities to the Trust for comment prior to a decision to approve the development.

Near conservation valued wetlands

14 The Department of Environment and Conservation has a responsibility to ensure that chemicals or contaminated waters do not enter the environment close to sensitive waters such as wetlands. For a description of sensitive water resources, see Appendix A.

15 Wetlands require an adequate buffer to protect their ecology from potential harm (e.g. impacts of nutrients and pollutants) and to maintain ecological processes and functions within the wetland. The width of the buffer should be determined based on the values of the wetland, the threats posed by adjacent land uses and the protective measures used at the facility to maintain or improve wetland values. Recommended buffer distance criteria for the Swan coastal plain are provided in *Position statement - wetlands 2001,* see online information at <www.dec.wa.gov.au>, select *Management and protection > wetlands*.

16 Details of development proposed within 500 metres of any wetland should be forwarded to the nearest regional office of the Department of Environment and Conservation for assessment, with supporting information addressing the environmental risks.

17 Additional information on identifying wetland buffers is contained in the Environmental Protection Authority's Guidance statement 33, Chapter B4 – *Environmental guidance for planning and development*, (reference 6b)

Native vegetation

18 Clearing of native vegetation, including vegetated buffers to waterways and wetlands, for the construction of rural tourist accommodation and infrastructure associated with it should be avoided. This assists in reducing the risk of water contamination and salinity, and for conserving flora, fauna and other biodiversity values. (Please note, native vegetation cannot be cleared unless the clearing is consistent with the statutory requirements of the Department of Environment and Conservation (DEC), and generally can only be done if a permit for this purpose is obtained from DEC. Refer to <www.dec.wa.gov.au> select *Management and protection > plants > native vegetation > compliance*.

Infrastructure needs

19 Infrastructure (e.g. on-site wastewater disposal, roads, car parking, drainage, telecommunications, power etc) are important for construction and land use activities in rural areas. The department encourages landowners/proponents to use existing infrastructure wherever possible in order to limit future pressure for subdivision and avoid impacts on sensitive water resources.

Appendix A: Information on sensitive water resources, note limitations and updates

Sensitive water resources

Our water resources sustain ecosystems, aquatic recreation and aesthetic values as well as providing drinking, industry and irrigation supplies. Along with breathable air, uncontaminated water is essential for viable communities. Natural water resources have to remain within defined quality limits to retain their ecological, social and economic values. Hence they require appropriate protection measures to minimise contamination.

Information on water quality parameters and processes to maintain water values are published in the Australian Government's national water quality management strategy papers. These papers are available online at <www.environment.gov.au> select *water > water policy and programs > water quality.*

The Department of Water strives to improve community awareness of catchment protection measures (for both surface water and groundwater) as part of a multi-barrier protection approach to sustain acceptable water resource quality. Human activity and many land uses pose a risk to water quality if contaminants in significant quantities are washed or leached into water resources.

Sensitive waters include estuaries, natural waterways, wetlands and groundwater. These waters support one or more of the environmental values described below.

Public drinking water sources

Overview

A public drinking water source area (PDWSA) is the collective name given to any area proclaimed to manage and protect a community drinking water source. PDWSA include underground water pollution control areas, water reserves and catchment areas administered by the Department of Water under the provisions of the *Metropolitan Water Supply, Sewerage and Drainage Act 1909* or the *Country Areas Water Supply Act 1947*.

For online information on the location of a PDWSA, see < www.water.wa.gov.au > select *tools and data* > *maps and atlases* > *geographic data atlas*, then open *environment* > *public drinking water source areas.*

Within PDWSA, priority areas (P1, P2 and P3) are defined via publicly consulted drinking water source protection plans or land use and water management strategies. Priority areas are used to guide land planning, rezoning and development approval processes. Priority areas are assigned considering the current local planning scheme zoning, land tenure, the water source's strategic value and its vulnerability to harm. Each priority area is managed using a specific risk-based strategy to provide for effective water resource protection. This department develops these documents in consultation with other government agencies, landowners, industry and the community.

P1 areas are defined to ensure human activity does not degrade the water source. These areas are declared over land where the provision of high-quality drinking water for public use is the primary beneficial land value. P1 areas typically cover land controlled by the state government or one of its agencies. These areas are managed under the principle of *risk avoidance* and so most land development and human activity is normally opposed.

P2 areas are defined to ensure there is *no increased risk of pollution* to the water source – once a source protection plan has been published. These areas are declared over land where low-intensity development exists (such as low intensity rural use). Protection of public water supply sources is a high priority in P2 areas. These areas are managed in accordance with the principle of *risk minimisation*, and so the intensity of development is restricted (with management conditions) and activities with a low water contamination risk are acceptable.

P3 areas are defined to *manage the risk of pollution* to the water source. These areas are declared over land where public water supply sources must co-exist with other land uses such as residential, commercial and/or light industrial development. Protection of P3 areas is achieved through land use management measures provided via environmental guidance (e.g. these protection notes) or via site-specific development approval conditions to limit the water resources contamination risk from the land use or activity. If, however, the water source becomes contaminated, then water supplied from P3 sources may need to be treated more intensively or an alternative water source commissioned.

Additional protection zones are defined close to the point where drinking water is extracted or stored. These zones are called *wellhead protection zones* (WHPZs) and *reservoir protection zones* (RPZs). Statutory land use constraints apply to activities within these zones surrounding sources to safeguard waters most vulnerable to contamination.

WHPZs are assigned within the perimeter of water production wells based on hydrological factors. Statutory land use restrictions apply in these zones as groundwater moves rapidly towards wells due to aquifer depressurisation by pumping. Any contaminants leaching from the ground surface in WHPZs could rapidly migrate into scheme water supplies (before effective remedial action can occur). In sedimentary basins, WHPZs are usually circular, with a radius of 500 metres in P1 areas and 300 metres in P2 and P3 areas. These zones do not extend outside PDWSA boundaries.

RPZs are defined over and around public water supply dams or pipe-head reservoirs. Statutory access and land use restrictions apply in RPZs. The aim is to restrict the likelihood of contaminants being deposited or washing into water sources in any runoff. RPZs within state-controlled land cover an area up to two kilometres measured outward from the reservoir top water-level and include the inundated area when the reservoir is full.

For additional explanatory information on PDWSAs, see our Water quality protection note (WQPN) 25 *Land use compatibility in public drinking water source areas,* WQPN 36 *Protecting public drinking water source areas,* WQPN 75 *Proclaimed public drinking water source areas,* note 76 *Land use planning in PDWSA* and WQPN 77 *Risk assessment in PDWSA.* These notes are available online at <www.water.wa.gov.au> select *publications > find a publication > series browse.*

Established activities within PDWSAs

Many land use activities were approved and established before publication of a source protection plan or land use strategy. The operators of these activities should ensure that modern environmental facilities and practices are progressively implemented so the water resource's contamination risk is minimised (within practical and economic constraints).

New or expanded activities in PDWSAs

Any development proposals that could affect a drinking water source should be referred to this department's regional office with detailed supporting information for assessment and a written response.

The development proposal may be approved (with or without conditions); additional information may be sought before a decision is made; or the proposal opposed due to a statutory or policy conflict or inadequate protective measures provided to safeguard the water source. To assist the assessment, operators should demonstrate that under all operating conditions the materials and processes used on-site do not pose a significant water contamination risk.

Buffers to water supply sources

Native vegetation buffers should be used to separate compatible land use areas from the full supply level of reservoirs their primary feeder streams and/or production bores used as a source of drinking water. Advice on suitable buffer forms and dimensions is provided in our WQPN 6 *Vegetated buffers to sensitive water resources*.

Within clearing control catchments

Controls on vegetation clearing for salinity management are provided under part IIA of the *Country Areas Water Supply Act 1947*.

These controls apply in the Wellington Dam, Harris River Dam, Mundaring Weir and Denmark River catchment areas and the Kent River and Warren River water reserves.

Details of clearing controls may be obtained from our regional offices, see online information at <www.water.wa.gov.au> , select *Contact us*.

Private water supply sources

Those sources vulnerable to contamination include:

- drinking water sources for people or domesticated animals
- commercial or industrial water supply sources (requiring specific qualities that support activities such as aquaculture, cooling, food or mineral processing, or crop irrigation)
- urban or municipal irrigation sources (where water quality may affect vegetation performance or people's health and wellbeing).

Underground ecosystems

Important underground ecological functions that may be at risk of contamination include groundwater- and cave-dwelling animals and microorganisms (generally located within soils that have open pore spaces such as sand, gravel and limestone).

Waterway ecological and social values

Waterways that have high social and conservation significance are described in the Environmental Protection Authority (EPA) Guidance statement 33 *Environmental guidance for planning and development*, section B5.2.2. This statement is available online at <www.epa.wa.gov.au> select *policies and guidelines > environmental assessment guidelines > guidance statements.*

This department also manages waterways throughout Western Australia under Section 9 of the *Water Agencies (Powers) Act 1984* and the *Rights in Water and Irrigation Act 1914*. For online information, see <www.water.wa.gov.au> and select *managing water*. Apart from aquatic ecosystems and water sources, waterways provide social values including aesthetic appeal, drainage pathways and recreational opportunities for watercraft use, fishing, tourism, swimming and related aquatic activities. Engineered drains and constructed water features are normally not assigned ecological values because their function and operational factors outweigh their ecological value.

We also administer the *Waterways Conservation Act 1976* which defines Western Australian waterways subject to specific regulatory controls. Currently proclaimed waterways are the Avon River, Peel-Harvey Inlet, Leschenault Inlet, Wilson Inlet and Albany waterways management areas.

Swan River Trust management area

The Swan River Trust is responsible for the protection and management of the Swan-Canning River system to safeguard its ecological and social values under the *Swan and Canning Rivers Management Act 2006.* Approval from the Trust is needed for any land- or water-based development within the Swan, Canning, Helena or Southern Rivers and their associated foreshore areas - the *Swan River Trust development control area (DCA*). Activities and development close to these areas are likely to have an effect on the waters of the river system. Development proposals within or abutting the DCA should be referred to the Trust for comment.

Developments distant from the DCA, but near river tributaries or drainage systems, that could affect waters within the area, e.g. by leachate in groundwater flow, should also be referred to the Trust for assessment and advice. For detailed information, see online advice at <www.swanrivertrust.wa.gov.au>, phone +61(8) 9278 0900 or email: planning@swanrivertrust.wa.gov.au .

Wetland ecology

Many important wetlands have been given conservation status under the Ramsar convention (described online at <www.ramsar.org>), Japan and Australia migratory bird agreement (JAMBA), China and Australia migratory bird agreement (CAMBA), and Republic of Korea and Australia migratory bird agreement (ROKAMBA).

Wetlands are also protected under various Australian and Western Australian government policies. Conservation wetland data to guide land planning and development activities is provided via the following publications:

- Scheduled wetlands are defined by the Australian Government in the *Directory of important wetlands in Australia,* available online at <www.environment.gov.au> select *water > water topics > wetlands.*
- Wetlands with defined high conservation significance are described in the EPA (WA) guidance statement 33 *Environmental guidance for planning and development* (section B4.2.2). This statement is available online at <www.epa.wa.gov.au> select *policies and guidelines > environmental assessment guidelines > guidance statements.*

The Department of Environment and Conservation (DEC) is the custodian of the state wetland datasets, and is responsible for maintaining and updating relevant information. These datasets are available online at <www.dec.wa.gov.au> search *maps wetlands* or select *management and protection > wetlands > wetlands data*.

Guidance on viewing the wetlands is provided online at *water > wetlands > data* or by phoning DEC's nature conservation division on 9334 0333.

Wetlands datasets identified for conservation value or for resource enhancement include:

- *Geomorphic wetlands of the Swan Coastal Plain*
- *South coast significant wetlands*
- *Geomorphic wetlands Augusta to Walpole* (this dataset awaits detailed evaluation).

Wetlands that are highly disturbed by land use, or have been landscaped to provide a social amenity or drainage control function in urban settings, may not be assigned conservation values unless they are actively managed to maintain these values.

Note limitations

Many Western Australian aquifers, waterways and wetlands await detailed scientific evaluation, present data on their quality is sparse and their values remain unclassified. Unless demonstrated otherwise, any natural waters that are slightly disturbed by human activity are considered to have sensitive environmental values. Community support for these water values, the setting of practical management objectives, provision of sustainable protection services and effective implementation are vital to protecting or restoring water resources for both current needs and those of future generations.

This note provides a general guide on environmental issues, and offers solutions based on data searches, professional judgement and precedents. Recommendations made in this note do not override any statutory obligation or government policy statement. Alternative practical environmental solutions suited to local conditions may be considered. This note's recommendations shall not be used as this department's policy position on a specific matter, unless confirmed in writing. In addition, regulatory agencies should not use this note's recommendations in place of site-specific development conditions based on a project's assessed environmental risks. Any regulatory conditions should consider the values of the local environment, the safeguards in place and take a precautionary approach.

Where a conflict arises between this note's recommendations and any proposed activity that may affect a sensitive water resource, this note may be used to assist negotiations with stakeholders. The negotiated outcome should not result in a greater water quality contamination risk than would apply if the recommended protection measures were used.

Water quality protection note updates

This note will be updated as new information is received, industry/activity standards change and resources permit. The currently approved version is available online at <www.water.wa.gov.au> select *publications > find a publication > series browse > water quality protection notes.*

Appendix B: Statutory requirements and approvals include-

Regulation of prescribed premises that could pollute;	*Environmental Protection Act 1986,* Part V Environmental Regulation	Department of Environment and Conservation www.dec.wa.gov.au
Prohibited discharge of specified contaminants	Environmental Protection (Unauthorised Discharges) Regulations 2004	
Management of human wastes Community health issues	*Health Act 1911*	Department of Health www.health.wa.gov.au Local Government
Transport, storage and handling of fuels, solvents, explosive and dangerous goods	*Dangerous Goods Safety Act 2004* Dangerous Goods Safety Regulations 2007	Department of Mines and Petroleum- Resources safety division www.dmp.wa.gov.au
Licence to take surface water, groundwater or disturb waterways	*Rights in Water and Irrigation Act 1914*	Department of Water - regional office www.water.wa.gov.au
Discharge of waters to managed waterways	*Waterways Conservation Act 1976*	
Industrial sites in proclaimed public drinking water source areas	*Metropolitan Water Supply, Sewerage and Drainage Act 1909* *Country Areas Water Supply Act 1947*	
Emergency response planning	*Fire and Emergency Services Authority of WA Act 1998*	Fire and Emergency Services Authority www.fesa.wa.gov.au
Statutory policies covering wetlands, drinking water catchments and estuaries	*Environmental Protection Act 1986,* Part III Environmental Protection Policies	Minister for the Environment advised by the Environmental Protection Authority www.epa.wa.gov.au
Impact of significant development proposals on the values and ecology of land or natural waters	*Environmental Protection Act 1986,* Part IV Environmental impact assessment	
Discharges into the Swan-Canning Estuary	*Swan and Canning Rivers Management Act 2006*	Swan River Trust www.swanrivertrust.wa.gov.au
Discharge to sewer (industrial waste permit) or to main drain	*Metropolitan Water Supply, Sewerage and Drainage Act 1909* *Country Towns Sewerage Act 1948*	Water Corporation www.watercorporation.com.au; Designated water services provider

What's regulated?	Western Australian statutes	Regulatory office
Subdivision of land Land zoning and development approval (including approval for private property dam construction)	*Planning and Development Act 2005*	Western Australian Planning Commission; Department of Planning www.planning.wa.gov.au Local government

Relevant statutes are available from the *state law publisher* at < www.slp.wa.gov.au >.

Appendix C: Case study - assessing rural tourist accommodation proposals

Background

The Department of Water understands that rural zoned land generally supports only one dwelling per lot with additional dwellings only supported for workers accommodation (i.e. relating to accommodation for workers employed for agricultural activities on that holding).

Other forms of accommodations such as farm-stays, bed and breakfast or chalets may also be possible subject to state and local government planning legislation and policy (In particular, State planning policy 2.5: *Agricultural and rural land use planning*; and Development control Policy 3.4: *Subdivision of rural land* and local planning schemes).

The assessment and approval of additional workers' dwellings; or farm-stays, bed and breakfast or chalets (collectively referred to as *rural tourist accommodation* by this department) proposals in public drinking water source areas (PDWSA) should be guided by the outcome of the following assessment process. The process uses a simple nitrogen load calculation as follows, and is based on advice from this note.

Please note that this assessment process does not apply to *rural residential* zoned land (i.e. lots less than four hectares in size), within which rural tourist accommodation is not generally supported. Further enhancements to this assessment process are being developed and will be incorporated as they become available.

Case study example

Proposal characteristics

- Land is within a PDWSA in a priority P2 protection area
- 100 hectare lot
- Coarse sand site with low vulnerability to eutrophication
- Rural zoned land
- One primary four bedroom dwelling with five people living in it (existing farmhouse with septic tank system)
- Proposal to build two separate two bedroom self contained chalets (accommodating up to six people per chalet)
- Chalets constructed more than 500 metres from nearby waterway and existing onsite drinking water bores

- Chalets positioned 75 metres away from primary dwelling, and 50 metres apart from each other
- Each chalet to be serviced by its own wastewater disposal system.

Questions to be answered

- What is the soil type within proposed development area (A, B, C or D? see notes below)?
- What is the nitrogen loading from domestic wastewater, landscaping or other activities (e.g. horse stables) within a one hectare area around the proposed development?
- Distance to sensitive water resources (e.g. soaks, waterways, wetlands, reservoirs)?
- Depth to groundwater (if data is not available the key issue is to ensure that the bottom of the wastewater system is above groundwater level)?
- Groundwater flow direction (if data is available)?
- Distance to drinking water bores and wellhead or reservoir protection zones that occur within PDWSA?

Assessment process

Determine the location and size of a suitable *assessment area*. This should normally be up to one hectare, noting that proposals should aim to occupy a limited area of available land and not be spread out.

Determine acceptable nitrogen loading in (kg/ha/yr) for soil type A, B, C or D. For this scenario of a coarse sand site with low vulnerability to eutrophication (vulnerability category B), the maximum allowable nitrogen loading = 180 kg/ha/yr (see table below)

Determine nitrogen loading of the wastewater systems. For this example, the main dwelling has five people living in it and the chalets are designed for six people each. Therefore there are a total of 17 people, producing 180 litres of wastewater per person per day with an average nitrogen concentration of 65mg/L. Loading from wastewater systems = 17 x 180 x 365 x (65/1 000 000) = X kg/yr of nitrogen.

Add nitrogen loading from lawns and gardens =Y kg/yr

Add nitrogen loading from crops and animals = Z kg/yr

Total nitrogen loading per ha per year (N) = X + Y + Z kg

Decision

Compare the total nitrogen loading rate from all sources (X + Y + Z) to the recommended acceptable nitrogen application rates for the soil type (i.e. 180 kg/ha/yr).

If the loading calculated from the assessment is less than 180 kg/ha/yr, the proposal is likely to be supported.

If the loading calculated from the assessment is more than 180 kg/ha/yr the proposal is not supported. In this situation amendments to the proposal may be considered that would change the assessment outcome.

Considerations

Some of the important considerations in the use of this assessment approach are:

In a PDWSA, P1 areas are managed using the principle of *risk avoidance* to prevent the contamination or degradation of water values. Accordingly, rural tourist accommodation proposals are not recommended in P1 areas as they can introduce risks to water quality. This is generally not an issue to landowners as most P1 areas occur over state controlled land; however, some P1 areas may have been defined over private land. Notwithstanding this position, if state or local government planning decision makers determine that rural holiday accommodation is supported on P1 land, this assessment approach should be applied, and additional measures to avoid water quality risks should be set as conditions of approval above those that would normally be applied in P2 areas that are subject to the same assessment approach.

P2 areas in a PDWSA are managed using the principle of *risk minimisation*, aiming to reduce the potential for any increased risk of water source contamination. Consequently the existing form and extent of land uses and development, and their related water quality contamination risks, should be considered in the assessment of new proposals.

It is preferable for a rural landholder to relinquish a current approved non-conforming land use to accommodate compatible land uses that pose a lower risk of water quality contamination.

All impacts are to be contained on-site and within the carrying capacity of the land on a per hectare basis. This means that the averaging of impacts (e.g. kilograms of nitrogen) over the whole area of the lot (when they actually occur within a defined/clustered area) will not be supported. Each hectare of land will be expected to meet recommended loading requirements (e.g. specified kilograms N per hectare per year).

In PDWSA best-practice management (as defined in available policies, notes, codes and environmental guidelines) is expected to be employed over the entire area of a holding to minimise risks to water quality.

Dwellings and other rural tourist accommodation (i.e. chalets, farm-stays or bed and breakfasts) should generally be grouped/clustered to avoid future subdivision pressure.

Dwellings and other rural tourist accommodation should share the same services (including water source, wastewater treatment and disposal system and access roads) where practicable to avoid future subdivision pressure.

Rural tourist accommodation should normally be incidental (or at most complementary) to the sustainable agricultural uses occurring in rural areas.

Farms-stays and bed and breakfast proposals would normally be expected to be part of the wastewater disposal system connected to the primary dwelling on a lot. Whereas, chalets would normally be expected to be serviced by their own wastewater disposal systems.

Each septic tank based wastewater disposal system is considered to deal with the normal waste of 10 people. The average volume of wastewater created per person is assumed to be 180 litres per day with an average nitrogen content of 65 milligrams per litre. Other appropriate assessment criteria for septic tank based systems and alternative treatment units (ATUs) still need to be determined.

Where an area is required for effluent disposal (by sub-surface dispersion or surface irrigation) it should be as defined in Department of Health guidelines for effluent disposal areas for efficient infiltration. An located away from areas designed to attract people (to avoid people becoming ill from contact with the effluent).

A case by case assessment would be required where proposals for rural tourist accommodation are not supported by this assessment process. The assessment would need to be based on the full impacts from all operations (or activities) on a rural lot.

Tables 1 and 2 below provide for an assessment of the potential for eutrophication (i.e. the process leads to both surface and ground water becoming nutrient-rich). These tables are mainly based on soil type, and are from our WQPN 22 *Irrigation with nutrient-rich wastewater.* These guidelines were developed for irrigated nutrient application on (highly leaching) sandy soils in the Peel Harvey catchment. Given this, their application generally provides a precautionary approach to protecting sensitive water resources from eutrophication.

Table 1 - Eutrophication risk based on soil type and location

Characteristics of the irrigated soils	**Eutrophication risk of surface waters within 500 metres of irrigation site**	**Risk category [e]**
Coarse grained soils [a] (e.g. sands and gravels)	significant [b]	A
	low [c]	B
Fine grained soils, PRI [d] > 100) (e.g. loam, clays or peat)	significant [b]	C
	low [c]	D

Table 1 notes:

a Specific restrictions may apply where near-surface soil conditions (e.g. in limestone, gravels or fractured rock) are likely to lead to rapid water movement without achieving significant removal of contaminants.

b Significant eutrophication risk applies to translucent surface waters where nutrient leaching from fertilised land results in occasional algal blooms; or where warm season plant-available nitrogen (N) exceeds one milligram/litre and filterable reactive phosphorus (P as PO_4) exceeds 0.1 milligrams/litre in the water body.

c Low eutrophication risk applies to turbid or dark coloured waters, those with rarely observed algal blooms (i.e. less than 5000 cells per millilitre), there is low nutrient leaching from land use and waters with warm season inorganic nitrogen concentrations of less than 0.5 milligrams per litre and filterable reactive phosphorus (P) less than 0.05 milligrams per litre.

d Phosphorus retention index (PRI) is a scientifically determined measure of the P holding capacity of soils between the ground surface and base of the vegetation root zone, PRI details are available online at <www.agric.wa.gov.au/content/LWE/LAND/FERT/BULLETIN4591.PDF> .

e Eutrophication risk categories apply to the recommended nutrient application rates given in Table 2 in the Nutrient application criteria section.

Table 2 - Nutrient application criteria to control eutrophication risk

Risk Category from Table 1	**Maximum inorganic nitrogen addition (as N)**		**Maximum reactive phosphorus addition (as P)**	
	Application rate (kg/ hectare/ year)	**As water concentration (mg/litre) [a]**	**Application rate (kg/ hectare/ year)**	**As water concentration (mg/litre) [a]**
A	140	9	10	0.6
B	180	11	20	1.2
C	300	19	50	3.1
D	480	30	120	7.5

Table 2 notes:

a The N and P concentrations are based on an average of 50 millimetres of water (500 kilolitres/hectare) applied per week over 32 weeks per year, with no additional nutrient addition to the land (including animal manure). For other irrigation regimes, equivalent water concentration rates should be calculated on a pro-rata basis.

b Application rates are based on quantities of plant-available nitrogen and phosphorus (N as ammonia and nitrate, and P as ortho-phosphate) to promote healthy vegetation growth matching the growth cycle of the irrigated plant species.

c For materials that require microbiological decomposition to release plant-available nutrients (e.g. decay of green-waste), the local conditions will need to be factored into the calculations (i.e. time, moisture, warmth, available oxygen and presence of decay inhibitors).

Appendix D: Data needed for development assessments

Where facilities near sensitive waters are to be constructed or upgraded, the following data should be supplied with the development proposal:

1 Site owner/ operating tenant's name and contact details.

2 A site plan showing the location of the project facilities relative to tenements, leases, lots and roads. The plan should show the topography, remnant vegetation cover, existing and proposed development areas and onsite water features and sources.

3 Details of site investigation of soil strata, depth to water table (if applicable) and data on the location, extent, hydrology, quality and dependencies on local water resources (including any seasonal variations) that could be affected by site operations or facilities.

4 The present local government land use zoning (where applicable). Current land use description, any site contamination history and its remediation.

5 Full description and scale of the activities planned for the project site, (site amenities, crops, animals, earthworks and chemical applications), construction and operating workforce and planned project operational life.

6 Describe intended commissioning date, operating hours and any expansion options.

7 Details of any proposed vegetation clearing, environmental buffers, site earthworks and services, including water supply, sewerage and drainage provisions.

8 Description of all materials/ chemicals to be stored or handled on site in commercial quantities, including a water use budget.

9 Description of the types, quantities and quality of solid and liquid waste (if applicable) that will be generated or disposed from the facility.

10 Description of planned material containment, waste management (treatment and disposal); with an environmental management plan and nutrient and irrigation management plan (where applicable)

11 Details of any environmental modelling conducted to demonstrate the effects of the project on local water resources

12 Planned operational and equipment maintenance procedures.

13 Details of any contingency measures proposed to minimise the impacts of chemical spills and safely dispose of contaminated waters that may result from storms, fire, flood or equipment malfunction or vandalism. Information should include workforce training, site monitoring and emergency response facilities.

14 Any project contractual agreements or regulatory approvals received.

For significant projects, development proponents should engage the services of a qualified and experienced consultant to professionally prepare their development proposal. This should ensure that government agencies can efficiently assess and respond to the proposal without delays caused by inadequate or poorly defined information.

References and further reading

1 Australian government - National water quality management strategy papers available online at < www.environment.gov.au > select *water > water policy and programs >water quality*

a Paper 2 *Policies and principles,1994*

b Paper 3 *Implementation guidelines, 1998*

c Paper 4 *Australian and New Zealand guidelines for fresh and marine water quality, 2000*

d Paper 6 *Australian drinking water guidelines, 2011*

e Paper *7Australian guidelines for water quality monitoring and reporting, 2000*

f Paper 9 *Rural land uses and water quality - a community resource, 2000*

To obtain copies, see internet site < www.awa.asn.au >, request by email at < bookshop@awa.asn.au > or from a library service.

2 Department of Environment and Conservation (WA) publications, available online at < www.dec.wa.gov.au >

a Wetlands policy and guidelines, *Management and protection > wetlands > publications > wetlands position statement*

Position statement: Wetlands, WRC 2001.

b Waste management papers, select *pollution prevention > waste management > publications > guidelines*

– *Guidelines for acceptance of solid waste to landfill* 2001

– *Landfill waste classification and waste definitions* as amended

– *Western Australian waste reduction and recycling policy* 1997.

c Contaminated sites - guidance series, select *Pollution prevention > contaminated sites*.

3 Department of Health (WA) publications available online at < www.health.wa.gov.au > select public health >water, then search household chemicals
Safe use of household chemicals.

4 Department of Mines and Petroleum (WA) - dangerous goods codes, guidelines and licenses. For online publications see < ../../Local Settings/Temporary Internet Files/Content.Outlook/INCUOBEB/Rural tourist accomm/www.dmp.wa.gov.auwww.dmp.wa.gov.au > select *resources safety > dangerous goods > storage and handling.*

5 Department of Water (WA) publications, available online at < www.water.wa.gov.au >

a Water resource management policies, select *publications > find a publication > a-z browse policies*

- Foreshore policy 1 – *Identifying the foreshore area, WRC* 2002
- State-wide policy 2 - *Pesticide use in public drinking water source areas,* WRC 2000

b Water quality protection notes (WQPN), select *water quality* > *publications* > *series browse* > *water quality protection notes*

- WQPN 9 *Community drinking water sources*
- WQPN 22 *Irrigation with nutrient-rich wastewater*
- WQPN 25 *Land use compatibility in public drinking water source areas*
- WQPN 25 *Land use compatibility in public drinking water source areas*
- WQPN 33 *Nutrient and irrigation management plans*
- WQPN 41 *Private drinking water supplies*
- WQPN 48 *Water supplies (non-potable) for rural lots*
- WQPN 79 *Rural restaurants, cafes, and taverns near sensitive water resources*
- WQPN 81 *Tracks and trails near sensitive water resources.*

c Waterways water notes (WN), select *water quality* > *publications* > *find a publication* > *series browse* > *water notes*

- WN 10 *Protecting riparian vegetation*
- WN 11 *Identifying the riparian zone*
- WN 23 *Determining foreshore reserves.*

d Stormwater publication, select *find a publication* > *series browse* > *stormwater management* > *stormwater management manual.*
Stormwater management manual for Western Australia.

6 Environmental Protection Authority (WA) publications, available online at < www.epa.wa.gov.au > select *guidance statements*

a Guidance statement 3 *Industrial-residential buffer guidelines*

b Guidance statement 33 *Environmental guidance for planning and development.*

7 Engineers Australia available for purchase at < www.engineersmedia.com.au > *Australian rainfall and runoff* (current edition).

8 Government of Western Australia publication, available online at www.population.health.wa.gov.au > *Environmental* > *index.cfm*
Country Sewerage Policy 2002.

9 Natural Resource Management Ministerial Council (Australia) publication available online at < www.iah.org.au > search *publications*
Minimum construction requirements for water bores in Australia, September 2003.

10 Standards Australia publication available for purchase at < www.saiglobal.com > select publications AS 5667 Water quality – sampling.

11 Western Australian Planning Commission policy available online at < www.planning.wa.gov.au > select publications

a *State industrial buffer policy*, 2004

b State planning policy 2.5 *Agricultural and rural land use planning,* 2002

c Development control policy 3.4 *Subdivision of rural land.*

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Feedback

We welcome your thoughts on this note. Feedback will help us prepare future versions.

To comment on this note or seek any clarification, please contact our water source protection branch (details below), citing the note topic and version.

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