

FIGURE 21: CLOVELLY SOIL FORM (SOIL CLASSIFICATION, 1991)

Avalon Soil Form

The Avalon soil form is characterised by the occurrence of a yellow-brown apedal B-horizon over a soft plinthic B – horizon (Figure 22). The yellow-brown apedal horizon is the same as described for the Clovelly soil form and the plinthic horizon has the following characteristics:

- Has undergone localised accumulation of iron and manganese oxides under conditions of a fluctuating water table with clear red-brown, yellow-brown or black strains in more than 10% of the horizon;
- Has grey colours of gleying in or directly underneath the horizon; and
- Does not qualify as a diagnostic soft carbonate horizon.

These soils are found lower down the slopes than the Clovelly soils and indicate the start of the soils with clay accumulation.

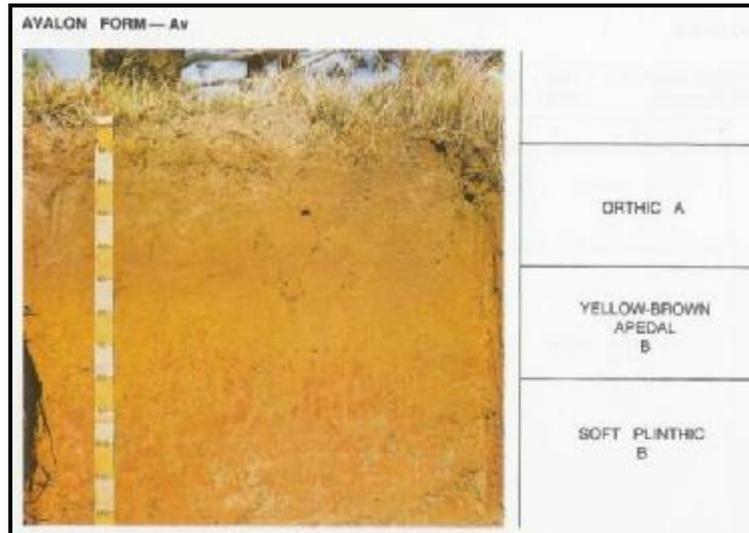


Figure 22: Avalon Soil Form (Soil Classification, 1991)

Griffin Soil Form

Griffin soils are characterised by a yellow-brown apedal B-horizon over a red apedal B-horizon as described in the Hutton and Clovelly soils above. These soils form part of agricultural soils and are suitable for cultivation.

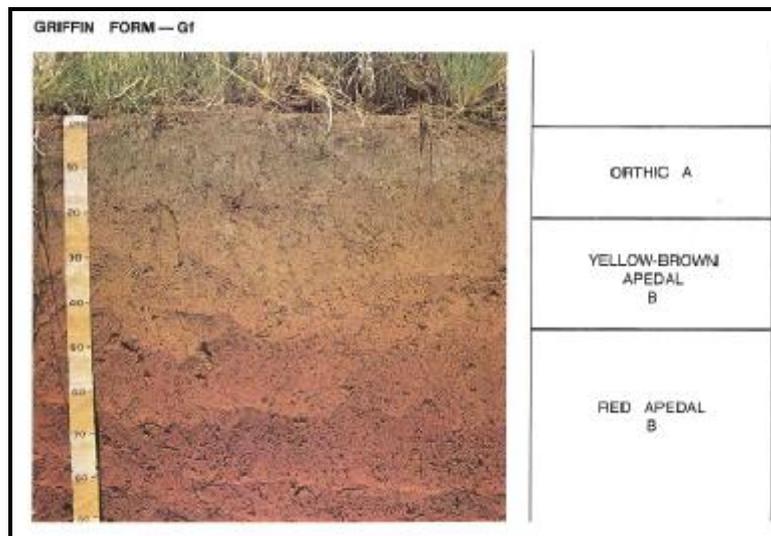


FIGURE 23: GRIFFIN SOIL FORM (SOIL CLASSIFICATION, 199)

Bainsvlei Soil Forms

Bainsvlei soils are characterised by a red apedal B-horizon over a soft plinthic B-horizon, as described in the Avalon soil form.

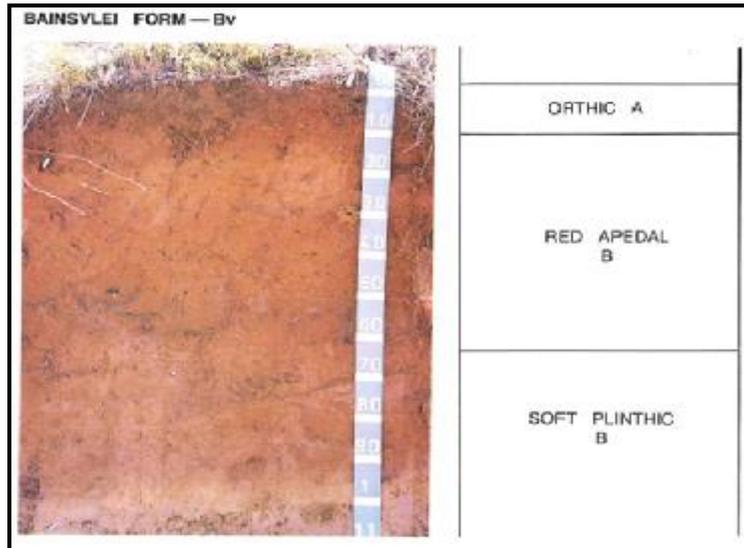


FIGURE 24: BAINSVLEI SOIL FORM (SOIL CLASSIFICATION, 1991)

Shortlands Soil Form

Shortlands soils are characterised by an orthic A-horizon over a red structured B-horizon. This soil is very similar to Hutton soils, but it is characterised with a bit more structure in the B-horizon.

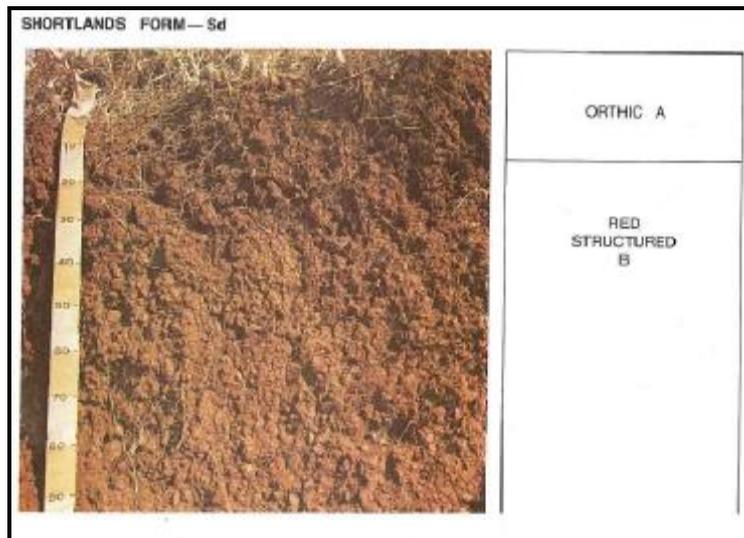


FIGURE 25: SHORTLANDS SOIL FORM (SOIL CLASSIFICATION, 1991)

Rocky Soils

The rocky soil management unit is made up of soils that are generally shallow and that overlie an impeding layer such as hard rock. These soils are not suitable for cultivation and in most cases are only usable as light grazing. The main soil forms found in rocky soils were Mispah and Glenrosa, each form is described below.

Mispah Soil Form

The Mispah soil form is characterised by an Orthic A – horizon overlying hard rock. Refer to Figure 26 for an illustration of a typical Mispah soil form.

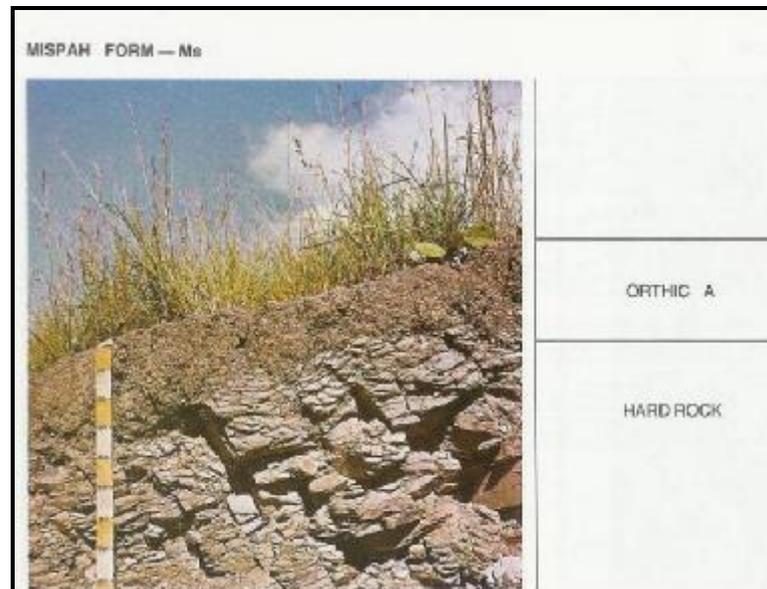


FIGURE 26: MISPAH SOIL FORM (MEMOIRS ON THE NATURAL RESOURCES OF SOUTH AFRICA, NO. 15, 1991).

Glenrosa Soil Form

The Glenrosa soil form is a combination of an Orthic A horizon overlying a lithocutanic B horizon as indicated in

Figure 27 below. A lithocutanic B has several characteristics that separate it from other horizons, namely:

- It merges into the underlying weathering rock;
- Has a general organisation in respect of colour, structure or consistency that has distinct affinities with the underlying parent rock;
- Has cutanic character expressed usually as tongues or prominent colour variations caused by residual soil formation and illuviation resulting in localization of one or more of clay, iron and manganese oxides;
- Lacks a laterally continuous horizon which would qualify as either a diagnostic podzol B, neocarbonate B, pedocutanic B, pedocutanic B, hardpan carbonate or dorbank; and
- If the horizon shows signs of wetness, then more than 25% by volume has saprolite character.

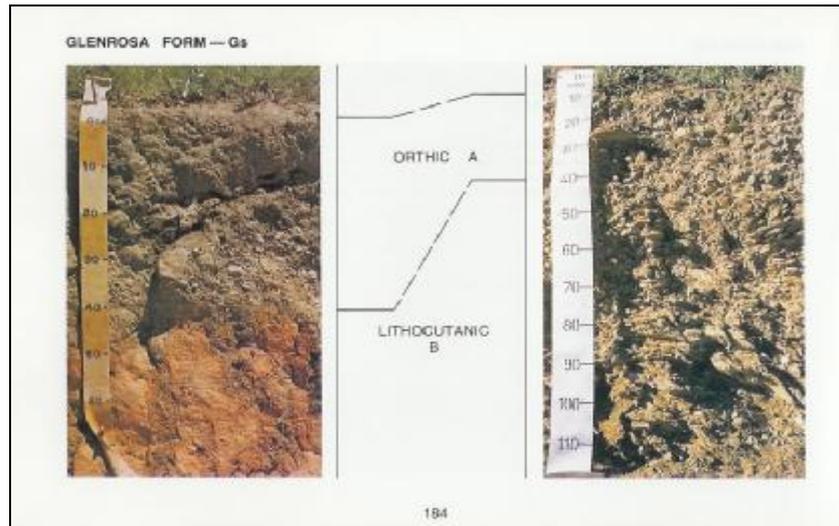


FIGURE 27: GLENROSA SOIL FORM (SOIL CLASSIFICATION, 1991)

Disturbed Soils

The main soil form found in disturbed soils is Witbank and, is described below.

Witbank

The Witbank soil form is most commonly found in areas of man made activities and is a man made soil. The thickness of the orthic A horizon plus man made soil deposits must be more than 500 mm if these overlie a classifiable buried soil.

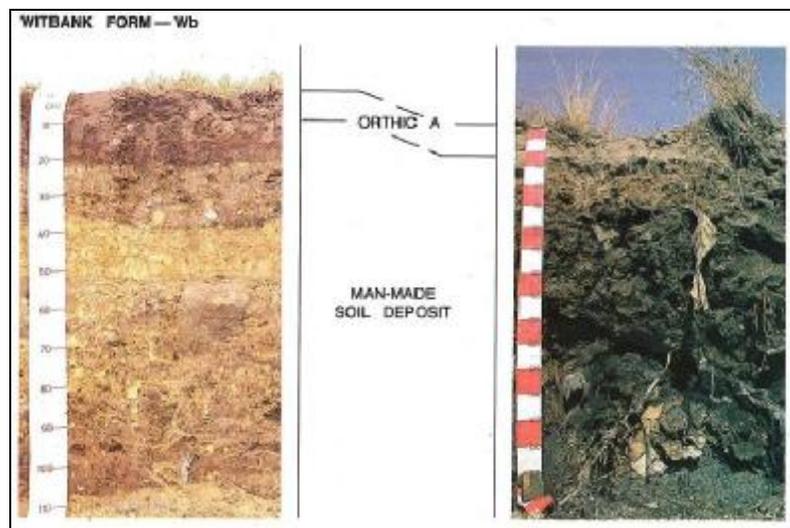


FIGURE 28: WITBANK SOIL FORM (SOIL CLASSIFICATION, 1991)

Transitional Soils

The transitional soil management unit comprises the soils found between clay soils and the agricultural soils. These soils often have signs of clay accumulation or water movement in the lower horizons. These soils are

usually indicative of seasonal or temporary wetland conditions. The main soil forms found in transitional soils were Kroonstad, Wasbank, Longlands and Westleigh, each form is described below.

Kroonstad Soil Form

The Kroonstad soil form is most commonly found in areas of semi-permanent wetness. The soil is made up of an Orthic A horizon over a diagnostic E-horizon over a G-horizon, as indicated in Figure 29 below. The G-horizon has several unique diagnostic criteria as a horizon, namely:

- It is saturated with water for long periods unless drained;
- Is dominated by grey, low chroma matrix colours, often with blue or green tints, with or without mottling;
- Has not undergone marked removal of colloid matter, usually accumulation of colloid matter has taken place in the horizon;
- Has a consistency at least one grade firmer than that of the overlying horizon;
- Lacks saprolitic character; and
- Lacks plinthic character.

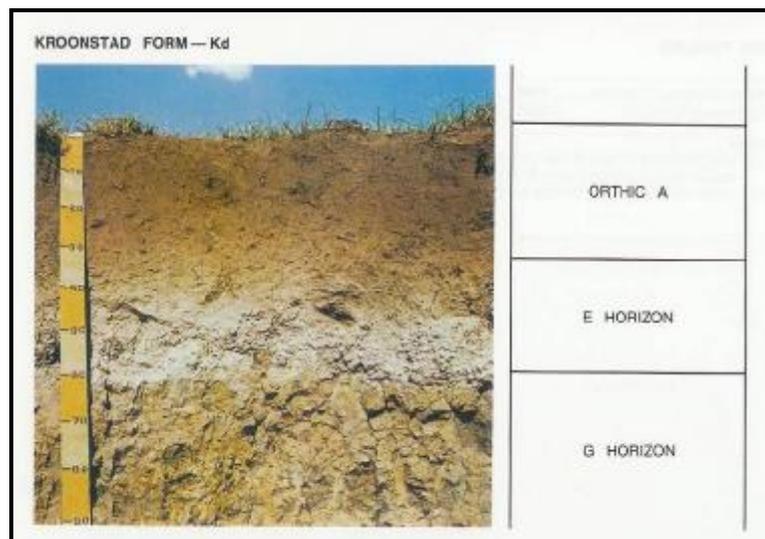


FIGURE 29: KROONSTAD SOIL FORM (SOIL CLASSIFICATION, 1991)

Wasbank Soil Form

The Wasbank soil form is found in close proximity to the Longlands soil form and is typified by an Orthic A-horizon over an E-horizon (as described above) over a Hard Plinthic B-horizon. The Hard Plinthic B-horizon develops when a Soft Plinthic horizon is subjected to a prolonged dry period and the accumulated colloidal matter hardens, almost irreversibly. The Wasbank soil form is illustrated in Figure 30 below.

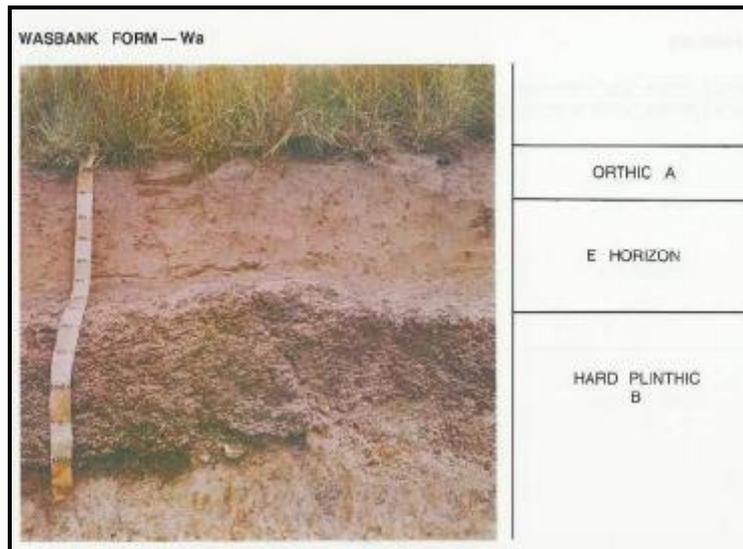


FIGURE 30: WASBANK SOIL FORM (SOIL CLASSIFICATION, 1991)

Longlands Soil Form

The Longlands soil forms are all typified by an eluvial (E) horizon over a soft plinthic horizon (as described above). The E-horizon is a horizon that has been washed clean by excessive water movement through the horizon and the plinthic horizon as undergone local accumulation of colloidal matter. Refer to Figure 31 and Figure 32 for an illustration of the soil form.



FIGURE 31: SOFT PLINTHIC B-HORIZON.

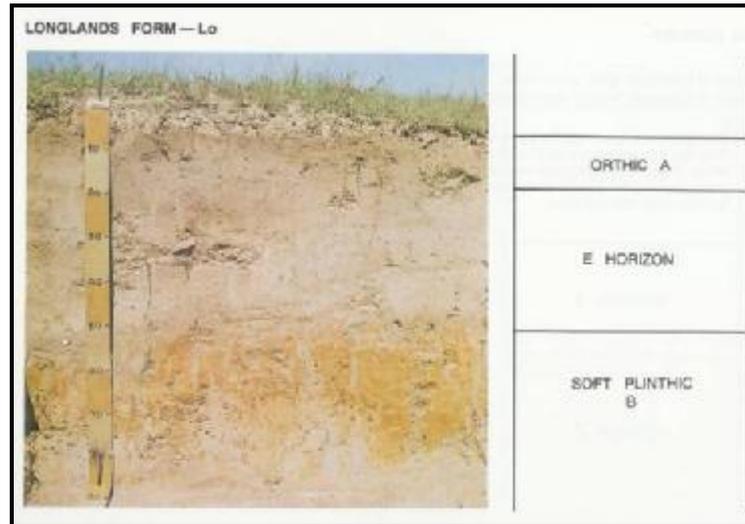


FIGURE 32: LONGLANDS SOIL FORM (SOIL CLASSIFICATION, 1991)

Westleigh Soil Forms

Westleigh soils are characterised by an orthic A-horizon over a soft plinthic B-horizon and is found in areas between good agricultural soils and clay soils and the movement of water determines the characteristics of the soil.



FIGURE 33: WESTLEIGH SOIL FORM (SOIL CLASSIFICATION 1991)

Clay Soils

The clay soil management unit is found in areas where clays have accumulated to such an extent that the majority of the soil matrix is clays. These soils are usually indicative of seasonal or permanent wetland conditions. The main soil forms found in clay soils were Katspruit and Rensburg, Arcadia and Willowbrook, each form is described below. These soils are saturated with water and must be noted to be unstable for construction and are sensitive.

Katspruit Soil Form

The Katspruit soil form is most commonly found in areas of semi-permanent wetness. The soil is made up of an Orthic A-horizon over a diagnostic G-horizon and is indicated in Figure 34 below. The G-horizon has several unique diagnostic criteria as a horizon, namely:

- It is saturated with water for long periods unless drained;
- Is dominated by grey, low chroma matrix colours, often with blue or green tints, with or without mottling;
- Has not undergone marked removal of colloid matter, usually accumulation of colloid matter has taken place in the horizon;
- Has a consistency at least one grade firmer than that of the overlying horizon;
- Lacks saprolitic character; and
- Lacks plinthic character.

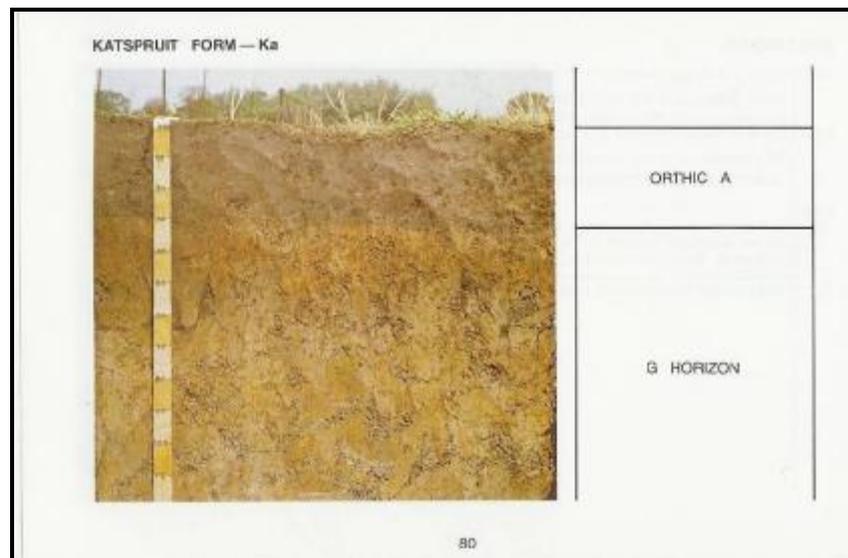


FIGURE 34: KATSPRUIT SOIL FORM (SOIL CLASSIFICATION, 1991)

Arcadia Soil Form

Arcadia soils are characterised by a vertic A-horizon, which frequently overlies weathering rock or yellowish brown block clay. The Vertic horizon has several unique diagnostic criteria as a horizon, namely:

- Has strong developed structure
- Has at least one of the following:
- Clearly visible, regularly occurring slicken sides in some part of the horizon or in the transition to an underlying layer; and

- A plasticity index greater than 32 (using the SA Standard Casagrande cup to determine liquid limit), or greater than 36 (using the British Standard cone to determine liquid limit).

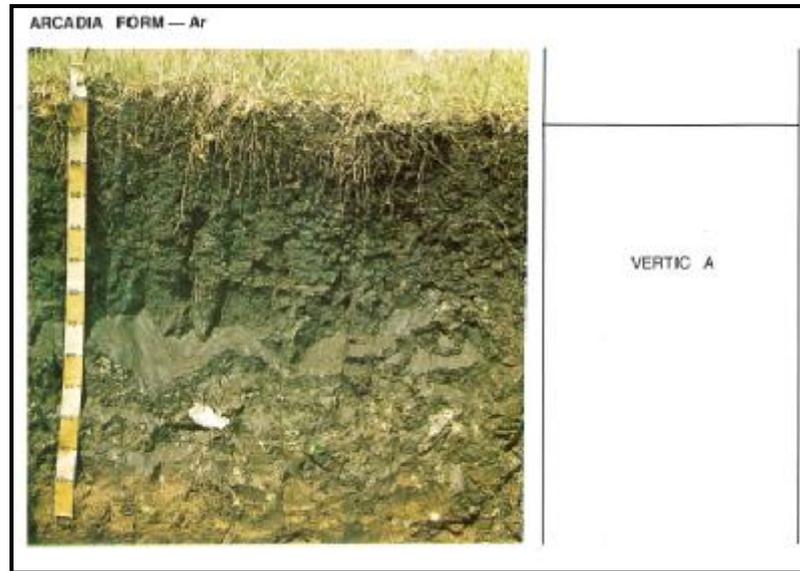


FIGURE 35: ARCADIA SOIL FORM (SOIL CLASSIFICATION, 1991)

Rensburg Soil Form

Rensburg soils are characterised by a vertic A-horizon over a G horizon. The vertic A-horizon is characterised by shrinking and swelling of the soils and the G-horizon has characteristics described above.

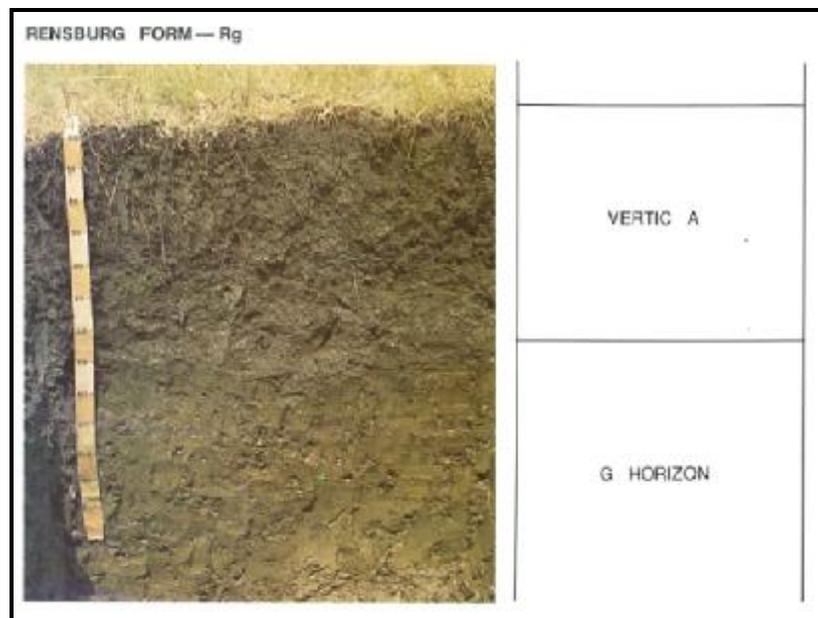


FIGURE 36: RENSBURG SOIL FORM (SOIL CLASSIFICATION, 1991)