2. METHODOLOGY

2.1 Soil Survey

A grid survey was employed to locate sites for profile descriptions. By nature, a grid survey locates sites at regular intervals along evenly spaced traverse lines, enabling all parts of each map unit an approximately equal chance of being recognised (Beckett 1968). This is an appropriate procedure on most parts of the plain where it may be difficult to relate soils to external features.

To satisfy the requirement of identifying the range of soil types present in both areas, a 100 metre grid spacing was considered satisfactory. At each point of the grid, a 120 cm hand-augered profile was described, resulting in descriptions for some 80 profiles. In locating sites, some bias was employed to avoid experimental plots or areas of obvious disturbance.

2.2 Soil Description

In describing the morphology of a soil profile, the following features were recorded for each horizon at each site: field texture, colour, consistence, structure (where obvious from an augered sample) and presence of any inclusions e.g. gravel and calcium carbonate. The nature of the boundary between each horizon was also indicated. Some samples were also tested for pH in the field.

2.3 Soil Classification and Mapping

Soils have been classified to account for morphological variations throughout the profile. Six basic soil groups have been recognised and each group of soils has been given a Factual Key Notation (Northcote 1979). Figure 2 presents the format used for classification and lists the main diagnostic features of each group.

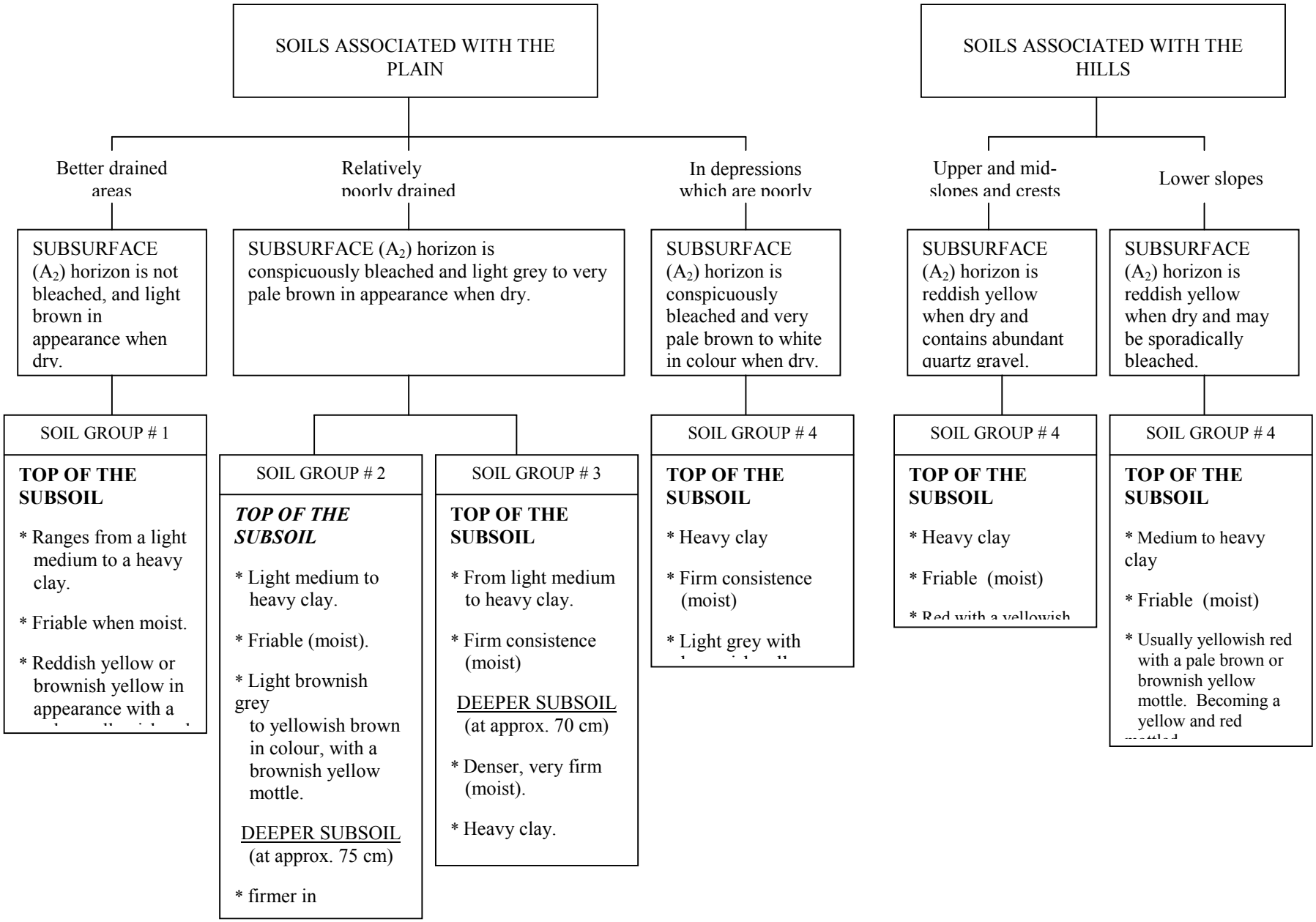

Figure 2 – Schematic Relationship between Soils of the Extension Area

Two basic landscape units are involved in the area surveyed: the depositional plain (composed of unconsolidated Quaternary deposits) and the hills rising above the plain. Four of the soil groups (i.e. groups 1 – 4) are associated with the plain, the other two with the hill unit.

The soils of both areas can be differentiated on the basis of: colour of the subsurface horizon; colour, texture and consistence of the top of the subsoil and nature of the deeper subsoil clay. These features will usually reflect the drainage characteristics of the area.

The soil groups recognised are similar to the "soil types" named by Poutsma and Skene (1961). The nearest equivalent type from that survey has been matched to each of the present groupings in Table 1.

Soil groups recognised from the grid survey component were mapped at a scale of 1:10,000 giving six mapping units (see Figure 3).

Table 1 - Soil Relationships

Soil Group	Landscape Unit	Nearest equivalent type from previous survey (Poutsma and Skene 1961)	Factual Key Notation (Northcote 1979)
1	Plain	Rutherglen loam – brown phase	Dy 3.21, .22, .32
2	"	Rutherglen loam – normal phase	Dy 3.42, 43, .42
3	"	Rutherglen loam – normal phase	Dy 3.42, .43
4	"	Lilliput loam	Dg 2.42, .43
5	Hill	Type J (on crests)	Dr 3.21, .22, .12
		Type H (mid & upper slopes)	
6	"	Type G – Stillards loam	Dy 3.12, .22, .32

The boundaries delineated usually reflect the topography and should be regarded as being zones of transition from one soil to another.

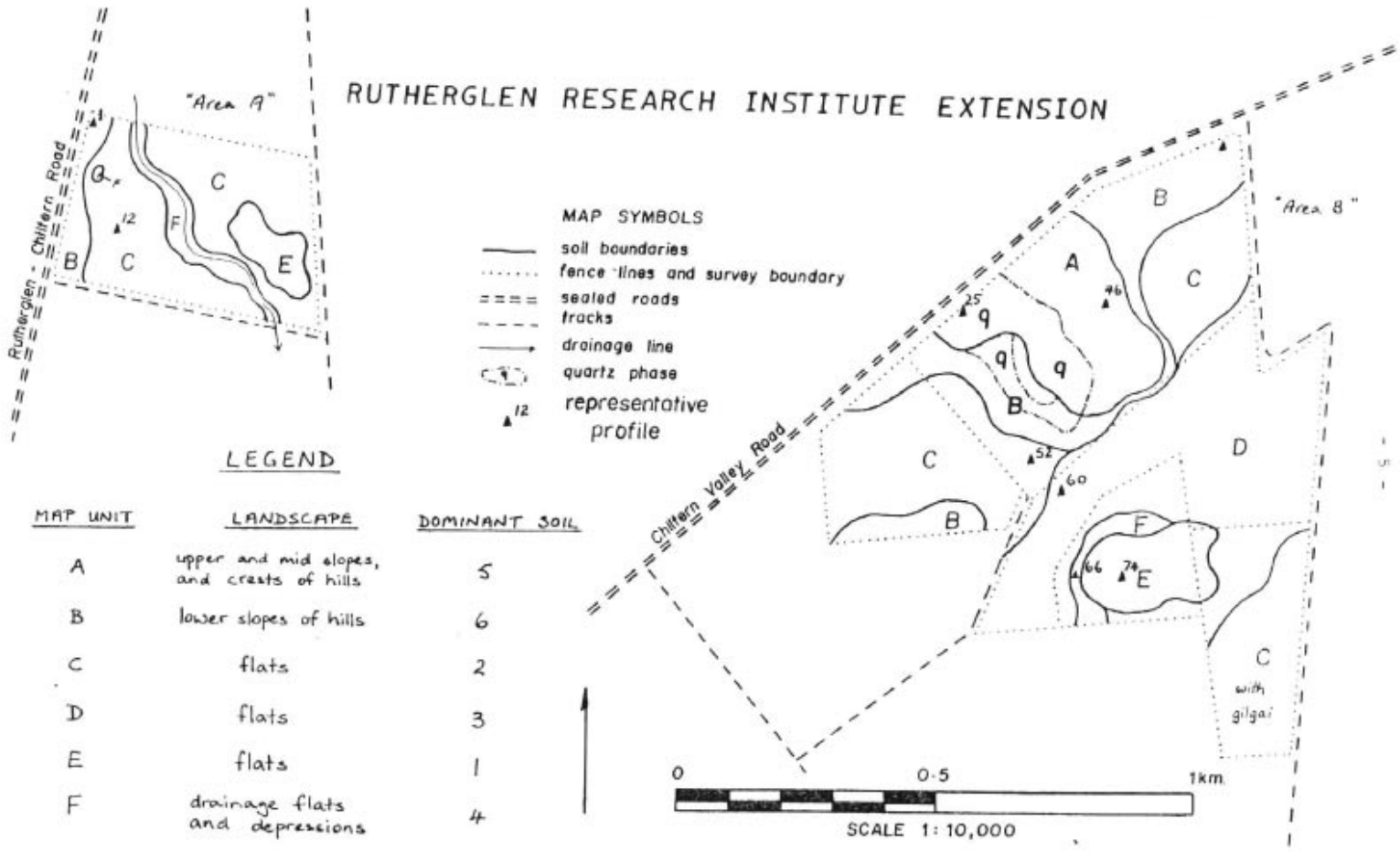

Figure 3 – Soil Map Rutherglen Research Institute Extension