

# Code of Practice for Domestic Waste Water treatment Systems (Population Equivalent $\leq 10$ )



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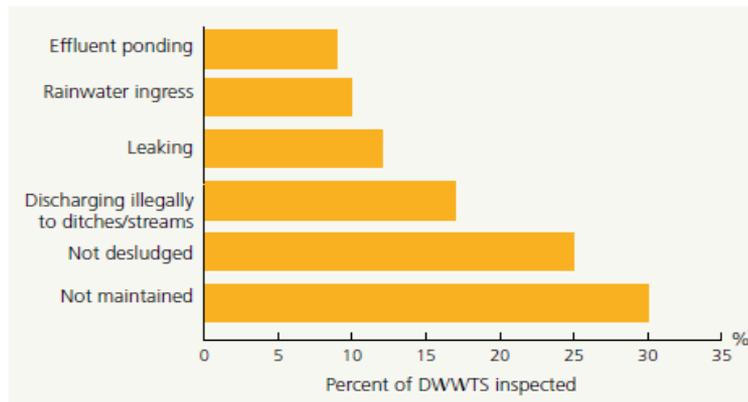
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# Risks

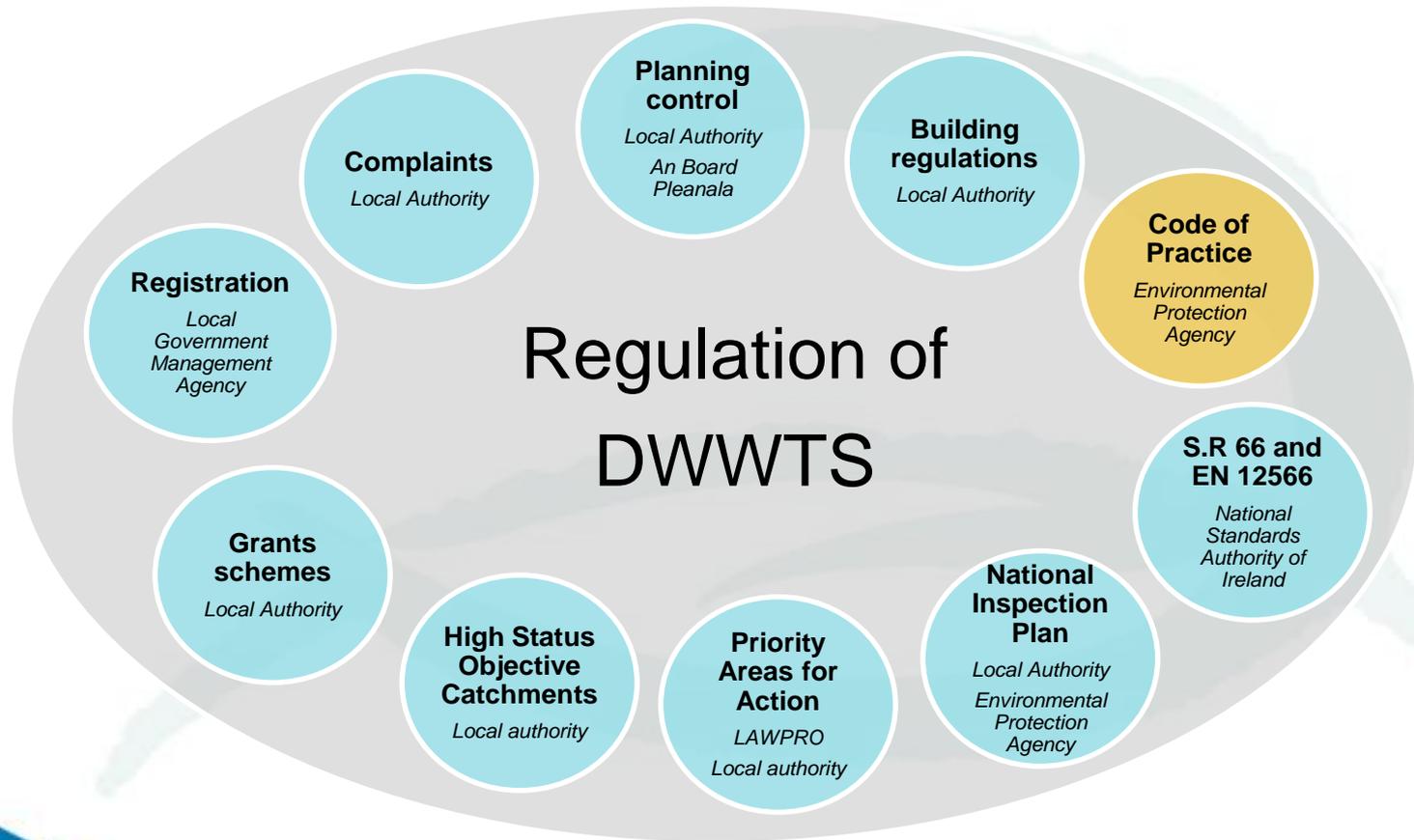
- Coliform bacteria in 43% of groundwater monitoring sites (EPA, 2018) and 15%-58% of household wells (Gill et al., 2018).
- 165,000 Domestic Waste Water Treatment Systems co-located with household wells.
- Domestic waste water a significant pressure in 11% of at risk water bodies.
- 50% of Domestic Waste Water Treatment Systems fail inspection.
- Approx. 4,000 DWWTS registered per annum.



**FIGURE 1:** Reasons for DWWTS failures 2019 (individual DWWTS can fail for multiple reasons)



# Regulatory system



# History

- NSAI - S.R. 6 1975
  - NSAI - S.R. 6 1991
  - EPA - Guidance 2000
  - EPA - Code of Practice 2009
  - EPA - Code of Practice 2021
- Percolation value: 1-60 → 3-90 → 3-120

# Research

- EPA Research Report 161 *Assessment of disposal options for treated wastewater from single houses in low-permeability soils.*
- EPA Research Report 253 *Desludging Rates and Mechanisms for Domestic Wastewater Treatment System Sludges in Ireland.*
- Experience since the original Code of Practice was published in 2009.

# Review process

- Expert assistance: Dr Robbie Meehan and Professor Laurence Gill.
- Steering Committee: EPA, Department of Housing, Local Government and Heritage; City and County Management Association; Trinity College Dublin; Irish Onsite Wastewater Association and Irish Water Treatment Association.
- Public consultation: 11 December 2018 to 26 March 2019 - 37 submissions containing approximately 500 individual comments.
- Statutory consultation: Minister for the Environment, Climate and Communications and Minister for Housing, Local Government and Heritage.

# Publication

- Section 76 of the Environmental Protection Agency Act, 1992 (as amended).
- Issued 24/03/2021 - into effect 07/06/2021.
- Published online with electronic form, explanatory letter and response to public consultation.

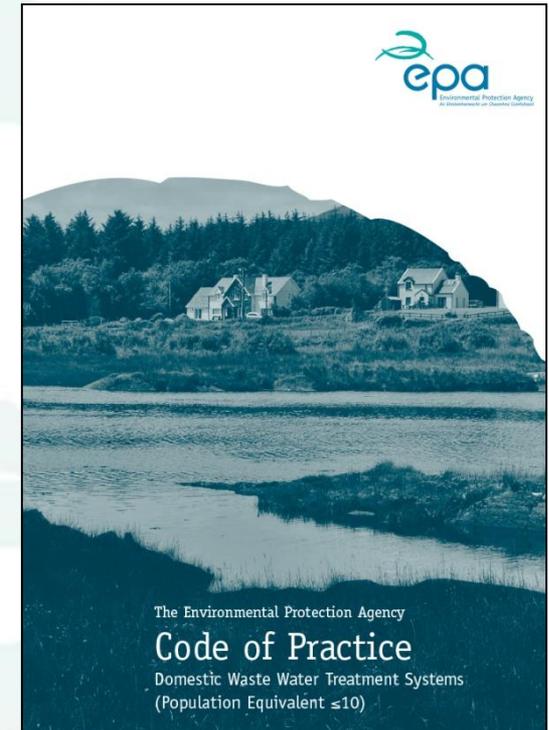
<http://www.epa.ie/water/wastewater/guidance/cop/>

- Hardcopies from EPA Publications Office

[publications@epa.ie](mailto:publications@epa.ie)

- Clerical amendments:

- Site characterisation form: T 100 value in Scenario 1 from 300 to 480 minutes (page 94 & 96).
- Text relating to R2-3 and R2-4 GWPR (page 113).



# Legal status

- Section 76 of the EPA Act – Codes of Practice

*‘practical guidance ...for the purposes of environmental protection’*

- Building Regulations: - Technical Guidance Document H –

*‘...systems for single houses should comply with the...EPA Code of Practice 2009 Wastewater Treatment and Disposal Systems Serving Single Houses’*

*‘if [a] technical specification is subsequently revised or updated by the issuing body, the new version may be used’*

- Planning circular NRUP 01/2021 refers to application of the Code of Practice under Section 22(2)(c) of the Planning and Development Regulations which requires:

*“...information on the on-site treatment system proposed and evidence as to the suitability of the site for the system proposed.”*

# Transitional arrangements

- 2021 Code applies from **7<sup>th</sup> June 2021**.
- 2009 Code may be used where planning permission has been applied for or site assessment commenced before **7<sup>th</sup> June 2021**.

# Main changes

- Drip dispersal (120)
- Low pressure pipe distribution (90)
- Willow evapotranspiration systems with soil polishing filter



# Main changes

Table 12.2: De-sludging frequency (1 to 5 years) for various sizes of tank and Number of house occupants

Tank useable volume (m <sup>3</sup> )	Number of house occupants						
	2	3	4	5	6	7	8
2.5	5	3	2	1	1	1	1
3	5	3	2	2	1	1	1
3.5	5	4	3	2	2	1	1
4	5	5	3	3	2	2	1
4.5	5	5	4	3	2	2	2
5	5	5	5	3	3	2	2
5.5	5	5	5	4	3	2	2
6	5	5	5	5	3	3	2

- **Example:** 3.5m<sup>3</sup> tank for a 3-person house = every 4 years

# Chapter 5 - Site characterisation

## ■ Terminology change:

- The percolation test terminology has changed, from 'T-test' and 'P-test' to 'subsurface' and 'surface' test.
- This is a terminology change only, it does not affect how the tests are completed.

## ■ Percolation test:

- The percolation test methodology has also been amended to allow it to extend to a percolation value of 120, permissible using drip dispersal.
- This is also reflected in Appendix D where the percolation test is set out in more detail.

# Chapter 6 – Determining site suitability and the appropriate DWWTS

- A **new chapter** to consolidate all the site characterisation criteria into one chapter:
  - Section 6.3 consolidates minimum separation distances.  
(A separation distance of 25m is specified for free water surface constructed wetlands to neighbouring dwelling houses.)
  - Section 6.4 consolidates the minimum unsaturated soil and/or subsoil depth requirements.  
(These are the same as the 2009 Code except provision is made for lesser depths for drip dispersal systems in low permeability soils and infiltration areas following tertiary systems where certain levels of E.coli treatment is achieved. Infiltration areas for other tertiary systems require the same depths of unsaturated soil and/or subsoil as polishing filters following secondary systems.)
  - Section 6.5 covers the interpretation of percolation test results.  
(Provision has also been made for low-pressure pipe distribution and drip dispersal systems.)

## Chapter 7 – Septic tank systems (incl. percolation areas)

- Section 7.1: S.R. 66 requires that the septic tank nominal and usable capacities are declared. The declared usable capacity of the septic tank being installed on site must be no less than the calculated design capacity. The text has been amended and table which referred to nominal capacity has been removed to clarify.
- Section 7.2.3, Table 7.3: specifies 12–32 mm washed gravel or broken stone aggregate.
- Section 7.2.4 and Figure 7.4: The text and figure clarify that the top of the trench gravel should not extend above ground level.
- Other criteria such depth to bedrock etc. are covered in Chapter 6 so are not repeated in this section.

## Chapter 8 – Secondary treatment systems receiving septic tank effluent (soil filters, sand filters, constructed wetlands and packaged media filters)

- Section 8.1.1: Intermittent soil filters
  - Term 'intermittent soil filters' used to distinguish them from tertiary soil polishing filters (Section 10.1).
  - Typical intermittent soil filter requirements are specified in Table 8.1.
  
- Section 8.1.2: Intermittent sand filters
  - Term 'intermittent sand filters' used to distinguish them from tertiary sand polishing filters (Section 10.2.1).
  - Typical intermittent sand filter requirements are specified in Table 8.2.

## Chapter 8 – Secondary treatment systems receiving septic tank effluent (soil filters, sand filters, constructed wetlands and packaged media filters)

- Section 8.1.3: The areas required for vertical flow reed beds have been amended to 4 m<sup>2</sup> per population equivalent.
- Section 8.1.7: Access to free water surface constructed wetlands is required to be controlled by fencing to the given specification. They are required to be located as far from dwellings as possible (see also table 6.2).
- Section 8.2.2 covers coconut husk media filters.
- Section 8.3 covers willow bed evapotranspiration systems.

# Chapter 10 – Tertiary treatment systems receiving secondary treated effluent (including soil polishing filters)

- The chapter has been divided into:
  - tertiary soil polishing filters (10.1) for treatment and disposal of secondary effluent to ground;
  - tertiary treatment systems (10.2) where there is an additional treatment module (after the secondary treatment system) which then discharges to an infiltration area.
- Section 10.1 introduces low-pressure pipe distribution and drip dispersal systems.
- The minimum depths required are specified in Table 6.3.
- 0.9m is required (in R1 and R2<sup>1</sup> areas), except for drip dispersal systems in low permeability soils (0.6m) and infiltration areas following tertiary systems where certain levels of E.coli treatment is achieved (0.6m).

Tertiary treatment systems may be used where treatment over and above secondary treatment is necessary, e.g. nutrient and pathogens. The treatment performance of the system should match that need.

# Chapter 10 – Tertiary treatment systems receiving secondary treated effluent (including soil polishing filters)

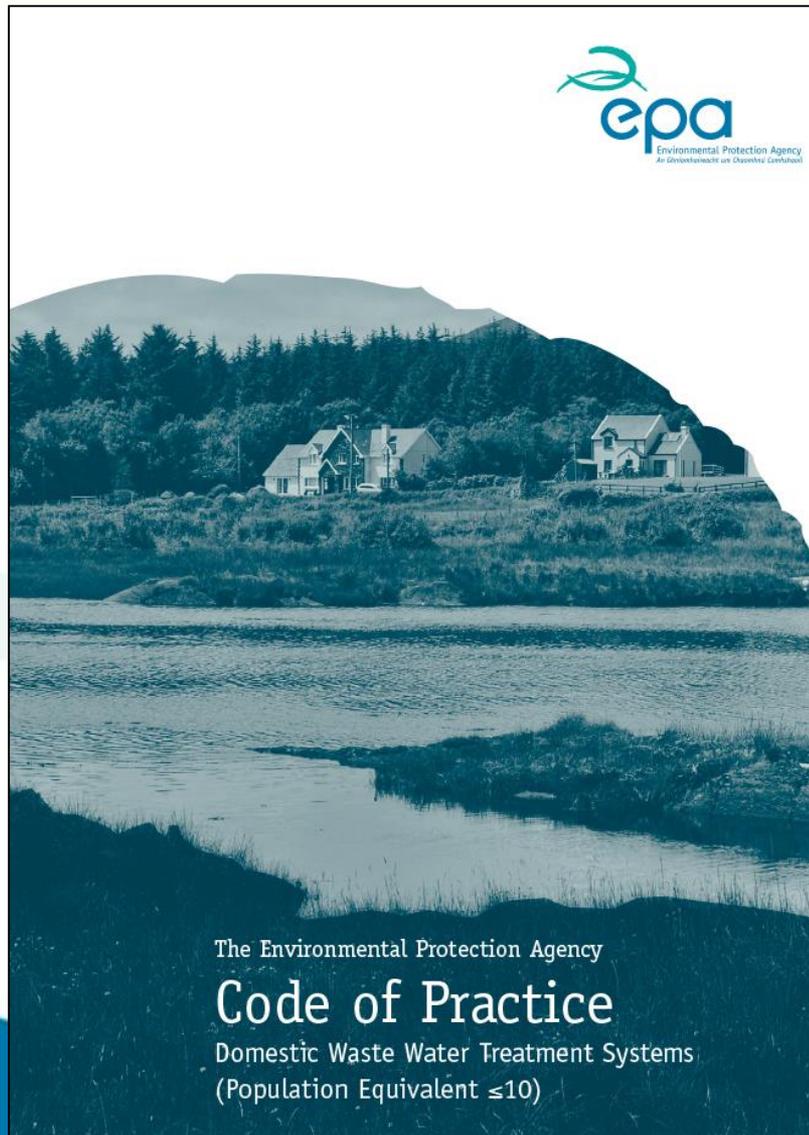
**Table 10.1:** Infiltration/treatment area and trench length design for tertiary treatment, per PE<sup>1</sup>

Percolation values (PVs)	Pumped or underlying gravity discharge (Options 1 and 2)	Gravity discharge into 500 mm wide trenches (Option 3)	Low- <sup>3</sup> pressure pipe distribution into 300 mm wide trenches (Option 4)	Drip <sup>4</sup> dispersal system (Option 5)	Tertiary <sup>5</sup> infiltration area (Option 6)
	Area required per person (m <sup>2</sup> )	Trench length required per person (m)	Trench length required per person (m)	Area required per person (m <sup>2</sup> )	Area required per person (m <sup>2</sup> )
$3 \leq PV \leq 20$	$\geq 7.5$	$\geq 6$	$\geq 6$	$\geq 5$	$\geq 3.75$
$21 < PV \leq 40$	$\geq 15$	$\geq 12$	$\geq 12$	$\geq 14$	$\geq 7.5$
$41 < PV \leq 50$	$\geq 30$	$\geq 17$ <sup>2</sup>	$\geq 17$	$\geq 16$	$\geq 15$
$51 < PV \leq 75$	$\geq 50$	$\geq 19$	$\geq 19$	$\geq 22$	$\geq 25$
$76 < PV \leq 90$	–	–	$\geq 28$	$\geq 34$	–
$91 < PV \leq 120$	–	–	–	$\geq 54$	–

# Chapters 11 and 12 – Installation, operation and maintenance

- References to legislation and standards have been brought up to date in Chapter 11.
- Section 11.3: The maximum number of outlet pipes from any distribution device is six.
- Section 11.5 covers installation and operation of low-pressure pipe distribution and drip dispersal systems.
- Section 12.2.2 provides new guidance on determining septic tank desludging frequency based on tank size and number of house occupants.

# Questions and answers



The Environmental Protection Agency  
**Code of Practice**  
Domestic Waste Water Treatment Systems  
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