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## **APPENDIX 5 ▶ On Site Sewage Treatment and Disposal**

### **1. Site Requirements**

- (a) The Waste Water Treatment System and Disposal Field cannot be any closer to an area sensitive to coastal hazard<sup>7</sup> than the building it serves.
- (b) A section size of at least 800 square metres for each system.

The site conditions and soil categories are to be as per the table below except where groundwater is less than 600 millimetres from the effluent disposal system base and water quality is an issue or is of a soil category 7 (as shaded). The system is to be as specified in the table below.

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<sup>7</sup> These areas are described in Appendix 5 of the Proposed Regional Coastal Environment Plan for the Gisborne Region.

### WASTEWATER PRE-TREATMENT and EFFLUENT DISPOSAL – Which System Where?

							Site Conditions	
Pre-treatment Options:	ST DT AWTS	ST DT AWTS	ST DT AWTS	ST DT AWTS	ST DT AWTS	ST DT AWTS	REQUIREMENT	Slope greater than 20°. (Note: Contour and seepage draining may be required.)
Effluent Disposal Field Options	<b>Low Pressure Dosing Required</b>							
	CT LPP LPSSIR	CT LPP LPSSIR	ETS LPP LPSSIR	ETS LPP LPSSIR	ETS LPP LPSSIR	ETS LPP LPSSIR	DESIGN	Groundwater distance greater than 600mm from trench bottom.
Pre-treatment Options	ST DT	ST DT	ST DT	ST DT	ST DT			
Effluent Disposal Field Options	<b>Low Pressure Dosing Required</b>		ST	W	W	W	SPECIFIC	Groundwater distance less than 600mm from trench bottom (water quality not an issue).
	ST W	ST W	W	ETS ASB ST	ETS ASB	ETS ASB		
Pre-treatment Options	ST DT	ST DT	ST DT	ST DT	ST DT		DESIGN	Groundwater distance less than 600mm from trench bottom (water quality not an issue).
Effluent Disposal Field Options	<b>Low Pressure Dosing Required</b>		ST	W	W	W		
	ST W	ST W	W	ETS ASB ST	ETS ASB	ETS ASB		
Pre-treatment Options	AWTS	AWTS	AWTS	AWTS	AWTS	AWTS	SPECIFIC	Groundwater distance less than 600mm from trench bottom (water quality an issue).
Effluent Disposal Field Options	<b>Low Pressure Dosing Required</b>		W	W	W	W		
	W TET ASB	W TET ASB	TET ASSB ETS	TET ASB ETS	TET ASB ETS	TET ASB ETS		

### WASTEWATER PRE-TREATMENT and EFFLUENT DISPOSAL – Which System Where?

								Site Conditions
Soil Category	1	2	3	4	5	6	7	
Soil Type Descriptions	Gravel Coarse sand	Coarse medium sand	Medium and loamy sand	Sandy loam Loam and silt loam	Sandy clay loam, and clay loam and silty clay loam	Sandy clay, non-swelling clay and silty clay	Swelling clay, grey clay, hard pan	
Drainage Description	Rapid draining	Free draining	Good drainage	Moderate drainage	Moderate to slow draining	Slow drainage	Poorly or non- draining	
Estimated Percolation Rates (mm/hr)	>1500	1500-300	300-150	150-60	60-25	25-12	<12	

**KEY: Pre-treatment options**

ST – Single tank with filter

DT – Dual tanks

AWTS – Aerated waste treatment system

**Effluent Disposal Field Options**

CT – Conventional trench

ST – Shallow trench

ETS – Evapotranspiration seepage

ASB – Aerobic seepage bed

TET – Total evapotranspiration

LPP – Low pressure pipe

LPSSIR – Low pressure subsurface irrigation

LPED – Low pressure effluent distribution

W – Wisconsin single mound system

- NOTE: Soil categories 1 and 2 require a low pressure dosing system to achieve even distribution of effluent along the disposal length. It is critical that even distribution occurs to prevent creeping failure of the disposal field.
- Water quality is an issue where it could be drawn from the ground for use, or flows into adjacent surface waterways.
- See the Council Guidelines for onsite wastewater treatment and disposal for explanations of terms used in this table.

## 2. Septic Tank Requirements

- (a) Septic tanks must have demonstrated compliance with the Building Act durability and structural requirements or have obtained BIA accreditation.
- (b) Normal capacities of septic tanks must be:
- ▶ Small low discharge building : 2700 litres
  - ▶ Up to 3 bedrooms : As per the table below
  - ▶ More than 3 bedrooms : As per the table below

MINIMUM SEPTIC TANK CAPACITY REQUIREMENT – RESIDENTIAL							
Number of Bedrooms	Occupancy (People)	Daily Wastewater Discharge (litres)		Dual or single Minimum Tank Capacity (litres)			
		Roof Water Collection	Bore/Community Water Source	Roof Water Collection		Bore/Community Water Source	
				1 <sup>st</sup> Tank/Chamber	2 <sup>nd</sup> Tank/Chamber	1 <sup>st</sup> Tank/Chamber	2 <sup>nd</sup> Tank/Chamber
3	6	840	1080	2760	1380	3000	1500
4	8	1120	1440	3680	1840	4000	2000
5	9	1260	1620	4140	2070	4500	2250
6	10	1400	1800	4600	2300	5000	2500

- (c) Grey water must discharge into the primary chamber.
- (d) In dual chamber septic tank systems the effective capacity of the first chamber must be approximately twice that of the second chamber.
- (e) Septic tanks must have a length to width ratio of not less than 2:1 and a length to depth ratio of approximately 2:1.
- (f) The effective depth within the septic tank must not be less than 900 mm.
- (g) The transfer opening provided between the first and second compartment must consist of 100 mm square junctions.
- (h) Single chamber tanks are permitted but must have the same total volume as dual or multi-chamber tanks and must be fitted with an approved discharge filter.

## 3. Effluent Disposal System Requirements and Field Location Parameters

- (a) **Boundary:** The disposal field must be located more than 1.5 metres from a boundary
- (b) **Buildings:** The disposal field must not be located within 1.5 metres of a building or within a vertical 45° line drawn from the base of any building foundation or swimming pool.

(c) **Effluent disposal:**

<b>MINIMUM TRENCH LENGTH REQUIREMENTS FOR VARIOUS SOIL CATEGORIES ASSUMING CONSERVATIVE LOADING RATES</b>											
Number of People	Daily Wastewater Discharge (litres)	Required Trench Length (m) (minimum length – recommended length)									
		45mm Trench Width					600mm Trench Width				
		Soil Category					Soil Category				
		1	2	3	4	5	1	2	3	4	5
		Trench Loading Rates (mm/day)					Trench Loading Rates (mm/day)				
Reference Table 4 →		50	35	20	15	10	50	35	20	15	10
<b>Roof Water Collection</b>											
2	280	9-13	13-18	21-31	25-42	42-62	6-9	9-13	15-23	19-31	32-47
4	560	18-26	25-36	42-62	50-84	84-124	13-18	18-26	30-46	38-62	64-94
6	840	26-37	37-53	63-93	75-124	125-187	20-28	28-40	47-70	56-93	96-140
8	1120	36-50	50-71	83-124	100-166	167-249	26-37	37-53	62-93	74-124	125-187
9	1260	40-56	56-80	94-140	125-187	188-280	30-42	42-60	70-105	84-140	141-210
10	1400	45-62	62-89	105-156	150-207	208-311	33-47	47-67	78-117	94-156	156-233
<b>Bore/Community Water Source</b>											
2	360	11-16	16-23	27-40	32-53	54-80	9-12	12-17	20-30	24-40	40-60
4	720	23-32	32-46	54-80	64-106	108-160	17-24	24-34	40-60	48-80	80-120
6	1080	34-48	48-68	81-120	96-160	162-240	26-36	36-51	60-90	72-120	120-180
8	1440	45-64	64-92	107-160	127-212	216-320	34-48	48-68	80-120	96-160	160-240
9	1620	51-72	72-103	121-180	144-180	241-360	38-54	54-77	90-135	108-180	180-270
10	1800	57-80	80-114	134-200	160-267	268-400	42-60	60-86	100-150	120-200	201-300

- (e) Effluent drains must be laid level or to a maximum even gradient of 1:200.
- (f) Groundwater diversion must be provided.
- (g) A suitable reserve effluent disposal area of an equivalent size of that proposed must be set aside for future use or, provision must be made for access to the proposed effluent disposal area for the excavation, removal and replacement of soil to the site in the event of failure of the system.

## 4. Prohibited Discharges

The following may not be discharged to any septic tank:

- (a) Any stormwater, including roof and rainwater tank overflow, and surface drainage waters.
- (b) Any back-flush waters from a swimming pool or water softener.
- (c) Any discharge or back-flush from a spa pool.

- (d) Any discharge from a spa bath in excess of 120 litres capacity.
- (e) Any disposable napkin, clothing or plastic sheeting.
- (f) Any trade waste.
- (g) Any petrol or other flammable or explosive substance whether solid, liquid or gaseous.
- (h) Any food from a waste disposal unit.
- (i) Any matter or substance which would impair the effective working of a septic tank.