WATER AND LAND 2020 & BEYOND

Artificial subsurface drainage

Artificial subsurface drainage (e.g. mole pipe or tile drains) is a key transport pathway for contaminants in the following physiographic zones:

- Central Plains
- Gleyed
- Peat Wetlands

Artificial subsurface drainage is also a key transport pathway in other physiographic zones but only in parts of those zones. These parts are referred to as the artificial drainage variant, or (a). The physiographic zones with an (a) variant are:

- Bedrock/Hill Country
- Lignite/Marine Terraces
- Oxidising

Please note

The factsheet on General Good Management Practices is applicable everywhere, and should be referred to in conjunction with this factsheet. There may also be other key transport pathways and associated good management practices which are relevant to your property, depending on which physiographic zones and variants are present.

You can search for your property and view the physiographic zones map on http://gis.es.govt.nz

Some example good management practices for artificial subsurface drainage which could be included in your Farm Environmental Management Plan include[1]:

Mitigation	Examples	✓
Protect soil structure, particularly in gullies and near stream areas	Minimise fence line pacing by deer by creating a visual barrier	
	Use minimum or no-till cultivation practices such as direct drilling	
	Re-sow areas of bare or damaged soil as soon as possible	
	Match stock management to land use capability, e.g. avoid grazing heavy stock on steeper, more vulnerable soils, especially when wet	
Reduce P use or loss	Reduce use of P fertiliser where Olsen P values are above agronomic optimum	
	Use low solubility P fertiliser forms if runoff risk is high; or fertilise outside risk months (May to September inclusive)	
	Plant split grass/clover swards in near-stream areas	
Reduce the accumulation of surplus N in the soil, particularly during autumn and winter	Reduce inputs of N, such as fertiliser or nitrogen contained in imported feed	
	Control the duration of grazing of pasture and forage crops (on-off grazing)	
	Winter stock off-paddock	
	Plant catch crops to capture N from grazed winter forages (e g barley and triticale)	
	Optimise timing and amounts of irrigation input	
	Substitute autumn diets with low-N feed (such as whole crop silage)	
	Time N application to meet crop demand using split applications	
	Re-sow areas of bare or damaged soil as soon as possible	
	Reduce stocking rate	
Avoid preferential flow of effluent through drains	Defer effluent application when soil conditions unsuitable	
	Avoid placing effluent applicators directly over tile drains	
	Apply effluent at low rates and depths	
Capture contaminants at drainage outflows	Where landscapes allow, run tile drainage outflows into wetlands or sediment traps prior to entering ditches	

[1]Regardless of the good management practices chosen, the entire farm environmental management plan must be prepared in accordance with Appendix N. On-farm actions must comply with all relevant rules in the Southland Water and Land Plan 2016, and any relevant resource consent conditions.