

## DEEP SILICEOUS SAND

**General Description:** *Very thick brown sand with clayey lamellae, over a sandy clay loam subsoil at depth*

**Landform:** Gently undulating dunefield.

**Substrate:** Windblown sand.

**Vegetation:** Banksia scrub



**Type Site:** Site No.: SE057

1:50,000 sheet: 7023-3 (Monbulla)

Hundred: Coles

Annual rainfall: 750 mm

Sampling date: 24/10/96

Landform: Upper dune slope, 2%

Surface: Soft with no stones

### Soil Description:

| <i>Depth (cm)</i> | <i>Description</i>                                                                                                   |
|-------------------|----------------------------------------------------------------------------------------------------------------------|
| 0-17              | Dark grey loose single grain sand. Clear to:                                                                         |
| 17-32             | Brown and light yellowish brown loose single grain sand. Gradual to:                                                 |
| 32-56             | Yellowish brown and brownish yellow loose single grain sand. Diffuse to:                                             |
| 56-96             | Yellowish brown loose single grain sand with minor brown clayey lamellae. Diffuse to:                                |
| 96-130            | Brownish yellow loose single grain sand with 2-10% strong brown clayey lamellae. Abrupt to:                          |
| 130-145           | Brownish yellow and yellowish brown loose single grain sand with 10-20% ironstone concretions (6-20 mm). Gradual to: |
| 145-175           | Reddish yellow loose single grain sand with 2-10% brown clayey lamellae. Abrupt to:                                  |
| 175-190           | Strong brown and red soft massive sandy clay loam.                                                                   |



**Classification:** Bleached, Mesotrophic, Brown Kandosol; very thick, non-gravelly, sandy / clay loamy, very deep

## Summary of Properties

|                                |                                                                                                                                                                                                                                                                               |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Drainage</b>                | Rapidly drained. The soil rarely remains wet for more than a few hours at a time.                                                                                                                                                                                             |
| <b>Fertility</b>               | Inherent fertility is low as indicated by the exchangeable cation data. Nutrient retention capacity is poor throughout the profile. Multiple deficiencies are likely. The data indicate that phosphorus, calcium, magnesium, potassium, zinc and copper may all be deficient. |
| <b>pH</b>                      | Acidic at the surface, neutral at depth.                                                                                                                                                                                                                                      |
| <b>Rooting depth</b>           | 190 cm in pit.                                                                                                                                                                                                                                                                |
| <b>Barriers to root growth</b> |                                                                                                                                                                                                                                                                               |
| <b>Physical:</b>               | There are no physical barriers.                                                                                                                                                                                                                                               |
| <b>Chemical:</b>               | There are no chemical barriers, but low nutrient status and retention capacity restrict root growth.                                                                                                                                                                          |
| <b>Water holding capacity</b>  | Approximately 150 mm in the potential root zone.                                                                                                                                                                                                                              |
| <b>Seedling emergence:</b>     | Satisfactory, except where water repellent.                                                                                                                                                                                                                                   |
| <b>Workability:</b>            | Soft surface is easily worked.                                                                                                                                                                                                                                                |
| <b>Erosion Potential</b>       |                                                                                                                                                                                                                                                                               |
| <b>Water:</b>                  | Low.                                                                                                                                                                                                                                                                          |
| <b>Wind:</b>                   | Moderate.                                                                                                                                                                                                                                                                     |

## Laboratory Data

| Depth<br>cm | pH<br>H <sub>2</sub> O | pH<br>CaCl <sub>2</sub> | CO <sub>3</sub><br>% | EC1:5<br>dS/m | ECe<br>dS/m | Org.C<br>% | Avail.<br>P<br>mg/kg | Avail.<br>K<br>mg/kg | SO <sub>4</sub> -S<br>mg/kg | Boron<br>mg/kg | Trace Elements mg/kg<br>(DTPA) |       |       |       | CEC<br>cmol<br>(+)/kg | Exchangeable Cations<br>cmol(+)/kg |      |      |      | ESP | Exch<br>Al<br>mg/kg |  |
|-------------|------------------------|-------------------------|----------------------|---------------|-------------|------------|----------------------|----------------------|-----------------------------|----------------|--------------------------------|-------|-------|-------|-----------------------|------------------------------------|------|------|------|-----|---------------------|--|
|             |                        |                         |                      |               |             |            |                      |                      |                             |                | Cu                             | Fe    | Mn    | Zn    |                       | Ca                                 | Mg   | Na   | K    |     |                     |  |
|             |                        |                         |                      |               |             |            |                      |                      |                             |                |                                |       |       |       |                       |                                    |      |      |      |     |                     |  |
| Paddock     | 5.8                    | 4.7                     | 0.1                  | 0.02          | 0.15        | 0.70       | 9                    | 39                   | 3.0                         | 0.4            | 0.06                           | 42    | 6.91  | 0.26  | 2.6                   | 1.74                               | 0.31 | 0.08 | 0.05 | na  | 4.8                 |  |
|             |                        |                         |                      |               |             |            |                      |                      |                             |                | *0.16                          | *57.0 | *13.0 | *0.53 |                       |                                    |      |      |      |     |                     |  |
| 0-17        | 5.9                    | 4.9                     | 0.4                  | 0.03          | 0.19        | 1.01       | 7                    | 29                   | 3.1                         | 0.6            | 0.33                           | 33    | 8.14  | 0.46  | 3.0                   | 2.22                               | 0.43 | 0.06 | 0.06 | na  | 3.2                 |  |
| 17-32       | 5.6                    | 4.7                     | 0                    | 0.01          | 0.11        | 0.29       | 5                    | 27                   | 1.6                         | 0.3            | 0.06                           | 55    | 1.04  | 0.07  | 1.2                   | 0.58                               | 0.08 | 0.07 | 0.01 | na  | 5.8                 |  |
| 32-56       | 5.4                    | 4.6                     | 0                    | 0.01          | 0.11        | 0.21       | 2                    | 18                   | 1.2                         | 0.3            | 0.03                           | 63    | 0.47  | 0.07  | 1.0                   | 0.30                               | 0.04 | 0.08 | 0.01 | na  | 4.4                 |  |
| 56-96       | 6.1                    | 5.6                     | 0                    | 0.01          | 0.08        | 0.11       | 2                    | 21                   | 1.0                         | 0.3            | 0.03                           | 35    | 0.55  | 0.06  | 0.8                   | 0.44                               | 0.12 | 0.08 | 0.02 | na  | 1.9                 |  |
| 96-130      | 6.2                    | 5.8                     | 0                    | 0.01          | 0.07        | 0.09       | 2                    | 16                   | 1.0                         | 0.1            | 0.03                           | 27    | 0.94  | 0.05  | 0.8                   | 0.41                               | 0.14 | 0.08 | 0.03 | na  | 1.8                 |  |
| 130-145     | 6.7                    | 6.0                     | 0                    | 0.01          | 0.09        | 0.11       | 2                    | 22                   | 1.0                         | 0.2            | 0.06                           | 28    | 0.83  | 0.13  | 0.9                   | 0.49                               | 0.20 | 0.09 | 0.06 | na  | 1.8                 |  |
| 145-175     | 6.9                    | 6.0                     | 0                    | 0.02          | 0.08        | 0.12       | 2                    | 24                   | 1.0                         | 0.3            | 0.05                           | 22    | 0.87  | 0.06  | 1.6                   | 0.91                               | 0.39 | 0.10 | 0.02 | na  | 1.9                 |  |
| 175-190     | 7.0                    | 6.0                     | 0                    | 0.02          | 0.10        | 0.22       | 2                    | 29                   | 2.9                         | 0.4            | 0.03                           | 10    | 0.61  | 0.05  | 3.6                   | 2.25                               | 0.87 | 0.15 | 0.04 | na  | 2.0                 |  |

**Note:** Paddock sample bulked from 20 cores (0-10 cm) taken around the pit.

\* EDTA trace element analyses on "paddock" sample.

CEC (cation exchange capacity) is a measure of the soil's capacity to store and release major nutrient elements.

ESP (exchangeable sodium percentage) is not meaningful due to low CEC values.