

**In the matter of:**

Dunedin City GP2 Plan and

High Class Soils on property of Mr Jim Fraser, 60 Mt Grand Road

Trevor Webb, Soil Scientist

**My Qualifications:**

*Academic Qualifications:* M.Ag.Sci. (Hons in soil science)

*Years as a practicing Researcher:* 43

*Research/professional speciality:*

1. Soil surveys and land evaluation for irrigation, horticulture, cropping, pastoral development, forestry, and effluent disposal.
2. Specialist in studies of pedology, soils and land use sustainability, irrigation, pesticide and nitrate leaching and land evaluation.
3. Consultant on land evaluation, land disposal of effluent, management of land for sustainability.
4. Expert witness in hearings regarding protection of High Class Soils for Canterbury Regional Counsel (Environment Canterbury)

Most relevant publications are recorded in references below.

**Observations:**

The soil map published in 'Soils of Dunedin City and Environs' (Tomlinson and Leslie, 1978) is the map used to identify HCS in this area. The two areas identified as HCS are identified as Cargill silt loam soils occurring on rolling land. The original Cargill silt loam map unit encompassed the units identified as HCS plus the larger unit in between, shown with dashed lines in Figure 1. The land between the HCS units was removed from the HCS classification because of slopes exceeded 15 degrees. This steeper land occupies the top of the hill (named Round Hill) and has many surface rocks and boulders protruding at the soil surface. Although I did not investigate the soil here, it is my view that this steeper area will contain a predominance of Cargill soils.

I spent 2 hours on Mr Jim Fraser's property observing soil profiles on the two small parcels of land identified as Cargill Soils and classified as High Class Soils on the Second Generation District Plan. Soil observation sites are shown in Figure 1.

Soil type identification for each site

1. Porteous silt loam
2. Warepa silt loam on clay
3. Warepa silt loam on clay
4. Porteous silt loam on clay
5. Warepa silt loam on clay
6. Warepa silt loam on clay

The Porteous soils are deep, moderately well drained Brown Soils from a mix of loess and volcanic rock and are identified as High Class Soils.

The Warepa soils are deep poorly drained Pallic Soils from loess. They have very firm clay subsoils and do not qualify for High Class Soils.

The map units identified as HCS units are small (about 0.2 and 0.45 ha) and contain a predominance of Warepa soils – which do not qualify for HCS.

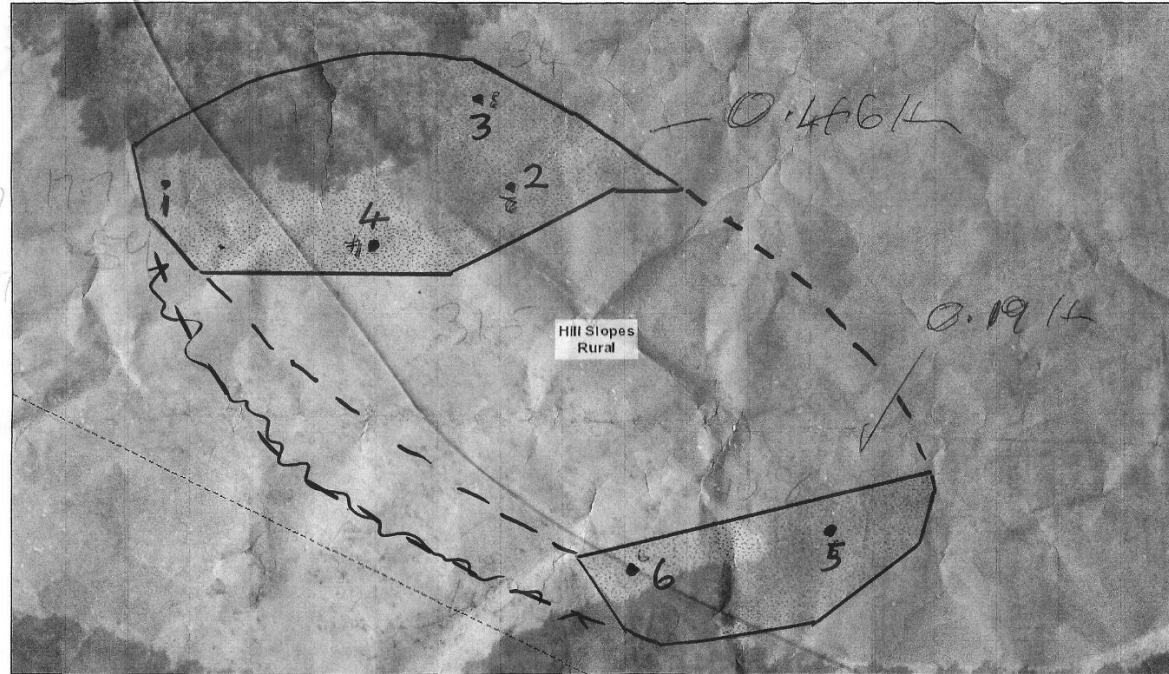
**Conclusion:**

The map units identified as HCS on Mr Fraser's property do not contain a predominance of High Class Soils and are located within a windy site that poses significant limitations for the growth of many horticultural and arable crops. For these reasons I recommend that these units be removed from land identified as HSC.

**References**

- Tomlinson, P.R. Leslie D. M. 1978. Soils of Dunedin City and Environs, New Zealand. N.Z. Soil Survey Report 37. DSIR, Wellington.
- Webb, T.H.; Jessen, M.R.; McCleod, M.; Wilde, R.H. 1995. Identification of high class land. Paper presented to NZ Association of Resource Managers Conference.
- Webb, T.H. and Wilson, A.D. (1995): A manual of land characteristics for evaluation of rural land. *Landcare Research Science Series No 10*
- Webb, T.H. and Wilson, A.D. (1994): Classification of land according to its versatility for orchard crop production. *Landcare Research Science Series No 8.*

# Planning Map



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Property — Road/Rail  
 + Railway Centreline — Hydro  
 Parcel Boundaries — Formed Roads  
 -- Parcel

Figure 1.

1:1,000  
 0 0.01 0.01 0.03 mi  
 0 0.01 0.03 0.05 km  
 Aerial photography DCC, Jan/Feb 2013, CO BY 3.0 NZ

Dunedin City Council