

Project Name: SCEAM - Soil Condition Evaluation & Monitoring Project, Tasmania
Project Code: SCEAM **Site ID:** S12 **Observation ID:** 1
Agency Name: TAS Department of Primary Industries and Fisheries

Site Information

| | | | |
|------------------------|----------------------|-------------------|--------------------------------------|
| Desc. By: | R. Moreton | Locality: | Property: Springfield, near Richmond |
| Date Desc.: | 23/03/06 | Elevation: | 54 metres |
| Map Ref.: | GPS S.A. Off | Rainfall: | 512 |
| Northing/Long.: | 5269432 AMG zone: 55 | Runoff: | Rapid |
| Easting/Lat.: | 531633 Datum: GDA94 | Drainage: | Imperfectly drained |

Geology

| | | | |
|----------------------|----------|------------------------------------|--------------------|
| ExposureType: | Soil pit | Conf. Sub. is Parent. Mat.: | Probable |
| Geol. Ref.: | Qa | Substrate Material: | Soil pit, Alluvium |

Landform

| | | | |
|-------------------------|-----------------------------|------------------------|-----------------|
| Rel/Slope Class: | Undulating plains <9m 3-10% | Pattern Type: | Hills |
| Morph. Type: | Lower-slope | Relief: | No Data |
| Elem. Type: | Hillslope | Slope Category: | Gently inclined |
| Slope: | 10 % | Aspect: | 35 degrees |

Surface Soil Condition Loose

Erosion

Soil Classification

| | | | |
|--|--|--------------------------------|-----|
| Australian Soil Classification: | Eutrophic Mottled-Subnatric Brown Sodosol Thick Slightly gravelly Clay-loamy Clayey Deep | Mapping Unit: | N/A |
| | | Principal Profile Form: | N/A |

| | | | |
|------------------------|--|--------------------------|-----|
| ASC Confidence: | All necessary analytical data are available. | Great Soil Group: | N/A |
|------------------------|--|--------------------------|-----|

Site Disturbance

Vegetation

Surface Coarse Fragments 2-10%, cobbly, 60-200mm, ,

Profile Morphology

| | | |
|------|---------------|--|
| Ap | 0 - 0.18 m | Dark brown (10YR3/3-Moist); Brown (10YR5/3-Dry); Mottles, 7.5YR46, 2-10% , 0-5mm, Faint; Fine |
| | | sandy clay loam; Moderate grade of structure, 100-200 mm, Polyhedral; Moderate grade of structure, |
| | | 100-200 mm, Subangular blocky; Earthy fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Fine (1- |
| | | 2mm) macropores, Dry; Very firm consistence; Slightly plastic; Normal plasticity; Slightly sticky; 2-10%, |
| | | cobbly, 60-200mm, subrounded, dispersed, Sandstone, coarse fragments; Few, very fine (0-1mm) roots; |
| | | Clear, Smooth change to - |
| A21 | 0.18 - 0.27 m | Dark yellowish brown (10YR3/6-Moist); Dark yellowish brown (10YR3/4-Dry); Mottles, 5YR46, 0-2% , 0- |
| | | 5mm, Prominent; Sandy clay loam; Moderate grade of structure, 20-50 mm, Columnar; |
| | | Earthy fabric; |
| | | Medium, (5 - 10) mm crack; Few (<1 per 100mm2) Medium (2-5mm) macropores, Dry; |
| | | Very firm consistence; Slightly plastic; Normal plasticity; Slightly sticky; Clear, Smooth change to - |
| A22 | 0.27 - 0.45 m | Dark yellowish brown (10YR4/6-Moist); Dark yellowish brown (10YR4/4-Dry); , 0-0% ; |
| | | Weak grade of structure, 10-20 mm, Angular blocky; Earthy fabric; Fine, (0 - 5) mm crack; Moderately moist; Firm |
| | | consistence; Moderately plastic; Normal plasticity; Moderately sticky; Clear, Smooth change to - |
| B21t | 0.45 - 0.6 m | Yellowish brown (10YR5/4-Moist); Dark yellowish brown (10YR4/4-Dry); , 0-0% ; Light |
| | | clay; Massive grade of structure; Earthy fabric; Fine, (0 - 5) mm crack; Moderately moist; Firm |
| | | consistence; Very plastic; Normal plasticity; Very sticky; Gradual, Irregular change to - |
| B22t | 0.6 - 0.8 m | Light olive brown (2.5Y5/4-Moist); Olive brown (2.5Y4/4-Dry); Mottles, 5Y62, 10-20% , 5- |
| | | 15mm, Distinct; Light clay; Weak grade of structure, 20-50 mm, Angular blocky; Weak grade of structure, |

5-10 mm,
Very plastic;
- 10 %), Other,

Angular blocky; Earthy fabric; Fine, (0 - 5) mm crack; Moderately moist; Firm consistence;
Superplastic; Very sticky; Few cutans, <10% of ped faces or walls coated, distinct; Few (2
Very coarse (20 - 60 mm), Soft segregations; Gradual, Smooth change to -

B3t 0.8 - 1.2 m Dark yellowish brown (10YR4/6-Moist); Yellowish brown (10YR5/6-Dry); Mottles, 2.5Y64,
10-20% , 0-
5mm, Distinct; Light clay; Massive grade of structure; Earthy fabric; Moderately moist;
Very firm
consistence; Moderately plastic; Normal plasticity; Very sticky; Few (2 - 10 %), Other,
Very coarse (20 -
60 mm), Veins;

Morphological Notes

A22 Soil sampled 27-45cm labelled C12C
B21t Soil sampled 45-60cm, labelled C12D. Felt soapy, suspected to be sodic. Wait for chem
results
B22t Soil sampled 60-80cm labelled C12E. Felt soapy, suspected to be sodic. Wait for chem
results
B3t Soil sampled 80-110 labelled C12F. Felt soapy, suspected to be sodic. Wait for chem
results

Observation Notes

Inundation Frequency" No inundation. Vegetation: Ex Barley Crop, stubble and trash remaining. Top soils was
formed from sandstone
sediments??. B horizon from Clay sediments. Substrate not reached. Suspect Profile to be calcarous.

Site Notes

Mode of geomorphic activity: Eroded or aggraded, with sheet wash the geomorphic agent.

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Laboratory Test Results:

| Depth | pH | 1:5 EC | Ca | Exchangeable Cations | Na | Exchangeable | CEC | ECEC | ESP |
|-------------|--------------|--------|-------|----------------------|-------------|--------------|-------------------------|--------|-----|
| m | | dS/m | | Mg K | Cmol (+)/kg | Acidity | | | % |
| 0 - 0.075 | 5.3C 6A | 0.072A | 6.77A | 7.4 | 0.35 | 0.34 | 0.18D 0.03G 0.26A | 15.12B | |
| 0.1 - 0.2 | 7.1C 8A | 0.311A | 3.55A | 17.8 | 0.25 | 2.93 | 0.01D 0G 0.02A | 24.55B | |
| 0.2 - 0.275 | 6.7C 7.2A | 0.111A | 7.65A | 14.01 | 0.29 | 1.04 | 0.02D 0G 0.04A | 23.03B | |
| 0.34 - 0.65 | 7.8C 8.7A | 0.468A | 3.87A | 23.8 | 0.38 | 4.78 | 0.01D 0G 0.02A | 32.85B | |
| 0.65 - 0.8 | 8.1C 8.7A | 0.783A | 2.57A | 20.2 | 0.46 | 5.37 | 0.01D 0G 0.02A | 28.62B | |
| 0.8 - 1.2 | 7.9C 8.6A | 0.736A | 1.58A | 15.66 | 0.48 | 5.08 | 0.01D 0G 0.02A | 22.82B | |

| Depth | CaCO3 | Organic C | Avail. P | Total P | Total N | Total K | Bulk Density | Particle Size Analysis |
|-----------|-------|-----------|----------|---------|---------|---------|--------------|------------------------|
| m | % | Clay % | mg/kg | % | % | % | Mg/m3 | GV CS FS Silt |
| 0 - 0.075 | | 2.11B | 86H | | 0.16D | | | |

| | | | |
|-------------|-------|---------------------|-------|
| 0.1 - 0.2 | 0.51B | 38.6I 6H 2.7I | 0.09D |
| 0.2 - 0.275 | 1.26B | 23H 5.9I | 0.1D |
| 0.34 - 0.65 | 0.44B | 2H 1.1I | 0.05D |
| 0.65 - 0.8 | 0.17B | -1H 0.4I | 0.02D |
| 0.8 - 1.2 | 0.09B | 2H 0.9I | 0.04D |

Laboratory Analyses Completed for this profile

| | |
|------------------------|---|
| 10B_NR | Extractable sulfur (mg/kg) - Not recorded |
| 12_NR_FE | Total element - Fe(%) - Not recorded |
| 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 |
| 12C1 | Calcium chloride extractable boron - manual colour |
| 15_NR_AL | Aluminium Cation - meq per 100g of soil - Not recorded |
| 15_NR_H | Hydrogen Cation - meq per 100g of soil - Not recorded |
| 15A1_CA for soluble | Exchangeable bases (Ca ²⁺ ,Mg ²⁺ ,Na ⁺ ,K ⁺) - 1M ammonium chloride at pH 7.0, no pretreatment |
| | salts |
| 15A1_K for soluble | Exchangeable bases (Ca ²⁺ ,Mg ²⁺ ,Na ⁺ ,K ⁺) - 1M ammonium chloride at pH 7.0, no pretreatment |
| | salts |
| 15A1_MG for soluble | Exchangeable bases (Ca ²⁺ ,Mg ²⁺ ,Na ⁺ ,K ⁺) - 1M ammonium chloride at pH 7.0, no pretreatment |
| | salts |

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| 15A1_NA for soluble | Exchangeable bases (Ca ²⁺ , Mg ²⁺ , Na ⁺ , K ⁺) - 1M ammonium chloride at pH 7.0, no pretreatment salts |
| 15G_C_AL2 By AAS | Exchangeable aluminium - meq per 100g of soil - Aluminium By KCl extraction and determination |
| 15G1 | Exchange acidity (hydrogen and aluminium) by 1M potassium chloride |
| 15J_H | Sum of Ex. cations + Ex. acidity - Sum of basic exch. cations and exch. (Hydrogen) |
| 15N1 | Exchangeable sodium percentage (ESP) |
| 18A1 | Bicarbonate-extractable potassium |
| 3A1 | EC of 1:5 soil/water extract |
| 4A1 | pH of 1:5 soil/water suspension |
| 4B2 | pH of 1:5 soil/0.01M calcium chloride extract - following Method 4A1 |
| 6B2 | Total organic carbon - high frequency induction furnace, volumetric |
| 7A5 | Total nitrogen - high frequency induction furnace, thermal conductivity |
| 7C1a | Ammonium-N, in presence or absence of nitrite |
| 7C1b | (Nitrate+nitrite)-N, in presence of nitrite |
| 9B2_COL longer | Bicarbonate-extractable phosphorus - automated colour. Based on Colwell (1965). Method no |
| | recommended |
| 9C2 | Olsen-extractable phosphorus - automated colour |