

**Project Name:** Preliminary Assessment and Survey of Land Degradation in the Dalrymple Shire, QLD  
**Project Code:** DLR **Site ID:** T513 **Observation ID:** 1  
**Agency Name:** QLD Department of Primary Industries

#### Site Information

|                        |                      |                   |                         |
|------------------------|----------------------|-------------------|-------------------------|
| <b>Desc. By:</b>       | M.G. Cannon          | <b>Locality:</b>  |                         |
| <b>Date Desc.:</b>     | 04/12/91             | <b>Elevation:</b> | 367 metres              |
| <b>Map Ref.:</b>       | Sheet No. : 8258 GPS | <b>Rainfall:</b>  | No Data                 |
| <b>Northing/Long.:</b> | 7791014 AMG zone: 55 | <b>Runoff:</b>    | Very slow               |
| <b>Easting/Lat.:</b>   | 456698 Datum: AGD66  | <b>Drainage:</b>  | Moderately well drained |

#### Geology

|                      |         |                                    |   |
|----------------------|---------|------------------------------------|---|
| <b>ExposureType:</b> | No Data | <b>Conf. Sub. is Parent. Mat.:</b> | No Data                                     |
| <b>Geol. Ref.:</b>   | S-Dr    | <b>Substrate Material:</b>         | Undisturbed soil core, 0.83 m deep, Diorite |

#### Land Form

|                         |                                   |                        |            |
|-------------------------|-----------------------------------|------------------------|------------|
| <b>Rel/Slope Class:</b> | Gently undulating plains <9m 1-3% | <b>Pattern Type:</b>   | Low hills  |
| <b>Morph. Type:</b>     | Mid-slope                         | <b>Relief:</b>         | No Data    |
| <b>Elem. Type:</b>      | Plain                             | <b>Slope Category:</b> | Level      |
| <b>Slope:</b>           | 1 %                               | <b>Aspect:</b>         | 10 degrees |

**Surface Soil Condition (dry):** Cracking, Self-mulching

#### Erosion:

#### Soil Classification

|  |  |                                |             |
|--|--|--------------------------------|-------------|
| <b>Australian Soil Classification:</b>   |  | <b>Mapping Unit:</b>           | N/A         |
| Haplic Self-Mulching Black Vertosol Non-gravelly Medium fine Medium fine Moderately deep |  | <b>Principal Profile Form:</b> | Ug5.12      |
| <b>ASC Confidence:</b>   |  | <b>Great Soil Group:</b>       | No suitable |

All necessary analytical data are available.

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

**Vegetation:** Low Strata - Tussock grass, 0.26-0.5m, Mid-dense. \*Species includes - Bothriochloa pertusa, Heteropogon contortus,

Bothriochloa ewartiana Mid Strata - , , . \*Species includes - None recorded

Tall Strata - Tree, 3.01-6m, Sparse. \*Species includes - Eucalyptus erythrophloia

**Surface Coarse Fragments:** No surface coarse fragments

#### Profile Morphology

|     |               |   |
|-----|---------------|---|
| A1  | 0 - 0.08 m    | Dark brown (7.5YR3/2-Moist); ; Medium clay; Strong grade of structure, 10-20 mm, Angular blocky; Strong grade of structure, 2-5 mm, Angular blocky; Smooth-ped fabric; Dry; Very strong consistence; 2-10%, fine gravelly, 2-6mm, subrounded, dispersed, Quartz, coarse fragments; , Calcareous, , , , Gypseous, , , ; Field pH 7.5 (Raupach, 0.05); Abundant, very fine (0-1mm) roots; Clear change to -   |
| B21 | 0.08 - 0.44 m | Dark reddish brown (5YR3/2-Moist); ; Medium heavy clay; Strong grade of structure, 20-50 mm, Angular blocky; Strong grade of structure, 5-10 mm, Angular blocky; Smooth-ped fabric; Dry; Rigid consistence; 2-10%, fine gravelly, 2-6mm, subrounded, dispersed, Quartz, coarse fragments; Common cutans, 10-50% of ped faces or walls coated, prominent; , Calcareous, , , , Gypseous, , , ; Field pH 7.5 (Raupach, 0.35); Common, coarse (>5mm) roots; Diffuse change to - |
| B22 | 0.44 - 0.75 m | Dark reddish brown (5YR2/2-Moist); ; Medium heavy clay; Strong grade of structure, 50-100 mm, Lenticular; Strong grade of structure, 10-20 mm, Angular blocky; Smooth-ped fabric; Dry; Very strong consistence; 2-10%, fine gravelly, 2-6mm, subrounded, dispersed, Substrate material, coarse fragments; Many cutans, >50% of ped faces or walls coated, prominent; , Calcareous, , , , Gypseous, , , ; Field pH 9 (Raupach, 0.55); Common, coarse (>5mm) roots; Clear     |
| BC  | 0.75 - 0.83 m | Dark reddish brown (5YR3/3-Moist); ; Medium heavy clay; Strong grade of structure, 20-50 mm, Angular blocky; Smooth-ped fabric; Dry; Very strong consistence; 10-20%, fine gravelly, 2-6mm, subrounded, dispersed, Substrate material, coarse fragments; , Calcareous, , , , Gypseous, , , ; Soil matrix is Moderately calcareous; Field pH 9.5 (Raupach, 0.8);   |
| C   | 0.83 - 1 m    | ; Weak consistence; 20-50%, fine gravelly, 2-6mm, subrounded, dispersed, Diorite, coarse fragments; , Calcareous, , , , Gypseous, , , ; Soil matrix is Moderately calcareous; Field pH 9.5 (Raupach, 0.9);  |

#### Morphological Notes

#### Observation Notes

DLR1019

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**Laboratory Test Results:**

| Depth       | pH    | 1:5 EC | Exchangeable Cations |      |      |             | CEC                  | ECEC  | ESP  |
|-------------|-------|--------|----------------------|------|------|-------------|----------------------|-------|------|
| m           |       | dS/m   | Ca                   | Mg   | K    | Na          | Exchangeable Acidity |       | %    |
|             |       |        |                      |      |      | Cmol (+)/kg |                      |       |      |
| 0 - 0.08    | 7.35A | 0.03A  | 31B                  | 16   | 1    | 0.21        |                      | 44.4I | 0.47 |
|             |       |        | 28.5J                | 13.2 | 0.25 | 0.03        |                      |       | 0.07 |
| 0.08 - 0.44 | 7.57A | 0.03A  | 31J                  | 13.8 | 0.04 | 0.04        |                      | 49.5D | 0.08 |
|             |       |        |                      |      |      |             |                      | 46.1I | 0.09 |
| 0.44 - 0.75 | 8.39A | 0.11A  | 50B                  | 17   | 0.62 | 0.54        |                      |       |      |
| 0.75 - 0.83 | 8.68A | 0.11A  |                      |      |      |             |                      |       |      |
| 0.83 - 1    | 8.77A | 0.08A  | 21.1J                | 8.94 | 0.02 | 0.09        |                      | 27.3I | 0.33 |

| Depth       | CaCO3 | Organic | Avail. | Total  | Total | Total  | Bulk    | Particle |     | Size | Analysis |      |
|-------------|-------|---------|--------|--------|-------|--------|---------|----------|-----|------|----------|------|
| m           | %     | C       | P      | P      | N     | K      | Density | GV       | CS  | FS   | Silt     | Clay |
|             |       | %       | mg/kg  | %      | %     | %      | Mg/m3   |          |     | %    |          |      |
| 0 - 0.08    | 0.1A  | 1.5B    |        | 0.033A | 0.06A | 0.311A |         |          | 13A | 18   | 13       | 56   |
| 0.08 - 0.44 |       | 1.1B    |        |        |       |        |         |          | 12A | 17   | 12       | 59   |
| 0.44 - 0.75 |       |         |        |        |       |        |         |          |     |      |          |      |
| 0.75 - 0.83 |       |         |        |        |       |        |         |          |     |      |          |      |
| 0.83 - 1    |       | 36A     |        |        |       |        |         |          | 32  | 12   | 20       |      |

[illegible]

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**Laboratory Analyses Completed for this profile**

|           |  |
|-----------|--|
| 10A1      | Total sulfur - X-ray fluorescence  |
| 10B       | Extractable sulfur(mg/kg) - Phosphate extractable sulfur   |
| 12A1_CU   | DTPA - extractable copper, zinc, manganese and iron  |
| 12A1_FE   | DTPA - extractable copper, zinc, manganese and iron  |
| 12A1_MN   | DTPA - extractable copper, zinc, manganese and iron  |
| 12A1_ZN   | DTPA - extractable copper, zinc, manganese and iron  |
| 13A1_FE   | Oxalate-extractable iron   |
| 15A2_CA   | Exchangeable bases (Ca <sup>2+</sup> ,Mg <sup>2+</sup> ,Na <sup>+</sup> ,K <sup>+</sup> ) - 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   |
| 15D2_CEC  | CEC - 1M ammonium acetate at pH 7.0, pretreatment for soluble salts; automatic extractor   |
| 15F1_CA   | Exchangeable bases by 0.01M silver-thiourea (AgTU)+, no pretreatment for soluble salts   |
| 15F1_K    | Exchangeable bases by 0.01m (AgTU)+, no pretreatment for soluble salts   |
| 15F1_MG   | Exchangeable bases by 0.01m (AgTU)+, no pretreatment for soluble salts   |
| 15F1_NA   | Exchangeable bases by 0.01m (AgTU)+, no pretreatment for soluble salts   |
| 15F3      | CEC by 0.01M silver-thiourea (AgTU)+   |
| 15N1      | Exchangeable sodium percentage (ESP)   |
| 17A1      | Total potassium - X-ray fluorescence   |
| 19A1      | Carbonates - rapid titration   |
| 3A1       | EC of 1:5 soil/water extract   |
| 4A1       | pH of 1:5 soil/water suspension  |
| 5A1       | Chloride - 1:5 soil/water extract, potentiometric titration  |
| 6B2       | Total organic carbon - high frequency induction furnace, volumetric  |
| 7A2       | Total nitrogen - semimicro Kjeldahl , automated colour   |
| 9A1       | Total phosphorus - X-ray fluorescence  |
| 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  |