

3.6 Land capability for septic tanks for rural residential development

This assessment covers the physical capability of land to absorb and purify effluent coming from traditional septic tanks servicing a single family dwelling on a block of 1 ha or larger.

Table 3.6. Land capability ratings for septic tanks for rural residential developments

Land quality and (capability subscript)	Land capability class				
	1	2	3	4	5
Ease of excavation (<i>x</i>)	H	M	L	VL	
Flood hazard (<i>f</i>)	N		L	M	H
Land instability (<i>c</i>)	N	VL	L	M	H
Microbial purification ability (<i>p</i>)	H	M	L	VL	
Soil absorption (<i>zj</i>)	H	M	L	VL	
Waterlogging (<i>i</i>)	N, VL	L	M	H	VH

Land qualities used in the assessment

Ease of excavation not only relates to the installation of septic tanks but will also affect house and road construction and provision of services.

Any land subject to **flood hazard** or **land instability** is not suited to septic tanks or housing developments. Management will depend on the nature and extent of the problem.

Microbial purification ability assesses the soils capacity to purify added effluent. Management options are similar to waterlogging.

Waterlogging. An insufficient volume of well aerated material reduces the soil's ability to purify septic tank effluent. Problems are encountered where the watertable is close to the surface. In these situations, preferred management options include alternative methods for handling household effluent such as aerobic treatment units or Ecomax™ which utilise leach drains where the soil is amended with bauxite residue, or small local treatment plants. Less desirable is the provision of a large sand pad to elevate leach drains 2 m above the highest seasonal watertable.

Other land use notes

Rural residential developments. Ratings for septic tanks can be combined with ratings for the relevant agricultural uses when undertaking assessments for rural residential developments. Most rural residential developments in WA use septic tank effluent disposal. Hence land capability for septic tanks should be a minimum requirement.

Where orchards, market gardening or grazing are part of the proposed development, these ratings should also be considered. However, the agricultural ratings may need to be adjusted depending on the land use assumptions associated with the rural residential developments. For example, small scale horticulture may not involve the same emphasis on machinery access as indicated in the ratings tables. Livestock and pasture management may be quite different to the assumptions for broad-scale grazing of non-irrigated pastures⁴⁰. In such cases management and development requirements will determine suitability.

Urban developments. Urban developments usually include the construction of building and roads as well as the provision and maintenance of drains, sewers and garden areas. These are intensive land uses for which the land use and development assumptions are highly variable. The amount of capital normally invested means that engineering solutions are used

⁴⁰ See notes on small holdings in Section 3.4.

more routinely than for less intensive land uses. As a result, considerations such as the relative land values and proximity to existing infrastructure play a much larger role in the ultimate selection of urban land irrespective of initial land capability.

Large developments can pay to overcome problems more readily than smaller developments. For example, in some coastal areas entire dunes are often removed or levelled, and even large swamps are filled or drained, hence issues such as wind erosion and waterlogging may not be considered serious impediments to development.

As a *general* guide, urban land capability suits similar areas to perennial horticulture, however a land capability ratings table is not provided because engineering solutions are used to overcome limitations.

Extensive land degradation problems can still be (or should have been) an impediment to urban development. Contemporary examples in WA are secondary salinity that now affects many rural towns prompting a rescue program as part of the Salinity Action Plan (Government of Western Australia 1996). Similarly, nutrient pollution problems in most streams and wetlands on the Swan Coastal Plain are well documented and have been funded under government programs including the Peel-Harvey Catchment Management Program (e.g. ERMP Stage 2, Kinhill Engineers 1988). This included the provision of the Dawesville Cut – a massive new channel for flushing the Peel Inlet and Harvey Estuary.