**Project Name:** **Regional**
**Project Code:** **REG** **Site ID:** **T148** **Observation ID:** **1**
**Agency Name:** **CSIRO Division of Soils (QLD)**

## Site Information

**Desc. By:** G. Smith
**Locality:** 5.4KM west of Thirlestone turnoff on new road leading west from Yarrowmere:
**Date Desc.:** 08/09/70
**Elevation:** No Data
**Map Ref.:** Sheet No. : 8054 1:100000
**Rainfall:** 480
**Northing/Long.:** 145.55
**Runoff:** Moderately rapid
**Easting/Lat.:** -21.5333333333333
**Drainage:** Well drained

## Geology

**ExposureType:** Undisturbed soil core
**Conf. Sub. is Parent. Mat.:** No Data
**Geol. Ref.:** Qs
**Substrate Material:** Undisturbed soil core, 3.8 m deep,Sandstone

## Land Form

**Rel/Slope Class:** Undulating plains <9m 3-10%
**Pattern Type:** Plain
**Morph. Type:** Upper-slope
**Relief:** 15 metres
**Elem. Type:** Plain
**Slope Category:** No Data
**Slope:** 0 %
**Aspect:** No Data

## Surface Soil Condition (dry): Firm

## Erosion:

## Soil Classification

**Australian Soil Classification:**
Ferric Mesotrophic Red Kandosol
**ASC Confidence:**
All necessary analytical data are available.
**Mapping Unit:** N/A
**Principal Profile Form:** Gn2.14
**Great Soil Group:** Red earth

## Site Disturbance: No effective disturbance other than grazing by hoofed animals

## Vegetation:

Tall Strata - Tree, 3.01-6m, Sparse. *Species includes - Eucalyptus setosa, Grevillea species

## Surface Coarse Fragments: No surface coarse fragments

## Profile Morphology

| | | |
|---|---|---|
| A11 | 0 - 0.1 m | Dark reddish brown (5YR3/3-Moist); Brown (7.5YR5/4-Dry); ; Loamy sand (Heavy); Massive grade of structure; Dry; Very strong consistence; Common, fine (1-2mm) roots; Clear change to - |
| A2 | 0.1 - 0.2 m | Red (2.5YR4/7-Moist); Red (2.5YR5/6-Dry); ; Sandy loam (Light); Massive grade of structure; Dry; Strong consistence; Few, fine (1-2mm) roots; Gradual change to - |
| B1 | 0.2 - 0.3 m | Dark red (2.5YR3/8-Moist); Red (2.5YR5/8-Dry); ; Sandy loam; Massive grade of structure; Earthy fabric; Dry; Very strong consistence; Gradual change to - |
| B1 | 0.3 - 0.4 m | Dark red (2.5YR3/8-Moist); ; Sandy loam; Massive grade of structure; Earthy fabric; Dry; Rigid consistence; Gradual change to - |
| B21 | 0.4 - 0.5 m | Dark red (2.5YR3/8-Moist); ; Sandy clay loam (Light); Massive grade of structure; Earthy fabric; Dry; Rigid consistence; Gradual change to - |
| B21 | 0.5 - 0.6 m | Dark red (2.5YR3/8-Moist); ; Sandy clay loam; Massive grade of structure; Earthy fabric; Dry; Rigid consistence; Gradual change to - |
| B21 | 0.6 - 0.75 m | Dark red (2.5YR3/8-Moist); ; Sandy clay loam (Heavy); Massive grade of structure; Earthy fabric; Dry; Rigid consistence; Gradual change to - |
| B22 | 0.75 - 0.9 m | Dark red (2.5YR3/8-Moist); ; Sandy medium clay; Massive grade of structure; Earthy fabric; Dry; Rigid consistence; Gradual change to - |
| B22 | 0.9 - 1.05 m | Dark red (2.5YR3/8-Moist); ; Sandy medium clay; Massive grade of structure; Earthy fabric; Dry; Very strong consistence; Gradual change to - |
| B22 | 1.05 - 1.2 m | Dark red (2.5YR3/8-Moist); ; Sandy medium clay; Massive grade of structure; Earthy fabric; Dry; Very strong consistence; Gradual change to - |
| B22 | 1.2 - 1.5 m | Dark red (2.5YR3/8-Moist); ; Sandy medium clay; Massive grade of structure; Earthy fabric; Dry; Very strong consistence; Gradual change to - |
| B22 | 1.5 - 1.8 m | Dark red (2.5YR3/8-Moist); ; Sandy medium clay; Massive grade of structure; Earthy fabric; Dry; Strong consistence; Common (10 - 20 %), Argillaceous, , Nodules; Gradual change to - |

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| | |
|---|---|
| 1.8 - 2.1 m | Dark red (2.5YR3/8-Moist); ; Fine sandy clay loam (Heavy); Massive grade of structure; Very strong consistence; , Argillaceous, Very coarse (20 - 60 mm), Nodules; Gradual change to - |
| 2.1 - 2.4 m | Dark red (2.5YR3/8-Moist); ; Fine sandy clay loam; Massive grade of structure; Very strong consistence; , Argillaceous, Very coarse (20 - 60 mm), Nodules; Gradual change to - |
| 2.4 - 2.7 m | Dark red (2.5YR3/8-Moist); ; Fine sandy clay loam; Massive grade of structure; Rigid consistence; Few (2 - 10 %), Argillaceous, , Nodules; Gradual change to - |
| 2.7 - 3 m | Dark red (2.5YR3/8-Moist); ; Fine sandy clay loam (Light); Massive grade of structure; Rigid consistence; Gradual change to - |
| 3 - 3.3 m | Dark red (2.5YR3/8-Moist); ; Fine sandy clay loam; Massive grade of structure; Rigid consistence; 2-10%, Sandstone, coarse fragments; Many (20 - 50 %), Ferruginous, Coarse (6 - 20 mm), Nodules; Gradual change to - |
| 3.3 - 3.6 m | Red (2.5YR5/8-Moist); ; Fine sandy clay loam; Massive grade of structure; Rigid consistence; 0-2%, medium gravelly, 6-20mm, subrounded, Quartz, coarse fragments; Many (20 - 50 %), Ferruginous, Coarse (6 - 20 mm), Nodules; Gradual change to - |
| 3.6 - 3.75 m | Red (2.5YR5/8-Moist); ; Fine sandy clay loam; Massive grade of structure; Rigid consistence; 0-2%, medium gravelly, 6-20mm, subrounded, Quartz, coarse fragments; Many (20 - 50 %), Ferruginous, Coarse (6 - 20 mm), Nodules; Abrupt change to - |
| 3.75 - 3.8 m | ; |

## Morphological Notes

Purplish consolidated sandstone:

## Observation Notes

150-270CM PSEUDONODULES HARDENED: 4YARROWMERE

## Site Notes

YARROWMERE

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## Laboratory Test Results:

| Depth | pH | 1:5 EC | Exchangeable Cations | | | | Exchangeable Acidity | CEC | ECEC | ESP |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Ca | Mg | K | Na | | | | |
| m | | dS/m | Cmol (+)/kg | | | | | | | % |
| 0 - 0.1 | 6.4A | 0.014A | 0.85B | 0.33 | 0.06 | 0.15 | 1.7F | | 3.1F | |
| 0.1 - 0.2 | 6.4A | 0.014A | 0.75B | 0.27 | 0.05 | 0.15 | 1.3F | | 2.5F | |
| 0.2 - 0.3 | 6.3A | 0.014A | 0.85B | 0.36 | 0.03 | 0.15 | 1F | | 2.4F | |
| 0.3 - 0.4 | 6.5A | 0.014A | 0.57B | 0.39 | 0.02 | 0.15 | 0.8F | | 1.9F | |
| 0.4 - 0.5 | 6.5A | 0.011A | 0.75B | 0.53 | 0.01 | 0.16 | 1.2F | | 2.7F | |
| 0.5 - 0.6 | 6.5A | 0.011A | | | | | | | | |
| 0.6 - 0.75 | 6.6A | 0.014A | | | | | | | | |
| 0.75 - 0.9 | 6.6A | 0.017A | 1.1B | 1.1 | 0.02 | 0.16 | 1.1F | | 3.5F | |
| 0.9 - 1.05 | 6.6A | 0.011A | | | | | | | | |
| 1.05 - 1.2 | 6.5A | 0.011A | | | | | | | | |
| 1.2 - 1.5 | 6.7A | 0.011A | | | | | | | | |
| 1.5 - 1.8 | 6.5A | 0.014A | 0.75B | 1.6 | 0.04 | 0.18 | 1.2F | | 3.8F | |
| 1.8 - 2.1 | 6.6A | 0.014A | | | | | | | | |
| 2.1 - 2.4 | 6.7A | 0.014A | 0.5B | 1.7 | 0.03 | 0.19 | 1F | | 3.4F | |
| 2.4 - 2.7 | 6.8A | 0.014A | | | | | | | | |
| 2.7 - 3 | 6.8A | 0.014A | | | | | | | | |
| 3 - 3.3 | 7A | 0.011A | 0.3B | 1.4 | 0.02 | 0.2 | 0.9F | | 2.8F | |
| 3.3 - 3.6 | 7.4A | 0.011A | | | | | | | | |
| 3.6 - 3.75 | 7.5A | 0.014A | 0.2B | 0.8 | 0.02 | 0.2 | 1F | | 2.2F | |
| 3.75 - 3.8 | 7.6A | 0.014A | | | | | | | | |

| Depth | CaCO3 | Organic C | Avail. P | Total P | Total N | Total K | Bulk Density | Particle Size Analysis | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | GV | CS | FS | Silt | Clay |
| m | % | % | mg/kg | % | % | % | Mg/m3 | % | | | | |
| 0 - 0.1 | | 0.44D | 5.6B | 0.006A | 0.03A | 0.05A | | <2 | 49A | 40 | 4 | 7 |
| 0.1 - 0.2 | | 0.23D | | 0.006A | 0.02A | 0.04A | | <2 | 50A | 38 | 3 | 8 |
| 0.2 - 0.3 | | 0.27D | | 0.006A | | 0.05A | | <2 | 47A | 40 | 3 | 10 |
| 0.3 - 0.4 | | | | | | | | <2 | 47A | 40 | 3 | 10 |
| 0.4 - 0.5 | | | | | | | | <2 | 50A | 35 | 3 | 12 |
| 0.5 - 0.6 | | | | | | | | | | | | |
| 0.6 - 0.75 | | | | | | | | | | | | |
| 0.75 - 0.9 | | | | 0.005A | | 0.07A | | <2 | 42A | 30 | 3 | 25 |
| 0.9 - 1.05 | | | | | | | | | | | | |
| 1.05 - 1.2 | | | | | | | | | | | | |
| 1.2 - 1.5 | | | | | | | | | | | | |
| 1.5 - 1.8 | | | | 0.006A | | 0.08A | | 2 | 36A | 28 | 3 | 23 |
| 1.8 - 2.1 | | | | | | | | | | | | |
| 2.1 - 2.4 | | | | | | | | 2 | 39A | 24 | 3 | 35 |
| 2.4 - 2.7 | | | | | | | | | | | | |
| 2.7 - 3 | | | | | | | | | | | | |
| 3 - 3.3 | | | | | | | | 28 | 42A | 33 | 3 | 22 |
| 3.3 - 3.6 | | | | | | | | | | | | |
| 3.6 - 3.75 | | | | | | | | 28 | 57A | 27 | 2 | 14 |
| 3.75 - 3.8 | | | | | | | | | | | | |

| Depth | COLE | Gravimetric/Volumetric Water Contents | | | | | | | K sat | K unsat |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Sat. | 0.05 Bar | 0.1 Bar | 0.5 Bar | 1 Bar | 5 Bar | 15 Bar | | |
| m | | g/g - m3/m3 | | | | | | | mm/h | mm/h |
| 0 - 0.1 | | | | | | | | | | |

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0.1 - 0.2
0.2 - 0.3
0.3 - 0.4
0.4 - 0.5
0.5 - 0.6
0.6 - 0.75
0.75 - 0.9
0.9 - 1.05
1.05 - 1.2
1.2 - 1.5
1.5 - 1.8
1.8 - 2.1
2.1 - 2.4
2.4 - 2.7
2.7 - 3
3 - 3.3
3.3 - 3.6
3.6 - 3.75
3.75 - 3.8

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**Laboratory Analyses Completed for this profile**

| | |
|---|---|
| 10A1 | Total sulfur - X-ray fluorescence |
| 12_HF_CU | Total element - Cu(mg/kg) - HF/HClO4 Digest |
| 12_HF_FE | Total element - Fe(%) - HF/HClO4 Digest |
| 12_HF_MN | Total element - Mn(mg/kg) - HF/HClO4 Digest |
| 12_HF_ZN | Total element - Zn(mg/kg) - HF/HClO4 Digest |
| 13C1_FE | Citrate/dithionite-extractable iron, aluminium, Manganese and Silicon |
| 15A2_CA | Exchangeable bases (Ca2+,Mg2+,Na+,K+) - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts |
| 15A2_K | Exchangeable bases- 1M ammonium chloride at pH 7.0, pretreatment for soluble salts |
| 15A2_MG | Exchangeable bases- 1M ammonium chloride at pH 7.0, pretreatment for soluble salts |
| 15A2_NA | Exchangeable bases- 1M ammonium chloride at pH 7.0, pretreatment for soluble salts |
| 15G_C | Exchange acidity (hydrogen and aluminium) - meq per 100g of soil - By 1M KCl exch. acidity by titration to pH 8.4 |
| 15J1 | Effective CEC |
| 17A1 | Total potassium - X-ray fluorescence |
| 3A1 | EC of 1:5 soil/water extract |
| 4A1 | pH of 1:5 soil/water suspension |
| 6A1_UC | Organic carbon (%) - Uncorrected Walkley and Black method |
| 7A2 | Total nitrogen - semimicro Kjeldahl , automated colour |
| 9A1 | Total phosphorus - X-ray fluorescence |
| 9G_BSES | Available P (mg/kg) - Acid P - 0.005M H2SO4 (BSES) |
| MIN_EC | Exchange Capacity - Minerology |
| P10_CF_C | Clay (%) - Coventry and Fett pipette method |
| P10_CF_CS | Coarse sand (%) - Coventry and Fett pipette method |
| P10_CF_FS | Fine sand (%) - Coventry and Fett pipette method |
| P10_CF_Z | Silt (%) - Coventry and Fett pipette method |
| P10_GRAV | Gravel (%) |
| XRD_C_Il | Illite - X-Ray Diffraction |
| XRD_C_Is | Interstratified clay minerals - X-Ray Diffraction |
| XRD_C_K2O | K2O - X-Ray Diffraction or Clay Fraction (air dry) |
| XRD_C_Ka | Kaolin - X-Ray Diffraction |
| XRD_C_Qz | Quartz - X-Ray Diffraction |