

ON-SITE SEWAGE MANAGEMENT STRATEGY 2015



Helping to achieve the 2030 Community Vision

Document Control

Version	Date	Document Administrator
Peer Review Draft2015	
Public Exhibition2015	

Disclaimer

This Strategy is a policy document adopted by Council to provide guidance to property owners, plumbers and consultants when designing, installing, inspecting and assessing on-site sewage management systems. The information provided in this document is provided by Council in good faith as a guide only to Council requirements. The information contained herein is current and accurate at the time of publication. At no time should this information be used as a substitute for technical expertise provided by consultants, engineers and plumbers who specialise in on-site wastewater management. Council reserves the right to make amendments of a minor nature to this document.

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HOW TO USE THIS DOCUMENT

There are three main parts to this Strategy:

PART A: Strategy development and background information.

This section provides an introduction to relevant legislation, guidelines and standards that influence On-site Sewage Management in Coffs Harbour LGA. Also identifies background information, aims and objectives of the Strategy.

PART B: Operational Strategy

This section defines the functional requirements for all parties involved in the installation, maintenance or operation of On-site Sewage Management Systems within Coffs Harbour LGA.

PART C: On-Site Sewage Management System Design and Reporting

This section outlines the minimum requirements for submission of applications to modify or upgrade an on-site sewage management system.

PART A – STRATEGY DEVELOPMENT AND BACKGROUND INFORMATION

1 Introduction

In 1999, the Local Government (Approvals) Regulation was introduced by the NSW State Government in the interests of improvement of environmental and public health issues.

Surveys show that septic tanks and other on-site sewage management systems (OSSMSs) are failing to meet environment and health protection standards in all parts of NSW. The outbreak of Hepatitis A disease linked to the consumption of Wallis Lake oysters, which resulted in 440 reported cases and one death, was attributed to failure of OSSMS.

Coffs Harbour features high rainfall, impervious clay soils, sloping terrain and sensitive catchments. These local factors hinder performance of on-site sewage systems. There are over 5,500 OSSMSs in Coffs Harbour Local Government Area (LGA). Monitoring of local waterways and response to numerous complaints has shown conclusively that septic tanks are failing. Such failures primarily arise due to inadequate design, operation and maintenance.

This strategy was originally prepared in 2000, reviewed in 2006 and updated in 2015 in accordance with the requirements of the Local Government Act 1993, Australian/New Zealand Standard (AS/NZS) 1547, and Department of Local Government Guideline 1998. Since the implementation of the strategy, key government guidelines and standards have been updated, reflecting changes in sewage treatment technology and effluent disposal methods along with a growing understanding of the human and environmental health impacts stemming from poorly managed on-site wastewater systems.

The strategy has now been reviewed and updated to provide this information to the community, plumbers and drainers, service agents, consultants and developers on the requirements for installation, operation and maintenance of OSSMSs.

1.1 Scope

On-site sewage management is a fundamental aspect of environmental assessment, land use planning and development control functions of Local Councils.

This strategy will provide a framework for Council to regulate and manage the selection, design, installation, operation, maintenance and approval of OSSMSs in the Coffs Harbour LGA.

This Strategy encompasses all OSSMSs within the Coffs Harbour LGA. Under the Local Government Act, an OSSMS or a sewage management facility is defined as:

- a human waste storage facility; or
- a waste treatment device intended to process sewage, and includes a drain connected to such a facility or device.

Consequently, this Strategy incorporates the following OSSMSs:

- (a) wet composting closets;
- (b) waterless composting closets;
- (c) septic closets;
- (d) septic tanks;
- (e) waste treatment devices designed to comminute or macerate and discharge sewage to a sewerage system;
- (f) waste treatment devices that treat sewage using a specific process to produce biosolids and disinfected effluent to a standard suitable, either separately or in combination, for recycling by surface or sub-surface irrigation or by internal or external household use;

- (g) any other kind of sewage management facility specified in a notice published in the Gazette by the Director-General for the purposes of cause 40 of the Local Government (General) Regulation, 2005.

The implementation of this strategy will ensure Council meets both its statutory obligations and duty of care in its role as a regulator to provide sustainable development while protecting the environment, public health and community amenity.

1.2 Principles

This Strategy addresses specific treatment systems, management practices, environmental monitoring and regulatory regimes to achieve minimum environmental and public health principles as defined in the Regulation.

Where cumulative effects from failing OSSMSs may result in degradation of the environment, this Strategy incorporates the principles of Ecologically Sustainable Development (ESD), Total Catchment Management (TCM), Water Cycle Management (WCM) and protection of public health to mitigate the long-term impacts.

1.2.1 Ecologically Sustainable Development

Ecologically sustainable development (ESD) is development that seeks to conserve and protect ecological processes, on which all life depends, whilst meeting the wants and needs of the community, ensuring that the total quality of life, both now and in the future can be maintained and improved. Based upon this definition, four principles have been adopted as a method of implementing ESD, these are:

- The precautionary principle – if there are threats of serious irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.
- Intergenerational equity – the present generation should ensure that the health, diversity and productivity of the environment is maintained and enhanced for the benefit of future generations.
- Conservation of biological diversity and ecological integrity.
- Improving valuation and pricing of environmental resources.

1.2.2 Water Cycle Management

Water cycle management involves decision making which integrates all the natural components of the water cycle including rainfall, rivers, oceans and groundwater and the physical links between these, such as evapotranspiration and surface run-off. It also includes managed components of the water cycle including the supply of water for domestic, industrial and agricultural purposes, and the treatment and release of sewage and stormwater.

OSSMSs can potentially have a significant impact on the water cycle through the contamination of ground and surface waters with microorganisms and nutrients. Consequently all policies and decisions regarding OSSMSs have and should have considered these impacts.

1.2.3 Catchment Management

Catchment management involves the coordination, sustainable use and integrated management of land, water, vegetation and other natural resources on a water catchment basis. Thus the implication of providing and managing wastewater services on a catchment wide basis is considered.

1.2.4 Protection of Public Health

As water sources are having increasing demands placed upon it, there has been a trend towards wastewater reuse. However, this must not be achieved at the expense of public health. It is

essential that wastewater reuse is practiced and managed with the primary concern towards maintaining public health standards.

1.3 Aims

This strategy aims to:

- provide a standard approach to managing new and existing OSSMSs within the Coffs Harbour LGA;
- provide a framework to manage and regulate the impact of OSSMSs within the Coffs Harbour LGA, and to ensure user accountability;
- assist Coffs Harbour City Council (CHCC) in prioritising resources for efficient regulation and monitoring of on-site sewage management in the area;
- provide appropriate educational information to the wider community, plumbers and consultants to improve the design, installation, operation and maintenance of OSSMSs in the Coffs Harbour LGA;
- apply Total Catchment Management principles to the ongoing management of OSSMSs.

1.4 Objectives

Improve the quality of OSSMSs in the Coffs Harbour area to ensure the following:

- preventing the spread of disease by micro-organisms;
- preventing the spread of foul odours,
- preventing contamination of water (groundwater/surface waters);
- preventing degradation of soil and vegetation;
- discouraging insects and vermin;
- ensuring that persons do not come into contact with untreated sewage or effluent in their ordinary activities on the premises concerned;
- preventing public health risk;
- maintaining and improving public amenity;
- ensuring ecologically sustainable on-site effluent disposal;
- increasing education and awareness of on-site wastewater management;
- ongoing improvement to existing and sub-standard on-site wastewater treatment and disposal systems;
- monitoring on-site disposal systems and their effects on the environment;
- creating a framework for improved management of on-site wastewater management systems.

1.5 Goals

To achieve the objectives outlined above, the following goals have been set:

- maintain a database of all existing OSSMSs;
- initiate a training program for operators and installers of on-site disposal systems;
- to consult with householders on the development and implementation of strategies to eliminate illegal discharge from OSSMSs;
- to ensure that all land application areas comply with environment and public health protection standards and Council operating requirements;
- to reduce the incidence of system failure as a result of householder misuse;
- to ensure that all OSSMSs are inspected at regular intervals and are desludged and maintained as required;
- encourage a partnership approach between householders, service agents and Council which supports continued improvement of on-site sewage management;
- ensure Council's development standards and approval criteria incorporate appropriate provision for sustainable on-site sewage management when residential development occurs in unsewered areas.

2 Standards and Guidelines The following Acts, Regulations, Standards, Guidelines, Policies, and Strategies govern the installation, operation and maintenance of OSSMSs within the Coffs Harbour LGA.

- Local Government Act 1993.
- Local Government (General) Regulation 2005.
- Protection of the Environment Operations Act 1997.
- Australian/New Zealand Standard (AS/NZS) 1547:2012 – On-Site Domestic Wastewater Management (as revised).
- NSW Department of Energy, Utilities and Sustainability (2007) Greywater Reuse in Sewered Single Domestic Premises.
- Environmental Health Protection Guidelines (1998) – On-Site Sewage Management for Single Households (“Silver Book”)
- Coffs Harbour City Council's On-Site Sewage Management Strategy (as revised from time to time).
- Other relevant act or guideline which becomes relevant and in force.

2.1 Local Government Act 1993

The Local Government Act (LGA) 1993 provides the legal framework for the management of on-site sewage systems in New South Wales (NSW). This Act delegates responsibility to Councils for the administration of regulatory systems under this Act, such as the Local Government (General) Regulation 2005. Further, this Act also makes allowances for the issuing of orders and penalties.

In relation to on-site sewage management, Council may issue an order Under Section 124 of the LGA:

- To do or refrain from doing such things as are specified in the order to ensure that land is, or premises are, placed or kept in a safe or healthy condition;
- To connect premises to reticulated sewer by a specified date where they are situated within 75m of a Council sewer service;
- Not to use or permit the use of a human waste storage facility on premises after a specified date; or
- To comply with an Approval.

2.2 Local Government (General) Regulation 2005

The Local Government (General) Regulation 2005 governs the operation of on-site sewage management systems in NSW, identifying:

- (a) What information is to be provided to Council to determine an application for Approval to install; providing accreditation of sewage management facilities;
- (b) Minimum performance standards for on-site sewage management systems; and
- (c) Requiring owners:
 - (i) To ensure regular inspections are undertaken on their system and
 - (ii) To apply to Council for an Approval to Operate.

The Regulation also provides information on the Approval and Operation of systems of sewage management as detailed below.

Approval required to operate a system of sewage management:

- Meaning of "operate a system of sewage management".
- Prescribed activity under section 68 of the Act.
- Matters to be taken into consideration in determining an application for approval to operate a system of sewage management.

Operation of system of sewage management:

- Performance standards for operation of system of sewage management.
- Further condition of approval in relation to operation of system of sewage management.
- Approval to operate system of sewage management to extend to concurrent owners and occupiers.
- Transitional provision of temporary exemptions in relation to operation of system of sewage management.
- Transitional provision of temporary exemption for purchaser of land.

2.2.1 Local Government (General) Amendment (Domestic Greywater Diversion) Regulation 2006

The object of this Regulation is to prescribe domestic greywater diversion as an activity requiring prior approval. Domestic greywater diversion means the installation and operation of a system for the diversion of greywater generated on residential premises to a garden or lawn on those premises, but does not include the manual collection and re-use of greywater (for example, by means of a bucket or similar receptacle). The Regulation also provides for an exemption from the requirement for prior approval in relation to domestic greywater if certain conditions are met.

2.3 Protection of the Environment Operations Act 1997

The Protection of the Environment Operations (POEO) Act 1997 came into effect on 1 July 1999, superseding the Clean Waters Act, Clean Air Act, Noise Control Act, Waste Management and Minimisation Act, and the Environmental Offences and Penalties Act.

This Act is the pivotal mechanism for reducing pollution and protecting the environment in NSW, enhancing regulatory powers to Authorised Officers, and augmenting the costs of penalties.

Under this legislation, an on-the-spot fine for pollution of waters can be issued for an individual and for a corporation. Further, it is an offence not to report a pollution incident of which a penalty may apply.

2.4 Australian Standards / New Zealand Standards

Australian New Zealand Standards (AS/NZS) 1546 and 1547 provide design criteria for septic tanks, and the sizing and selection of effluent disposal areas. AS/NZS 1547:2012 (latest revision at time of publication) has been broadened in scope to:

- (a) Include performance statements necessary to define outcomes and to accommodate new technologies.
- (b) Provide the basic performance provisions for septic tanks and introduce performance requirements to cover all types of wastewater-treatment units and land-application systems.
- (c) Set out the administrative and managerial responsibilities, and the education and training needed to ensure that on-site domestic-wastewater systems could be effective long-term options.
- (d) Give guidance on operation and maintenance of on-site domestic-wastewater systems.
- (e) Give guidance for on-site evaluation.
- (f) Give guidance on soil assessment.
- (g) Provide options for on-site domestic wastewater-treatment and land-application systems.
- (h) Give guidance on design, construction and installation.

2.5 NSW Department of Health

The NSW Department of Health issues annual certificates of accreditation for septic tanks, collection well and other wastewater treatment systems. These certificates validate quality assurance, compliance with AS1546 and the Local Government (Approvals) Regulation.

Under the Local Government (General) Regulation, only NSW Health accredited wastewater treatment systems may be installed.

2.6 NSW Department of Energy, Utilities and Sustainability

The NSW Department of Energy, Utilities and Sustainability released a policy for 'Greywater Reuse in Sewered Single Domestic Premises.' This document considers greywater in single domestic premises in sewered areas based primarily on public health considerations according to the characteristics of greywater. However this Policy does not specifically consider the design of land application systems that manage the application of greywater to land.

2.7 On-site Sewage Management for Single Households

The Environment & Health Protection Guidelines developed the 'On-site Sewage Management for Single Households' as a comprehensive management tool for the regulation of OSSMSs.

In developing these guidelines a working group of Government agencies was formed, consisting of:

- NSW Department of Local Government (DLG);
- NSW Environment Protection Authority (EPA);
- NSW Department of Health (DOH);
- NSW Department of Land and Water Conservation (DLWC); and
- NSW Department of Planning and Environment (formerly Planning NSW).

The guidelines focus on on-site sewage management within the scope of Local Government responsibilities, and encourage Council's to develop an on-site sewage management strategy for its LGA that incorporates appropriate regional and catchment management objectives.

PART B – OPERATIONAL STRATEGY

3 Approval Program

This section of the Strategy sets out the processes for the issuing of Approvals to Operate, risk classification and inspection of OSSMSs. The operational strategy outlined is designed to provide an effective and self-funding approvals and monitoring plan for on-site sewage management in the Coffs Harbour LGA. The approach taken is based on the principles of protection and enhancement of public health and the environment through the co-operative management of on-site sewage systems.

3.2 Approval to Install Onsite Sewage Management System

Under Section 68 of the Local Government Act 1993, Council approval is required for the installation, construction or alteration of a sewage treatment device or waste storage facility.

In order for Council to assess the adequacy of an application the following standards and guidelines are to be met at a minimum:

- AS/NZS1547:2012 – On-site Domestic Wastewater Management
- Environmental and Health Protection Guidelines – On-site Sewage Management for Single Households (“Silver Book”)
- Coffs Harbour City Council Onsite Sewage Management Strategy 2015 (as revised from time to time); and
- Any other guidelines and standards as they become relevant.

The above information applies to systems of a domestic nature. An application for a commercial system will be defined by an expected wastewater generation rate of between 10EP and 2500EP and is beyond the scope of AS/NZS1547:2012 and DLG (1998) standards and guidelines.

Any commercial sewage management facility is required to be designed by a suitably qualified and experienced environmental engineer or wastewater consultant, making reference to the most relevant up to date guidelines and standards in the design process.

3.2.1 Regulatory Requirements

All domestic on-site wastewater systems installed in NSW must be accredited by NSW Health. Council cannot approve the installation of a non-accredited wastewater treatment system, however, an exemption does exist under section 41 (2) where council may grant an approval to install or construct a sewage management facility without NSW Health accreditation where the system has been specifically and individually designed for the site and adequate supporting documentation is provided with the design. For a list of accredited wastewater treatment systems refer to the NSW Health website (<http://www.health.nsw.gov.au/environment/domesticwastewater>).

3.3 Approval to Operate

To operate a system of sewage management, as defined in the Act, “means to hold or process, or re-use or discharge, sewage or by-products of sewage (whether or not the sewage is generated on the premises on which the system of sewage management is operated)”.

An Approval to Operate an OSSMS is required in accordance with section 68 and 68A of the Local Government Act, 1993. The operation of a system of sewage management is an activity that requires an Approval from Council (item 10 and Part F of the Table in Section 68 of the Act).

As such, all system owners must have a current approval to operate, and if not, are required to lodge an application for approval to operate with council.

An Approval to Operate is valid for a period of 12 months to 6 years depending on the risk category nominated for the system. The approval will be renewed following an inspection by Council’s inspector who will confirm that the system is being maintained and operated in accordance with the conditions of its current approval.

An Approval to Operate will be issued for new OSSMSs following satisfactory inspection by a Council officer.

3.4 Transfer of Title

The Approval to Operate a system of sewage management extends to the concurrent owners and occupiers of the land on which the sewage management system resides on and therefore needs to be re-applied for with the transfer of title by the new owner. Council is currently notified of transfer of ownership by Land & Property Information and the rate notices are updated weekly. New owners are required to submit to council an Application for Approval to Operate an OSSMS.

The regulation provides that a person who purchases land on which any on-site sewage management facilities are installed, may continue to operate such a system, without the approval so required, for a period of three months from the date on which the property is transferred. It is further provided that, if a person who purchases (or otherwise acquires) land, on which an OSSMS is installed, applies for an approval within two months of the transfer of title, they may continue to operate the system until such time as Council finally determines the application.

There are fees attached to the Application for an Approval to Operate when title is transferred.

4 Monitoring Program

Council is required to develop a monitoring program of existing systems and ensure these systems meet the environmental and health performance objectives set out in this strategy and in the Environmental and Health Protection Guidelines over the long term. This program will involve the monitoring of existing service documentation and routine on-site inspections. A flow chart detailing Council’s adopted monitoring program is provided in Figure 1.

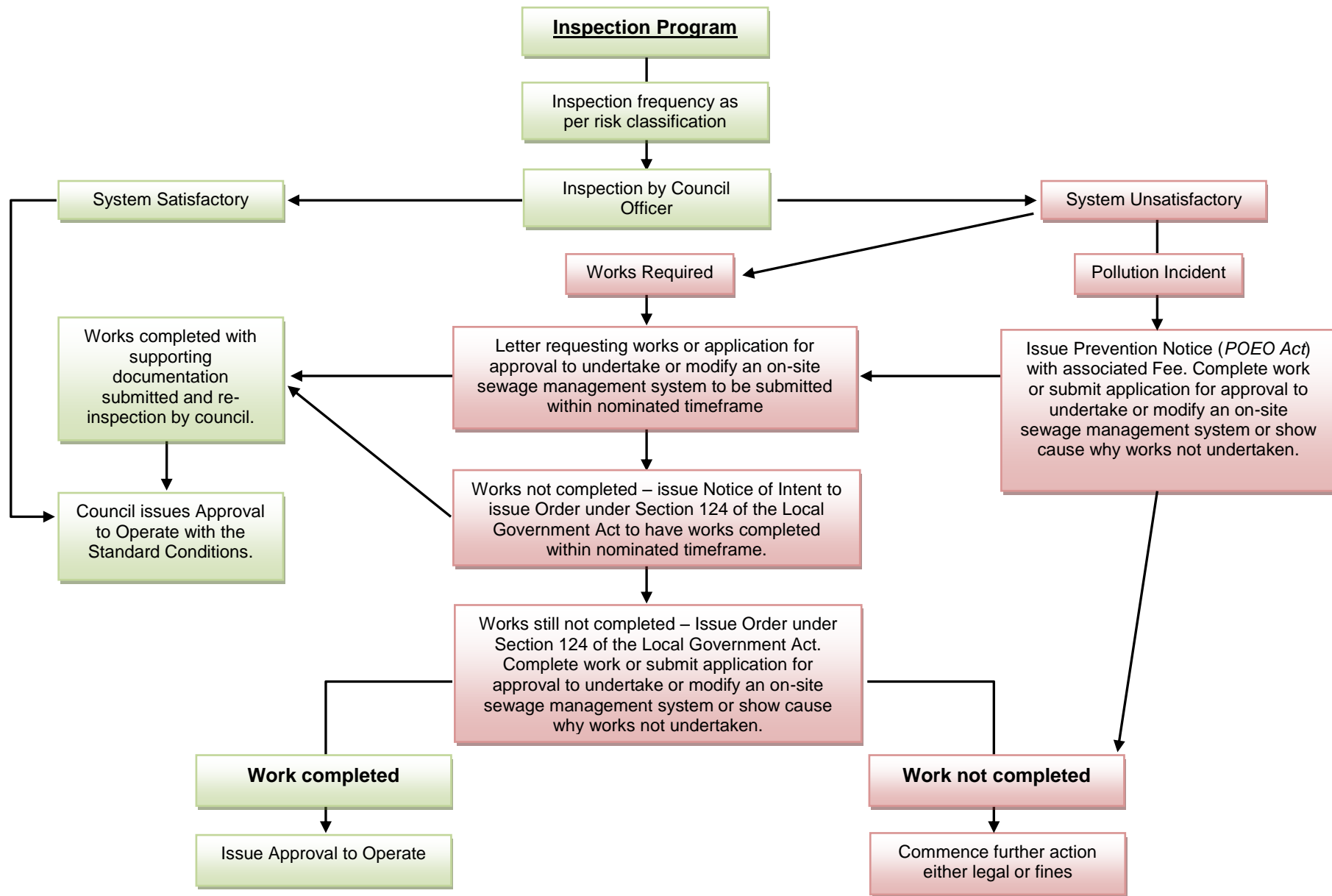


Figure 1 – Flow chart detailing On-site Sewage Management Inspection Program

4.1 Risk Categories and Inspection Frequency

In accordance with the monitoring program, existing systems will be periodically inspected along with those subsequent to property transfer, and where council has been notified of an environmental or public health risk associated with the operation of an OSSMS. To carry out effective and ongoing inspections, Council will classify all systems into risk categories. Council will then carry out inspections at intervals appropriate to the nominated risk category for each individual system. A risk classification of low, medium or high will be allocated to a premises or installation upon assessment, by Council, as to the combined effects of issues relating to the installation. Table 1 presents the inspection frequency based on risk categories as determined by Council.

Table 1 Inspection Frequency

Risk Category	Inspection Frequency
Class 1 High Risk	Yearly
Class 2 Medium Risk	Every three (3) years
Class 3 Low Risk	Every six (6) years

Note: Aerated Wastewater Treatment Systems and Biolytix Systems are required at approved frequency regardless of the installations risk category.

In order to encourage appropriate management and maintenance of OSSMSs, Council intends to provide for the re-categorisation of individual systems. Council may increase the risk category of a system following an inspection if that inspection reveals that more frequent monitoring of that system is required such as where a system fails to comply with the performance criteria or any conditions of either the Department of Health or Council. Table 2 details the process for determination of risk category for new and or existing installations.

Table 2 Determination of Risk Category

Features	Response			Points
Land area	<2,000m ² <u>5 points</u>	2,000-10,000m ² <u>2 points</u>	>10,000m ² <u>0 points</u>	
Flooding	Below 1in20 Land Application Area Below 1in100 Treatment system <u>10 points</u>	Above 1in20 but below 1in100 <u>5 points</u>	Above 1in100 <u>0 points</u>	
Slope	>20% <u>2 points</u>	10-20% <u>1 points</u>	<10% <u>0 points</u>	
Buffer distance to permanent water (river/creek etc)	<50m <u>10 points</u>	50-100m <u>5 points</u>	>100m <u>0 points</u>	

Buffer distance to intermittent water (intermittent creeks, gullies, drainage alignments, farm dams)	<20 <u>10 points</u>	20-40m <u>5 points</u>	>40m <u>0 points</u>	
Exposure to sun/wind	Low <u>2 points</u>	Average <u>1 points</u>	Good <u>0 points</u>	
Protection from upslope seepage/run-on to disposal field (swales, berms, v-drains)	No <u>2 points</u>		Yes <u>0 points</u>	
Level of wastewater treatment*	Primary <u>5 points</u>		Secondary or better <u>0 points</u>	
Low <17 Medium 17-24 High >24				
* Split treatment systems incorporating the use of a composting toilet in conjunction with a greywater treatment/diversion device will be considered a low risk alternative to septic tanks and as such incur 0 points on risk assessment.				

4.2 Review of and Changes to Categories of Risk

When an OSSMS has been assessed and allocated to a category of risk by Council, any owner who believes that such allocation is not appropriate may apply to Council to have the risk assessment reviewed. Such a review may or may not involve the carrying out of a site inspection of the system and may be subject to payment of a fee to Council as determined by Council's adopted Fees and Charges.

4.2.1 Re-categorisation of Systems

In order to encourage appropriate management and maintenance of OSSMSs, Council intends to provide for the re-categorisation of systems from the high to low or medium risk category. This may involve re-categorisation of OSSMS from high risk to low or medium risk, where the continuing operation of a particular system has been shown, to Council's satisfaction, to be in accordance with the performance standards set out in the Approval to Operate section of this strategy.

Council may increase the risk rating of any OSSMS if determined upon inspection that more frequent monitoring of the system is required.

It should be noted that where an OSSMS, which is classified as low or medium risk, fails to operate in accordance with the performance standards of its approval, such a system will automatically be re-categorised to a higher risk system. This re-categorisation will not apply where the system is maintained and repaired so that it again meets the performance standards within a nominated period of such failure.

4.3 Environmental Sensitive Areas or Small Lot Sizes

Coastal villages in the Coffs Harbour LGA have unique environmental and health implications relating to effluent disposal with highly permeable sandy soils, high groundwater/shallow water table, sensitive waterways and wetlands, and increasing development pressures. The provision of reticulated water and sewer has been identified as a high priority strategic means to protect public

health and improve environmental outcomes within these locations. The coastal villages have progressively been provided with sewer and water over the past decade with the exception of Red Rock.

Red Rock village has a number of major limitations that impact the sustainable operation of OSSMSs. The village is located on a sand peninsula bounded by the Tasman Sea to the east, Corindi Creek to the north and west and heathland in between. The area generally has a shallow water table, permeable sands, impermeable coffee rock and small lot sizes.

In recognition of site constraints within the Red Rock village, new and upgraded OSSMSs are required to incorporate secondary wastewater treatment with disinfection as a minimum standard of treatment, or comparable treatment and land application combination that is deemed suitable by Council.

In addition to the constraints identified above, Coffs Harbour LGA also has a number of small lot (<3,000m²) residential areas that are not connected to Councils reticulated sewer network. The inland villages of Coramba and Nana Glen are examples of these. Due to the constraints of small lot sizes on sustainable effluent management, new and upgraded OSSMSs for small lots are required to incorporate secondary wastewater treatment with disinfection as a minimum standard of treatment, or comparable treatment and land application combination that is deemed suitable by Council.

System design is to be undertaken by a suitably qualified and experienced environmental engineer or wastewater consultant. New and upgraded systems will generally be assigned a medium risk category rating.

4.4 Monitoring Aerated Wastewater Treatment Systems

Aerated Wastewater Treatment Systems (AWTS) utilise aerobic processes to further polish primary treated effluent to a secondary quality. This is generally achieved via the use of pumps and blowers. These systems are in operation 24 hours a day and as such require routine maintenance and monitoring to ensure all moving parts are in order and that minimum secondary effluent quality standards are achieved. The owner and operator of the system are required to enter into a service contract with a suitably qualified service agent. Council will provide a register of suitably qualified service agents for reference.

Servicing of these systems is generally required on a quarterly basis with service reports to be forwarded to Council within 7 days from the date of service. All quarterly service reports will be reviewed by Council. Any operational or water quality issues identified by the technician will be required to be addressed by the owner. Failure to do so may lead to a breakdown and subsequent failure of the treatment and disposal system.

4.5 Installation and Monitoring of Private Sewer Pump Stations

Coffs Harbour Council will **only** permit the installation of Private Sewer Pump Stations where all other opportunities to connect to Council sewer by gravity have been exhausted or where the pump station will have environmental or social benefits.

Private sewer pump stations are classified as OSSMSs and as such are required to be monitored to ensure compliance with the performance standards adopted by Council. For further information relating to performance standards and monitoring requirements please refer to Council's adopted policy for Private Sewer Pump Stations.

4.6 Monitoring Pump-out systems

Historically pump-out systems have been installed in the Coffs Harbour LGA where a combination of site and soil constraints impact on the ability of wastewater to be sustainably managed on site.

The villages of Coramba and Nana Glen have the highest concentration of pump-out systems in the Coffs Harbour LGA. This is generally a result of small residential lot size, connection to mains water supply, and no connection to Councils reticulated sewer network.

In 2005 Council made the decision not to allow any further pump-out systems to be installed in the Coffs Harbour LGA. This was part of an arrangement where Council's sewer fund subsidises the pump-out charges from the contractor to ensure environmental and social outcome are maintained. The annual charge levied through rates will facilitate the ongoing pump-out of these systems.

Existing pump-out systems will not be inspected by Council under the adopted inspection program. The contractor will supply Council with pump-out data for each property serviced during each round of pump-outs. This information will be utilised as a tool for remotely monitoring system performance. Site inspections will **only** be undertaken where inconsistencies in pump-out data are identified, or where a complaint is received from a member of the public relating to the operation of a pump-out system.

Due to the constraints of small lot sizes on sustainable effluent management, new and upgraded OSSMSs for small lots are required to incorporate secondary wastewater treatment with disinfection as a minimum standard of treatment, or comparable treatment and land application combination that is deemed suitable by Council.

4.7 Unsatisfactory On-site Sewage Management Systems

4.7.1 Identification of Unsatisfactory Systems

Inspections of OSSMSs are required to ensure they are installed and operated in accordance with the performance standards specified in the Council approval, regulations and this strategy.

OSSMSs are complex and can fail if not designed, sited, installed, operated and maintained correctly. Improper operation and maintenance, possibly through a lack of awareness of how OSSMSs work, are common means by which systems fail.

System failure is deemed to have occurred when a system fails to achieve the prescribed performance standards resulting in the risk of adverse environmental and human health impacts.

The upgrade of failing systems is to be undertaken having regard to this strategy. Details on upgrading OSSMSs are provided in the following sections.

4.7.2 Impacts of System Failure

On-site sewage management involves the treatment of wastewater followed by the release of effluent (treated wastewater) and solid (compost) products into the environment. Inappropriate use or disposal of these products can have adverse impacts on environmental and human health and can lead to:

- a) the spread of disease by bacteria, virus, parasite and other organisms in the wastewater;
- b) contamination of groundwater and surface water;
- c) degradation of soil and vegetation;
- d) decreased community amenity caused by odours, noise and insects;
- e) alteration of local ecology.

The disposal of effluent via surface irrigation, particularly in close proximity to dwellings, is an activity which can pose a serious threat to public health as a result of pathogen transfer. The mode of disease transmission can be a result of water borne, water contact and aerosol transmission, generally by the faecal oral route. The type of disease is not limited to bacterial origin only, but also includes virus, protozoa and helminth infection.

When the soil profile in the effluent field reaches a maximum hydraulic capacity or begins to degrade to a state where the soil particles begin to clog, aerobic organisms within the drainfield drown and decontamination of wastewater effluent slows or stops. As the soil area becomes more and more limited, effluent may back up, the tank surcharges, flow from the home is impeded and eventually building drains overflow exposing residents to a suite of viruses and pathogens within the wastewater. In many cases partially treated wastewater is forced to the ground surface.

Effluent disposal systems will tend to fail as a result of:

- poor design including inappropriate sizing of disposal field; lack of consideration of soil type, topography, climate conditions, expected hydraulic flows, and inadequate tank size;
- poor installation;
- inadequate maintenance of treatment systems through failure to desludge, maintain pumps and filters;
- inadequate stormwater diversion and siting of disposal field on flood prone and water logging land;
- excessive hydraulic loading and clogging of disposal system, and physical damage from vehicles or livestock.

4.7.3 Complaints about Failing Systems

A member of the community who has a problem with the operation of an OSSMS is entitled to approach Council about the problem.

Council must regulate the operation of OSSMSs, so that risks to health and the environment do not arise.

Council will investigate complaints relating to system failures irrespective of the priority area. This inspection may replace the next scheduled inspection for any system that is the subject of a complaint and where as a result of that inspection Council requires the owner/operator to take some action. Changes may also be made to the risk categorisation of the systems as a result of any complaint investigation.

4.7.4 Owner and Operators Responsibilities

It is the responsibility of the owner or occupier of the premises to ensure that OSSMSs are designed, installed and managed, so that environmental nuisance/damage does not occur and there is no risk to public health or likely environmental impact from the operation of the system.

Owners should also ensure that other occupiers of the premises are also aware of the systems operation and maintenance. If a system fails for any reason householders should report this to Council so that Council is aware of action taken to address the problem and can provide input if necessary.

4.7.5 Enforcement

Adequate powers exist under Section 124 of the Local Government Act, 1993, and the Protection of the Environment Operations Act 1997 to ensure compliance with this strategy and to require that OSSMSs have an Approval to Operate, and that these systems be maintained to an acceptable standard.

Council can:

- Require action to be taken to bring a sewerage system into compliance with relevant standards or requirements (Order No.5).
- Require owners or operators to do or refrain from doing such things to prevent environmental damage or to repair environmental damage (Order No.11).
- Cease conducting an activity on a premises (such as operating an OSSMS), where the activity is or may constitute a treat to public health or safety (Order No.15).
- Require action to maintain a premise in a healthy condition (Order No.21).
- Control waste on premises where the waste is not being dealt with satisfactorily (Order No.22).
- Require the connection to a public sewer, where the sewer is within 75 metres (Order No.24).
- Require owners or operators to use or not to use a human waste storage facility (Order No.25).
- Require compliance with an approval (Order No.30), where considered necessary.
- Require owners to clean-up a pollution incident (Part 4:2 POEO Act)
- Require owners to take measures to prevent a pollution incident (Part 4.3 POEO Act).

The Local Government Act and Regulations allows Council to issue infringement notices (on the spot fines) for two existing offences under the Local Government Act:

- a) Operating a system of sewage management without the prior Council Approval [s.626 (3)]; and
- b) Operating a system of sewage management otherwise than in accordance with the terms of an approval [s.627 (3)].

5 Administration

5.2 Education

An important part of this strategy is to ensure that all parties involved in the installation operation and maintenance of OSSMSs are aware of their responsibilities. The level of knowledge required will depend on the type of sewage management system and the stakeholder's needs.

The operation of a centralised sewage system requires limited input from the individual householder, but householders need to take an active role in the operation of OSSMSs. They should have a broad knowledge of on-site sewage management principles and be able to apply that knowledge responsibly.

Householders need to have a full knowledge of:

- System operation and maintenance requirements
- Their regulatory responsibilities
- System selection and design of effluent application areas

- The health risks involved if systems fail
- Emergency contact numbers to initiate repair of system failure
- Waste and water use minimisation principles and techniques
- Managing the environmental impacts of wastewater
- Where to obtain further information

Council will undertake the following educational activities in relation to OSSMSs:

- Council or nominated agent will ensure that staff are appropriately trained to assess, monitor and OSSMSs.
- Council or nominated agent will conduct public awareness activities for on-site sewage householders to ensure they understand the best and most effective ways to maintain their systems.
- Council will utilise resources developed by the NSW Department of Local Government to assist in the educational process.

5.3 Financial Hardship and Upgrading Failing Systems

Council will only consider providing a loan where it is the lender of last resort. Therefore, before an application will be considered, you should seek to obtain a loan through your financial institution (bank, Credit Union, etc), and others if you are not successful there. If you are unable to obtain a loan from any of these then it will be necessary for you to provide a letter from your financial institution stating they will not lend to you for this purpose.

Council has set out the terms of the financial assistance package below. This will assist you in determining the suitability of the package for your requirements.

Terms and Conditions:

1. The loan will commence from the date of payment by Council.
2. Interest will be calculated on the loan at 7.5% per annum.
3. The loan will be repaid over a maximum of three (3) years by monthly instalments e.g. \$1000 loan = \$31.11 per month.
4. Repayments are to be made by direct bank transfer to Council's Bank Account.
5. The loan or part of the loan may be repaid earlier than the scheduled terms, with interest calculated to the date of such payment.
6. Should the terms of loan conditions 3 to 5 (inclusive) **not** be complied with, Council will require immediate payment of the total amount outstanding, inclusive of interest, which will accrue on a daily basis on the total principal outstanding.
7. The loan will be treated as a charge on land, similar to rates, and shall be paid in full should the property be sold or transferred.
8. Where an application for a loan is approved, Council will pay the plumber who does the work on behalf of the owner, upon receipt of the plumbers invoice and certified by the owner (borrower) as being approved for payment. Payment will also be dependent on satisfactory final inspection and authorisation of works by Council inspectors.
9. The loan agreement will be way of a signed letter outlining the terms and conditions of the loan. It is not anticipated that there will be a need for any other legal documentation. Should there be a need for any further legal documentation, the cost of this documentation will be met by the borrower.

If the above terms and conditions are agreeable, you will need to apply for a loan in writing furnishing the following detail.

- Relevant property detail including name(s) of owners and property address.
- Provide a letter from your financial institution stating they will not lend to you for this purpose.
- Amount of loan required (owner to obtain quotations from plumbers for required works and select preferred quotation).
- The preferred repayment terms. i.e. period of loan and instalment frequency.
- Copy of quotation from plumber including plumber's name, contact address, phone number and licence number.

Personal interviews may or may not be required for final determination of your loan application. You will be advised if an interview is required. If you are offered a loan, a letter of agreement will be drafted and will include the terms and conditions of the loan as negotiated between Council and yourself as the property owner.

6 Resourcing

6.2 Staffing

Council will assign appropriate staff resource to undertake the functions associated with the implementation of this strategy.

6.3 Fees

A fee schedule has been designed to provide Council and users of OSSMSs with a cost-effective program, which will not greatly impact on Council finances and which provides an efficient mechanism to ensure the long term environmental, and public health objectives of this strategy are achieved.

The Approval to Operate fee is to be levied on owners of premises with OSSMSs for ongoing service support such as administration, education and monitoring. The nominated fee on rate notice relates to the specific timeframe of the approval, which includes one inspection within the nominated risk evaluation period.

All fees will be reviewed annually during the preparation of Council's annual budget. Those fees will be included in the required public participation process prior to adoption of Council's Annual Management Plan. Table 3 shows the fees for the implementation of this strategy with the service/activity and associated fees being subject to annual review.

Table 3 Fees and charges for On-site Sewage Management

Service/Activity	Fee	Description
<p><u>On-site Sewage Management</u></p> <p>Administration fee – each onsite sewage system</p> <ul style="list-style-type: none"> - High Risk - Medium Risk - Low risk <p>Commercial /multiple occupancy systems</p> <ul style="list-style-type: none"> • Administration fees determined having regard to number of systems • Inspection fees time based 	<p>Subjected to annual fees and charges</p>	<p>Fee nominated on rates. Charged per system</p> <p>Administration Fee nominated on rates. Inspection fees invoiced based</p>
<p>Additional re-inspection</p>	<p>Subjected to annual fees and charges</p>	<p>Fee is invoiced and to be paid within the nominated timeframe</p>
<p>OSSM Certificate (Request for review associated with Sale of Property) includes inspection</p>	<p>Subjected to annual fees and charges</p>	<p>Request for Certificates Application Form to be submitted to council. Payment required prior to inspection.</p>
<p><u>On-site Sewage Management System Application</u></p> <p>Application assessment and approval to operate sewage management</p> <ul style="list-style-type: none"> - New/ Replacement/ System Amendment - Minor System Amendment (No alteration to tank or effluent drain field) <p>Installation inspection of treatment system and disposal field</p>	<p>Subjected to annual fees and charges</p>	<p>Payment required on submission of application</p>
<p>Source: Coffs Harbour City Council Adopted Fees and Charges (updated annually), <i>Environmental Services</i>. Can be located on Council’s website under Council’s Corporate Planning and Reporting section.</p>		

PART C – ON-SITE SEWAGE MANAGEMENT SYSTEM DESIGN AND REPORTING

7 Applying to Upgrade or Modify an On-site Sewage Management System

In order for Council to adequately assess an application to upgrade or modify an OSSMS, the applicant must ensure that sufficient information has been provided in the application and that the associated fees have been paid on submission of the application.

7.2 New and upgraded systems

Any new or upgraded OSSMSs must be designed by a suitably qualified environmental consultant or wastewater engineer experienced in on-site wastewater.

A detailed investigation involving a site and soil assessment must be undertaken to identify constraints relating to the sustainable management of treated wastewater on the site. Once the site limitations have been identified, suitable wastewater treatment and land application combinations can be identified to address these appropriately. This information is to be collated in a report and submitted as part of the application.

The information submitted (as a minimum) should include:

- *Complete Site and Soil assessment:* The detailed assessment of a site's features and soil characteristics are critical in designing appropriate and sustainable OSSMSs. The role of a site and soil assessment is to identify the most limiting constraints to sustainable effluent disposal. Information gathered from site and soil assessments provide critical information for determining the most appropriate wastewater treatment and effluent disposal combination to overcome these constraints.

Site features and soil characteristics will influence the type, size and location of OSSMSs. For detailed information on site and soil investigations refer to AS/NZS1547:2012 and DLG 1998 ("Silver Book"). All constraints identified in the investigation process must be acknowledged in the report with details on how these constraints will be mitigated in the design of a suitable OSSMS. Digging and presentation of soil profile to at least one metre (or prior refusal) must be included in the soil assessment.

Soil Landscapes of the Coffs Harbour (1999) prepared by the Department of Land and Water Conservation contains useful information to assist in the preliminary assessment. This and similar sources of information **must not** be used as a substitute for site specific soil analysis as variations in mapping may result in the proposal of an inadequate system.

Soil chemistry must be provided for all investigations. Table 4 sets out Council's minimum requirements.

Table 4 Minimum soil testing requirements

Soil Test	Subdivision	Single Lot
Soil pH (1:5 soil:water)	Yes	Yes
Electrical conductivity (1:5 soil:water)	Yes	Yes
Cation exchange capacity (CEC) and exchangeable sodium potential (ESP)	Yes	No
Phosphorus sorption	Yes	If suspected a problem
Modified Emerson Aggregate test (SAR5)	Yes	Yes, field test

Note: Published data for CEC and P_{sorb} may be used for single lot designs where a nutrient balance is required.

- **Estimated Wastewater Generation:** Predicted hydraulic loads must be calculated based on the maximum occupancy rate of a dwelling. The predicted hydraulic load will be calculated on the basis of the number of bedrooms multiplied by 1.5 persons per bedroom. For 1 bedroom dwellings, the minimum occupancy will be assumed to be 2 persons. If information suggests more people will be living in the dwelling than the above calculation suggest, then calculations must reflect the expected occupancy rate.

For non-domestic on-site sewage management designs, occupancy/utilisation rates must be based on expected utilisation rates accounting for seasonal variation in peak loading. Table H4 in AS/NZS1547:2012 provides design flows based on domestic wastewater generated from commercial premises in New Zealand. This information should be adopted in lieu of information specific to Australian data.

- **Proposed Wastewater Treatment and Disposal System:** Details of the proposed treatment system should be included in the report submitted to council. This should include the systems accreditation with NSW Health and relevant construction and installation specifications. Details of the proposed disposal system should also be included making reference to specific design/installation requirements set out in AS/NZS1547:2012. Some examples of schematics for numerous types of effluent disposal systems are provided in Appendix A.
- **Detailed Site Plan:** The following site plans are required to be included in the report:
 - Large scale plan highlighting the sites location with respect to surrounding properties.
 - Small scale plan (1:200 or most suitable size) detailing dominant site features (rivers, dams, drainage features, bores, etc); and
 - Small scale plan (1:200 or most suitable size) nominating the proposed treatment and effluent disposal field location, buffers to the disposal field, and 100% nominated reserve area.
- **Setback distances:** Council will assess suitability of buffer setbacks to environmental and public *receptors* using Table R1, to be used in conjunction with Table R2 in AS/NZS1547:2012. Buffer distances shall be included on scaled site plans.
- **Water and Nutrient Balance:** All On-site wastewater systems must be designed according to AS/NZS1547:2012 and the DLG (1998) “Silver Book”. Water and nutrient balances must be used to size appropriate effluent management areas which consider nutrient loading on the environment and wet weather storage capacity.

Water balance: Site specific median rainfall and evaporation data must be utilised in water balance calculations to ensure the rainfall and wastewater loads do not exceed the evapotranspiration rates and absorption capacity of the soil. Median rainfall data must be

used to account for Coffs Harbour's high seasonal variation in rainfall. This is critical in designing appropriate effluent disposal systems.

Nutrient balance: Site specific nutrient balance calculations must be undertaken for all disposal system designs. Inputs should include hydraulic load, soil depth, soil bulk density, effluent quality, uptake and phosphorus sorption rates. Often the area required for nutrient assimilation is larger than that required hydraulically. Designs incorporating subsurface irrigation systems should base sizing on most limiting factor (nutrient or hydraulic). A nutrient assimilation envelope must be allocated for absorption systems.

- **Site and Use Considerations:** The type of development and its intended use must be considered in the design process. Where a site receives intermittent loads (holiday houses, caravan parks) certain treatment systems will struggle to effectively manage the variable loads and often result in poor effluent quality. Peak loading of system such as in the case of holiday/caravan parks can drastically reduce the final effluent quality, especially where the volume of wastewater generated exceeds the maximum design daily load of the treatment system. In these cases, the proposed treatment system should be designed to cope with variable wastewater generation rates.
- **Irrigation Design:** Appropriate hydraulic sizing of pumps has been identified by Council as an area requiring further input from designers to ensure systems incorporating pumped systems are installed with appropriate fittings, lateral spacing, emitters, pump size etc, to ensure effluent is distributed evenly across the entire dosing manifold. Pumped systems must be designed and or certified by a Certified Irrigation Designer (CID) or suitably qualified person.
- **Operation and Management Plan:** Council requires that designers provide individualised management plans for each system. A simple operation and maintenance (O&M) plan should be provided for single domestic systems. A more detailed O&M plan should be provided where the system is of a commercial nature and or the system is installed without NSW Health Accreditation under Clause 41 (2) of the Local Government (General) Regulation 2005, and is unique to the premises. An O&M Plan shall provide the occupier/owner or service personnel with all necessary instructions for the operation, maintenance and servicing of the proposed system, and an emergency action plan in the event of system breakdown.

7.3 New subdivisions, residential release proposals, rezoning and other development applications

On-site sewage management plays a major role in determining the suitability of land for residential development. In most cases a Land Capability Assessment (LCA) must be undertaken to demonstrate that each of the proposed lots are capable of sustainably managing on-site wastewater disposal. The assessment is used to identify lot density and lot sizes. It will detail the minimum level of wastewater treatment required for each lot based on information obtained from a detailed site and soil assessment.

The details required in the consultant's report must be in accordance with the requirements of this section and 7.2, except as provided below:

- Full construction, engineering and installation specifications of the treatment systems and land application areas are not required provided that it can be clearly demonstrated that each proposed lot is capable of accepting on-site disposal of wastewater and must comply with all the constraints/limitations determined from the assessment and reporting process.
- Site plans must also include the proposed development layout, recommended Effluent Management Area (EMA) within each of the proposed lots and a 100% nominated reserve area.

8 References

Australian/New Zealand Standard AS/NZS 1547: 2012 – On-site Domestic Wastewater Management

NSW Department of Local Government. *Environment and Health Protection Guidelines: On-site Sewage Management for Single Households*, DLG, Sydney, 1998 (the ‘Silver Book’)

NSW Government, Local Government Act 1993.

NSW Government (General) Regulation 2005.

NSW Guidelines for Greywater Reuse in Sewered, Single Household Residential Premises 2007

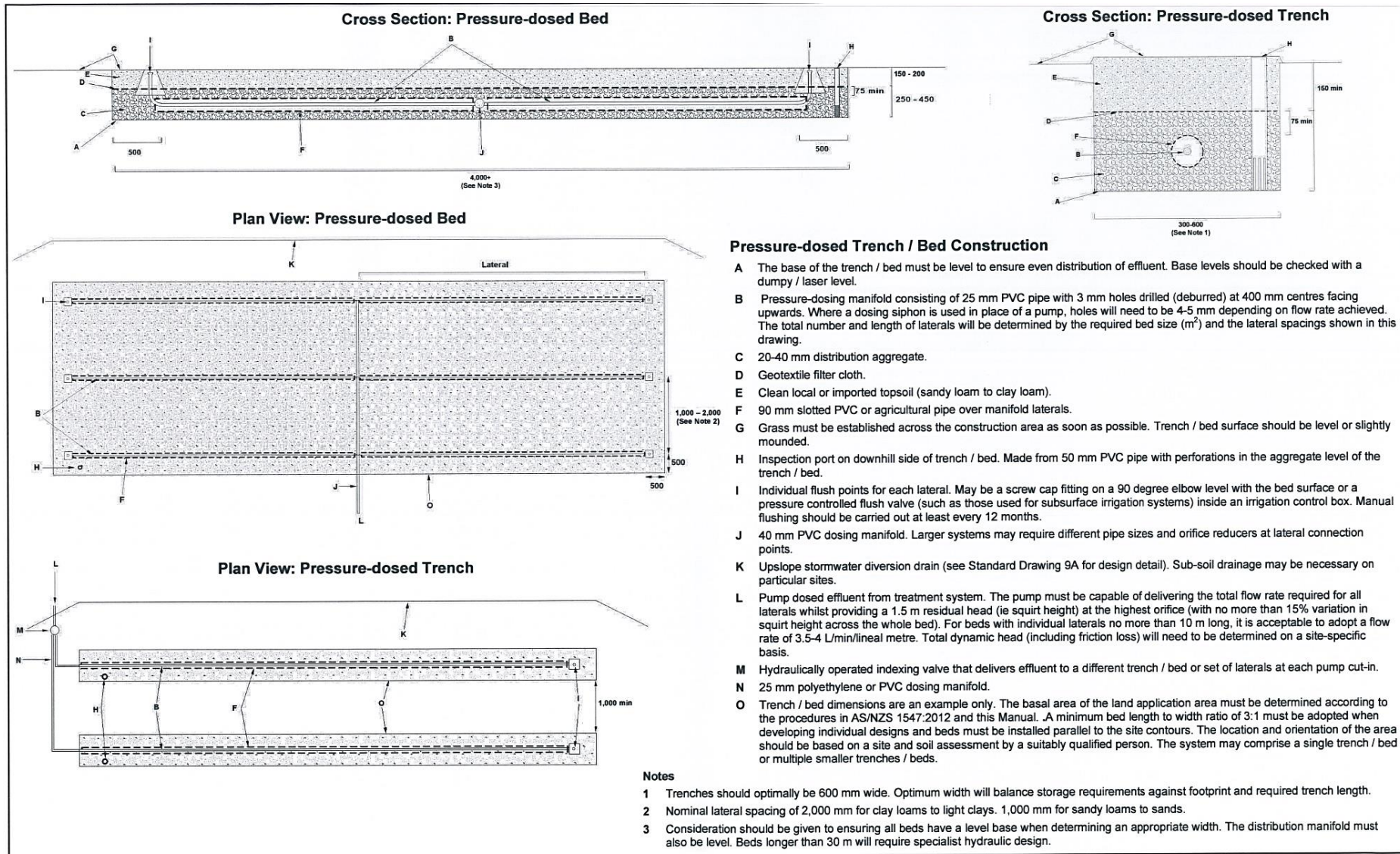
Protection of the Environment Operations Act 1997

Sydney Catchment Authority, 2012. *Designing and Installing On-Site Wastewater Systems*. A Sydney Catchment Authority Current Recommended Practice.

9 Table of Amendments

Amendment	Authorised by	Approval reference	Date

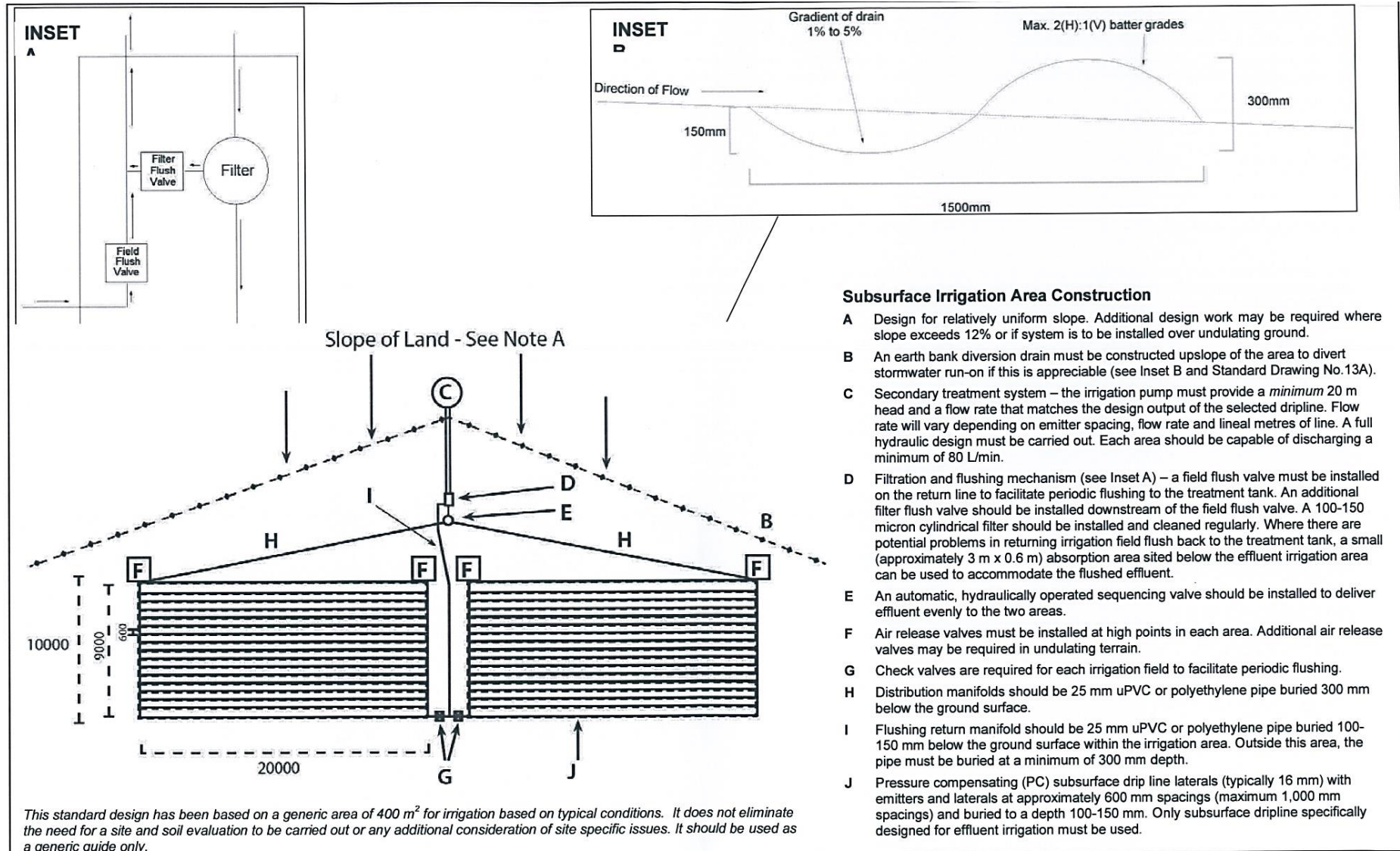
Appendix A – Effluent Disposal System Schematics



Standard Drawing 10C - Pressure-dosed Bed / Trench

(not to scale)

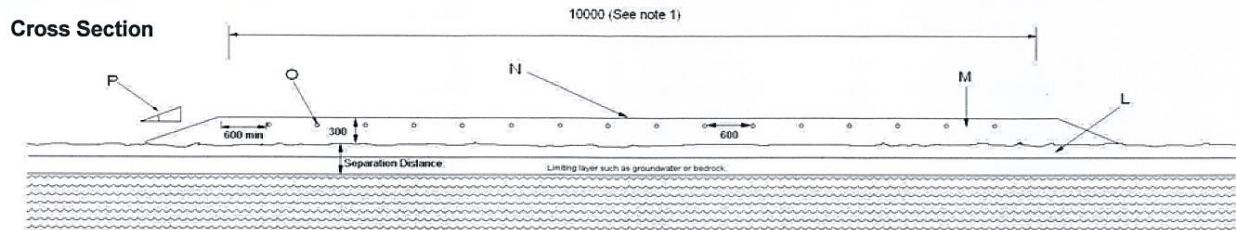
Sourced from SCA 2012



Standard Drawing 13B - Subsurface Effluent Irrigation

(not to scale)

Sourced from SCA 2012

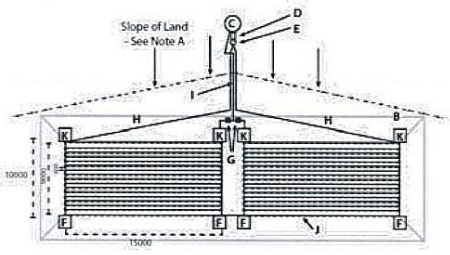


Raised Subsurface Irrigation Bed Construction

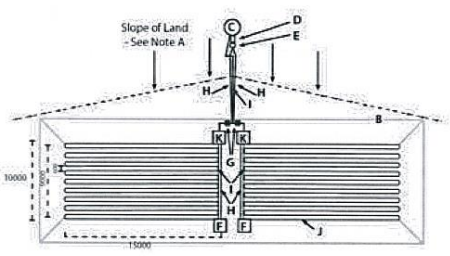
Note 1

The layout and dimensions used in this drawing are based on a total required area of 300 m² for demonstration purposes only. The location, configuration and layout of individual subsurface irrigation fields will need to be determined on a site-specific basis. The purpose of this Standard Drawing is to illustrate a typical configuration and specify minimum system components (eg flush lines, separate fields and dripline spacing). Minimum subsurface irrigation areas for different dwelling sizes should be determined by a hydraulic balance and according to AS/NZS 1547:2012 and this Manual.

Plan View - 'End to End' Manifold Design



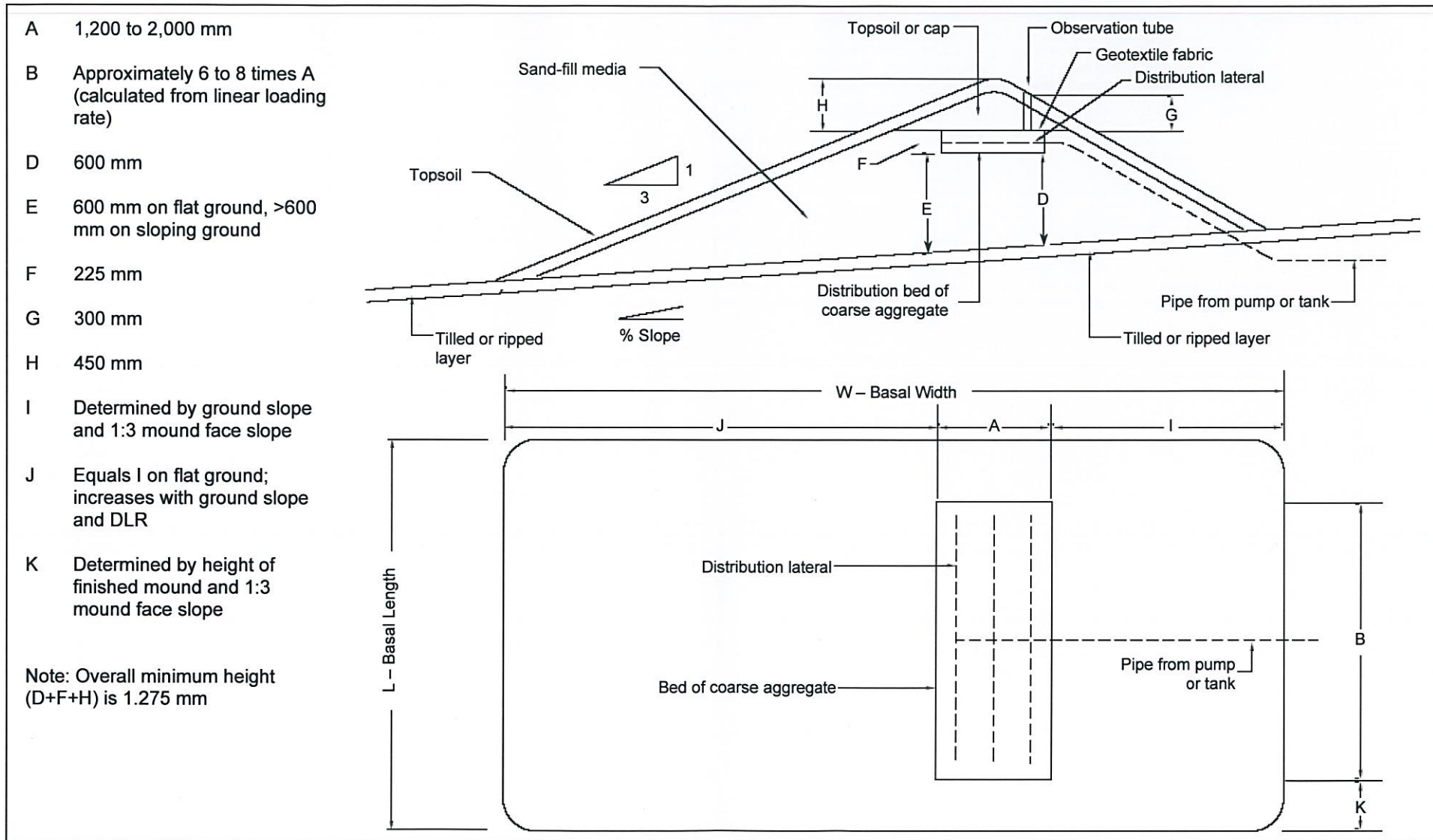
Plan View - 'Single Trench' Manifold Design



- A Design for relatively uniform slope. Additional design work may be required where slope exceeds 12% or if system is to be installed over undulating ground.
- B An earth bank diversion drain must be constructed upslope of the effluent irrigation area to divert stormwater run-on if this is appreciable (see Standard Drawing No.13A).
- C Secondary or Advanced Secondary Treatment System – the irrigation pump must provide a minimum 20 m head to the driplines (after static lift and friction loss) and a flow rate that matches the design output of the selected dripline. Flow rate will vary depending on emitter spacing, emitter flow rate and lineal metres of dripline. A full hydraulic design must be carried out. Each area should be capable of discharging a minimum of 80 L/min.
- D Filtration system – a suitable filter must be installed on the system. Minimum standard is a 100-150 micron cylindrical filter however some systems will require a disc filter with finer filtration capacity. Some proprietary driplines require the installation of a 'tech-filter' that doses the system with a root and biofilm inhibitor.
- E An automatic, hydraulically operated sequencing valve should be installed to deliver effluent evenly to a minimum of two separate fields.
- F Automatic field flush valves must be installed to provide line flushing at each pump operation. One valve should be installed for every 100 lineal metres of line in the field/system. The valves can be installed in-field in irrigation boxes (backfilled with aggregate) or back at the treatment system.
- G Check valves are required on the return flush manifold of each field to facilitate periodic manual flushing.
- H Distribution (supply) manifolds should be 25 mm uPVC or polyethylene pipe buried a minimum 300 mm below the ground surface. Where possible, the supply and flush manifolds should be located in the same trench.
- I Flushing return manifold should be 25 mm uPVC or polyethylene pipe buried 100-150 mm below the ground surface within the irrigation area. Outside this area, the pipe must be buried at a minimum of 300 mm depth.
- J Subsurface drip lines with emitters at 300 mm spacings and laterals at 600 mm spacings and buried to a depth 100-150 mm. Only subsurface dripline specifically designed for effluent irrigation must be used. Irrigation fields may be installed with manifolds at opposite ends or at the same end (with laterals coiling back) as shown in the Standard Drawing.
- K Air release or vacuum breaker valves must be installed at high points in each field. Additional air release valves may be required in undulating terrain.
- L Prepare the site by clearing all shrubs, trees and boulders. Cut trees to ground level and then grind the stump out to a depth of 300 mm and backfill with permeable material such as the natural topsoil or sand (not clay). Scarify the natural soils across the entire basal area to a minimum depth of 200 mm taking care not to compact the basal area in the process. This should extend to at least one metre beyond the perimeter.
- M Subsurface irrigation bed is to be raised to a total height of 300 mm above the final ground surface. Compaction should be minimised when installing the bed. The fill must be an organic loam to sandy loam with minimal clay content.
- N Grass (turf) must be established over the raised bed immediately after completing construction.
- O Dripline laterals must be buried 100-150 mm below the surface.
- P Batter slope 1 (vertical):3 (horizontal) maximum.

Standard Drawing 13C - Raised Subsurface Irrigation Bed
(not to scale)

Sourced from SCA 2012



Standard Drawing 9B - Wisconsin Sand Mound
(not to scale)

Sourced from SCA 2012



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