

SILICEOUS HORIZONS WITHIN QUATERNARY AGED SOILS IN HAWKES BAY, NEW ZEALAND

Dr Andrew Hammond¹, Mr Sharn Hainsworth², Dr Patrick Keleher¹, Associate Professor Robert Stewart³, Dr Alan Palmer³, Professor Vince Neall³

¹*School of Engineering & Technology, Central Queensland University*, ²*Landcare Research*, ³*Soil And Earth Sciences, Institute of Agriculture and Environment, Massey University*

Cemented platy structured cemented horizons are found within the quartzo-feldspathic-rich loessial and tephric soils of Hawke's Bay region, North Island, New Zealand. These horizons impede water movement and root penetration, restrict digging and tillage, and are extremely resistant to erosion. The occurrence of these cemented horizons coincides with: a rainfall of 600-1000mm/annum; a seasonal (summer) water deficit; and volcanic ash accessions from Taupo Volcanic Zone and Egmont Volcano, located c.100km and c.250km respectively, west of Napier City. Chemical analyses of the cement indicate that it is silica rich. It is postulated that the cement is derived largely from the weathering products of andesitic glass shards and to a lesser extent the weathering products of volcanic feldspars, rhyolitic glass, alkali feldspars and quartz from quartzo-feldspathic loess.