WINGECARRIBEE SHIRE COUNCIL

On-Site Sewage Management STRATEGY

Adopted 2000
(last reviewed August 2014)

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INTRODUCTION

BACKGROUND

On-site sewage management systems are used by approximately 250,000 households throughout NSW. There have been increasing concerns that these systems are failing to adequately treat and dispose of wastewater leading to pollution of waters and unhealthy conditions.

The former Minister for Local Government, Mr Ernie Page, stated that an inquiry into operation of these systems indicated failure rates as high as ninety percent, posing potentially serious public health risks through contamination of neighbouring land and water.

Within Wingecarribee Shire Council area there is approximately 5,000 on-site sewage management systems that range from old septic tanks to modern aerated systems. The number of systems is increasing as more development occurs in the rural and village areas of the Shire. With the local environment stressed and sensitive to further pollution, careful control of such systems is essential.

The Department of Local Government in co-operation with the Environment Protection Authority, the Department of Health, Department of Urban Affairs and Planning and the Department of Land and Water Conservation have previously produced the 'Environment and Health Protection Guidelines' to assist Councils prepare management strategies for on-site sewage management for single households.

Wingecarribee Shire Council developed this Strategy based on those Guidelines and on Section 68 of the Local Government Act 1993 and the Local Government (General) Regulation 2005 [NSW], which provides for approval and monitoring of systems by Council.

SCOPE

This strategy applies to all fixed on-site sewage management systems in the Wingecarribee Shire Council local government area that do not directly discharge into a reticulated sewerage system and are not regulated by a pollution control licence issued by the NSW Environment Protection Authority.

The following wastewater treatment devices are all classed as on-site sewage management systems:

- Septic tank and absorption trenches
- Septic tank and evapotranspiration/absorption areas
- Aerated Wastewater Treatment Systems (AWTS)
- Septic tank and holding well pump-out systems
- Composting toilet systems
- Greywater treatment systems
- Septic tank and constructed wetland/reed bed systems
- AWTS and sand mound systems
- Any other system that stores, treats, and or disposes of sewage and wastewater on-site.

PURPOSE

This strategy provides the framework to manage and regulate the impact of on-site sewage management systems within Council's area of operation, and to ensure community accountability.

The strategy will help Council to prioritize resources for efficient regulation and monitoring of on-site sewage management in the area, and to co-ordinate environmental assessment, data collection and monitoring.

GOALS

Goals to be achieved with the implementation of this strategy, both short and medium term include:

- To ensure that on-site sewage management systems and land application areas are installed and operated to comply with relevant on-site sewage management requirements.

- To adopt a partnership approach with households and service agents to support continual improvement of on-site sewage management.

- To maintain a database of all on-site sewage systems.

- To determine the structures and facilities needed to support on-site sewage management systems.

- To provide education and information for operators of on-site sewage management systems.

- Ensure no illegal discharge from pump-out systems.

- To ensure that all on-site sewage management systems are inspected by Council at regular intervals, and are desludged/maintained as required.

- To assist operators by providing an operation and maintenance plan for each on-site sewage management system.

- To have periodic review of Council development standards and approval criteria for subdivision, development and building, to ensure that appropriate provision is made for sustainable on-site sewage management when residential development occurs in unsewered areas.

PERFORMANCE OBJECTIVES

Each site and its proposed or existing sewage system must be considered on its own merit. The system must be appropriate for long term use on the site and meet the following performance objectives:

- **Prevention of public health risk** – sewage contains bacteria, viruses, parasites and other disease-causing organisms. Contact with effluent should be minimised or eliminated, particularly for children. Residuals, such as composted material, should be handled carefully. Treated sewage should not be used on edible crops that are consumed raw.

- **Protection of lands** – on-site sewage management systems should not cause deterioration of land and vegetation quality through soil structure degradation, salinisation, waterlogging, chemical contamination or soil erosion.

- **Protection of surface waters** – on-site sewage management systems should be selected, sited, designed, constructed, operated and maintained so that surface waters are not contaminated by any flow from treatment systems and land application areas (including effluent, rainfall run-off and contaminated groundwater flow).

- **Protection of groundwaters** – on-site sewage management systems should be selected, sited, designed, constructed, operated and maintained so that groundwaters are not contaminated by any flow from treatment systems and land application areas.

- **Conservation and re-use of resources** – the resources in domestic wastewater (including nutrients, organic matter and water) should be identified and utilised as much as possible within the bounds posed by the other performance objectives. Water conservation should be practiced and wastewater production should be minimised.

- **Protection of community amenity** – on-site sewage management systems should be selected, sited, designed, constructed, operated and maintained so that they do not unreasonably interfere with quality of life, and, where possible, so that they add to the local amenity – special consideration should be given to aesthetics, odour, dust and excessive noise.

LOCATION AND EXISTING CONDITIONS

The Wingecarribee Local Government Area covers an area of 2700 square kilometres and is located approximately 110 kilometres south of Sydney. Most of the Shire is at or above 640 metres in elevation. Wingecarribee Shire consists of the four major towns of Bowral, Mittagong, Moss Vale and Bundanoon and ten smaller villages scattered throughout the Shire.

Tourism is a major industry in the Southern Highlands and continuing to grow rapidly. Visitors are drawn to the Highlands for a variety of festivals and outdoor pursuits such as Tulip Time, Brigadoon, open gardens, historic towns, golf, bushwalking, and a taste of country living.

The population of the Shire was 44,395 at the 2011 Census. Population growth is approximately 1.3% per annum. It is estimated that approximately 11,500 people are living in unsewered areas. The number of on-site sewage management systems in the Shire is approximately 5000, with around 1500 of those being aerated wastewater treatment systems. The remainder being primarily conventional septic tanks with on-site absorption trenches, and a small number of composting toilets.

The eastern parts of the Shire are bounded by cliffs and ravines of the Illawarra Escarpment and Morton National Park. To the north, the area is characterised by rugged eucalypt bushland over nutrient poor, sandy soils. Much of the northern part of the Shire is special water catchment land supplying the Avon, Nepean and Cordeaux Dams. The western and southern sections of the Shire are also characterised by rugged bushland, some of which acts as catchment for the Warragamba Dam (supplying drinking water for greater Sydney), however much of this area is used for cattle grazing.

The underlying geology of the region consists mainly of the Wianamatta Group of sedimentary rocks, predominantly shale, overlain in parts by remnants of Tertiary volcanic basalts. Outcrops of the Permian aged Berry Formation, comprised of undifferentiated siltstones, shales and sandstones, exist to the south and west of the Shire, while Hawkesbury sandstone outcrops in the Shire's east.

Alluvial deposition within the Shire is limited to the main internal drainage basin of the Wingecarribee River, where unconsolidated Quaternary sediments of silts, sands and gravels have been deposited. Another significant area of alluvial deposition is the Wildes Meadow swamp area, part of which was flooded during the 1970's to create Fitzroy Falls Reservoir.

The soils above the undulating plateaus are wide-ranging and highly dependant on the (variable) underlying geology and the climatic regime of the local area. The soils range from shallow, infertile, strongly acidic soils derived from Hawkesbury Sandstone to rich, fertile red krasnozem soils (at Exeter, Bundanoon, Kangaloon and Robertson) derived from the breakdown of basalt and basanite residuals. Within the low lying alluvial plains and closed depressions, soils consist of black organic peats and clays of moderate to low fertility. For the greater part of the Shire, moderately rich clay soils have developed over the Wianamatta Shales.

The climate of the Shire consists of generally cool to mild summers, with an average maximum temperature of 18.4°C, and cold winters of average minimum temperature

7.5°C. Precipitation within the Shire reflects the orographic effect of the Illawarra Escarpment, with rainfall of 1600mm at the eastern edge decreasing to 850 mm at the western edge, which is distributed evenly throughout the year.

Wingecarribee Shire contains the headwaters of several major river systems including the Nepean, Wollondilly, Wingecarribee, Shoalhaven and Paddy's Rivers, all of which contribute to drinking waters supplies for greater Sydney. Several large reservoirs are located within the Shire, most notable Wingecarribee and Fitzroy Falls Reservoirs, while numerous smaller weirs and dams have also been constructed to help ensure and regulate continuous water supplies (Medway Dam and Bundanoon Creek Dam).

Significant areas of wetlands within Wingecarribee Shire include Wingecarribee Swamp, Hanging Rock Swamp, Cecil Hoskins Nature Reserve, Wildes Meadow Swamp, North Pole Swamp and Stingray Swamp Flora Reserve. Wingecarribee Swamp is the largest montane peatland in Australia, and is one of the few habitats for several rare species of flora.

These wetlands are highly productive ecosystems, which provide plant and animal habitats and act as sediment traps, converters and recyclers of nutrients, and breeding grounds for many species of birds and fish.

There are several sources of spring water throughout the Shire, some of which are utilised for the commercial market. There are many bores and wells using groundwater for drinking and stock watering purposes. Extensive mapping of the groundwater supply has been undertaken by the Department of Land and Water Conservation and the Hawkesbury Nepean Catchment Management Trust to indicate availability and vulnerability of this important resource.

Within this Shire, water resources and the way in which they are managed is critical to health and environmental issues.

Currently the towns of Mittagong, Moss Vale, Bowral, Burradoo, Bundanoon, Berrima, New Berrima, Welby, Willow Vale, Braemar, Balaclava, Aylmerton, Colo Vale, Hill Top and Robertson are served by reticulated sewerage.

Surveys of on-site sewage systems within and outside the Shire have indicated high failure rates of these systems, which then pose risks to public health and the environment.

LEGISLATION, STANDARDS AND STUDIES

LOCAL GOVERNMENT ACT 1993 (NSW)

The Local Government (Approvals) Amendment (Sewage Management) Regulation 1998 was gazetted on 6 March 1998. This was remade into the Local Government (Approvals) Regulation 1999 and commenced on 1 September 1999. Now known as the Local Government (General) Regulation 2005 [NSW], and applied in conjunction with Section 68 of the Local Government Act 1993.

The Act and Regulation:

- Prescribes the **operation of a system of sewage management** as an activity which requires the prior approval of Council.
- Specifies matters that are to accompany an application for approval to install, alter or construct any **sewage management facility.**
- Clarifies the accreditation roles and responsibilities of the NSW Department of Health.
- Sets the performance standards for the operation of a system of sewage management and certain conditions to attach to an approval to operate such a system.
- Requires Council to consider matters specified in guidelines and directions issued by the Director-General of the Department of Local Government.
- Provides certain exemptions for the requirements to obtain approvals.

The regulation operates under the framework of the local government approval system established under Section 68 of the Local Government Act 1993.

To administer the Act and Regulation, Council is able to charge fees associated with the cost of issuing approvals.

In 1997, the Local Government Act 1993 was amended by the Local Government Amendment (Ecologically Sustainable Development) Act 1997 to enhance the environmental management roles of Council and incorporate principles of ecologically sustainable development. The amendments have created linkages throughout the Local Government Act between a council's environmental charter, its approval function, its management planning process, its annual reporting process and it's State of the Environment report in relation to the principles of ecologically sustainable development. Councils are now expected to adopt a strategic "whole of Council" approach toward the recognition of ecologically sustainable development and to respond positively to environmental problems in their areas.

PROTECTION OF THE ENVIRONMENT OPERATIONS ACT 1997

The Protection of the Environment Operations Act (POEO Act) commenced on 1 July 1999 making significant changes to pollution control licensing in NSW. The POEO Act provides a single licensing arrangement to replace the numerous licenses and approvals under previous Acts relating separately to air pollution, water pollution, noise pollution and waste management.

The POEO Act replaced the Pollution Control Act, Clean Waters Act, Clean Air Act, Noise Control Act, Environmental Offences and Penalties Act, and the regulatory provisions from the Waste Minimisation and Management Act.

This legislation has a number of related objectives including:

1) Protect, restore and enhance the quality of the environment in New South Wales having regard to the need to maintain ecologically sustainable development.
2) to reduce risks to human health and prevent the degradation of the environment by the use of mechanisms that promote the following:
    a) pollution prevention and cleaner production,
    b) the reduction to harmless levels of the discharge of substances likely to cause harm to the environment,
    c) the reduction in the use of materials and the re-use or recycling of materials,
    d) the making of progressive environmental improvements, including the reduction of pollution at source,
    e) the monitoring and reporting of environmental quality on a regular basis.
3) to rationalise, simplify and strengthen the regulatory framework for environment protection.

PLANNING

Council Policies

The following Council plans and policies are relevant to the installation and operation of on-site sewage management systems:

- Wingecarribee Local Environmental Plan 2010.
- Rural Development Control Plan.
- Rural Lands Development Control Plan.
- Various ‘Development Control Plans’ (DCP’s) relating to specific villages within the Shire. Including DCP’s for Berrima, Bowral, Bundanoon, Burrawang, Exeter, Fitzroy Falls, Mittagong, Moss Vale, New Berrima, Medway, Northern Villages, Penrose & Wingello, Robertson and Sutton Forest.
- Local Orders Policy (order number 21) – premises or land not in a safe or healthy condition.

STATE ENVIRONMENTAL PLANNING POLICY (Sydney Drinking Water Catchment) 2011

Following an enquiry into pollution of Sydney's drinking water in mid-1998, the NSW Government enacted legislation to create the Sydney Catchment Authority (SCA).

The SEPP (Sydney Drinking Water Catchment) is a key planning instrument for this Shire. It replaces Regional Environmental Plan No.1. The SEPP sets out obligations relating to planning and regulating new development in the catchments, and preparing plans to rectify the effects of existing development on the catchments.
The SEPP:
– sets water quality objectives for the catchments
– requires councils to assess and approve new developments and activities in the catchments, and to apply the requirement for proposals to have a Neutral or Beneficial Effect (NorBE) on water quality.

The SEPP requires proposed development and activities to incorporate any Current Recommended Practices (CRP's) and performance standards endorsed or published by the SCA that relate to water quality. Including the SCA CRP 'Designing and Installing On-site Wastewater Systems' which was published in 2012.

ENVIRONMENT AND HEALTH PROTECTION GUIDELINES - On-site Sewage Management for Single Households

The *Environment and Health Protection Guidelines - On-site Sewage Management for Single Households* have been developed to help councils assess, regulate and manage single household on-site sewage management systems.

The Guidelines address the environmental and public health performance requirements of on-site systems. The Guidelines also address the regulatory framework, the development of sewage management strategies, administration and operational issues, and site assessment principles for selection and operation of on-site sewage management systems.

The Guidelines are matters for consideration by Council in relation to any application made under Section 68 of the Local Government Act 1993 for approval to install, construct, alter or operate an on-site sewage management system.

DEPARTMENT OF HEALTH System Accreditation

NSW Department of Health is responsible for accrediting human waste treatment or storage devices that are intended to receive domestic wastewater or human waste.

NSW Department of Health Accreditation is required for all commercially manufactured units, of types specified in Division 3 of the Local Government (General) Regulation 2005. A council must not approve the installation or construction of a sewage management facility that does not have the appropriate accreditation.

The accreditation system provides a centralised assessment and testing procedure. A certificate of accreditation may include specific conditions for the installation, operation, and maintenance of the tested system. These conditions become part of the council approval.

AUSTRALIAN STANDARDS

AS/NZS 1546.1 2008 On-site domestic wastewater treatment units – Septic tanks
This Standard identifies the performance requirements and performance criteria for septic tanks. It specifies technical means of compliance and provides test specifications that enable septic tanks to be manufactured to comply with the performance requirements and criteria.

AS/NZS 1546.2 2008 On-site domestic wastewater treatment units – Waterless composting toilets
This Standard details specifications and performance requirements for design and manufacture of waterless composting toilets.

AS/NZS 1546.3 2008 On-site domestic wastewater treatment units – Aerated Wastewater Treatment Systems
This Standard sets out specifications and performance requirements for design and manufacture of Aerated Wastewater Treatment Systems.

AS/NZS 1547 2012 On-site domestic wastewater management
This Standard addresses the requirements for disposal systems for effluent from domestic premises comprising not more 10 persons. The methods of disposal covered in the Standard are:

- Sub-surface systems
- Surface irrigation
- Absorption trenches.

AS/NZS 3500.2 2003 Plumbing and drainage – Sanitary plumbing and drainage
Provides standard practice for plumbers & drainers to follow when undertaking sanitary plumbing and drainage work.

OTHER RELEVANT GUIDELINES

Plumbing Code of Australia

This Code details the requirements for the design, construction, installation, replacement, repair, alteration and maintenance of any part of an on-site wastewater management system. The undertaking of plumbing and drainage work is required to follow this Code as indicated in Clause 7 of the Plumbing and Drainage Act 2011 [NSW].

OPERATIONAL STRATEGY

Effective Council regulation of on-site sewage management systems will be achieved by a planned risk based management approach combining information gathering and evaluation, community education and consultation, and a performance-based system of regulatory controls and system monitoring.

APPROVAL TO OPERATE

Existing Systems

Section 68 of the Local Government Act 1993 now prescribes the operation of a system of sewage management as an activity that requires Council approval.

Landowners must ensure that they have a current 'Approval to Operate' (i.e. sewage management licence). An Approval to Operate is current for a period of 2, 3 or 5 years dependent on the risk rating assigned to a particular system. Before an Approval can be issued, it must be inspected by Council which includes an environmental and health risk assessment. Each on-site system of sewage management is assessed in accordance with the requirements of the Local Government (General) Regulation 2005 (NSW), as follows:

Clause 43 Matters to be taken into consideration in determining applications for approval to operate system of sewage management

In determining an application for approval to operate a system of sewage management, the council must consider any matter specified in guidelines or directions issued by the Director-General in relation to the environment and health protection matters referred to in clause 29 (2).

Clause 29(2) Environment and health protection matters
The council must consider whether the proposed sewage management facility(or the proposed sewage management facility as altered) and any related effluent application area will make appropriate provision for the following:

(a) preventing the spread of disease by micro-organisms,
(b) preventing the spread of foul odours,
(c) preventing contamination of water,
(d) preventing degradation of soil and vegetation,
(e) discouraging insects and vermin,
(f) ensuring that persons do not come into contact with untreated sewage or effluent (whether treated or not) in their ordinary activities on the premises concerned,
(g) the re-use of resources (including nutrients, organic matter and water),
(h) the minimisation of any adverse impacts on the amenity of the land on which it is installed or constructed and other land in the vicinity of that land.

New Systems

All new on-site sewage management systems require approval from Council to be installed and also to be operated. Any applications to **install** a sewage management system lodged with Council shall also be include application to **operate** the system of sewage management.

Any new system of sewage management shall not be used until Council has issued the applicant with approval (in writing) to operate the system.

Each 'Approval to Operate' licence lasts for 2, 3 or 5 years. When the Approval to Operate licence is about to expire, Council will then again inspect the on-site sewage management system and issue a further approval (subject to inspection outcome).

EVALUATION OF ALL SYSTEMS

- Council maintains a register of on-site systems on a corporate database.
- Each assessment initially undergoes a desktop evaluation having regard to its age, type, location, condition, and number of users etc.
- An inspection of each system, by a Council officer then occurs, and a 'risk rating' is assigned to the system prior to the issuing of an 'Approval to Operate'. A Low risk approval lasts for 5 years, a Moderate risk approval is for 3 years, and a High risk approval is for 2 years.
- If the system is non-complying upon inspection, then the approval will be held in abeyance until required rectification works are completed.
- Approvals have conditions attached, outlining standard operating requirements and procedures for the type of system in use, and the responsibilities of the nominated operator. Site specific conditions may also be included.
- Approval terms and inspection requirements will vary according to the risk classification assigned to the individual system.
- It is intended that Council staff work co-operatively with owners/operators.
- Owners/operators of on-site sewage management systems will be encouraged to develop a sewage management plan for their system.

NOTE: In addition to obtaining an Approval to Operate licence from Council. Aerated Wastewater Treatment Systems (AWTS) also still require quarterly servicing by appropriately qualified service contractors, with a copy of the service records being held on site and a copy being submitted to Council. This quarterly servicing is a Council requirement under installation and operating consent, and is further a requirement by NSW Department of Health for such systems. Quarterly servicing must include maintenance of the treatment tank/s and the disposal system.

TRANSFER OF OWNERSHIP

When a person purchases or otherwise acquires land on which any sewage management facility is located, they must lodge an application for approval to operate a system of sewage management within three months of the date on which the land is transferred or otherwise conveyed to the person. If the application is made within two

months of the date of transfer or conveyance, the person may continue to operate the system of sewage management until Council determines the application.

RENEWAL

Approvals to Operate must be renewed upon expiration of a current approval. A satisfactory Council inspection of the on-site sewage management system is required before a further approval can be issued.

The renewal period will vary according to the risk classification assigned to the system. High risk systems need to be renewed every two years, Moderate risk every three years and Low risk every five years.

MONITORING

Monitoring of on-site sewage management systems

A key part of the approval process, involves inspection of each on-site sewage management system to obtain an approval to operate (or renewal approval) for a set period of time (2, 3 or 5 years). The aim of the inspection is to ensure that each system continues to be operated in such a manner as to minimise environmental and health hazards.

Upgrading of failing systems

If a system is found to be operating in a manner that is likely to be a risk to public health or the environment, then Council will be working with the owner/operator to improve the functioning of the system. Council will try to help owners/operators to identify least costly measures to improve their systems. Additional inspections may be required to ensure rectification works are completed.

Water saving devices

In some instances the installation of water-saving devices such as low-flow shower roses, and flow-regulators/restrictors on taps may be suggested. Such devices may be required as a condition of approval to reduce the volume of water being disposed of on site, and also to improve performance of the on-site sewage management system.

Operation and Maintenance Plans

An operation and maintenance plan will apply to each system to promote effective performance.

RECORDS/REPORTING/REVIEW

Register

Council ensures that all applications received are recorded in a register. The register includes details of:

- The applicant
- The property concerned
- The type of installation
- Date of application
- Determination of application
- Date of issue of any approval or refusal.

Reporting

Council's annual State of the Environment report will include details of:

- An overview of the on-site sewage management inspection program
- Progress on the implementation, and effectiveness of this Strategy.

Review

This Strategy will be subject to periodic review. The reviews shall take into consideration progress made on the achievements of aims, goals and objectives of the strategy, and results of any consultations with relevant government departments, local community groups, and the community.

EDUCATION/PROMOTION

An important part of this strategy is to ensure that all parties involved in the installation, operation and maintenance of on-site sewage management systems are aware of their responsibilities and have sufficient information to carry them out.

Council will undertake an active role in the provision of this information to the householder through discussions with householders, information brochures, and newspaper advertisements.

ENFORCEMENT

Adequate powers exist under the provisions of the Local Government Act 1993 and the Protection of the Environment Operations Act 1997, to ensure compliance with the performance objectives of this strategy, and to require operators to obtain approval to operate their systems of sewage management, and comply with any conditions of approval. Enforcement action will only be taken when efforts to educate, negotiate and co-operate between Council and the operator of a system of sewage management have not been successful.

FEE STRUCTURE

Payment of the relevant fee/s must be made when obtaining an Approval to Operate from Council.

STAFFING

The duties of an Environmental Protection Officer include inspection and issuing of approvals to operate on-site sewage management systems. This also includes achieving the goals of this Strategy incorporating enforcement of necessary remediation of failing systems.

COMMITMENT TO CONTINUING IMPROVEMENT OF ON-SITE SEWAGE MANAGEMENT

GOALS	PERFORMANCE INDICATORS / TARGETS
Maintain database of all existing systems	- Number of inspections undertaken each year.
To provide education and information for operators of on-site sewage management systems	- Issue an Operation and Maintenance Plan with all approvals issued
To ensure no illegal discharge from pump-out systems	- No reports or evidence of illegal discharge
To ensure that all on-site sewage management systems are inspected by qualified people at regular intervals and are maintained as required	- Inspections conducted as scheduled - Percentage of systems found to be failing. - Co-operation between service agents and Council.

REFERENCES

Australian Building Codes Board. Plumbing Code of Australia. ABCB, Canberra.

Baulkham Hills Shire Council (1998) Draft Strategy for On-site Sewage Management Systems

Department of Local Government, Environment Protection Authority, Department of Health, Department of Land and Water Conservation, Department of Urban Affairs and Planning (1998) Environment and Health Protection Guidelines: On-site Sewage Management for Single Households

Port Stephens Council Draft On-site Sewage Management Strategy

SCA (2012) Designing and Installing On-site Wastewater Systems. Sydney Catchment Authority, Penrith.

Standards Australia/Standards NZ (2003) AS/NZS 3500.2 2003 Plumbing and drainage – Sanitary plumbing and drainage. Standards Australia and Standards New Zealand, Sydney.

Standards Australia/Standards NZ (2008) AS/NZS 1546.1-2008 On-site Domestic Wastewater Treatment Units – Septic Tanks. Standards Australia and Standards New Zealand, Sydney.

Standards Australia/Standards NZ (2008) AS/NZS 1546.2 2008 On-site domestic wastewater treatment units – Waterless composting toilets. Standards Australia and Standards New Zealand, Sydney.

Standards Australia/Standards NZ (2008) AS/NZS 1546.3 2008 On-site domestic wastewater treatment units – Aerated Wastewater Treatment Systems. Standards Australia and Standards New Zealand, Sydney.

Standards Australia/Standards NZ (2012) AS/NZS 1547-2012 On-site domestic wastewater management. Standards Australia and Standards New Zealand, Sydney.

GLOSSARY OF TERMS

Absorption: uptake of liquid into soil.

Aerated Wastewater Treatment System (AWTS): Aerated wastewater treatment systems treat all household wastewater. The treatment process typically involves:

- Settling of solids and flotation of scum
- Oxidation and consumption of organic matter through aeration
- Clarification – secondary settling of solids, and
- Disinfection of wastewater before irrigation.

Catchment: A catchment is an area of land with natural features such as hills or mountains, from which all run-off flows into a creek, river, lake or ocean.

Council: For the purposes of this strategy refers to Wingecarribee Shire Council.

Ecological Sustainable Development (ESD): Development that improves the quality of life, both now and for the future, in a way that maintains the ecological processes on which life depends.

Effluent: Wastewater discharging from a sewage management system.

Evapotranspiration: Process by which soil moisture is subject to processes of evaporation from the sun and wind and is transpired to the atmosphere via tree and plants.

Greywater: Domestic effluent excluding toilet waste.

Ground Water: All naturally occurring underground waters.

On-site Sewage Management System: Any facility that stores, treats and/or disposes of sewage and wastewater on site.

Reticulated Sewer: Centralised sewerage system, consisting of a wastewater transport network, pumping stations, and treatment facilities designed to service multiple users concurrently. Wingecarribee Shire Council is the local authority for all reticulated sewer and sewage treatment plants in the Wingecarribee local government area.

Run-off: The part of the precipitation and/or irrigated effluent that becomes surface flow because it is not immediately absorbed into or detained on the soil.

Sewage management: Any activity carried out for the purpose of holding or processing, or using or otherwise disposing of, sewage or by-products of sewage.

Sludge: Mainly organic semi-solid product produced by wastewater treatment processes.

Vectors: Insects or animals, such as flies, mosquitoes and rodents, that are attracted to the putrescible organic material in wastewater and wastewater treatment systems, and that spread disease.

Wastewater: Blackwater and/or greywater.

Waterless composting toilet: (humus closet, biological toilet) Waterless system that uses the principle of composting to breakdown human excreta to a humus-type material. The liquid fraction is evaporated or directed to an appropriate management system.

Wet composting system: Treats all household wastewater (including greywater) and putrescible household organic solid wastes such as food waste. Uses the principle of aerobic composting to break down the solid waste, the liquid component is directed to a land application system after passing through the pile of solids.

APPENDICES

1. Basic Performance Objectives

2. Recommended Buffer Distances for On-site Systems

APPENDIX 1

BASIC PERFORMANCE OBJECTIVES

1. PREVENTION OF HEALTH RISKS

- Effluent from primary treatment (i.e. septic tanks) shall only be disposed of through soil absorption or removed from site;
- Contact with effluent from aerated systems shall be minimised or eliminated;
- There shall be no contact with effluent from any other type of system;
- Treated sewage shall not be used on edible crops;
- Surface irrigation shall only occur with disinfected effluent from an aerated type of system where allowed.

2. PROTECTION OF LAND

- On-site disposal of effluent shall minimise soil structure degradation; or
- Salinisation;
- Waterlogging;
- Chemical contamination;
- Soil erosion.

3. PROTECTION OF SURFACE WATER AND GROUNDWATER

- An appropriate Operation and Maintenance Plan shall be chosen for the site to ensure effluent does not enter surface waters or contaminate ground water;
- Effluent disposal areas shall be located no less than distances specified in the table in Appendix 2, or as specified by the Sydney Catchment Authority in relation to areas affected by SEPP (Sydney Drinking Water Catchment) 2011;
- The disposal area shall be monitored and managed so that effluent does not escape to surface waters or to a position where the effluent may be washed into a watercourse in a rain event.

4. PROTECTION OF COMMUNITY AMENITY

- An on-site sewage management system shall not cause a nuisance to others and particular attention shall be given to any noise and odours generated;
- Disease vectors and other pests such as mosquitoes shall be controlled;
- The siting and operation of an on-site sewage management system shall not impact on the aesthetics of the area.
- Effluent from an on-site sewage management system shall not be permitted to pond on the ground surface. All effluent must be contained within the confines of the subject property and must be managed without runoff.

5. CONSERVATION AND REUSE OF RESOURCES

- The resources in wastewater such as water and nutrients should be put to the best use possible within the bounds posed by other performance objectives;
- Water conservation shall be considered in any on-site sewage management system management plan.

APPENDIX 2

RECOMMENDED BUFFER DISTANCES FOR ON-SITE SYSTEMS

System	Buffer Distance Required
All land application systems	250 metres to domestic groundwater well. 150m to a Major Watercourse* 100m to a creek or watercourse (whether perennial or intermittent). 40m to a drainage depression or farm dam.
Surface spray irrigation	6 metres if area up-gradient and 3 metres if area down-gradient of driveways and property boundaries. 15 metres to dwellings. 3 metres to paths and walkways. 6 metres to swimming pools.
Subsurface dripline irrigation	6 metres if area up-gradient and 3 metres if area down-gradient of swimming pools, property boundaries, driveways and buildings.
Absorption Trenches (minimum spacing between adjacent trenches [sidewall to sidewall] is 1000mm*)	12 metres if area up-gradient and 6 metres if area down-gradient of property boundary. 6 metres if area up-gradient and 3 metres if area down-gradient of swimming pools, driveways and buildings.

*'Major Watercourses' are – Wingecarribee R, Wollondilly R, Nattai R, Nepean R, Cox's R, Shoalhaven R, Kangaroo R, Mongarlowe R, Tarlo R, and Mulwaree R up to Braidwood Rd crossing.

Note: -an 'Intermittent Watercourse' is defined as having banks and beds or ponds or remaining wet for considerable periods between rainfall events and which may be characterised by supporting moisture tolerant vegetation.

- a 'Drainage Depression' is defined as a low point that carries water during rainfall events, but dries out quickly once rainfall has ceased.

A gully or incised drainage depression is considered to constitute a watercourse.

Source:

DLG (1998) *Environment and health protection guidelines – on-site sewage management for single households.* Department of Local Government, Bankstown.
SCA (2012) *Designing and installing on-site wastewater systems*. Sydney Catchment Authority, Penrith.
Standards Australia (2012) *AS/NZS 1547:2012 On-site domestic wastewater management*. Standards Australia, Strathfield.