



On-site Wastewater Management Systems – Passive Disposal Systems

Fact Sheet

Introduction

The aim of this communication is to provide clarity for Permit Authorities and Environmental Health Officers on the correct identification, classification, and assessment of on-site domestic wastewater Passive Disposal Systems (PDS). For consistency, the following definitions apply:

- **Land Application System (LAS)** – The system used to apply effluent from a wastewater treatment unit into or onto the soil for further in-soil treatment and absorption or evaporation (defined within AS/NZS 1547:2012)
- **Secondary Treatment System (STS)** – A wastewater treatment system which produces treated effluent of secondary standard (defined within AS 1546.3:2017)

It is important to distinguish the difference between a PDS type LAS, and a passive STS.

Passive Disposal System (PDS)

A PDS is a form of LAS, where primary treated effluent passes through an additional stage of treatment prior to being applied to the native soil.

Examples of PDS include bottomless sand filters, Wisconsin Mounds, and reed beds. These systems provide additional treatment stages resulting in a higher standard of effluent output than standard primary application.

Some systems are designed to encourage the growth of beneficial biofilm within proprietary modules and geotextile filters. This biofilm promotes further nutrient and suspended solids removal from effluent and potentially extends the life of the LAS by reducing long term clogging of the system sand and bed/trench basal area. Some of these systems have demonstrated through testing in controlled situations, that their systems can achieve secondary effluent standards.

Subject to the provision of relevant performance evidence within a performance-based design application, secondary treated effluent Design Loading Rates (DLR) may be used for LAS sizing where suitable. The distribution of this effluent is limited to sub-surface disposal unless a disinfection stage is incorporated.

All LAS must either be designed wholly within the scope of AS/NZS 1547 or be a performance-based design that satisfies the performance requirements set out in the National Construction Code (NCC) Volume 3, Part C3.

Secondary Treatment System (STS)

Systems accredited by the Director of Building Control within Tasmania as an STS, have been assessed as meeting the performance and design standards of AS 1546.3. and subsequently certified by a conformity assessment body.

Examples of STS are aerated wastewater treatment systems, single point discharge sand filters or prefabricated reed beds that circulate effluent through a specified medium and then discharge from a single collection point to a separate downstream LAS.

STS designed in accordance with AS 1546.3 are considered a Deemed-to-Satisfy (DtS) installation, provided they are designed and installed in strict accordance with the Certificate of Accreditation issued by the Director of Building Control and AS 1546.3. These certificates are published on the [CBOS website](#).

An accredited STS may adopt the secondary treated effluent DLR for land application area sizing and setbacks provided within AS/NZS 1547, and the [Director's Guidelines for Onsite Wastewater Management Systems](#). Such systems may use either sub-surface dispersal or surface irrigation methods where disinfection is incorporated.

Any STS within the scope of AS1546.3 must be accredited in Tasmania for installation. There is not a performance solution pathway to circumvent this process.

Design assessment

Assessment of an application incorporating PDS technology requires the assessor to confirm if the system is correctly categorised as either a DtS solution or a performance solution.

Is it a Deemed-to-Satisfy design?

The NCC Volume 3 references AS/NZS 1547 as the DtS solution for the design of LAS associated with on-site wastewater management systems (OWMS). PDS covered by this Standard include Wisconsin Mound systems, traditional trenches, and evaporation beds, but do not include, geo-textile technologies, or amended/modified soil beds. AS/NZS 1547 only covers wastewater generated from a domestic source, within the daily flow limit of this Standard.

Performance solutions

Proprietary PDS that include components, such as textile wrapped pipe, or modules, fall into the performance-based design category.

These systems are outside the scope of the AS/NZS 1547, and must be designed to satisfy the performance requirements, listed in NCC Part C3, and be documented in accordance with NCC Volume 3, Part A.

The requirement to undertake a performance-based design applies to all variations of PDS that are not specifically covered under the design specifications within AS/NZS 1547.

Certification of Performance Solutions

Performance solutions may only be designed by suitably qualified and licensed engineers working within their area of competence. For a performance solution to be assessed as compliant, it must demonstrate how it meets the performance requirements of the NCC. The responsible designer must provide a Certificate of the Responsible Designer - Form 35, and any documents in support of the design including but not limited to design briefs, test reports, calculations, and peer reviews. All performance solution documentation and supporting evidence must be in accordance with NCC Volume 3, Part A, and particularly A2G2(4).

Any OWMS design must be accompanied by a site soil assessment to AS/NZS 1547 carried out by a qualified person and certified through a Certificate of Qualified Persons for Assessable Items – Form 55.

A permit authority has the discretion to request independent verification of a performance solution or rely on any other certification to ensure the system will perform as designed for the life of the system. The permit authority may also request information about a persons' qualifications and experience when assessing a performance solution.

The assessing Environmental Health Officer will be responsible for ensuring the proposed design satisfies the performance requirements of the NCC and any local provisions. The *Building Act 2016*, section 166, requires written consent from the owner before a performance solution can be approved.

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