Jersey
Life enriching

Supplementary Planning Guidance: advice note

Disposal of foul sewage

May 2012

States of Jersey

About supplementary planning guidance

The Minister for Planning and Environment may publish guidelines and policies (supplementary planning guidance) in respect of; development generally; any class of development; the development of any area of land; or the development of a specified site[1].

Supplementary planning guidance may cover a range of issues, both thematic and site specific, and provides further detail about either, policies and proposals in the Island Plan, or other issues relevant to the planning process. It can also be used to provide information about how the planning system operates.

Where relevant, supplementary planning guidance will be taken into account, as a material consideration, in making decisions.

Supplementary planning guidance is issued in a number of different forms including:

- **Advice notes**, which offer more detailed information and guidance about the ways in which Island Plan policies are likely to be operated, interpreted and applied in decision making;

- **Policy notes**, which can be issued by the Minister, following consultation with key stakeholders, in-between reviews of the Island Plan, to supplement and complement the existing planning policy framework;

- **Masterplans, development frameworks and planning briefs** provide more detailed information and guidance about the development of specific sites and areas of the Island; and

- **Practice notes**, which aim to provide information about how the planning system's protocols and procedures operate.

The current supplementary planning guidance is listed and can be viewed on the States of Jersey website at www.gov.je/planningguidance.

Hard copies of all supplementary planning guidance can be obtained from Planning and Building Services, Department of the Environment, South Hill, St Helier, JE2 4US, telephone: 01534 445 508 email: planning@gov.je

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[1] Under Article 6 of the Planning and Building (Jersey) Law

Contents

1. Introduction

1.1 Planning policy for the disposal of foul sewage is contained in Policy LWM2 of the 2011 Island Plan. The policy is set out in full in Section 2 and included among its main provisions are:

- a presumption in favour of connecting new developments (which involve the discharge of sewage) to the mains public foul sewer;
- allowance for considering the installation of packaged treatment plants in exceptional circumstances where connection to the mains public foul sewer is not economically feasible; and
- allowance for considering the use of existing septic tanks (where they have been shown to be performing adequately) and tight tanks for appropriate small-scale developments in exceptional circumstances where connection to the main drains is not feasible and the installation of a packaged treatment plant would be unreasonable.

1.2 This guidance has been prepared to elaborate on Policy LWM2 and clarify how planning controls will be exercised on sewage disposal aspects of future developments through the planning application process.

Status of the guidance

1.3 This supplementary planning guidance has been prepared in the context of the 2011 Island Plan and in consultation with the general public and interested parties. It has been formally adopted by the Minister for Planning and Environment and is a material consideration in determining planning applications. This guidance supersedes Planning Advice Note 1: 'Disposal of Foul Sewage' (October 2005).

What is this guidance for?

1.4 The main purposes of this guidance are to:

- set out the Minister's interpretation of Policy LWM2 and its detailed requirements;
- prevent sewerage systems for new developments giving rise to environmental, amenity or public health problems;
- outline the information that must be included with any relevant application; and
- help provide consistency and a measure of certainty in decision making.

Who is the guidance intended for?

1.5 This guidance is principally aimed at assisting land owners, developers, builders, architects, designers and all those who are involved in preparing and processing planning applications for new development.

What type of development does this guidance apply to?

1.6 This guidance applies to all new development which results in the discharge of sewage and/or an increase in sewage discharge to a drainage system. For the avoidance of doubt, *new development* includes:

- building work or material change of use of a building (whether it is to construct or convert a building to create a new dwelling or other use, or to extend an existing building);

- development which would potentially increase the occupancy of a building (including the creation of additional bedroom or potential bedroom accommodation in existing homes); and
- the replacement of a cesspool (tight tank drainage system) or an existing septic tank system with a sewage treatment system.

1.7 For the purposes of the guidance, sewage is defined as *"the contents of lavatories and water which has been used for cooking and washing"*. [2] It allows for the domestic activities of those who work in commercial premises, as opposed to the effects of the business activities. It does not refer to trade effluent, unless the effluent is very similar to domestic sewage.

2. Island Plan policy for foul sewerage facilities

2.1 For ease of reference, Policy LWM2 is set out in full below.

> Development which results in the discharge of sewage effluent will not be permitted unless it provides a system of foul drainage that connects to the mains public foul sewer (to the satisfaction of the Minister for Planning and Environment in consultation with the Minister for Transport and Technical Services).
>
> Responsibility for the cost of making a connection and/or providing increased capacity in the public foul sewerage systems and pumping stations, so as to accept any additional flow from the development, will be the applicant's, and this may be the subject of a legal agreement between the applicant and the Minister.
>
> In exceptional circumstances and where it has been demonstrated by the applicant that connection to the mains public foul sewer is not economically feasible, taking into account viability and practicability, consideration may be given to a packaged treatment plant offering full treatment, provided it is demonstrated that:
>
> 1. the final effluent from the development will meet standards and conditions set by the Minister for Planning and Environment and the Minister of Transport and Technical Services; and
> 2. adequate provision is made for future operation, monitoring/telemetry and maintenance throughout the life of the plant, which is to the satisfaction of the Minister for Planning and Environment in consultation with the Minister for Transport and Technical Services and which is supported by a planning obligation agreement and meets the terms of the conditions of any required "Discharge Permit".
>
> Planning permission may be granted in exceptional circumstances for small-scale development which results in an increase of foul sewage discharge and relies on non-mains sewerage disposal, including existing septic tanks (where these have been shown to be performing adequately) and tight tanks. Such developments might include: extensions and alterations to existing residential properties; conversions of existing non-residential buildings to create no more than two dwelling units or other similar small scale uses; incidental buildings within the curtilage of domestic dwellings; essential agricultural workers' accommodation; and other small scale developments; where these would otherwise be considered appropriate having regard to Policy NE6 'Coastal National Park', Policy NE7 'Green Zone' and other relevant policies of the Plan.
>
> In such cases, the applicant must successfully demonstrate that:
>
> 1. connection to the mains drains is not feasible;
> 2. the installation of a packaged treatment plant would be unreasonable;

[2] Department of Transport and the Regions, Circular 3/99.

3. the increase in the amount of effluent as a result of development will be negligible;
4. ground conditions are appropriate and the development plot is of adequate size to provide an adequate sub-soil drainage system;
5. development will not create or add to a pollution problem;
6. the development will not place an unacceptable burden on amenity or cause public health or environmental problems;
7. adequate provision is made for maintenance and monitoring; and
8. the development is in accordance with other principles and policies within the plan.

Where it is proposed to increase the potential sewage discharge to an existing non-mains sewerage system, which may give rise to the problems referred to above, there will be a requirement to make suitable improvements to the system, which may include a requirement to replace an old septic tank with a new packaged treatment plant.

For the avoidance of doubt, proposals for the use of septic tank systems, tight tanks and other such systems will not be permitted where:

1. a 'Discharge Permit' is unlikely to be forthcoming; and
2. the proposals are put forward as a temporary measure with the intention of connecting drainage to the public sewerage system at a later date and may give rise to problems referred to above.

Applicants are required to submit sufficient information regarding the means of sewage disposal to allow a proper assessment of the proposals. Where this information is not provided, the application will be refused.

Regard will be made to constraints on the capacity of the existing Sewage Treatment Facility and Drainage System in consultation with the Minister for Transport and Technical Services.

Proposals for the development of land in the vicinity of sensitive foul sewerage facilities, as indicated on the Proposals Map, including the packaged treatment plant at Bonne Nuit, tanker discharge points and pumping stations with odour control units, will only be permitted where they will not unduly restrict the activities of these facilities.

3. Background

3.1 Water is one of the Island's most vital natural resources. Clearly, it is essential to sustain life, but it also plays a crucial role in our economic development and social well-being. Particular attention, however, needs to be paid to the protection of water resources, because they are susceptible to a wide range of threats from activities associated with various land uses.

3.2 The overriding objective of Policy LWM2 is to reduce the risk of pollution to the Island's water environment by effluent from the foul water systems of new developments, where this would give rise to environmental, amenity and public health problems. The water environment includes groundwater, surface waters (e.g. streams, ponds and reservoirs) and coastal waters.

3.3 The above objective is reflected by the emphasis placed on connecting to mains public drainage wherever possible. It is recognised, however, that the mains public foul sewerage system does not cover the whole Island, that resources for future sewer extensions are unlikely to the available in the foreseeable future and that many of the more remote rural areas might never be reached by mains drains. As a consequence, a considerable number of Island properties (i.e. approximately 14% in 2011) currently

rely on a variety of non-mains drainage systems, including septic tanks, tight tanks and private sewage treatment plants.[3]

3.4 In the circumstances, it is considered unreasonable to simply place a moratorium on areas not served by mains drains, when it will not be feasible for many buildings in the countryside to connect to mains drains. It is also acknowledged that in exceptional circumstances it may be appropriate to make use of alternative private on-site non-mains sewerage solutions for some new development proposals which may otherwise be desirable / permissible.

3.5 There are often, however, environmental, amenity and public health problems associated with existing non-mains sewerage systems (e.g. because they are poorly sited, overloaded, badly maintained, or used beyond their effective life). Relying on these systems may, either individually or cumulatively, increase the risk of pollution, which can adversely affect the ecology and chemical quality of the water environment. To ensure these problems are not perpetuated in any future developments, it is important to adopt effective policies, practices and procedures.

3.6 The Minister for Planning and Environment is particularly keen to avoid establishing undesirable precedents for non-mains systems which have implications for future planned developments across the Island leading to environmental, amenity and health concerns and serving to undermine ongoing efforts to extend the provision of public sewers. It is maintained that connection to the sewer offers the most environmentally, economically and socially appropriate long-term solution for the Island.

4. Hierarchy of drainage options

4.1 Owing to the potential for and frequency of pollution of the water environment from private non-mains drainage systems, Policy LWM2 is based on a hierarchy of drainage options. The basic options are set out below and must be considered and discounted in the following order of priority:

- connection to a public sewer;
- private sewer connecting to a public sewer;
- packaged sewage treatment plant offering full treatment;
- a tight tank (for 'small-scale' development);
- an adequate existing septic tank, with a land drain to provide secondary treatment (for small extensions and alterations to existing dwellings).

4.2 These are described below in sections 5 and 6.

5. Mains foul sewers

5.1 When drawing up sewerage proposals in association with new developments, the first presumption must always be to provide a system of foul drainage which is connected to the Island's public sewerage system where it is reasonable to do so. This can either be a direct gravity connection, or a connection via the use of an existing private sewer, or new pumped main where this is deemed to be achievable. Connection to the public sewer is the preferred option because, in this way, the sewage is directed to a purpose built and closely monitored sewage treatment system and avoids the additional environmental risks associated with using private non-mains sewerage systems. Proposals involving discharge to the foul sewer should be drawn up in consultation with

[3] See Section 6 for definitions.

the Department of Transport and Technical Services, which is responsible for administering the Island's public sewerage system.

5.2 Other than in the exceptional circumstances described in Policy LWM2 and elaborated on in this guidance, the foul drainage from new developments should discharge into the mains public foul sewer. Non-mains drainage systems are not considered environmentally acceptable in areas where public sewers are readily available and will not be approved.

5.3 It should be noted that the existence of capacity problems or other operating problems with the mains public foul sewer and any associated pumping stations will not be regarded as a valid reason for non-connection, where this is reasonable in other respects. Nor will it be appropriate to put forward temporary provision of private sewerage systems for developments in areas where a connection to the public sewer is proposed at some future date.

5.4 The cost of making a connection to the public sewer and/or providing increased capacity in the sewer and any associated pumping station (i.e. so that it is able to accept the additional flow from the development) will fall to the applicant / developer. These costs may be the subject of a legal agreement.

5.5 The applicant / developer may also need to obtain agreements from the owners of land over which the drainage will run in order to connect to the public sewer.

5.6 Where an application proposes to connect new development to the existing public mains sewer system, the applicant / developer should provide the following information:

Scaled plans showing:

- the location of the nearest public sewer and proposed connection point/s;
- the proposed route of the drainage connection to the public sewer (N.B. this should be planned to avoid as far as possible potential damage to trees and archaeological remains);
- any land not in the applicant's ownership in which drainage will be placed (i.e. between the site and the public sewer) and proof of agreement with the landowner;
- details of any required above ground pumping station/s structures (i.e. plans, elevations, sections);
- a dimensioned distance from the development site boundary to the public sewer; and
- the invert level of the proposed connection to the sewer and the finished ground levels of the development site.

Written confirmation from the Department of Transport and Technical Services that:

- the public foul sewer is able to accept the sewage effluent from the development; and
- the proposals incorporate or make provision for required infrastructure improvements, where appropriate.

6. Non-mains drainage

6.1 The use of non-mains drainage solutions for the disposal of foul sewage effluent will only be considered where it has been demonstrated that a connection to mains sewerage is not economically feasible.

6.2 Non-mains systems depend on their proper operation and regular maintenance if they are to function effectively (even if they have been appropriately sited, designed and installed). Where this is not the case, they can give rise to pollution of land and the water environment with associated environmental, amenity and/or public health problems.

6.3 The options for non-mains drainage include package sewage treatment plants, tight tanks and septic tanks and these are described below.

Package treatment plants

6.4 A package sewage treatment plant is a wastewater treatment system constructed with minimal site work using prefabricated components, which offer high degrees of biological sewage treatment. There are numerous variants of package plants, each with a slightly different treatment technique. The two most common system types are 'Extended Aeration Plants' which are for regular domestic use and 'Three Stage Sewage Treatment Plants' which can also be used for larger developments. All these plants involve settling the solids before and/or after a biological treatment stage, where micro-organisms are used to break down the organic matter in the sewage. They also all use electricity for the sewage treatment process (e.g. for mechanical aerators, air blowers and pumps, motors, compressors etc needed to oxygenate the liquid based treatment system). The final effluent that is produced in the plants is then disposed of to ground via a suitable drainage field. The plants will require maintenance and emptying of the settled gross solids at regular intervals.

6.5 There is a third type of package treatment plant currently on the market, known as a 'Filter Treatment Plant'. This has certain advantages over other systems. The plant separates liquid from solid waste in a pre-filter tank and waste water is biologically filtered to remove pollutants. The biological filtering uses a combination of natural stone fibre material (where bacteria grow and digest trapped organic material) and natural (oxygen rich) air draft. The main advantages include: cheaper running costs (because they use no electricity, require less servicing and need less frequent de-sludging); greater resilience to normal household items poured down the sink or flushed down the toilet (e.g. tampons, baby wipes, fats, household cleaners); and better effluent quality.

6.6 All package sewage treatment plants will treat sewage effluent to a far higher standard than septic tanks. However, only those plants which offer full sewage treatment (including the addition of some form of secondary and if necessary tertiary treatment) are considered suitable for use in Jersey. These are the preferred non-mains sewerage option under Policy LWM2, should connection to the public sewer prove unfeasible, because, with proper care and appropriate conditions, they are more capable of treating sewage to a sufficient standard for it to be discharged to the water environment, without causing pollution and harming the environment, amenity and public health. They are also the only type of non-mains sewage treatment system that may be considered acceptable for areas where there are drinking water abstractions or where ground water is vulnerable to pollution. The Building Bye-laws require package treatment plants to be connected to an appropriate drainage field to provide further treatment

6.7 Where the intention is to discharge into particularly sensitive / vulnerable water environments, or when the volume of discharge is relatively large, additional treatment of sewage effluent may be required. Examples of possible additional treatment include: reed-bed systems; disinfection; filtration; stabilisation ponds and gravel beds.

6.8 There a potential problems which can arise when using package sewage treatment plants. Biological treatment will only work effectively if the micro-organisms have the right conditions to stay healthy and problems can arise (depending on the chosen plant) where:

- A development is likely to generate erratic or intermittent sewage loads (e.g. holiday accommodation) and the introduction of a flow balancing system will not be able to create a sufficiently even and steady flow;
- The system is not regularly desludged in accordance with the manufacturer's instructions and the sludge is allowed to build up so that sewage cannot flow freely through the unit (N.B. typically sludge should be removed annually for a single dwelling and much more regularly for a multiple occupancy unit);
- Inappropriate substances are put into the plant that might damage or kill the micro-organisms (e.g. bleach and other chemicals used in cleaning, solvents, oil, grease and fats);
- Surface water (e.g. from roofs and parking areas) is allowed to enter the system, reducing its capacity and causing solids to be flushed out, resulting in flooding and pollution;
- A break in the power supply to plants using electricity (e.g. due to power failure or irregular occupation) leads to the death of micro-organisms; and
- The plant is not properly maintained in accordance with the manufacturer's instructions.

6.9 Use of 'Filter Treatment Plants' can reduce the risk and scale of the problems, because: the plants require emptying less often (i.e. 2-3 year intervals); the treatment does not rely on electricity; there are no moving parts needing replacement; the system is generally more able to cope with a greater range of household waste items; and the effluent quality is higher.

Tight tanks (cesspools)

6.10 Tight tanks do not provide any treatment of sewage effluent. They are large sealed / watertight underground holding tanks used for collecting and storing sewage and they have no outlet for discharges. In principle, therefore, if they are properly constructed and maintained, they should not lead to environmental, amenity or public health problems. However, they require regular emptying by a tanker which takes the raw sewage to the sewage treatment works. The frequency of required emptying can range from around 30 to 45 days or so, depending on use, in order to prevent overflow. As such, tight tanks are not particularly sustainable from an economic or an environmental perspective.

6.11 Because tight tanks do not discharge effluent to the ground, they may be permissible in the case of certain small scale developments where:

- it is not economically feasible to connect to the foul sewer;
- the installation of a packaged sewage treatment plant would be unreasonable;

- ground conditions are not suitable for a drainage field or an inadequate area of land for a drainage field is available; and/or
- there will be infrequent use (e.g. holiday accommodation) which may not be suitable for a treatment plant.

6.12 Policy LWM2 provides examples of what might be regarded as small scale developments. This includes: extensions and alterations to existing residential properties; conversions of existing non-residential buildings to create no more than two dwelling units or other similar small scale uses; incidental buildings within the curtilage of domestic dwellings, essential agricultural workers' accommodation; and other small scale developments.

6.13 It should be borne in mind that tight tanks must be installed on campsites to receive the chemical toilet waste which would kill a septic tank or package sewage treatment plant.

6.14 There are Building Bye-law requirements relating to the use, size and location of tight tanks and it is expected that their use will be limited.

6.15 There are potential problems which can arise when using tight tanks. Although they are simply holding tanks, the use of tight tanks can in practice give rise to pollution of the water environment if they overflow. This could occur as a result of insufficient capacity, poor maintenance, irregular emptying and/or lack of a suitable vehicular access for emptying. To help ensure that tight tanks do not overflow, the Building Bye-laws require a warning device to be fitted which alerts occupants of the building when the tight tank is 75% full.

6.16 Problems can also occur when tight tanks are damaged or misused or deteriorate. As a consequence, they might no longer be impervious to the ingress of groundwater or surface water, or they might leak sewage effluent.

Septic tanks

6.17 Septic tanks are the traditional method of sewage treatment in rural areas, but they provide only a basic level of sewage treatment, far below that of package treatment plants. They generally comprise a two or three chamber system, which holds sewage from a property for sufficient time to allow the solids to settle and form into sludge at the bottom of the tank, where it undergoes very limited / rudimentary decomposition. The remaining liquid effluent in the tank then drains into the ground by means of an outlet pipe.

6.18 The liquid effluent in the tank typically contains about 70% of the original polluting matter and this is normally disposed of by soakage into the ground via a subsurface soakaway / drainage field. A common form of soakaway currently in use in Jersey is the 'pit-soakaway' (deep borehole soakaway), although these are no longer permissible under the Building Bye-laws, because they often fail to work in wet weather conditions and invariably intercept the water table resulting in the effluent discharging directly and rapidly into the groundwater. Because septic tanks only provide basic treatment, the Building Bye-laws no longer permit the installation of this type of system.

6.19 It is because there is a high pollution risk to surface waters or groundwater resources from the liquid effluent discharge, that there is a general presumption against the use of septic tanks for new developments. Policy LWM2 only allows for the use of existing septic tanks for appropriate new 'small-scale' developments, in exceptional circumstances, where these have been shown to be performing adequately. Such developments might normally comprise small extensions and alterations to existing

dwellings. Furthermore, where there are proposals to increase the potential sewage discharge to an existing septic tank (i.e. where no opportunities exist to make a mains connection), the policy requires suitable improvements to the system to enhance effluent quality. This will be especially important when the receiving water environment is sensitive.

6.20 In the case of small-scale extensions and alterations to existing dwellings, required improvements might include upgrading the existing system with a properly designed drainage field (or drainage mound) and additional treatment where appropriate (e.g. reed-bed system, filtration, or gravel beds).

6.21 For other developments, improvements are likely to include:

- replacement of the septic tank with a new package sewage treatment plant; or
- installing a new package sewage treatment plant as an add-on to the septic tank outlet pipe, to convert it into a full sewage treatment system.

6.22 As alluded to above, there are potential problems which can arise when using septic tanks. The most common problems with on-site sewage treatment systems are associated with drainage field failure. It is not unusual for many of these to fail within 10 years, but the speed of failure will depend on a number of factors, including:

- levels of maintenance – if the system is not de-sludged at least annually, sludge discharges into the drainage field and the porous ground becomes blocked. As a consequence, the effluent cannot soak away and the system fills up, causing it to fail.
- overly deep land drains – if these are deeper than 1 metre below ground level they are in the anaerobic soil layer. Anaerobic bacterial growth produces a slime which again blocks the porosity of the soil leading to drainage field failure;
- soil conditions – clay-based soils are not appropriate for drainage fields, because they have poor percolation characteristics. Even the porosity of sandy soils will eventually be destroyed by high levels of suspended solids and the black slime that results from decomposition (i.e. over 15 to 25 years);
- the height of the water table – if the winter water table rises higher than the tank outlet, water will be drained from the drainage field back into the tank. When the water table falls again, the effluent from the tank which is full of solids drains from the outlet pipe and blocks the soil porosity of the drainage field;
- added loads – adding the sewage from another home/s without increasing the size of the drainage field will leave it overloaded and unable to cope with the additional volume of effluent.

7. Assessment of planning applications

7.1 It is primarily the responsibility of the applicant / developer to demonstrate, through the submission of sufficient information that a proposed new development will be effectively served by a sewerage system. It then falls to the Minister for Planning and Environment to be satisfied that the sewerage arrangements are suitable, prior to determining the planning application. Where insufficient information is provided to allow a proper assessment of the sewerage arrangements, or such arrangements are assessed as being unsatisfactory, planning permission will be refused.

7.2 To assist in assessing the acceptability or otherwise of proposed sewerage arrangements, the Minister for Planning and Environment will consult with and have

regard to the views and information provided by appropriate bodies and interested parties. Key consultees will include:

- Building Control,
- Transport and Technical Services Drainage Engineers,
- Health Protection,
- Environmental Protection,
- Jersey Water (where there are proposals for non-mains drainage in 'Water Pollution Safeguard Areas'); and
- any other party which the Minister of Planning and Environment considers can provide constructive and relevant information.

7.3 The Minister's decision will be based on:

- The information supplied by the applicant/developer;
- The comments and information provided by consultees; and
- Planning and Building Law and related policy considerations.

8. Foul sewer assessment

8.1 Where non-mains drainage is proposed, applicants / developers must submit a detailed 'Foul Sewer Assessment' (FSA). This must provide sufficient information to:

- show that the possibility of public sewer connection has been properly investigated; and
- provide the Minister, the Department and consultees with sufficient detail to assess the suitability of the proposed system and determine whether the proposed treatment of effluent would create or add to a pollution problem.

8.2 The assessment should include the following:

- a statement explaining why a connection to the public sewer system is not practicable or economically feasible;
- an estimate of the 'construction costs' of the approved new development, provided by a suitably qualified person (e.g. a chartered quantity surveyor);
- an estimate of the cost of providing a connection to the public sewer, confirmed in a report by a suitably qualified person (e.g. a chartered quantity surveyor);
- details of the proposed onsite sewage treatment system, including for existing systems a report of its condition and capacity;
- results of the site assessment for the development, including ground percolation tests and trial hole analysis;
- provision for the future replacement of the drainage field (N.B. drainage fields do not operate indefinitely and eventually need to be replaced, so this needs to be accounted for at the design stage);
- details of the measures that will be put in place to operate, monitor and maintain the system;
- where applicable, a statement of why the use of a packaged treatment plant would be unreasonable; and
- such other additional supporting information as may be considered appropriate to allow proper determination of the drainage proposals in accordance with Policy LWM2.

9. Why can't the development connect to the public sewer?

9.1 This is the fundamental question that must be answered by any applicant / developer proposing the use of a non-mains system. In such cases, they must provide written evidence to demonstrate that they have fully explored all the ways in which their development might connect to a pubic foul sewer and show them to be either impracticable or not reasonably cost-effective. This evidence should be supported by accurate scale plans showing the location of the nearest connection point to the public sewer and its relationship to the development site boundary and any land in the applicant's ownership situated between the site and the public sewer.

9.2 In assessing whether new developments should connect to the public sewer, the Minister will take into account cost and practicality. All new development in 'sewer available areas' should connect to the public sewer, unless there are insurmountable factors which prevent connection being made (e.g. access for drainage over private land being denied).

Sewer Available Areas

9.3 A 'sewer available area' is an area of land served by an existing public sewer. Its size will vary depending on topography and/or the size and characteristics of proposed developments. In the UK, the minimum size for a 'sewer available area' is generally considered to be any land within 30metres (100ft) of an existing public sewer. This is the broad qualified definition used by the Environment Agency and reflects the fact that under the UK Building Act 1984 local authorities are given powers to require connection of premises that are within 30m of a public sewer when plans are submitted under the UK Building Regulations. In Jersey, however, the Transport and Technical Services Department has historically determined (in practice) that properties within a 100m of a public sewer are 'connectable properties', or properties which can be served by a public sewer.

9.4 It is important to recognise that this 100m 'rule of thumb' takes no account of topography, or the nature of specific development proposals. Topographical features could, for instance, render impracticable or prohibitively expensive any option to connect some proposed developments to a public sewer, even if they are within 100m distance. Whereas, for larger developments it is held that the extent of the 'sewer available area' should be increased because it is more likely to be easier and cheaper to connect to a public sewer over a distance significantly in excess of 100m.

9.5 The current extent of the Island's foul sewerage network is shown geographically in Figure 1 .

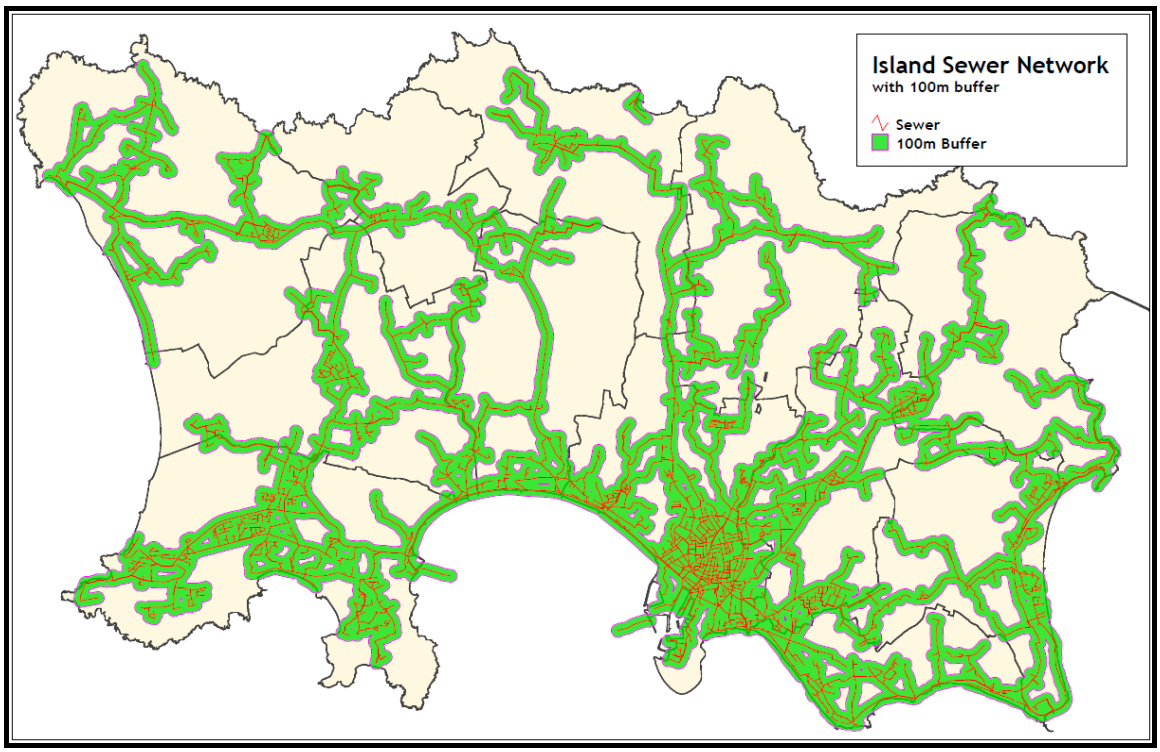

Figure 1: Foul Sewerage Network in Jersey

Costs

9.6 The costs involved in connecting to a public sewer will depend on a number of factors, including:

- the number of homes or premises;
- the distance to the sewer;
- the depth of the sewer;
- whether the connection can be achieved by gravity, or needs to be pumped;
- any required improvements to the public sewerage system to enable the acceptance of additional flow from the development; and
- land constraints (e.g. due to topography, existing developments, land ownership, sites of natural or historic importance).

9.7 In determining whether connection to the sewer is reasonably cost-effective it will be necessary to weigh up the cost of making a connection against the cost of the overall development. In addition, it is generally held to be reasonable that there should be a premium for connecting new developments to the public sewer, over and above the cost of installing a private non-mains system. This reflects the benefits of main sewer connection to the environment, the developer, owners and occupiers. These benefits include enhanced property values; less risk of pollution and the avoidance of on-going maintenance.

9.8 The level of the appropriate premium will vary depending on the nature and scale of the proposed development. As a general rule, the Minister is unlikely, from a cost viewpoint, to require a development to connect to the public sewer where:

the cost of connection to the public sewer would exceed:

- 10% of all the construction costs of the proposed new development up to £500,000, plus
- 5% of all construction costs above £500,000, plus
- the cost of a private treatment system (including installation costs) combined.

(N.B. subject to a minimum premium of £5,000 at 2012 prices).

9.9 Thus, by way of example, if the cost of connection to the public sewer is greater than the thresholds set out in the following table (for different sized developments), then a private sewage disposal system is likely to be acceptable from a cost viewpoint.

Construction Costs (£)	% construction Costs 10% up to £500,000 and 5% above (£)	Example Cost for installed Private Treatment Plant (@ 2012) (£)	Threshold connection cost above which a private sewage disposal system likely to be acceptable (£)
50,000	5,000 (min. premium)	15-20,000	20-25,000
100,000	10,000	15-20,000	25-30,000
200,000	20,000	15-20,000	35-40,000
300,000	30,000	15-20,000	45-50,000
400,000	40,000	15-20,000	55-60,000
500,000	50,000	15-20,000	65-70,000
1,000,000	75,000	15-20,000	90-95,000
2,000,000	125,000	15-20,000	140-145,000

9.10 Where the development proposal is simply to replace an existing non-mains drainage system (e.g. a tight tank or septic tank) with a package sewage treatment plant, the Minister still wishes to examine the economic feasibility of connection to the public sewer as a preferred option. In such cases, the Minister is unlikely to require connection to the public sewer, where:

The cost of connection to the public sewer would exceed the cost of a private treatment system (including installation costs) by £5,000 or more (@ 2012 prices)*

* cost to rise annually in line with RPI.

9.11 To assist with the Minister's considerations, an applicant who proposes to use non-mains drainage must submit details of the costs for both connecting to the public sewer and providing a private sewage treatment system. For these comparative purposes, the costs for the proposed system should take the form of a quote from a reputable local drainage supplier / contractor. This quote might typically take into account the following preliminary and capital cost items, where applicable:

- preliminary site investigation work;
- plant unit costs (including remote monitoring / telemetry equipment);
- installation costs;

- commissioning;
- pumping stations;
- land drainage field;
- outfall;
- sampling point;
- site access.

Other costs

9.12 When considering the comparative costs of connection to the public sewer and non-mains sewerage systems, applicants are also advised to take into account on-going operational and maintenance costs associated with any proposed private sewerage system. This is important to avoid underestimating costs and ensure value for money. The ongoing costs for operating a non-mains system can be significant and will include, where applicable:

- power consumption costs;
- maintenance / service contract costs (N.B. which should cover the cost of replacing major mechanical and electrical items over the life of the plant);
- sludge removal and disposal;
- regular ongoing compliance sampling and testing; and
- periodic replacement of the system.

9.13 Costs will vary significantly between different types of system. A report produced by the Environment Agency entitled 'Effluent disposal in sewered areas' (December 2008) provides useful guidance for comparing relative costs for different types of private sewage treatment systems, notwithstanding that the indicative costs are at 2005 prices.

Practicality

9.14 There may be issues of practicality that are material to an assessment of sewage disposal options. Consideration of whether it is practicable to connect to a public sewer will depend on whether there are prohibitive physical, legal and technical barriers to connection. Where this is the case, the developer should submit details in the 'foul sewer assessment'. Examples of such barriers to connection might be where:

- the volume of the sewage effluent discharge is too small to pump over the required distance without giving rise to septicity problems[4];
- the sewer run would need to pass under a major road or be diverted around a site of historic or archaeological importance or similar, making the cost unreasonable;
- the ground conditions are not suitable for laying a sewer (e.g. where bedrock is close to the surface, leading to unreasonable costs);

[4] Septicity occurs in sewage when the micro-organisms have utilised all the dissolved oxygen and nitrates. When sewage becomes septic it produces hydrogen sulphide and organic sulphides which have extremely unpleasant odours which can cause a severe public nuisance. The hydrogen sulphide can also cause corrosion of the fabric of the sewer, including concrete sections, mortar joints and metals.

- the applicant / developer has no legal right to cross land between the development and the connection point to the public sewer and access is denied by the private land owner.

10. Details of any newly proposed package treatment system

10.1 Where there is considered to be justification for a non-mains sewer connection and a package treatment system is proposed, the applicant should provide the following details of the proposed system as an integral part of any planning application:

- the type of package treatment system proposed and manufacturer;
- a copy of a test certificate confirming the plant has been tested in accordance with EN 12566-3-2005;
- performance results for the plant showing the treatment efficiency;
- design occupancy for the plant and design occupancy for the proposed development;
- provisions made for operating the plant in the event of power failure;
- design calculations for drainage fields and a plan showing size and location;
- design calculations and plans showing any additional treatment (e.g. reed-bed systems, disinfection, filtration, stabilisation ponds, gravel beds); and
- a copy of the proposed maintenance plan for the plant (including proposed compliance sampling and testing regime).

N.B. Where a tight tank is proposed, it should be sized in accordance with the Building Bye-laws.

10.2 The quality of final effluent discharge from sewage treatment systems is measured in terms of Biological Oxygen Demand (BOD), the Suspended Solids (SS) and the Ammonia (NH_3). This is expressed in the form BOD: SS: NH_3 and is measured in mg/L. Typically, the effluent from a septic tank (without a drainage field) measures 120:180:80, whereas that from a 'Filter Treatment' Package Sewage Treatment Plant might measure 4:3:3. By way of comparison, distilled water is 0:0:0 and the Royal Commission Standard for effluent quality from sewage treatment systems in the UK is 20:30:20.

11. Details of any existing system which is to be utilised for the development.

11.1 The applicant should provide details of the existing system and any proposed changes, including:

- details of the Building Permit for the existing system;
- details of any 'Discharge Permit', where applicable;
- the age and the design occupancy / capacity of the system;
- a demonstration that the system has performed adequately (including the historic record for inspections, maintenance, problems arising, remedial works and any improvements);
- a 'system evaluation report' by a suitably qualified professional to give an overview of the system's status and functionality and to certify that it is working properly (N.B. it is expected that the evaluation will include a 'hydraulic load test');
- the design occupancy for the proposed development;
- details of any proposed improvements to the system to increase capacity, improve treatment and enhance effluent quality (e.g. additional plant, a new or improved drainage field and proposed additional treatment);
- design calculations for the proposed improved system; and
- a copy of the proposed maintenance plan for the system.

12. Site assessment

12.1 Waste water treatment systems must be sited and constructed to prevent overloading of the receiving water environment. The suitability of the site for such systems will be determined having regard to a wide range of site factors. To this end, the applicant should undertake and submit a detailed site assessment, using information on:

- the sub-soil conditions and groundwater characteristics;
- the sensitivity and capacity of any receiving watercourse;
- the vulnerability of the water catchment area;
- site dimensions and ownership boundaries;
- adjoining developments (existing or approved);
- legal constraints (e.g. restrictive covenants, rights of way and land use policy designations);
- infrastructure constraints (e.g. underground services, roads, driveways, paved areas);
- topographical constraints (e.g. the steepness and direction of slopes; proximity of rock to the surface; a high water table; waterlogged ground; and the location of watercourses, ditches, wells, boreholes, soakaways/drainage fields); and
- other site constraints (e.g. existing ground contamination, made up ground, artificially raised ground).

Ground Percolation Tests

12.2 As part of the site assessment, a 'percolation test' will be required to:

- establish the porosity of the ground;

- establish if it is suitable to absorb the liquid effluent from a package treatment plant or septic tank efficiently and to remove the pollutants; and
- determine the size of the drainage field area required.

12.3 The percolation test must be conducted by a suitably experienced person in accordance with BS 6297: 2007 and the technical guidance published in support of the Building Byelaws. The results of the test must be submitted with the application.

12.4 If the ground cannot properly accept the liquid effluent, the drainage field will become blocked and the system will fail. In such circumstances, a proposed non-mains sewage treatment system will be refused and other possible options will need to be explored.

Trial Holes (Trial Pits)

12.5 Trial holes will be necessary to inform the site assessment. These are used to determine soil conditions and also the level of the water table in winter. The water table must not rise to within 1m of the pipes of the drainage field if it is to work effectively during the winter months. For guidance on trial holes, applicants are referred to the technical guidance published in support of the Building Bye-laws.

Site Conditions and Sewerage Options

12.6 Where the applicant/developer has access to a large enough area of land which is well-drained, relatively flat and sufficiently unconstrained to enable discharge of sewage effluent to a properly designed drainage field, consideration should be given to using a package sewage treatment system. However, in the event that this is deemed to be unreasonable, it may be an option to consider the use of an existing septic tank, provided that it can be shown that:

- the scale of the proposed development is small (e.g. a small-scale extension or alteration to an existing dwelling);
- the existing septic tank system operates effectively; and
- improvements are made as appropriate to provide a properly designed drainage field.

12.7 Consideration of this option will need to take account of any groundwater or surrounding environment which is vulnerable to pollution (e.g. in locations where water is abstracted to supply drinking water).

12.8 In the absence of suitable land for a drainage field, the only possible options to a public sewer connection are to use a tight tank (cesspool), or to discharge treated effluent to a watercourse. The watercourse option is normally available in the UK, but only in very exceptional cases where the discharge is from a package sewage treatment plant, which is able to achieve a very high standard of sewage effluent that can be accepted and diluted by the watercourse without risking harm to amenity, public health or the environment. This, in turn, is likely to require the incorporation of additional treatment of effluent, such as a constructed wetland, which exploits the natural treatment capacity of certain wetland plants (e.g. reed beds).

12.9 In Jersey, however, given the sensitivity of watercourses to pollution and their limited capacity to absorb sewage effluent, the Building Bye-laws do not provide for this option and there will be a strong reluctance to watercourses being used for this purpose. Potential applicants proposing a discharge directly to a watercourse will need to provide Building Control with a convincing argument for relaxing the Building Bye-laws. They should also consult directly with Environmental Protection at an early stage in the

design process, because all such proposals will require a Discharge Permit and Environmental Protection will object where watercourses are considered to be particularly sensitive.

13. Operating, monitoring and maintenance

13.1 Island Plan Policy LWM2 requires that adequate provision is made for operating, monitoring and maintaining non-mains drainage systems. This is especially important for sewage treatment systems which require a stable environment to work well. The intentions of the policy in this respect are to ensure that the system continues to function effectively throughout its life and that potential problems set out earlier in this guidance are avoided. Accordingly, the 'Foul Sewer Assessment' should set out:

- who will be responsible for operating, monitoring and maintaining the system (including, where appropriate, details of any proposed formal agreements to this effect);
- the provisions made for operating the system (e.g. for regular desludging, substance control, prevention of surface water ingress, clearing blockages, maintaining vehicular access);
- the provisions made for regular monitoring of the system. Monitoring might, for example, include regular checks:
  - to look for signs of effluent overflow or blockage;
  - to establish that effluent discharge is free flowing and clear (changes in colour and an increase in odour are signs of a deterioration in quality);
  - to determine effluent discharge quality (through sampling and testing);
  - to measure liquid and solid levels in tanks;
  - to ensure that mechanical components are working correctly;
  - to look for signs of external structural damage which might lead to leakage of contents or ingress of water;
  - to look for signs of internal structural damage due to the corrosive environment (e.g. deteriorating internal divisions, metal struts and bolts and mortar joints); and
  - to look for signs of change in the surrounding environment which might point to problems with the system (e.g. where the ground is saturated with effluent, or where there are strong odours or unexpected bacterial growth in a nearby watercourse).
- the measures in place to warn of system failures (e.g. alarms and telemetry fitted to warn of electrical failure, overloading etc); and
- the provisions for carrying out maintenance in accordance with the manufacturer's instructions to keep the system functioning (N.B. This must be undertaken by an appropriately qualified and experienced contractor and the applicant will need to provide evidence of a service contract for this purpose. Details of the maintenance requirements will also need to be set out in a durable notice to be fixed in a suitable location within any building that discharges to the system, in accordance with Building Bye-law requirements).

Depending on the nature and scale of the sewage treatment plant, applicants may also be required to:

- employ trained maintenance personnel;
- prepare and submit a contingency plan, to include alarm responses and plans for sewage containment during system failure and repairs.

13.2 In order to demonstrate that the monitoring checks and maintenance have been properly carried out, owners are advised to keep records. The items addressed in the records might include:

- details of the type of system, manufacturer, installer, age, and the location of the system components;
- monthly liquid effluent levels;
- other items included in fortnightly / monthly inspections;
- dates of desludging / emptying;
- dates and details of other maintenance / servicing activities recommended by the manufacturer;
- dates and details of problems arising and any remedial works; and
- results of regular effluent testing.

13.3 If it becomes clear through monitoring that the system does not need regular emptying as anticipated or in accordance with the manufacturer's advice, this may be because the system is leaking. In such circumstances, there should be a thorough investigation. Where there is a leak it must be repaired quickly to reduce or obviate potentially serious pollution problems and the associated risks to the environment, amenity and public health.

13.4 It is very important to ensure that an alarm is fitted to a tight tank so that the owners are made aware when the tank needs emptying. Effluent levels should under no circumstances be checked by lifting the lid, because this will release toxic gases.

14. Circumstances where a package treatment plant might be unreasonable

14.1 If the proposed non-mains system is a tight-tank or an existing / upgraded septic tank, it will be necessary to provide written justification in the 'Foul Sewer Assessment' as to why a Package Sewage Treatment Plant is not considered reasonable. Each case will have to be considered on its merits, but it may be for example that:

- the site dimensions, site constraints, or ground conditions do not allow for an acceptable drainage field;
- there is evidence that an existing septic tank system can perform perfectly adequately for the purpose (either as it is, or with some upgrading);
- the additional costs of a package treatment plant are not warranted, given the nature and scale of the proposed development;
- the flow of sewage from the proposed development and the degree of maintenance is likely to be erratic / irregular (e.g. holiday accommodation) and would seriously impair the biological treatment process in a package plant;
- the site is in close proximity to an abstraction location for a drinking water supply;
- the biological treatment process in a package plant would not be sufficiently resilient to cope with the types of products that are likely to be put into the system.

15. Demonstrating that the proposed system is satisfactory

15.1 In order to demonstrate that the proposed non-mains system is satisfactory, the 'foul sewer assessment' must provide evidence to clearly show that there will be no adverse effects on the environment, amenity and public health. More specifically, the assessment should show that the proposed arrangements and associated effluent disposal system:

- will not contravene the Building Bye-laws and required standards for design and construction;
- will not adversely affect existing or potential surface or groundwater sources used or likely to be used for public or private water supplies due to the percolation or run-off of sewage effluent (e.g. because of ground conditions or geological formations);
- will not lead to a risk to public health or cause a nuisance;
- will not lead to the entry of any poisonous, noxious, or polluting matter, or any solid waste matter into the water environment, to the detriment of water quality (i.e. having regard to site hydrology and geology);
- will not lead to raw or partially treated sewage entering into receiving waters or onto land, to such an extent as to damage or undermine the environment and amenity value of the locality or any other area (including environmentally sensitive areas (ESA), Sites of Special Interest (SSI) and public open spaces;
- are supported by evidence in the form of tests to show that the use of any soakaway / drainage field will be appropriate and that it will not be overloaded by effluent to the extent that it may lead to problems of ponding, sewage flooding, pollution, or nuisance (i.e. due to the quality or quantity of the new discharges by themselves, or cumulatively with existing discharges in the area).

15.2 The above mentioned factors to be included in the 'foul sewer assessment' are broadly in line with UK guidance, set out in DETR Circular 03/99 and the Building Bye-laws. If the evidence in relation to one or more of these factors demonstrates that a proposed development with a non-mains system is likely to lead to a significant environmental, amenity or public health problem in the area, this will normally be sufficient to justify refusal of planning permission for the development.

15.3 To help demonstrate that the non-mains drainage system is acceptable the applicant must, in addition to the provision of a 'foul sewer assessment' document, provide the following information in support of the planning application:

Plans/Drawings

- scaled plans showing the location of the nearest connection point to the public sewer and its relationship to the development site and any land in the applicant's ownership situated between the site and the public sewer, with the distance from the site boundary to the sewer stated.
- A site plan with dimensions showing the siting of any proposed or existing non-mains system (including the drainage field and point of discharge, if not to a drainage field) in relation to: the proposed development; land in the applicant's control; drainage ditches and watercourses in the immediate vicinity; and other key features / constraints identified in the site assessment. (N.B. The installation should be located on land within the application site or otherwise within the applicant's control, so that it is subject to any planning conditions relating to the development of the site).

Occupancy

- the potential number of persons occupying / using the proposed development (both permanent and temporary).

Expected Flow Rates

- The estimated expected flow of sewage effluent (in litres per day) that will need to be managed.
- The existing flow from any existing system that is to be utilised.

Water Abstraction

- Details of the proposed water supply to the new development.
- Details of any wells or boreholes in the immediate area.

Ground Conditions (if discharge is to a drainage field)

- The results of percolation tests and trial hole analysis.
- Details of constraints arising from the 'Site Assessment' (e.g. soil type, ground likely to be contaminated, artificially raised ground, land subject to flooding or high water table).

Drainage Field Distances and Sizes

- Dimensioned drawing showing size and location of any proposed or existing drainage fields / soakaways and the distance of these from any building or watercourse.

Siting of a Tank / Access Arrangements

- Dimensioned drawing showing the proposed tank is sited at least 7m from any building and has an adequate means of access for emptying and maintenance. Vehicular access for emptying can be achieved to within 30m without the contents being taken through a dwelling or place of work. (N.B. TTS should be consulted at the planning application stage for comments on access for tight tanks).

Flow calculations

15.4 The size of any required non-mains sewage treatment system will depend on the number of people that could potentially occupy the site and their activities. Such information is necessary to calculate the amount of sewage effluent requiring treatment and the size of the system needed to treat the sewage effectively. The table below provides a basic guide to what might be the expected peak foul water flows arising from different development types:

Property Type	Volume per Person (litres per day)
Domestic	180
Hotels and Guest Houses	300 per guest
Restaurants	30 if full meal luxury catering
Campsites	75
School	50 (without a canteen)
Offices/Factory	50 (without a canteen)
Offices/Factory	100 (with canteen)
Public Houses	12 per customer
Caravans	100 if not serviced touring
Rest Homes	350
Hospitals	450

Source: Environment Agency

Minimum drainage field distances and requirements

15.5 Drainage fields should be designed and constructed to ensure aerobic contact between the liquid effluent and the subsoil and they must be sited and designed as recommended in the technical guidance published in support of the Building Bye-law requirements. They should achieve the following minimum prescribed distances:

- 10m from a watercourse or permeable drain;
- 50m from a ground water abstraction point for drinking water supply (e.g. well, borehole);
- 15m from any building;
- a sufficient distance from any existing soakaways or drainage fields (including a roof / surface water soakaway); and
- 2m from a boundary (N.B. drainage fields must not drain across the curtilage of any neighbouring property).

15.6 Other provisions for drainage fields include:

- drainage fields must be designed and constructed in accordance with the recommendations given in BS 6297:2007 + A1:2008;
- the drainage field must have a uniform gradient not steeper than 1/200;
- drainage fields should be downslope of groundwater sources;
- no water supply pipes or underground services (other than those required by the system) should be within the drainage field area;
- no access roads, driveways or paved areas should be within the drainage field area;
- the water table or bedrock must not be within 1m of the bottom of any drainage field trench; and
- no rainwater must be allowed to enter the system.

16. What to do if an existing non-mains sewage treatment system fails

16.1 All non-mains sewage treatment systems, even if they are properly designed, constructed and maintained, have a limited life expectancy and will fail at some point in the future. Many are designed to have a lifetime of around 20 to 30 years. When the system has failed, or is failing, it is not treating and disposing of sewage in a safe, environmentally sound fashion. As a consequence, sewage can contaminate ground and surface water and occupants and neighbours can be exposed to disease causing pathogens and viruses contained in sewage.

16.2 There are a number of symptoms to look out for when a system is failing, including:

- drains emptying much slower than usual, despite the use of plungers and drain cleaning products;
- slow flushing of toilets;
- gurgling sounds in the plumbing system;
- sewage backup in drains and toilets;
- unpleasant odours around the house and particularly around the drainage field after heavy water use (e.g. wash days) or rainfall;
- wet spots with lush green grass around the tank and over the drainage field, even during dry weather;

- liquid seeping along the surface of the ground near the tank and in the drainage field area;
- the presence of nitrates or bacteria in nearby well water;
- the build-up of aquatic weeds or algae in nearby ponds and watercourses; and
- an increase in the required frequency for pumping out the tank.

16.3 The best way to prevent failures is to undertake regular and proper monitoring and maintenance, but when failure does occur, the problem needs to be corrected swiftly and properly. In the first instance, owners should contact a reputable local drainage contractor (who installs, maintains and mends non-mains systems) or a suitably qualified professional engineer to determine whether there is a failure, establish the causes of the failure, suggest how to cure the problem (where this is practicable) and confirm whether or not a new drainage system is required. Other immediate actions to take will include having the tank pumped out, reducing water consumption and fencing off areas where sewage has seeped to the surface.

16.4 Where there is no planned development involving an increase in foul sewage discharge, and the problems can be solved by altering and improving the existing system (e.g. by creating or increasing the size of the drainage field, or installing additional treatment plant as an add-on to the existing) a planning application will not be required. However, the improved system will need to comply with the requirements of the Building Bye-laws and owners should contact the Environment Department (Building Control) to discuss their plans.

16.5 If a replacement system in a new location is the only practical long-term solution, this will require planning permission in addition to building permission and will need to comply with Island Plan Policy LWM2 and the supplementary guidance set out in this document.

17. What about if you need to replace an existing tight tank (cesspool)?

17.1 If a property's drainage discharges to a tight tank, frequent emptying will be necessary by a waste disposal tanker contractor, because all the waste water is retained in the tank. Typically, they require emptying on a monthly basis and this can make the annual running cost of a tight tank very high. For this reason, property owners may look to replace their tight tanks with a package sewage treatment plant, or, where practicable and feasible, connect to the public foul sewer.

17.2 Owners may also wish to replace their existing tight tank, because:

- they want to increase the capacity of their tight tank system;
- their tank smells quite badly (i.e. due to the need for venting to allow excess sewage gases to exit the tank), or
- the tank has failed, or is failing.

17.3 A tight tank may leak, particularly if it is an old brick or block construction. In some cases, leaks may even be due to deliberate damage aimed at reducing the frequency and cost of emptying. If there is a leak, a reputable local drainage contractor should be called out to remove the leaked sewage, establish the cause of the leak and carry out suitable remedial works.

17.4 Where the owner wishes to install a new system to replace the existing tight tank, even if there are no development plans involving an increase in foul sewage discharge, this

will require planning permission in addition to building permission and will need to comply with Island Plan Policy LWM2 and the supplementary guidance set out in this document.

18. Selecting the best option for sewage treatment / disposal

18.1 The following flowchart is provided by way of summary to assist applicants in choosing the best sewerage system for their proposed development. However, before making a final decision, applicants should have regard to the detailed guidance provided elsewhere in this document and should seek expert advice.

Can you connect to the foul sewer? (i.e. because the site is in a 'sewer available area' and/or connection is practicable and economically feasible)	Yes →	Connect to the public foul sewer, following liaison with Transport and Technical Services (see section 5).
No ↓		
Do you have access to a large enough area of suitable land for a drainage field?	Yes →	Connect to a package sewage treatment plant, or for small-scale extensions and alterations to existing dwellings where a package plant would be unreasonable, connect to an adequate and suitably upgraded septic tank with a properly designed drainage field (see sections 9, 10, 11, 13 and 15).
No ↓		
Is there a watercourse that you consider it might be possible to discharge to?	Yes →	In the UK, discharge to a watercourse, via a package sewage treatment plant, with appropriate additional treatment may be permissible. In Jersey, however, it is highly unlikely that this will be, given the nature and sensitivity of the Island's watercourses and the need for exceptionally high levels of treatment, to avoid undue risk. Where an applicant considers there are "exceptional" circumstances that warrant such an approach, they should always consult directly with Building Control and Environmental Protection at an early stage and before investigation work. Such proposals will require relaxation of the Building Bye-laws and a 'Discharge Permit', which are unlikely to be forthcoming without a convincing case (see paras. 12.8 and 12.9).
No ↓		
Is a system with no effluent discharge appropriate?	Yes →	For small-scale developments (as set out in Policy LWM2), connect to a tight tank.
No ↓		
No sewage systems are appropriate, so do not develop here.		

19. Building Bye-laws

19.1 Any proposal that involves the provision of, or extension to, a private non-mains sewerage system will require approval under the Building Bye-laws. These set out particular requirements with respect to non-mains sewerage. The relevant bye-law and supporting technical guidance is available from Planning and Building Services and can be viewed and downloaded from the States of Jersey website (www.gov.je/PlanningBuilding). The requirements of the Building Bye-laws should be discussed with Building Control at an early stage and before a planning application which proposes a non-mains sewerage system is made.

20. Water Pollution (Jersey) Law, 2000

20.1 This is the primary legislation protecting the water environment in Jersey. The Law makes it an offence for any person to cause or knowingly permit pollution of any 'controlled waters' and provides the Minister for Planning and Environment with powers to address any such pollution.

20.2 For existing non-mains drainage systems, if it is believed that the resulting discharge to 'Controlled Waters' may cause or have the potential to cause pollution, advice should be sought from Environmental Protection on whether to apply for a 'Discharge Permit'. 'Controlled Waters' include surface water streams, ponds and groundwater. Acting in accordance with the conditions of a discharge permit is a strong defence under the Law. For new systems and discharges, it is the applicant's responsibility to demonstrate that they will not cause pollution.

21. Checklist

21.1 This following checklist is provided to assist developers, designers, planning and building control officers to ensure that foul sewage arrangements for new developments are in accordance with Island Plan Policy LWM2 and the principles and requirements set out in this supplementary guidance. The list relates to the information that should be included with a planning application and is cross-referenced to the relevant paragraphs in the text, which are denoted by an arrow (→). Where the answer to any of these questions is "NO", your application should include a written explanation / justification.

Connecting to the mains sewer

1. Mains connection	**YES**	**NO**
Do you intend to connect to the mains sewer?		
If YES,		
Have you consulted with the Department of Transport and Technical Services? **(→ 5.1)**		
Does your application include scaled plans showing: ▪ the nearest mains sewer connection point? ▪ the proposed route of the drainage connection? ▪ land not in the applicant's ownership in which drainage will be placed and proof of agreement with the landowner? ▪ details of any required above ground pumping station/s structures? ▪ a dimensional distance from the development site boundary to the mains		

sewer? ▪ the invert level of the proposed connection to the mains sewer and the finished ground levels on site? **(→ 5.6)**		
Does your application include written confirmation from the Department of Transport and Technical Services that: ▪ the mains sewer is able to accept the sewage effluent from the development? ▪ the proposals incorporate or make provision for any required infrastructure improvements? ▪ there is agreement on the cost of making a connection and any associated infrastructure improvements? **(→ 5.4 and 5.6)**		
Does your application include confirmation of agreements reached with owner's of land in separate ownership in which it is proposed to place drainage in order to connect to the public sewer? **(→ 5.5)**		

Connecting to non-mains drainage

2. Non-mains connection	**YES**	**NO**
Do you intend to connect to a non-mains foul drainage system?		
If YES		
Have you undertaken a detailed site assessment (including ground percolation tests and trial holes) to determine soil conditions, groundwater characteristics, site constraints and other relevant site conditions? **(→ 12.1 onwards)**		
Have you submitted a 'Foul Sewer Assessment' with your application? **(→ 8.1 onwards)**		
Does your application include scaled plans showing: ▪ the nearest mains sewer connection point, its relationship to the site and any land in the applicant's ownership between the site and the mains sewer? ▪ a dimensional distance from the site boundary to the mains sewer? ▪ the siting of any proposed or existing non-mains system (including the drainage field, any additional treatment, or the point of discharge) in relation to: o the proposed development? o land in the applicant's control? o drainage ditches and water courses? o existing buildings? o other key features identified in the site assessment? **(→ 9.1 and 15.3)**		
Does your application include estimates of: ▪ potential occupancy for the new proposal?		

▪ the total flow of sewage to be managed in litres per day? **(→ 15.3 and 15.4)** *N.B. If the proposal is to utilise an existing system, it will also be necessary to estimate the total existing flow in litres per day.*		
Does your application include details of the existing and proposed water supply for the new development and properties in the immediate vicinity (e.g. public mains supply, wells, boreholes)? **(→ 12.1, 12.7 and 15.3)**		

3. Foul Sewer Assessment (FSA)	**YES**	**NO**
Does the FSA include a written explanation of why all the available options for connection to the mains sewer are either impracticable or economically unfeasible? **(→ 8.1, 8.2 and 9.1 onwards)**		
Where mains connection is regarded as economically unfeasible, does the FSA provide: ▪ estimates of the 'construction costs' by a suitably qualified person? ▪ the estimated cost of providing connection to the mains sewer (confirmed in a report by a suitably qualified person) and of providing a private sewage treatment system (confirmed in a quote from a reputable local drainage supplier / contractor)? ▪ confirmation that the cost of connection to the public sewer will exceed 10% of all the construction costs of the approved new development up to £500,000, plus 5% of all construction costs above £500,000, plus the cost of a private treatment system combined (subject to the minimum premium of £5,000 at 2012 prices). ▪ evidence that the cost of connection to the public sewer will not exceed the cost of a private treatment system by £5,000 at 2012 prices (where the proposal is to simply replace an existing non-mains system)? **(→ 9.6 to 9.11)**		
Does the FSA also include: ▪ details of the proposed non-mains foul drainage system? ▪ a sufficiently detailed site assessment and the results of ground condition analysis? ▪ measures that will be put in place to operate, monitor and maintain the proposed drainage system? ▪ provision for the future replacement of the drainage field, where applicable? ▪ sufficient information to demonstrate that the proposed system is satisfactory and will not create or add to a pollution problem (i.e. giving rise to adverse effects on the environment, amenity and public health)? **(→ 8.2, 10.1, 11.1, 12.1-12.9, 13.1-13.4 and 15.1 onwards)**		

4. Package Treatment Plants	YES	NO
Does your application include supporting information details, including: ▪ the type of system proposed and the manufacturer? ▪ a copy of the test certificate confirming compliance with EN 12566-3-2005? ▪ performance results for the plant showing the treatment efficiency? ▪ design occupancy for the plant? ▪ provision made for operating the plant during power failure? ▪ design calculations for the drainage field and any additional treatment? **(→ 10.1)**		

5. Tight Tanks / Cesspools	YES	NO
If you are proposing to use a tight tank (cesspool): ▪ have you provided written justification for its use in preference to more sustainable methods of non-mains foul drainage disposal (e.g. a package treatment plant)? ▪ are the proposals 'small-scale', as defined in Policy LWM2? **(→ 2.1, 4.1, 6.11, 6.12 and 12.8)**		

6. Septic Tanks	YES	NO
If you are proposing to use an existing septic tank: ▪ are the proposals 'small-scale', involving a small extension or alteration to an existing dwelling? ▪ and have you provided: ▪ written justification for its use in preference to a package treatment plant, or tight tank? ▪ the Building Permit reference number? ▪ the reference number for any Discharge Permit issued by the Environment Department, where applicable? ▪ details of the design occupancy /capacity of the system? ▪ evidence that the existing system has been performing adequately? ▪ a 'system evaluation report' by a suitably qualified professional? ▪ details of proposed improvements to the system to increase in the capacity of the tank (i.e. to cater for the potential increase in occupancy and flow rates)? ▪ details of proposed improvements to the system to enhance treatment levels and effluent quality (e.g. additional plant, a new/improved drainage field, proposed additional treatment)? **(→ 2.1, 4.1, 6.19, 6.20, 8.2, 11.1, 14.1)**		

7. Ground Conditions Tests	YES	NO
Have you submitted a copy of the percolation test results with the application? **(→ 8.2, 12.1 to 12.4 and 15.3)**		
Have you submitted the results of a trial hole/s at the site to establish that the proposed drainage field will be above any standing groundwater? **(→ 8.2, 12.1, 12.5 and 15.3)**		

8. Siting of drainage field / discharge from a septic tank, or package treatment plant, or other secondary treatment	YES	NO
Will it be at least **10m** from a watercourse, or permeable drain? **(→ 15.5)**		
Will it be at least **50m** from a ground water abstraction point for drinking water supply (e.g. well, borehole)? **(→ 15.5)** *N.B. This includes supplies to neighbouring properties.*		
Will it be at least **15m** from any building? **(→ 15.5)**		
Will it be a sufficient distance from any existing soakaways or drainage fields (including roof/surface water soakaways)? **(→ 15.5)** *N.B. Applications should indicate where any existing soakaways, or drainage fields are within **50m** - including those on neighbouring property.*		
Will it be at least **2m** from a property boundary? **(→ 15.5)**		
Is the drainage field area free of water supply pipes or underground services (other than those required by the system)? **(→ 15.6)**		
Is the drainage field area free of access roads, driveways, or paved areas? **(→ 15.6)**		

9. Siting of package treatment plant, septic tank, or tight tank?	YES	NO
Is it at least **7m** from any building? **(→ 15.3)**		
Will there be adequate vehicular access for emptying and maintenance within **30m**? **(→ 15.3)**		
Can the plant, or tank be maintained or emptied without the contents being taken through a dwelling, or place of work? **(→ 15.3)**		

Glossary

Cesspool – see 'Tight tank'.

Controlled waters – territorial waters adjacent to Jersey, coastal waters, inland waters (including lakes, marsh lands, ponds, reservoirs, streams, surface water sewers, surface water drains and wetlands) and groundwater.

Constructed wetlands – artificially engineered systems designed to simulate the water quality improvement functions of natural wetlands to treat and contain run-off pollutants and decrease loadings to surface waters through natural biological processes (e.g. a reed-bed system).

Discharge Permit – a legal requirement under Article 21 of the 'Water Pollution (Jersey) Law, 2000, where any person other than the Minister wishes to make an introduction into 'controlled waters' that would otherwise be a pollution offence under Article 17 (i.e, anything other than clean, uncontaminated surface water).

Drainage field – a system of shallow sub-surface irrigation pipes which allow effluent into the surrounding aerated layers of soil where biological treatment takes place.

Drainage mounds – these are essentially drainage fields placed above the natural surface of the ground in elevated mounds of earth, which provide an aerated layer of soil to treat effluent discharge. They are sometimes used where the subsoil is occasionally waterlogged, but where drainage fields would otherwise be suitable.

Effluent – an outflow or discharge of liquid waste from a sewage system.

Foul sewerage assessment – a full drainage assessment required for all applications where the proposed development involves the disposal of foul sewage effluent other than to the public sewer. This must demonstrate why the development cannot connect to the public mains sewer system and show that the alternative means of disposal are satisfactory. The assessment will include details of the method of storage, treatment and disposal of foul sewage. It should also include a full assessment of the site, its location and suitability for storing, transporting and treating sewage (see Section 8).

Non-mains sewerage systems – package sewage treatment plants and septic tanks with associated drainage fields and other additional treatment as appropriate; and tight tanks (cesspools)..

Package sewage treatment plant – a system which offers varying degrees of biological sewage treatment and involves the production of effluent which is disposed of to ground by soakage, or in some jurisdictions, direct to a watercourse. There are many varieties of package plant and all involve settling the solids before or after a biological treatment stage.

Percolation test – a test required for the purposes of the Building Byelaws, if an applicant wants to use a drainage field to dispose of effluent from a package sewage treatment plant or an existing septic tank. The test will confirm whether the area is suitable for the required soakage and will determine the size of the drainage area needed.

Private sewage treatment plant – a small sewage treatment works (including a package sewage treatment plant or a septic tank with associated soakage arrangements and other additional treatment, as appropriate) which is owned and operated by a community, business or household. These generally conform to the same operational and environmental standards as the sewage works operated by the States.

Telemetry – technology for automatic measurement and transmission of data to receiving monitoring stations for recording and analysis.

Tight tank (cesspool) – a watertight tank, installed underground, for the storage of sewage. No treatment is involved. It relies on road transport for the removal of raw sewage.

Septic tank – an unpowered two or three chamber system, which retains sewage from a property for sufficient time to allow the solids to form into sludge at the base of the tank, where it is partially broken down. The remaining liquid in the tank then drains from the tank by means of an outlet pipe and is normally disposed of by soakage in the ground.

Sewer available area – area of land served by an existing public sewer.

References

Island Plan (June 2011),

The Building Regulations 2000, Drainage and Waste Disposal – Approved Document H, (Amended Jersey Version), 2002,
www.gov.je/PlanningBuilding)

The Building Bye-laws (Jersey), 2007,
www.gov.je/PlanningBuilding)

Other useful documents
BS 6297: Code of Practice for the design and installation of drainage fields for use in wastewater treatment, 2007,
British Standards Institute
(available from the Stationary Office, www.tsoshop.co.uk)

BS EN 12566-1: Small wastewater treatment systems for up to 50PT – Part 1: Prefabricated septic tanks, 2000,
(available from the Stationary Office, www.tsoshop.co.uk)

BS EN 12566-3: Small wastewater treatment systems for up to 50PT – Part 3: Packaged and/or site assembled domestic wastewater treatment plants, 2005,
(available from the Stationary Office, www.tsoshop.co.uk)

Building Research Establishment Good Building Guide No.42, Reed Beds, 2001,
British Research Establishment
(available on-line, www.brebokshop.com)

Circular 03/99: Planning requirement in respect of the use of non-main sewerage incorporating septic tanks in new development, 1999,
Department of Environment, Transport and the Regions
(available from the Stationary Office, www.tsoshop.co.uk)

Pollution Prevention Guidelines – Treatment and disposal of sewage where no foul sewer is available: PPG 4, 2010,
Environment Agency
(available on-line, www.environment-agency.gov.uk)

The British Water Code of Practice – A guide for users of small wastewater treatment systems,
British Water,
(available on-line, www.britishwater.co.uk)

The British Water Code of Practice – Guide to desludging of small wastewater treatment plants,
British Water,
(available on-line, www.britishwater.co.uk)

The British Water Code of Practice – Maintenance and servicing small wastewater treatment plants (Package Plants) up to 50PE and larger systems up to 1,000PE,
British Water,
(available on-line, www.britishwater.co.uk)

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