



WQPN 79, May 2006

Rural restaurants, cafés and taverns near sensitive water resources

Purpose

Restaurants, cafés and taverns (referred to in this note as *food premises*) encourage people to visit rural areas. This may create risks to other values eg conservation values, water supply sources, and aspects of rural living. The planning, construction and operation of food premises in rural areas near sensitive water resources requires a careful approach to prevent contamination of surface water or groundwater. Risks arise from heavily loaded wastewater management systems (via pathogens, degradable organic matter, nutrients, and cooking oils), from car parks and landscaped surrounding areas (eg leached fertiliser, litter, pesticide residues, oils and turbidity in drainage waters) and native vegetation disturbance.

When planning the development of food premises near sensitive water resources, specific consideration should be given to:

- land use capability (eg soil types, groundwater table);
- land use history;
- presence of native fauna and vegetation (including rare species);
- need to clear native vegetation;
- construction of additional infrastructure (eg access roads, car parks);
- water availability for drinking, amenities and irrigation;
- site suitability for on-site wastewater treatment (unless reticulated sewerage is available);
- stormwater drainage;
- chemical storage;
- application of fertiliser and pesticides to maintain premises and surrounds; and
- the environmental, social and economical values of the community regarding tourism and recreation.

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. This note offers:

- the Department's current views on land development in drinking water source areas;
- guidance on acceptable practices used to protect the quality of Western Australian water resources; and
- a basis for the development of a multi-agency code or guideline designed to balance the views of industry, government and the community, while sustaining a healthy environment.

This note provides a general guide on issues of environmental concern, and offers potential solutions based on professional judgement and precedent. The recommendations made do not override any statutory obligation or Government policy statement. Alternative practical environmental solutions suited to local conditions may be considered.

Regulatory agencies should not use this note's recommendations without a site-specific assessment of any project's environmental risks. Any conditions set should consider the values of the surrounding environment, the safeguards in place, and take a precautionary approach. This note shall not be used as this Department's policy position on a specific matter, unless confirmed in writing.

Scope

This note applies to all food premises located in rural settings near sensitive water resources that prepare, handle, store or serve any food products or beverages to the public, in areas where services such as reticulated sewerage and waste disposal may be limited or absent. The requirements for these food premises vary according to the size of operation, type of food prepared, frequency of use; and type and quantity of waste material entering the wastewater treatment system.

This note is not intended to cover food premises located remote from sensitive waters, fast food outlets, lunch bars, convenience stores, food markets, food manufacturers or hotels, but may offer some useful guidance on potential risks to the environment and good environmental practice.

Sensitive water resources offer a significant environmental value for the community's well being; therefore they need to be protected from any effects from nearby land uses. Public Drinking Water Source Areas (PDWSA), Swan River Trust Management Areas, and areas with high conservation values or a high water table are examples of sensitive waters. Detailed information on these sensitive water resources is provided in [Appendix C](#).

Recommendations

Siting criteria

1. Food premises developers should contact the local government authority (planning section) to discuss the suitability of the land for the proposed use. Town Planning Schemes (TPS) include zoning maps and land use planning requirements to advise where food premises may be located, constructed and operated. TPS aim to balance local environmental and social needs with development.
2. The proponent should comply with all existing planning and zoning provisions applying to the proposed site under published local and regional planning strategies, schemes and policies.
3. The proponent should engage an experienced professional environmental consultant to undertake an assessment of the environmental risks that the construction and operation of a food premises may pose on the local area, and define whether the operation is sustainable within the bounds of environmental and social acceptability.

Within Public Drinking Water Source Areas (PDWSA)

PDWSA are the sources of scheme drinking water supplies. Their protection is achieved through statutory measures available in water resource management and land use planning legislation. The Department's aim is to effectively manage and protect any water source used for public drinking water supplies. PDWSA include Underground Water Pollution Control Areas, Water Reserves and Catchment Areas, proclaimed under the *Metropolitan Water Supply, Sewerage and Drainage Act 1909* or *Country Areas Water Supply Act 1947*. Specific information on PDWSA and their priority classification is available in the Department's Water Quality Protection Note *Land use compatibility within Public Drinking Water Source Areas* (see [Appendix A, reference 6b](#)).

Priority land classifications are used as a key element in the protection strategy for PDWSA. The acceptability of siting food premises in various priority areas is shown in Table 1. Priority classifications of land are determined by this Department in consultation with the community.

The land uses defined within the table are based on the Western Australian Planning Commission's (WAPC) *Model Scheme Text* land use descriptions.

Table 1 – Extract from the Department's Note: *Land use compatibility in PDWSA*

Model Scheme Text & interpreted type of land use	P1 areas	P2 areas	P3 areas
Restaurant ²	Incompatible	Incompatible	Acceptable ¹
Tavern	Incompatible	Incompatible	Acceptable ¹

Legend

¹ Must be connected to deep sewerage, except where exemptions apply under the State Government Sewerage Policy. This Policy recognises that sewer connection may be impractical in some areas. Under these circumstances, on-site wastewater management systems are required. Restrictions apply to siting onsite systems in areas with poor land drainage capability and/or shallow depth of groundwater. Alternative Treatment Units as approved by the Department of Health (WA) may be acceptable in these situations; provided the treated waste loading does not pose a significant risk to local environmental values.

² Cafés are not defined under the Model Scheme Text. In this note, cafés are considered a small restaurant.

In Priority 1 (P1) and 2 (P2) areas and Wellhead or Reservoir Protection Zones

4. The construction and operation of food premises in these areas is incompatible with this Department's water resource protection policy. New or expanded food premises will not be supported by this Department in these areas. However, if planning authorities approve these land uses, then the Department should be advised of that decision and be requested to recommend to land planning decision-makers measures to protect local water quality. Contentious proposals may also be referred to the Environmental Protection Authority under the *Environmental Protection Act 1986*.

In Priority 3 (P3) areas

5. The construction and operation of food premises in a P3 area is considered compatible with the Department's water resource protection objectives. The Department accepts that the land use is unlikely to harm the drinking water source (provided adequate contaminant management systems are installed and operating). The adoption of best management practices (BMP) is expected for new proposals to effectively protect the quality of water resources. Existing food premises operators are also encouraged to adopt BMP to help protect water quality.

Maps showing the priority classifications of PDWSA are available from the Department's regional offices or internet site, see www.water.wa.gov.au, select *Tools, system & data>Geographic data atlas> Environment*.

Near other sensitive water resources

These sensitive areas include the Swan River Trust Management Area, Waterways Management Areas, Environment Protection Policy areas and locations near any conservation valued wetlands or waterways (see [Appendix C](#)). They may also include locations that support native vegetation, land subject to flooding, or where the water table is close to the ground surface.

6. Proponents should provide additional information to the relevant assessing agency (see [Appendix D](#)) on the intent for new food premises or upgrades near any sensitive water resource, commonly the local government agency, to determine the suitability of the proposal. A written response advising of the project's acceptability should be received before commencing development.

Buffer zones to sensitive water resources

Native vegetation buffers to sensitive water resources assist in controlling soil erosion and protecting waters from pathogens, turbidity, nutrient-enriched run-off and waterborne spread of weed species.

7. This Department supports retention, protection and restoration of adequate vegetated buffers between any land use activities that may pose a contamination risk. The recommended form and dimensions for buffer zones near sensitive water resources is provided in the Department's Note *Vegetation buffers to sensitive water resources* (see [Appendix A, reference 6b](#)).

Construction

Clearing of native vegetation for the construction of the food premises and its infrastructure should be minimised, and vegetated buffers along waterways and wetlands retained to preserve the biodiversity of plants and animals, and to reduce contamination risk and salinity problems.

Clearing of native vegetation under Environmental Protection Act 1986

Clearing permits for native vegetation are issued under the provisions of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*. They apply to private and public land throughout Western Australia, unless the clearing is for an exempt purpose. Application forms and guidelines for the lodgement of a permit and the EPA Position Statements 2 and 3 and Guidance Statements 51 and 56 are available from the Department of Environment. Refer to that department's internet site (see [Appendix A, reference 5b](#)), or phone their office on 6364 6500 or Freecall number 1800 061 025. The *Wildlife Conservation Act 1950* may be relevant where native vegetation includes rare flora or threatened fauna species. For information on *Bush Forever* sites, see the Western Australian Planning Commission's web page www.wapc.wa.gov.au/Publications/99.aspx or phone (08) 9264 7777.

Clearing of native vegetation in drinking water catchments

Under Part 12c of the *Country Areas Water Supply Act 1947*, special clearing licences are required within six defined Public Drinking Water Source Areas to protect the quality of the drinking water source and manage salinity. These areas are:

- Warren River Water Reserve;
 - Kent River Water Reserve;
 - Mundaring Weir Catchment Area;
 - Wellington Dam Catchment Area;
 - Harris River Dam Catchment Area; and
 - Denmark Catchment Area.
8. Development proponents should complete and forward an application for a clearing permit (if required under the *Country Areas Water Supply Act 1947*) to the Department of Water's regional office for assessment and approval. The permit for clearing native vegetation should be received prior to commencing clearing.

Earthworks

9. An erosion and sediment control plan should be prepared and implemented to minimise environmental impacts of stormwater run-off during construction activities. Sediment control measures that may be included in the plan are provided in the Department's Note *Roads in sensitive environments* (see [Appendix A, reference 6b](#)).
10. A dust management plan should be prepared and implemented to ensure public health and occupational health and safety while undertaking earth movements. Guidance for dust management issues can be obtained from the Department of Environment's Internet site (see [Appendix A, reference 5a](#)).

Rural infrastructure

11. Rural infrastructure (eg roads, car parks, drainage, communication, water, gas and power services) is an important consideration in the construction and operation of food premises. The construction of infrastructure in a rural area should not harm sites that have indigenous cultural or heritage value or may be covered by the *Aboriginal Heritage Act 1972*.

Roads and car parks

12. This Department encourages land developers to use existing infrastructure wherever practical. If practical additional direct access to major roads should not be created near sensitive waters. Roads and car parks pose a risk of degrading water resources as drainage from unpaved surfaces or associated open drains may contribute to soil erosion, transport of litter, sediment transfer and access of other contaminants (eg fuel or oil spills) into surface or ground waters. Details on road design, road construction and best management practices are provided in the Department's Note *Roads in sensitive environments* (see [Appendix A, reference 6b](#)).

On-site stormwater management

Guidance on stormwater system design, management, treatment and disposal are given in this Department's Water Quality Protection Note *Stormwater management at industrial sites* (see [Appendix A, reference 6b](#)).

13. Stormwater should be managed as described in the Department of Environment's *Stormwater Management Manual for Western Australia* (see [Appendix A, reference 5c](#)). This manual mainly applies to urban developments, but also offers guidance on general stormwater management for rural settings.
14. Stormwater from roofs, paths and landscape run-off should not be discharged into the vicinity of treated sewage management systems (including into any oil and grease arrester).
15. Stormwater run-off during high rainfall events should be minimised by using vegetated drainage paths and buffers. Vegetated buffers trap sediments and remove a portion of nutrients that may otherwise discharge in waterways or wetlands.

Operational aspects

Rural water supply

A reticulated (scheme) water supply is often unavailable in rural areas. Those areas may rely on local water sources, such as rainwater tanks, surface water dams or groundwater bores.

Rainwater capture

Tanks and dams can provide a source of water suitable for a wide range of use, but are not recommended for a drinking water supply especially if scheme water is available. Water-borne contaminants may harm people if the drinking water is not effectively treated prior to consumption. Information on the construction and type of material of the rainwater capture systems (eg roof, gutter, downpipes and tank) and on the use of rainwater tanks is given in the National EnHealth Council publication *Guidance on use of rainwater tanks* 2004 (see [Appendix A, reference 10](#)). The Department of Health WA has also prepared an information sheet *Urban rainwater collection* (see [Appendix A, reference 9b](#)).

Groundwater bores

Local groundwater may have variable quality, as many land use activities (eg on-site waste management systems and recreation) in rural settings pose a water contamination threat. Water-borne contaminants may harm the user if the groundwater is not effectively treated prior to consumption.

Water service providers such as the Water Corporation, treat extracted groundwater to deal with these problems before supplying scheme water to customers. However, the same level treatment is often not within the capability of private groundwater bore operators.

Regular monitoring is needed to ensure the quality of groundwater meets end use requirements, refer to the *Australian Guidelines for water quality monitoring and reporting* (see [Appendix A, reference 1b](#)).

Environmental water quality may vary with time, location and other attributes affecting the catchment. The risk from using an untested water source may range from aesthetic problems (eg colour, odour), occasional nuisance (eg sediment, taste), chemical related damage to plants, or in a worst case acute or chronic health problems in people or animals. Food premises serve food products to the public and therefore carry liability in the event of harm linked to contaminated products. Further details regarding the risk, testing and protection of water quality is provided in the Department's Note *Private Water Supplies* (see [Appendix A, reference 6b](#)).

16. Any proposed use of a non-reticulated water supply (eg rainwater tank or bore water) for a food premises serving the public should be referred to your local government authority or the WA Department of Health's Environmental Health Branch. These authorities will advise on water testing, treatment options, monitoring programs for the water supply and approval needs.
17. Tanker supplied potable water from an approved source to an on-site storage tank may be an option for drinking and food preparation at food premises. Advice should be sought from the Department of Health's Environmental Health Branch.
18. Alternative water sources used to supply a food premises should conform to the recommended water quality criteria given in the *Australian Drinking Water Guidelines 2004*, see [Appendix A, reference 1c](#), and the *General Food Standards Code Australia New Zealand, Standard 2.6.2* ([reference 3](#)), and other relevant legislation. Advice on acceptable water quality criteria and statutory constraints should be sought from the Department of Health (WA).

Waste Treatment Systems (WTS)

The *Government Sewerage Policy – Perth Metropolitan Region 1996* and the *Draft Country Sewerage Policy 1999* have been prepared to facilitate the provision of sewerage services and define the minimum requirements for non-sewered subdivisions and land development. Where properties cannot be connected to a reticulated sewerage system, wastewater should be treated and disposed of on-site in accordance with these policies.

Wastewater generated in food premises is derived from toilets, hand basins, kitchen sinks, commercial refrigeration (condensate), ice machines, dishwashers and glass washers. It may contain human sewage, paper, soap and detergent residues, cooking oils and greases and suspended food scraps.

19. For the selection of a suitable WTS, consideration should be given to:
 - the type of food operation;
 - form of food premises (limited or extensive food preparation);
 - size of food premises (number of patrons served/volume of wastewater created);
 - frequency of use (daily, weekend use only, seasonal);
 - hours of operation;
 - type of waste material entering system; and
 - type of treatment and design of system needed to ensure protection of sensitive groundwater or surface water resources.

20. WTS should be designed to handle the maximum predicted input. Estimates of the daily wastewater flow and organic load commonly measured as Biochemical Oxygen Demand (BOD) from the food premises that are expected to enter the WTS are provided in Table 2. The mean organic load (see mean BOD value in brackets) for each food premises was used to calculate the maximum number of persons per day and seven day load, respectively. These numbers are shown in the last two columns in Table 2.

Table 2 – Estimated daily wastewater production, organic load, and maximum number of persons (patrons and staff) per day at a food premises on a four hectare site

Premises description	Estimated daily wastewater flow per person ^{1, 7} (litres per person per day)	Organic (BOD) load grams /person/ day ^{1,2} [mean BOD]	Maximum number of persons per day ^{3,4,6}	Maximum number of persons per 7 day-week ^{3,4,6}
<i>Taverns:</i> Bar trade	5 - 8	5 – 10 [7.5]	186	1302
<i>Restaurants:</i> a. Licensed premises, up to 50 persons ⁵	30 - 50	40 – 65 [52.5]	28	196
b. Licensed premises, of more than 50 persons ⁵ (eg reception centres)	20 - 35	28 – 45 [36.5]	40	280
c. Eating houses	12 - 15	18 – 25 [21.5]	64	448
d. Tea room/ café	5 - 8	8 – 12 [10]	140	980

Table notes

¹ Environmental Protection Authority (Victoria), see [Appendix A, reference 8](#).

² The number of persons applies to all soil types.

³ Number of persons at a food premises is calculated on the basis of the residential organic load (70 g BOD/per person/day) used for the assessment of WTS based on land occupation density (one equivalent house per two hectares), used for the WA Planning Commission’s Middle Helena study (2004). However, the numbers have been adjusted to a minimum subdivided lot size of four hectares.

⁴ Calculations are based on the current understanding and may be subject to change.

⁵ Up to 50 or more than 50 persons apply for estimated daily wastewater flow and BOD/person/day only.

⁶ No other source of nitrogen (ie extensive lawns, gardens, crops, animals, dwelling, or other on-site waste producing industry) has been assumed.

⁷ Daily flow varies according to number, type and water efficiency of appliances used.

⁸ Organic daily loading may be averaged over population served per week and/or waste management procedures implemented.

Types of Waste Treatment Systems

Waste Treatment Systems are normally designed to remove gross solids, stabilise degradable organic material and settle out stabilised solids (sludge). The treated liquid portion, termed effluent, is allowed to leach into the ground. Some treatment systems have been designed to reduce phosphorus levels or to reuse the effluent for irrigating vegetation. Disinfection may be required if human contact with the effluent can occur. In May 2006 there were no domestic wastewater treatment systems approved in WA as nitrogen removing systems.

21. The most common types of systems for on-site wastewater treatment installed in WA are listed below. Details relating to these systems are provided in the Department's Note *Wastewater treatment – onsite domestic systems* (see [Appendix A, reference 6b](#)).
- a. Conventional septic tank with leach drains or soak-wells - see the Department of Health's Environmental Health Guide *Understanding Septic Tank Systems* (see [Appendix A, reference 9b](#)).
 - b. Aerobic Treatment Units (ATU's) – see the Department of Health's Environmental Health Guide *Aerobic Treatment Units* (see [Appendix A, reference 9b](#)).
 - c. Septic tank system incorporating amended soil in the effluent disposal field.
 - d. Waste stabilisation lagoon systems (aerobic or facultative wastewater treatment ponds) – refer to this Department's Note *Ponds for stabilising organic wastewater* (see [Appendix A, reference 6b](#)).

Further information on these systems can be obtained from the Department of Health's Environmental Health Branch or your local government authority.

22. Best management practice for the disposal of sewage is discharge to a reticulated sewerage system where wastewater drains to the town's wastewater management plant for treatment and disposal. However, reticulated sewerage is rarely available in rural and remote areas due to the technical and financial feasibility of providing this service to large lots. Most rural sites require an on-site wastewater management system approved by the Executive Director, Public Health WA.
23. Food premises discharging their wastewater to a reticulated sewerage system should apply for an *Industrial Waste Permit* from their water services provider (eg Water Corporation) to ensure the wastewater entering the sewerage system is safe and complies with the acceptance criteria. Food premises wastewater requires pre-treatment through a grease arrester or solid waste trap prior to discharge, to prevent fat, grease and oil from solidifying in the sewerage system.
24. The details for any proposed WTS (eg type and size) should be supplied to the local government authority and approved by the Department of Health prior to construction and operation. Advice from this Department should be sought for the construction of WTS servicing food premises near sensitive water resources.
25. The minimum buffer distance and lot size for all on-site wastewater treatment systems should follow the criteria described in this Department's Note *Wastewater treatment – onsite domestic systems* - Recommendation 1, and Tables 1, 2 and 3.
26. This Department recommends a two metre minimum clearance between the base of the soakage systems eg leach drains and the highest known groundwater table for sites near sensitive water resources. The aim is to decrease any contaminant loadings to surface catchments or groundwater sources. This recommendation applies to all soil types.
27. All wastewater should undergo effective treatment before release to the environment, and should comply with the national water quality criteria on entry to water resources (see [Appendix A, reference 1a and c](#)). This includes operating the systems as recommended by the supplier and maintaining them to achieve optimum treatment performance.
28. Septic tanks require regular desludging (pumping out) by licensed waste contractors. Annual checks of tank capacity should be undertaken.
29. Aerobic Treatment Units generally require a three-monthly maintenance service by a person approved by the Department of Health WA.

30. Kitchen operators should use water-use efficient equipment (eg commercial dishwasher and glass washers with a low demand water-wise rating). The usage volume can be minimised by adopting water-wise procedures and through the use of intermittent wash-down sprays.

Grease arresters

Grease arresters are a pre-treatment measure used in food premises with extensive food preparation to intercept greasy food residues from wastewater prior to its discharge into the reticulated sewerage system or on-site effluent disposal system. Arresters remove greasy and oily waste by flotation and coagulation. The food residues and other solids settle in the arrester as sludge, preventing these materials from entering the reticulated sewerage system or effluent disposal soakage area. Information regarding the design of grease arresters and maintenance requirements can be obtained from the Water Corporation (see [Appendix A, reference 11](#)).

31. Greasy, oily and fatty wastes from food premises should be intercepted by a grease trap system. The captured fats and sludges from grease arresters should be inspected and pumped out on a regular basis. Clean out frequency is based on the volume of wastewater generated on the food premises and depends upon the type and size of the grease arrester. Under the *Environmental Protection (Controlled Waste) Regulations 2004*, liquid waste from a grease arrester is a controlled waste which must be disposed at an approved location.
32. Hot, soapy wastewater from dishwashers, glass washers and sinks should not pass through the grease arrester as the grease will tend to dissolve and be transported into the reticulated sewerage system or on-site effluent disposal area. Fats and greases have the potential to solidify in the reticulated sewerage system causing blockages, or may clog the soil of the wastewater soakage area resulting in an overflowing WTS. This wastewater however may be directly discharged to on-site septic tank systems.

Greywater

Greywater is untreated wastewater from bathrooms, kitchen facilities and laundry troughs, but does not include toilet wastes. In food premises water from the hand basins, kitchen sinks, dish washers and glass washers could be reused after solid removal and passage through a grease trap for irrigating the lawns and gardens surrounding the premises. The characteristics of the wastewater will vary according to the number of persons, the type of food premises, type of detergents and cleaning products used, and water use patterns.

33. This Department supports greywater recycling in approved locations subject to appropriate environmental assessment processes that identify any potential environmental impacts. At this time, the Department does not support greywater reuse in proclaimed public drinking water source areas until the potential long term public health effects and social acceptability issues of this option are fully studied and understood.
34. For the installation of a greywater reuse system, an *Application to construct or install an apparatus for the treatment of sewage* form should be lodged and approved by the local government authority or Department of Health WA. Any installed system should be inspected by a local government authority Environmental Health Officer prior to covering pipework in the irrigation area, and written approval issued for use of the system. Only greywater system designs approved by the Executive Director, Public Health are permitted for irrigating greywater. Advice should be sought from this Department when intending to install a greywater system near a sensitive water resource. Further information is provided in this Department's Note *Irrigation of vegetated land with nutrient-rich water* (see [Appendix A, reference 6b](#)).
35. Greywater systems should be maintained on a regular basis. Some systems may require weekly cleaning or replacement of filters, periodic desludging of solid waste traps, and occasional repair or replacement of pumps.

For further information, refer to the WA Department of Health's *Code of Practice for the reuse of greywater in Western Australia, 2005* (see [Appendix A, reference 9a](#)).

Solid waste management

Advice on solid waste management, recycling and waste minimisation programs can be obtained from your local government authority or any Department of Environment office.

36. The Department of Environment promotes the following waste minimisation principles:

- a. the 3R's – reduce, reuse and recycle;
- b. smart shopping (for water efficient and environmentally friendly products);
- c. composting and worm farming; and
- d. waste management audits.

37. Solid waste materials and recyclable items should be removed from the food premises on a regular basis to prevent any airborne litter, odour, or insect and rodent problems. Local government authorities generally offer a regular kerbside collection for solid waste and recyclable items. Your local government authority or a commercial waste management contractor should be contacted to make suitable arrangements.

38. The proponent should provide a sufficient number of enclosed skips or rubbish bins (with lids) around the premises and in the parking area to contain waste products in a weatherproof manner and to prevent any airborne litter, access to scavengers or loss of food residues that may be washed into surface or ground waters.

Chemical use and storage

39. Any bulk commercial chemicals used for cleaning and maintaining the food premises in a hygienic condition should be stored in a designated area with suitable spill containment to prevent any environmental harm. The general principles on the storage and use of chemicals can be taken from this Department's Notes *Toxic and hazardous substances – storage and use* and *Tanks for temporary above ground chemical storage* (see [Appendix A, reference 6b](#)).

Maintenance of restaurant grounds

Pesticide application and storage

Pesticides are used in food premises for controlling pests (eg cockroaches, mice and rats) and for maintaining pest-free lawns and gardens surrounding the premises (eg in alfresco areas). Some pesticides remain mobile and toxic in the environment for long periods, or their carrier solvents do not degrade and have the potential to be transported into surface water and groundwater.

40. The use, application, storage, mixing and disposal of pesticides within PDWSA should comply with the Department's *Statewide Policy No 2: Pesticide use in Public Drinking Water Source Areas 2000* (see [Appendix A, reference 6a](#)), follow the supplier's instructions and the *Health (Pesticide) Regulations 1956* administered by the Department of Health WA and relevant Department of Agriculture WA guidelines; and be target-specific where practical.

41. Guidance and advice for the control of pests and preparation of a pest control program should be obtained from your local government authority's Environmental Health Section.

Fertiliser application and storage

Fertilisers, based on stabilised animal wastes or agricultural chemicals, are commonly used to maintain the fertility of the soil and the healthy growth of any introduced vegetation and lawns. Leached nutrients (eg nitrogen and phosphorus) can easily be transported through the soil into water bodies affecting the water quality and creating algal blooms.

42. The proponent should prepare and implement a Nutrient and Irrigation Management Plan, following the information provided in the Department's Note *Nutrient and Irrigation Management Plans* (see [Appendix A, reference 6b](#)).

Tourism/recreational activities near sensitive water resources

Tourism is a growing industry in WA that offers income opportunities to rural communities. However, it also adds to the pressure to sensitive environments as a result of additional land clearing; use for recreation (eg bushwalking, fishing and swimming); higher draw from water resources during holiday periods; increased volume of liquid and solid wastes disposal in the local area, and demand for other services.

43. This Department recommends that minimal recreation activities be allowed near sensitive water resources eg in protection zones within PDWSA, and riparian zones near watercourses and conservation valued wetlands, except in designated tourism sites with appropriate facilities. Typical recreational land use/ activities posing a contamination risk to water resources are described in [Appendix F](#).
44. Adopting a multiple protection barrier approach in the water catchment, such as preparing and implementing protection plans, maintaining an active surveillance program, and providing special protected zones can assist in preventing the entry of contaminants into water bodies.
45. The proponent should install and maintain signs advising patrons that the area is located near sensitive water resources eg in a proclaimed PDWSA where by-laws under the *Country Areas Water Supply Act 1947* or *Metropolitan Water Supply, Sewerage and Drainage Act 1909* apply.

Further information on protecting PDWSA from contamination caused by inappropriate recreational activities is given in this Department's *Policy and Guidelines for Recreation within Public Drinking Water Source Areas on Crown Land, 2003* (see [Appendix A, reference 6a](#)). The provisions of the policy apply to Priority 1 PDWSA, but are also recommended for private land holdings and can be used as a benchmark for acceptable recreation within Priority 2 and 3 areas.

Contingency measures

46. An environmental contingency plan should be developed, outlining management responses to various abnormal operating situations that may occur and could harm water resources. Scenarios include overflowing or malfunctioning sewage systems, fires, vandalism, floods or spillage of chemicals. Staff should be trained in the emergency response, and the plan should be followed when an incident occurs to prevent any harm to the environment. The Department's Note *Contaminant spills – emergency response* may assist in developing a suitable contingency plan (see [Appendix A, reference 6b](#)).

More Information

We welcome your views on this note. Feedback provided on this topic is held on the Department's file **21401**. The note will be updated periodically as new information is received or industry/activity standards change. See our web page www.drinkingwater.water.wa.gov.au, select *Publications> Water Quality Protection Notes* for updates. To comment on this note or for more information, please contact our Water Source Protection Branch in Perth, phone (08) 6364 7600 (business hours), fax 6364 6525 or use *Contact us* at our internet site, citing the note topic and version.

In October 2005, the State Government announced the formation of the Department of Water. From January 2006, the Department of Water has assumed primary responsibility for managing the State's water resources. Once the Department of Water is legally established, it will replace many of the present functions of the present Water and Rivers Commission and operate in parallel (with separate powers) to the Department of Environment. The custodian and recommendations made in this note will then change to match the assigned responsibilities of the Departments of Environment or Water.



Department of Water
Government of Western Australia



Department of Environment
Government of Western Australia



Swan River Trust

www.water.wa.gov.au
Telephone: (08) 6364 7600
Facsimile: (08) 6364 7601 Floor 4,
The Atrium
168 St Georges Terrace Perth
Western Australia 6000

www.environment.wa.gov.au
Telephone: (08) 6364 6500
Facsimile: (08) 6364 6525
Floor 4, The Atrium
168 St Georges Terrace Perth
Western Australia 6000

www.swanrivertrust.wa.gov.au
Telephone: (08) 9278 0900
Facsimile: (08) 9325 7149
Level 1, Hyatt complex
20 Terrace Rd East Perth
Western Australia 6004

Appendices

Appendix A - References and further reading

1. Australian Government - National Water Quality Management Strategy
 - a. *Australian and New Zealand Guidelines For Fresh and Marine Water Quality*, ANZECC, ARMCANZ 2000.
 - b. *Australian Guidelines for Water Quality Monitoring and Reporting*, ANZECC, ARMCANZ 2000.
see internet site www.deh.gov.au/water/quality/nwqms/index.html.
 - c. *Australian Drinking Water Guidelines*, NHMRC, NRMMC 2004,
see web page www.health.gov.au/nhmrc/publications/synopses/eh19syn.htm.
 - d. *Policies and Principles*, ANZECC, ARMCANZ 1994.
 - d. *Implementation guidelines*, ANZECC, ARMCANZ 1998.
 - e. *Rural land uses and water quality- a community resource*, ANZECC, ARMCANZ 2000.

To obtain copies, see Internet site www.awa.asn.au or request from the library service bookshop@awa.asn.au.

Acronyms

ANZECC: Australian and New Zealand Environment and Conservation Council,
 ARMCANZ: Agriculture and Resource Management Council of Australia and New Zealand
 NRMMC: Natural Resource Management Ministerial Council
 NHMRC: National Health and Medical Research Council

2. Standards Australia
AS 5667 Water Quality-Sampling,
see Internet site www.standards.com.au/catalogue/script/search.asp.
3. Food Standards Australia New Zealand
General food standards, Part 2, Standard 2.6.2, see Internet site www.foodstandards.gov.au, select *Chapter 2 Food Product Standards> Standard 2.6.2*
4. Wetland information:
 - a. For RAMSAR wetlands, see Internet site www.ramsar.org.
 - b. Department of the Environment and Heritage (Australia)
A Directory of important wetlands in Australia, see web page www.deh.gov.au/water/wetlands/databases.html, or the Department of Conservation and Land Management (WA), see web page www.naturebase.net/national_parks/wetlands/wa_wetlands.html.

- c. *Geomorphic wetlands of the Swan Coastal Plain* dataset which displays wetland locations, boundaries, geomorphic classification (wetland type) and management categories. The dataset and maps are available from the following sources:
 - WA Land Information System at Internet site www.walis.wa.gov.au. This site should be used in conjunction with “a guide to viewing the WALIS dataset” available at <http://wetlands.environment.wa.gov.au/>, select *Data>Wetland mapping*.
 - *Perth Groundwater Atlas*, see Internet site www.water.wa.gov.au select *Tools, System & Data*. For additional information contact the Water Information section.
 - Publication *Wetlands of the Swan Coastal Plain*, volume 2B *Wetland mapping, classification and evaluation - wetlands atlas* (Hill, Semeniuk, Del Marco 1996). Reference copies are available from the Department of Environment library in Perth.
- d. *Geomorphic wetlands Augusta to Walpole* available from the following sources:
 - Publication *Mapping and Classification of Wetlands from Augusta to Walpole in the South West of Western Australia* (V & C Semeniuk Research Group for the Water and Rivers Commission 1997). Reference copies are available from the Department of Environment’s library in Perth.
 - Dataset is available from the *Information Services Branch – GIS support analyst* at the Department of the Environment (WA), phone 6364 6500.
- e. *South Coast Significant Wetlands* dataset which supports the South Coast Natural Resource Management Strategy. This is available from the *Information Services Branch – GIS support analyst* at the Department of the Environment (WA) phone 6364 6500.

5. Department of Environment (WA)

- a. Air quality
Guidance for dust management issues, see Internet site www.environment.wa.gov.au, select >air quality>select publication> guidelines> select Land Development Site and Impacts on Air Quality.
- b. Clearing of native vegetation
Permits under the *Environmental Protection Act 1986*, see Internet site www.vegetationprotection.environment.wa.gov.au, select *licences > permits> forms*.
- c. Stormwater
Stormwater Management Manual for Western Australia, see Internet site www.stormwater.environment.wa.gov.au, select *Publications>Guidelines*.
- d. Waste management
 - *Draft Strategy for the management of green and solid organic waste in WA, Dec. 1997.*
 - *Western Australian Waste Reduction and Recycling Policy 1997.*
 see Internet site www.wastemanagement.environment.wa.gov.au, select *Publications*.
- e. Waterways policy and guidelines:
 - *Foreshore Policy 1- Identifying the Foreshore Area*, WRC 2002
 - *Water Note 4- Wetland buffers*
 - *Water Note 10 – Protecting riparian vegetation*
 - *Water Note 11- Identifying the riparian zone*
 - *Water Note 22- Herbicide use in wetlands*
 - *Water Note 23- Determining foreshore reserves*,
 see Internet site <http://waterways.environment.wa.gov.au>, select *Publications> Policies or Manuals>Water Notes*.
- f. Wetlands policy and guidelines
 - *Position statement: Wetlands, 2001.*
 see Internet site <http://wetlands.environment.wa.gov.au>, select *Publications>Policy, Wetlands Position Statement*.

6. Department of Water (WA)

a. Water source protection policy

- Statewide Policy No. 2: *Pesticide Use in Public Drinking Water Source Areas*, 2000
- *Policy and Guidelines for Recreation within Public Drinking Water Source Areas on Crown land*, 2003

b. Water Quality Protection Notes

- *Contaminant spills – emergency response*
- *Irrigation of vegetated land with nutrient-rich wastewater*
- *Land use compatibility in Public Drinking Water Source Areas*
- *Nutrient and irrigation management plans*
- *Ponds for stabilizing organic wastewater*
- *Private Water Supplies*
- *Roads in sensitive environments*
- *Rural land use and water quality*
- *Stormwater management at industrial sites*
- *Temporary above ground chemical storage in PDWSA*
- *Toxic and hazardous substances - storage and use*
- *Vegetation buffers to sensitive water resources*
- *Wastewater treatment – onsite domestic systems*

see Internet site www.water.wa.gov.au, select *Publications*> *Water Quality Protection Notes*.

7. Environmental Protection Authority (WA)

a. *Environmental Protection of Wetlands Position Statement No. 4, 2004*,

b. *EPA Position Statement 2 & 3, and Guidance Statement 51 & 56*,

see Internet site www.epa.wa.gov.au.

8. Environmental Protection Authority (Victoria)

Code of Practice for small wastewater treatment plants, June 1997

see Internet site www.epa.vic.gov.au >water>EPA water programs>controlling wastewater>EPA Publication 500, *Code of Practice for small wastewater treatment plants*.

9. Department of Health (WA)

a. *Code of Practice for the reuse of greywater in WA, 2005*;

see Internet site www.population.health.wa.gov.au, select *Environmental Health*>*Wastewater management*> *Pamphlets*>*Wastewater management*.

b. Resources

- *Environmental Health Guide: Understanding Septic Tank Systems*, and
- *Environmental Health Guide: Aerobic Treatment Units*,

see Internet site www.population.health.wa.gov.au, select *Environmental Health*>*Wastewater Management*>*For more information*>*Pamphlets*>*Wastewater Management*.

- *Urban rainwater collection*, and *Using bore water safely*,

see Internet site www.population.health.wa.gov.au, select *Environmental Health*>*Wastewater Management*>*For more information*>*Pamphlets*>*water safety*.

10. Australian Government – National Environmental Health Strategy (EnHealth Council)
Guidance on use of rainwater tanks, 2004, see Internet site
www.enhealth.nphp.gov.au/council/pubs/documents/rainwater_tanks.pdf
11. Water Corporation (WA)
Design of grease arresters and maintenance requirements, see Internet site
www.watercorporation.com.au/indwaste, select *resources>library>typical design drawings<grease arresters>*.
12. Western Australian Planning Commission
Information on Bush Forever sites, see Internet site
www.wapc.wa.gov.au/Publications/99.aspx.
13. WA Planning Commission and Water and Rivers Commission
Middle Helena Land Use and Water Management Strategy, Draft August 2003,
see Internet site www.planning.wa.gov.au/publications/middlehelena/mhreport.html.

Appendix B - Statutory requirements and approvals relevant to this note include:

What's regulated	Statute	Regulatory body/ agency
Subdivision of land	<i>Planning and Development Act 2005</i>	WA Planning Commission
Land zoning and development approval		Department for Planning and Infrastructure
Development in the Swan River Trust Management Area	<i>Swan River Trust Act, 1988</i>	Swan River Trust
Permit for land clearing	<i>Environmental Protection (Clearing of Native Vegetation) Regulations, 2004</i>	Department of Environment
	<i>Country Areas Water Supply Act, 1947</i>	
Clearing of rare flora	<i>Wildlife Conservation Act, 1950</i>	Department of Conservation and Land Management
Aboriginal Heritage	<i>Aboriginal Heritage Act, 1972</i>	Department of Aboriginal Affairs
Impact of significant development proposals on the values and ecology of land or natural waters	<i>Environmental Protection Act, 1986 - Part IV Environmental Impact Assessment</i>	Minister for the Environment advised by the EPA.
Licensing of prescribed premises that pollute	<i>Environmental Protection Act 1986 - Part V Environmental Regulation</i>	Department of Environment - regional office
Licence to discharge waters into managed waterways.	<i>Waterways Conservation Act 1976</i>	
Licence to take surface water and groundwater	<i>Rights in Water and Irrigation Act 1914</i>	Department of Water - regional office
Land uses/activities within Public Drinking Water Source Areas	<i>Metropolitan Water Supply, Sewerage & Drainage Act 1909</i>	
	<i>Country Areas Water Supply Act 1947</i>	
Discharges into the Swan-Canning Estuary	<i>Swan River Trust Act 1988</i>	Swan River Trust
Construction of food premises (internal design)	<i>Health Act 1911</i>	Department of Health
	<i>Health (Food Hygiene) Regulations 1993</i>	Local government authority
Storage of fuels, solvent, explosive and dangerous goods	<i>Explosive and Dangerous Goods Act 1961 and associated Regulations</i>	Department of Consumer and Employment Protection
Management of human wastes (including WTS, grease traps), Community health issues	<i>Health Act 1911 and Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974</i>	Local Government Authority
		Department of Health
Emergency response planning	<i>Fire and Emergency Services Authority of WA Act, 1998</i>	Fire and Emergency Services Authority
Discharge to sewer (industrial waste permit, grease trap) or to main drain	<i>Metropolitan Water Supply, Sewerage & Drainage Act 1909</i>	Water Corporation
	<i>Country Towns Sewerage Act 1948</i>	

Appendix C - Sensitive water resources

Clean water resources, used for drinking water, sustaining aquatic and terrestrial ecology, industry and aesthetic values, along with breathable air, rank as the most fundamental and important needs for viable communities. These water resources should remain within specific quality limits, and therefore require stringent and conservative protection measures. Guidance on water quality parameters necessary to maintain water values are published in the *National Water Quality Management Strategy Guidelines* (see web page www.deh.gov.au/water/quality/nwqms/index.html). This Department strives to improve community awareness of catchment protection measures for surface water and groundwater aquifers as essential elements in a multi-barrier protection approach to maintain the quality of water resources and their values.

To be considered sensitive, water resources must support one or more of the environmental values described below. Any activity or a land use will pose a risk to water quality if contaminants are able to be washed or leached into sensitive water resources in discernible quantities. These water resources may be shallow groundwater accessed by water supply wells, surface waterways, estuaries, or wetlands. Community support for these values, setting of management objectives for water resources and implementation of a practical attainment strategy are seen as key elements in protecting and restoring the values of these water resources.

Sensitive water resources include:

- a. Those proclaimed or assigned as Public Drinking Water Source Areas (ie Water Reserves, Catchment Areas or Underground Water Pollution Control Areas) via the *Metropolitan Water Supply, Sewerage and Drainage Act 1909*, the *Country Areas Water supply Act 1947* or the *Health Act 1911*.
- b. Those used as private drinking water supply sources (ie for human or stock consumption).
- c. Waters with specific quality necessary to support commercial or industrial activities eg aquaculture, food processing or crop irrigation.
- d. Wetlands and waterways- pristine or conservation-valued, (not highly disturbed, unless subject to active management to restore historic environmental values), and detailed as follows:
 - Policy areas covering water resources defined via Part III of the Environmental Protection Act 1986 eg Environmental Protection (Swan Coastal Plain Lakes) Policy, 1992.
 - Waterways managed under the Waterways Conservation Act 1976, ie the Avon, Peel-Harvey, Leschenault, Wilson Inlet and Albany Waterways Management Areas.
 - The Swan-Canning Estuary and adjoining lands administered via the Swan River Trust Act 1988.
 - Wetlands of regional, national and international importance, including but not limited to: Conservation category wetlands (CCW) and Resource Enhancement category wetlands (REW), Environmental Protection (Swan Coastal Plain Lakes) Policy 1992, and wetlands listed within *A Directory of Important Wetlands in Australia* (see the Australian Department of Environment and Heritage internet site, which also provides information on Ramsar convention sites, at www.deh.gov.au/water/wetlands/database/directory).
 - Groundwater aquifers that sustain important ecological functions.
- e. Locations where surface water or water drawn from the ground water table may be consumed or inhaled affecting people's health or well-being, eg garden, recreation facility or irrigation sources.
- f. Surface water bodies and wetlands meeting recognised cultural or social needs, eg water resources used for community swimming, fishing or valued for their visual appeal.

Where a conflict arises between the Department'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 risk to water quality than if the Department's recommended protection measures were used.

Appendix D - Development proposals near sensitive water resources

Where facilities are to be constructed or upgraded near sensitive waters, including PDWSA, Waterways Management Areas, the Swan River Trust areas or within 500 metres of any Conservation category wetland, proponents should supply a notice of intent to the regional office, including the following details:

1. Site owner or operating tenant's contact name and address details.
2. A site plan showing the location of the facility.
3. Description of the activities that will be carried out.
4. Description of materials/chemicals stored or handled on site.
5. Predicted number of patrons (ie for determining requirements for WTS)
6. Description of the types and quantities of waste that will be generated at the facility.
7. Proposals for chemical containment waste management and disposal (with design sketches).
8. Details of any contingency measures to minimise the impacts of chemical spills, and disposal of contaminated waters from fire, flood or other emergency.

Appendix E - Useful contacts

<p>Department of Agriculture 3 Baron-Hay Court South Perth WA (08) 9368 3333 www.agric.wa.gov.au</p>	<p>Department of Indigenous Affairs Level 1, 197 St Georges Terrace Perth WA 6000 (08) 9235 8000 www.dia.wa.gov.au</p>
<p>Department of Consumer and Employment Protection – Worksafe program 5th floor 1260 Hay Street West Perth WA 6005 (08) 9327 8777 www.docep.wa.gov.au</p>	<p>Department of Land and Conservation Hackett Drive Crawley WA 6009 (08) 9442 0300 www.calm.wa.gov.au</p>
<p>Department of Health 189 Royal Street East Perth WA 6004 (08) 9222 4222 www.health.wa.gov.au</p>	<p>Fire and Emergency Services Authority FESA House 480 Hay Street Perth WA 6000 (08) 9323 9300 www.fesa.wa.gov.au</p>
<p>WA Planning Commission Albert Facey House 469 Wellington Street Perth WA 6000 (08) 9264 7777 www.wapc.wa.gov.au</p>	<p>Water Corporation 629 Newcastle Street Leederville WA 6007 13 13 85 www.watercorporation.com.au</p>

Appendix F - List of selected contamination hazards associated with recreational land uses in PDWSA

Land Use/ Activity	Hazard Event/ Source	Contamination Hazard ¹
Off-road vehicle use	Fuel and chemical spills Erosion and run-off Litter Dumping waste	Hydrocarbons and chemicals Turbidity Pathogens Tyres, asbestos, other domestic wastes
Swimming	Human contact Domestic animal contact	Pathogens Pathogens
Picnicking and Camping	Litter Human excreta Animal excreta Septic systems	Pathogens Pathogens and nutrients Pathogens and nutrients Pathogens and nutrients
Proposed upgrade day use facilities	Litter Erosion and run-off Fuel spills Septic systems	Pathogens Turbidity Hydrocarbons Nutrients and pathogens
Bushwalking and cycling	Litter Human contact Erosion	Pathogens Pathogens Turbidity

¹ denotes a biological, chemical, physical or radiological agent with to cause contamination of a water source

Appendix G - Glossary

Café Cafés are not defined under the WAPC Model Scheme Text. For the purpose of this note, cafés are considered a **small** restaurant. A restaurant is seen as an establishment that serves prepared food and beverages to be consumed on the premises. Cafés share these characteristics, but only serve hot drinks, non-alcoholic beverages, reheated goods, soups, sandwiches and light meals that are prepared and consumed on the premises. Coffee shops and coffeehouses are treated as cafés.

Restaurant An establishment that serves prepared food and beverages to be consumed on the premises.

Rural As defined in WAPC Statement of Planning Policy No. 11:

- those areas of land where broadacre cropping and grazing are undertaken. These areas may also include large scale intensive production enterprises such as poultry farming, orchards, feedlots for livestock, dairying, viticulture and aquaculture,
- characteristic of, or pertaining to, the country (as distinct from the city and towns) as in the rural area or rural landscape,
- pertaining to agriculture as in rural economy, or
- the act of living in the country as in rural living.

Pathogens Bacteria, viruses, protozoa and other micro-organisms that may cause disease in humans and animals

Tavern An establishment licensed to sell alcoholic beverages to be consumed on the premises (patrons are also likely to be served food).