

Appendix 3: Physiographic zone and variants dominant characteristics inter-comparison tables

	Alpine	Bedrock/Hill Country	Central Plains	Gleyed	Lignite/Marine Terraces	Old Mataura	Oxidising	Peat Wetlands	Riverine
Location									
Area (ha)	684,300	1,516,340	18,150	308,270	100,710	14,970	277,190	61,870	122,930
Landscape characteristics									
Elevation (metres relative to sea level)	>800	40-680	20-100	0-300	0-220	80-340	0-800	0-300	0-420
Slope	Steep to very steep	Rolling to very steep	Flat to gently undulating	Flat to gently undulating	Flat to undulating	Flat to gently undulating	Flat to gently undulating	Flat to gently undulating	Flat to gently undulating
Geology	Hard rock	Hard rock	Quaternary sediments	Quaternary sediments	Hard rock and quaternary sediments	Quaternary sediments	Quaternary sediments	Quaternary sediments	Quaternary sediments
Landform age	Pre-Quaternary	Pre-Quaternary	Q2-Q4	Q2-Q4; Q7-Q9	Pre-Quaternary	Q7-Q9	Q2-Q4	Q2-Q4	Q1
Average annual rainfall (mm)	4,279	2,655	959	1,953	1,346	860	1,267	1,396	2,896
Surface zone characteristics									
Dilution potential	High to moderate recharge flux	High to moderate recharge flux	Low recharge flux	Low recharge flux	Low recharge flux	Low recharge flux	Low recharge flux	Low recharge flux	High mixing potential
Drainage density	Very low	Low	High	High	Moderate	Low	Moderate	High	Very high
Stream size	Predominately very small	Predominately small	Mixed	Mixed	Mixed	Mixed	Mixed	Mixed	Predominately large
Overland flow potential	Very high	Moderate to high	Low	Low	Moderate to very low	Very low	Very low	Low	Low
Soil zone characteristics									
Soil order	Podzol, Brown	Brown, Podzol	Gley, Pallic	Gley, Pallic, Podzol	Brown	Brown	Brown	Organic	Recent
Profile drainage	No data **	Moderate well to well drained*	Poorly drained	Poorly to imperfectly drained	Poorly to moderately well drained	Well drained	Well drained	Very poorly drained	Well drained*
Permeability	No data **	No data **	Moderate over slow	Moderate over slow	Moderate over slow and moderate, slow	Rapid over rapid	Moderate over moderate, slow and rapid over rapid	Moderate over slow*	Rapid over rapid*
Anion storage capacity	No data **	No data **	Moderate	Moderate	Moderate	Moderate	Moderate	Very low to moderate	Low*
Reduction potential	Low	High	High	Moderate to high	Moderate	Low	Low	High	Low
Artificial drainage density	None (not agricultural)	None to low	High	High	Low to moderate	None to low	None to moderate	Very high	None to very low
Lateral drainage potential	Extensive	Extensive	Localised	Localised	Localised	Localised	Localised	Localised	Localised
Saturated zone characteristics									
Water table depth	No data **	No data **	Shallow	Shallow	Moderate to shallow	Moderate to deep	Shallow to moderate	Shallow	Shallow*

Aquifer permeability	Low	Low	Low	Low	Low	Moderate	High	Low	High
Active groundwater storage	Minor	Minor	Moderate	Moderate	Moderate	Moderate	Extensive	Moderate	Extensive
Reduction potential	Low	Low	Low	Low	Low to high	Low	Low	High	Low
Deep drainage potential	Low	Low	Low	Moderate to low	Moderate	Moderate	High	Low	High

*A significant portion of the unit (>50%) has no data available

**A majority (>90%) of the unit has no data available

	Hill Country/ Bedrock _(a)	Hill Country/ Bedrock _(o)	Gleyed _(o)	Lignite/Marine Terraces _(a)	Lignite/Marine Terraces _(o)	Oxidising _(b)	Oxidising _(o)	Riverine _(o)
Location								
Area (ha)	28,800	1,303,770	96,850	37,000	58,730	48,240	93,620	24,400
Landscape characteristics								
Elevation (metres relative to sea level)	0-300	100-270	0-600	0-140	0-320	0-800	0-800	120-660
Slope	Flat to undulating	Rolling to very steep	Undulating to strongly rolling	Flat to gently undulating	Flat to rolling	Flat to gently undulating	Flat to rolling	Flat to rolling
Geology	Hard rock	Hard rock	Quaternary sediments	Quaternary sediments	Hard rock	Quaternary sediments	Quaternary sediments	Quaternary sediments
Landform age	Pre-Quaternary	Pre-Quaternary	Q1-Q6	Q2-Q4 and pre-Quaternary	Pre-Quaternary	Q8-Q10	Q2-Q10	Q1
Average annual rainfall (mm)	1,089	2,772	3,965	1,102	1,506	1,092	1,379	2,198
Surface zone characteristics								
Dilution potential	High to low recharge flux	High to moderate recharge flux	Low recharge flux	Low recharge flux	High to low recharge flux	Low recharge flux	Low recharge flux	High mixing potential
Drainage density	Moderate	Low	High	High	Low	Low	Moderate	Very high
Stream size	Mixed	Predominately small	Mixed	Mixed	Predominately small	Predominately small	Mixed	Predominately large
Overland flow potential	Very low to low	Moderate to high	Moderately high to high	Low to very low	Moderate to moderately high	Very low	Moderately high to high	Moderately high
Soil zone characteristics								
Soil order	Brown, Podzol	Podzol, Brown	Podzol	Brown	Brown	Brown	Brown	Recent
Profile drainage	Poorly to moderately well drained	Moderately well to well drained*	Poorly drained*	Poorly to imperfectly drained	Moderately well to poorly drained	Well to moderately well drained	Well to moderately well drained	Well drained*
Permeability	Moderate over slow	No data**	Moderate over slow*	No data**	No data**	Moderate over moderate, slow	Moderate over slow*	No data**
Anion storage capacity	Moderate to high	No data**	Moderate to low*	No data**	No data**	Moderate	Moderate*	No data**

Reduction potential	Moderate	High	Low	Moderate	High to moderate	Low	Low	Low
Artificial drainage density	Moderate to high	None to low	None (not agricultural)	Moderate to high	Low to none	Moderate	Low to none	None (not agricultural)
Lateral drainage potential	Localised	Extensive	Localised	Localised	Localised	Localised	Localised	Localised
<i>Saturated zone characteristics</i>								
Water table depth	Shallow to moderate*	No data**	Shallow*	Moderate to shallow	Moderate*	Moderate to shallow	Shallow*	Shallow*
Aquifer permeability	Low	Low	Low	Low	Low	Moderate	Moderate	High
Active groundwater storage	Moderate	Minor	Minor	Moderate	Minor	Moderate	Moderate	Extensive
Reduction potential	Low	Low	Low	Low to high	Low to high	Low	Low	Low
Deep drainage potential	Low to moderate	Low	Moderate	Moderate	Moderate	Moderate	High	High

*A significant portion of the unit (>50%) has no data available

**A majority (>90%) of the unit has no data available