Project Name:	SOIL STRUCTU	RE & MANA	AGEMENT
Project Code:	SSM	Site ID:	SSM109
Agency Name:	CSIRO Division	of Soils (A	CT)

Observation ID: 1

Site Information P. Gassler Locality: Elevation: 458 metres Date Desc: 05/02/91 Elevation: 458 metres Map Ref.: Sheet No.: 8529 1:25000 Rainfall: No Data NorthingLong: 6186600 AMG zone: 55 Runoff: Slow EastingLat: 604500 Datum: AGD66 Drainage: Impercent Mat: Probable Geology Endisturbed soil core Conf. Sub. is Parent. Mat: Probable Geology Substrate Material: No Data Function Slope Category: No Data Subrace Soil Condition (dry): Cracking Cracking Soil Classification Aspect: 180 degrees Suif Classification: Mapping Unit: N/A Australian Soil Classification: Mapping Unit: N/A Confidence level not specified Great Soil Group: Chocolate soil Stite Disturbance: Complet level not specified Sand: Group: Chocolate soil Stite Disturbance: Complet level not specified Sine Disturbance; Few (ring (10/R3/2-Moist); Sandy loam; Meak grade of structure, 5-10 mm,	-	-		•	-					
Map Ref.: Sheet No.: 8529 1:25000 Rainfall: No Data Northing/Lat: 604500 Datum: AGD66 Drainage: Imperfectly drained Geology Exposure Type: Undisturbed soil core Conf. Sub, is Parent. Mat.: Probable Geol. Ref.: Sub Sub Pattern Type: Low hills No Data Morph. Type: Upper-slope Relif: No Data Sub Sub Slope: Soil Crassification Aspect: 180 degrees Sub Surface Soil Condition (dry): Cracking Grast Soil Grassification: Mapping Unit: N/A ASC Confidence: Grast Soil Grassification: Mapping Unit: N/A Surface Soil Conditione: Grast Soil Grassification: Mapping Unit: N/A Surface Coarse Fragments: Principal Profile Form: D53.12 ASC Confidence: Comfidence Ievel not specified Surface Soil Coarse Fragments: Profile Morpholoay A 0 - 0.17 m Very dark greyish brown (10YR3/2-Moist); Sandy loam; Weak grade of structure, 5-10 mm, rounded, dispersed, coarse fragments: Common, very fine (0-1mm) roots; Few, fine	Desc. B	By:	P. Ge		•	450				
Northing/Long: 6186600 AMG 200: AMG 200: Bit Runoff: Slow Easting/Lat.: 604500 Datum:: AGD66 Drainage: Imperfectly drained Geology ExposureType: Undisturbed soil core Conf. Sub. is Parent. Mat.: Probable Geol, Ref.: Sub Substrate Material: No Data No Data Hex/Slope Class: No Data Relief: No Data Slope: 5 % Aspect: 180 degrees Surface Soil Condition (dry): Cracking Francipal Profile Form: D53.12 Confidence: Great Soil Group: Chocolate soil Chocolate soil Surface Coarse Fragments: Principal Profile Form: D53.12 ASC Confidence: Great Soil Group: Chocolate soil Surface Coarse Fragments: Complete clearing. Pasture, native or improved, but never cultivated Yegetation: Soil (10 mm crack; Purifile Morphology A 0 - 0.17 m Very dark greyish brown (10YR3/2-Moist): Sandy loam; Weak grade of structure, 5-10 mm, Granular, Lenticular, Rough-ped fabric, Fine, (0 - 5) mm crack; Medium, (5 + 10) mm crack; Common (1-5 per 100mm2) Very fine (0.075-tmm) macropores, Dry Firm consistence; Non-plastic; Non-stick; 0: 0: %, fin							es			
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Exposure Type: Undisturbed soil core Conf. Sub. is Parent. Mat: Probable Geol. Ref.: Sub Substrate Material: No Data Rel/Slope Class: No Data Pattern Type: Low hills Morph. Type: Upper-slope Relief: No Data Slope: Sige Category: No Data Slope: Soil Classification: Mapping Unit: N/A Australian Soil Classification: Mapping Unit: N/A Asc Confidence: Great Soil Group: Chocolate soil Confidence level not specified Site Disturbance: Confidence: Surface Coarse Fragments: Profile Morphology Vergetation: Surface Coarse Fragments: Profile Morphology Very dark greyish brown (10YR3/2-Moist); Sandy loam; Weak grade of structure, 5-10 mm, Granular, Lenticular, Rough-ped fabric, Fine, (0-5) mm crack, Medium, (5-10) mm crack; Common (1-5 per 100mm2) Very line (0.075-timm) macropores, Few (<1 per 100mm2) Fine (2-20mm) roots; Few, Ine (1-2mm) macropores, Few (<1 per 100mm2) Fine (2-20mm) roots; Few, Ine (1-2mm) macropores, Few (<1 per 100mm2) Fine (1-2mm) macropores, Common (1-5 per 100mm2) Very line (0.075-timm) macropores, Few (<1 per 100mm2) Fine (1-2mm) macropores, Coarse Fragments, Common, very line (0-10mm) roots; Few, Ine (0-25-timm) roots; Few, Ine (1-2mm) macropores, Moderateg rade of structure		•	0045	00 Datum: AGD00	Diamaye.	Impened	liy uraine	eu		
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Land Form Rel/Slope Class: No Data Pattern Type: Low hills Low hills Morph. Type: Elem. Type: Slope Class: Millslope Pattern Type: Slope Classification No Data Slope: Surface Soil Condition (dry): Soil Classification Cracking N/A Australian Soil Classification: Soil Classification Mapping Unit: Mapping Unit: Soil Classification N/A Australian Soil Classification: Soil Classification: Confidence: Confidence: Confidence: Confidence: Complete clearing. Pasture, native or improved, but never cultivated Vegetation: Surface Coarse Fragments: Profile Morphology A 0 - 0.17 m Very dark greyish brown (10YR3/2-Moist); Sandy loam; Weak grade of structure, 5-10 mm, Granular, Lenticular; Rough-ped fabric; Fine, (0 - 5) mm crack; Medium, (5 - 10) mm crack; Common (1-5 per 100mm2) Fine; Sumface Coarse Fragments: Profile Morphology A 0 - 0.17 m Very dark greyish brown (10YR3/2-Moist); Sandy loam; Weak grade of structure, 5-10 mm, Granular, Lenticular; Rough-ped fabric; Fine, (0 - 5) mm crack; Medium, (5 - 10) mm crack; Common (1-5 per 100mm2) Fine (1-2mm) macropres, Few (-1 Pdm) moots; Few, medium (2-5mm) nots; Few, medium, (5 - 10) mm crack; Common rounded, dispersed, coarse fragments; Common (1-5 per 100mm2) Fine (1-2mm) macropres, Few (-1 Pdm) moots; Few, medium, (5 - 10) mm crack; Kedium, (5 - 10) mm crack; Red(ium, (5 - 10) mm crack; Shorpt), Shorpt, Sho				sturded soll core						
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Morph. Type: Upper-slope Relief: No Data Stope: 5 % Aspect: 180 degrees Surface:: 5 % Mapping Unit: N/A Etrosion:: Soli Classification: Mapping Unit: N/A Asc::: Confidence: Great Soil Group: Chocolate soil Confidence:: Confidence: Confidence: Chocolate: Sufface:: Complete clearing: Pasture, native or improved, but never cultivated Vegetation: Sufface:: Corning (1-5 per 100mm2) Verp fine (0.075-1mm) macropores, Few (<1-per 100mm2) Fine (2mm) macropores, Dry; Firm:: Confidence (1-2mm) macropores, Prev (-1 per 100mm2) Fine (2-2mm) macropores, Prev (-1 per 100mm2) Verp fine (0.075-1mm) macropores; Few (-1 per 100mm2) Fine (2-2mm) macropores, Dry; Firm:: Confidence (1-2mm) foots; Few, fine (1-2mm) macropores, Common, verp fine (0-1mm) roots; Few, fine (1-2mm) macropores, Prev (-1 per 100mm2) Fine (2-3mm) macropores, Dry; Firm:: Sum (2-5 mm) Granular: AB 0.17 - 0.36 m Dark brown (7.5YR3/4-Moist); Silly clay loam: Moderate										
Elemin. Typie: Hillslope Stope: 5 % Aspect: 180 degrees Stope: 5 % Aspect: 180 degrees Sufface Soil Condition (dry): Cracking Erosion: Soil Classification Australian Soil Classification: Mapping Unit: N/A Eutrophic Brown Chromosol Principal Profile Form: Db3.12 ASC Confidence: Great Soil Group: Chocolate soil Confidence: Complete clearing. Pasture, native or improved, but never cultivated Vegetation: Surface Coarse Fragments: Profile Morphology A 0 - 0.17 m Very dark greyish brown (10YR3/2-Moist); Sandy loam; Weak grade of structure, 5-10 mm, Granular, Lenicular; Rough-ped fabric; Fine, (0 - 5) mm crack; Medium, (5 - 10) mm crack; Common (1-5 per 100mm2) Very fine (0.075-1mm) macropores, Few (s1 per 100mm2) Fine; 2mm) macropores, Dry; Firm consistence: Non-plastic; Non-sticky; 0-2%, fine gravelly, 2-6mm routed, dispersed, coarse fragments; Common, very fine (0-1mm) motos; Few, fine (1-2mm) macropores, Dry; Firm consistence; Slighty plastic; Non-sticky; Common, very fine (0-1mm) roots; Few, medium (2-5mm) motos; Abrupt, Smooth change to - AB 0.17 - 0.36 m Dark brown (7.5YR3/4-Moist); Sily clay loam; Moderate grade of structure, 2-5 mm, Granular, Lenicular; Rough-ped fabric; Yery ocarse, (10 - 20 mm, rack; Few (c1 pe 100mm2) Fine (1-2mm) macropores, Dry; firm consistence; Moderately pabstic; Non-sticky; Common, very fine (0-1mm)		•			••					
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Surface Soil Condition (dry): Cracking Frosion: Soil Classification Australian Soil Classification: Mapping Unit: N/A Eutrophic Brown Chromosol Principal Profile Form: Db3.12 ASC Confidence: Great Soil Group: Chocolate soil Confidence: Complete clearing. Pasture, native or improved, but never cultivated Vegetation: Surface Coarse Fragments: Profile Morphology A 0 - 0.17 m Very dark greyish brown (10YR3/2-Moist); Sandy loam; Weak grade of structure, 5-10 mm, Granular, Lenticular; Rough-ped fabric; Fine, (0 - 5) mm crack; Medium, (5 - 10) mm crack; Common (1-5 per 100mm2) Very fine (0.075-1mm) macropores, Few (<1 per 100mm2) Fine; mm macropores, Dry, Firm consistence: Non-plastic; Non-sticky; 0-2%, fine gravelly, 2-6mm rounded, dispersed, coarse fragments; Common, very fine (0-1mm) roots; Few, fine (1-2mm) macropores, Dry, Firm consistence: Non-plastic; Non-sticky; Common, very fine (0-1mm) roots; Few, fine (1-2mm) macropores, Dry, Firm consistence; Sidphy plastic; Non-sticky; Common, very fine (0-1mm) macropores, Dry, Firm consistence; Sidphy plastic; Non-sticky; Common, very fine (0-1mm) macropores, Dry, Firm consistence; Sidphy plastic; Non-sticky; Common, very fine (0-1mm) macropores, Dry, Firm (onsistence; Udorately plastic; Moderatel grade of structure, 2-5 mm, Granular, Lenicular; Rough-ped fabric; Yery coarse, (20 - 50) mm crack; Coarse, (10 - 20) mm crack; Medium, (6 - 10) mm crack; Few (e1 per 100mm2) Fine (1-2mm) macropores, Dry, Firm consistence; Moderatel grade of structure, 2-5 mm, Subangular blocky, Program, Pristencisconderately plastic; Moderately rade of stru		ype:		ope						
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Eutrophic Brown Chromosol Principal Profile Form: Db3.12 ASC Confidence: Great Soil Group: Chocolate soil Confidence level not specified Site Disturbance: Concolate soil Surface Coarse Fragments: Profile Morphology A 0 - 0.17 m Very dark greyish brown (10YR3/2-Moist); Sandy loam; Weak grade of structure, 5-10 mm, Granular; Lenticular, Rough-ped fabric; Fine, (0 - 5) mm crack; Medium, (5 - 10) mm crack; Common (1-5 per 100mm2) Very fine (0.075-1mm) macropores, Few (-1 per 100mm2) Fae, Mon-plastic; Non-sticky; 0-2%, fine gravelly, 2-6mm routs, dispersed, coarse fragments; Common, very fine (0-1mm) roots; Few, fine (1-2mm) noots; Few, medium (2-5mm) roots; Abrupt, Smooth change to - AB 0.17 - 0.36 m Dark brown (7.5YR3/4-Moist); Silty clay loam; Moderate grade of structure, 2-5 mm, Granula Lenticular; Rough-ped fabric; Fine, (0 - 5) mm crack; Medium, (5 - 10) mm crack; Few, fine (1-2mm) macropores, Dry; Firm consistence; Silghtly plastic; Non-sticky; Common, very fine (0-1mm) macropores, Dry; Firm consistence; Silghtly plastic; Non-sticky; Common, very fine (0-1mm) roots; Few, fine (1-2mm) macropores, Dry; Firm consistence; Silghtly plastic; Non-sticky; Common, very fine (0-1mm) roots; Few, fine (1-2mm) macropores, Dry; Firm consistence; Silghtly plastic; Non-sticky; Common, very fine (0-1mm) roots; Few, fine (1-2mm) macropores, Moderately and blocky; Rough-ped fabric; Very coarse, (20 - 50) mm crack; Coarse, (10 - 20) mm, roots, Few (-1 per 100mm2) Fine (1-2mm) macropores, Moderately more, Few (-1 per 100mm2) Fine (1-2mm) macropores, Moderately more, Fine, (0 - 10 %), Ferromanganiferous, Fine (0 - 2 mm), Fragments, weak, segregations; Common, very fine (0-1mm) roots; Clear,								N1/A		
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Confidence level not specified Site Disturbance: Complete clearing. Pasture, native or improved, but never cultivated Vegetation: Surface Coarse Fragments: Profile Morphology A 0 - 0.17 m Very dark greyish brown (10YR3/2-Moist); ; Sandy loar; Weak grade of structure, 5-10 mm, Granular, Lenticular, Rough-ped fabric; Fine, (0 - 5) mm crack; Medium, (5 - 10) mm crack; Common (1-5 per 100mm2) Very fine (0.075-1mm) macropores, Few (<1 per 100mm2) Fine 12mm) macropores, Dry; Firm consistence; Non-plastic; Non-sticky; 0-2%, fine gravelly, 2-6mm route, dispersed, coarse fragments; Common, very fine (0.1mm) roots; Few, fine (1-2mm) roots; Few, medium (2-5mm) roots; Abrupt, Smooth change to -	•			osol		•				
Site Disturbance: Complete clearing. Pasture, native or improved, but never cultivated Yegetation: Surface Coarse Fragments: Profile Morphology A 0 - 0.17 m Very dark greyish brown (10YR3/2-Moist); ; Sandy loam; Weak grade of structure, 5-10 mm, Granular, Lenticular, Rough-ped fabric; Fine, (0 - 5) mm crack; Medium, (5 - 10) mm crack; Common (1-5 per 100mm2) Very fine (0.075-1mm) macropores, Few (<1 per 100mm2) Fine (1-2mm) macropores, Dry; Firm consistence; Non-plastic; Non-sticky; 0-2%, fine gravelly, 2-6mn rounded, dispersed, coarse fragments; Common, very fine (0-1mm) roots; Few, fine (1-2mm) motos; Few, medium (2-5mm) roots; Abrupt, Smooth change to -					Great	Soil Grou	p:	Chocolate soil		
Vegetation: Surface Coarse Fragments: Profile Morphology A 0 - 0.17 m Very dark greyish brown (10YR3/2-Moist); ; Sandy loam; Weak grade of structure, 5-10 mm, Granular; , Lenticular; Rough-ped fabric; Fine, (0 - 5) mm crack; Medium, (5 - 10) mm crack; Common (1-5 per 100mm2) Very fine (0.075-1mm) macropores, Few (<1 per 100mm2) Fine (2mm) macropores, Dry; Firm consistence; Non-plastic; Non-sticky: 0-2%, fine gravelly, 2-6mm rounded, dispersed, coarse fragments; Common, very fine (0-1mm) roots; Few, fine (1-2mm) roots; Few, medium (2-5mm) roots; Abrupt, Smooth change to - AB 0.17 - 0.36 m Dark brown (7.5YR3/4-Moist); ; Silty clay loam; Moderate grade of structure, 2-5 mm, Granula Lenticular; Rough-ped fabric; Fine, (0 - 5) mm crack; Medium, (5 - 10) mm crack; Few (<1 per 100mm2) Fine (1-2mm) macropores, Common (1-5 per 100mm2) Very fine (0.075-1mm) macropores, Dry; Firm consistence; Silghtly plastic; Moderate grade of structure, 2-5 mm, Subangular blocky; Rough-ped fabric; Very coarse, (20 - 50) mm crack; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Few (<1 per 100mm2) Fine (1-2mm) macropores, Moderately not Firm consistence; Moderately plastic; Moderate grade of structure, 2-5 mm, Subangular blocky; Rough-ped fabric; Very coarse, (20 - 50) mm crack; Coarse, (10 - 20) mm, crack; Medium, (5 - 10) mm crack; Few (<2 - 10 %), Ferromanganiferous, Fine (0 - 2 mm), Fragments, weak, segregations;Common, very fine (0-1mm) roots; Clear, Smooth change to - B22 0.55 - 0.71 m Strong brown (7.5YR4/6-Moist); ; Medium clay; Moderate grade of structure, 10-20 mm, Angu blocky; Prismatic; Smooth-ped fabric; Coarse, (10 - 20) mm crack; Koderately noist; Weak consistence; Moderately mcrack; Mederate) moderately moist; Weak consistence; Moderately plastic; Very sticky; Common cutans, 10-50										
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Profile Morphology Very dark greyish brown (10YR3/2-Moist); ; Sandy loam; Weak grade of structure, 5-10 mm, Granular, , Lenticular; Rough-ped fabric; Fine, (0 - 5) mm crack; Medium, (5 - 10) mm crack; Common (1-5 per 100mm2) Fine (2 - 5) mm crack; Neolium, (5 - 10) mm crack; Common (1-5 per 100mm2) Fine (2 - 5mm) macropores, Fev, Very fine (0.075-1mm) macropores, Fev, fine (1-2mm) roots; Few, medium (2-5mm) roots; Abrupt, Smooth change to - AB 0.17 - 0.36 m Dark brown (7.5YR3/4-Moist); ; Silty clay loam; Moderate grade of structure, 2-5 mm, Granula: Lenticular; Rough-ped fabric; Fine, (0 - 5) mm crack; Medium, (5 - 10) mm crack; Few (<1 per 100mm2) Fine (1-2mm) macropores, Common (1-5 per 100mm2) Very fine (0.075-1mm) macropores, Dry; Firm consistence; Silghtly plastic; Non-sticky; Common, very fine (0-1mm) roots; Few, fine (1-2mm) macropores, Common (1-5 per 100mm2) Very fine (0.075-1mm) macropores, Dry; Firm consistence; Silghtly plastic; Non-sticky; Common, very fine (0-1mm) roots; Few, fine (1-2mm) macropores, Common (1-5 per 100mm2) Very fine (0.075-1mm) macropores, Dry; Firm consistence; Silghtly plastic; Non-sticky; Common, very fine (0-1mm) roots; Few, fine (1-2mm) motos; Few, fine (1-2mm) roots; Abrupt, Smooth change to -	Vegeta	ation:								
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 A 0 - 0.17 m Very dark greyish brown (10YR3/2-Moist); ; Sandy loam; Weak grade of structure, 5-10 mm, Granular, , Lenticular; Rough-ped fabric; Fine, (0 - 5) mm crack; Medium, (5 - 10) mm crack; Common (1-5 per 100mm2) Fine (2-9 mm) macropores, Erey, fine gravelly, 2-6mm rounded, dispersed, coarse fragments; Common, very fine (0-1mm) roots; Few, fine (1-2mm) roots; Few, medium (2-5mm) roots; Abrupt, Smooth change to - AB 0.17 - 0.36 m Dark brown (7.5YR3/4-Moist); ; Silty clay loam; Moderate grade of structure, 2-5 mm, Granula: Lenticular; Rough-ped fabric; Fine, (0 - 5) mm crack; Medium, (5 - 10) mm crack; Few (<1 per 100mm2) Fine (1-2mm) macropores, Common, very fine (0-1mm) roots; Few, fine (1-2mm) macropores, Common (1-5 per 100mm2) Very fine (0.075-1mm) macropores, Dry; Firm consistence; Silghtly plastic; Non-sticky; Common, very fine (0-1mm) roots; Few, fine (1-2mm) moots; Few, medium (2-5mm) roots; Abrupt, Smooth change to - B21 0.36 - 0.55 m Brown (7.5YR4/4-Moist); ; Medium clay; Moderate grade of structure, 2-5 mm, Subangular blocky; Rough-ped fabric; Very coarse, (20 - 50) mm crack; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Few (<1 per 100mm2) Fine (1-2mm) macropores, Moderately mc Firm consistence; Moderately plastic; Moderately sticky; Few cutans, <10% of ped faces or walls coated; Few (2 - 10 %), Ferromanganiferous, Fine (0 - 2 mm), Fragments, weak, segregations; Common, very fine (0-1mm) roots; Clear, Smooth change to - B22 0.55 - 0.71 m Strong brown (7.5YR4/6-Moist); ; Medium clay; Moderate grade of structure, 10-20 mm, Angu blocky; , Prismatic; Smooth-ped fabric; Very coarse, (20 - 20) mm crack; Medium, (5 - 10) mm crack; Moderately moist; Weak consistence; Moderately plastic; Very sticky; Common cutans, 10-50 of ped faces or walls coated; Few (2 - 10 %), Ferromanganiferous, Medium (2 - 6 mm), Nodules, strong, segregations; Few, very fine (0-1mm) roots; Abrupt, Smooth change to - BC 0.71 - 0.92 m Dark yellowish brown (1	Profile	Morphol	loav							
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 roots; Few, medium (2-5mm) roots; Abrupt, Smooth change to - AB 0.17 - 0.36 m Dark brown (7.5YR3/4-Moist); ; Silty clay loam; Moderate grade of structure, 2-5 mm, Granula Lenticular; Rough-ped fabric; Fine, (0 - 5) mm crack; Medium, (5 - 10) mm crack; Few (<1 per 100mm2) Fine (1-2mm) macropores, Common (1-5 per 100mm2) Very fine (0.075-1mm) macropores, Dry; Firm consistence; Slightly plastic; Non-sticky; Common, very fine (0-1mm) roots; Few, fine (1-2mm) roots; Few, medium (2-5mm) roots; Abrupt, Smooth change to - B21 0.36 - 0.55 m Brown (7.5YR4/4-Moist); ; Medium clay; Moderate grade of structure, 2-5 mm, Subangular blocky; Rough-ped fabric; Very coarse, (20 - 50) mm crack; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Few (<1 per 100mm2) Fine (1-2mm) macropores, Moderately mc Firm consistence; Moderately plastic; Moderately sticky; Few cutans, <10% of ped faces or walls coated; Few (2 - 10 %), Ferromanganiferous, Fine (0 - 2 mm), Fragments, weak, segregations;Common, very fine (0-1mm) roots; Clear, Smooth change to - B22 0.55 - 0.71 m Strong brown (7.5YR4/6-Moist); ; Medium clay; Moderatel grade of structure, 10-20 mm, Angu blocky; , Prismatic; Smooth-ped fabric; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Common (1-5 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Weak consistence; Moderately plastic; Very sticky; Common cutans, 10-50 of ped faces or walls coated; Few (2 - 10 %), Ferromanganiferous, Medium (2 - 6 mm), Nodules, strong, segregations;Few, very fine (0-1mm) roots; Few, fine (1-2mm) roots; Abrupt, Smooth change to - BC 0.71 - 0.92 m Dark yellowish brown (10YR4/4-Moist); Biological mixing, 2.5YR44, 2-10% , Distinct; Heavy clay; Moderate grade of structure, 10-20 mm crack; Moderately moist; Firm consistence; Moderately plastic; Very sticky; Common cutans, 10-50% of ped fabric; Coarse, (10 - 20) mm crack; Medium, (5 - 6) mm crack; Moderately moist; Firm consistence; Moderately plastic; Very sticky; C										
 AB 0.17 - 0.36 m Dark brown (7.5YR3/4-Moist); ; Silty clay loam; Moderate grade of structure, 2-5 mm, Granula Lenticular; Rough-ped fabric; Fine, (0 - 5) mm crack; Medium, (5 - 10) mm crack; Few (<1 per 100mm2) Fine (1-2mm) macropores, Common (1-5 per 100mm2) Very fine (0.075-1mm) macropores, Dry; Firm consistence; Slightly plastic; Non-sticky; Common, very fine (0-1mm) roots; Few, fine (1-2mm) roots; Few, medium (2-5mm) roots; Abrupt, Smooth change to - B21 0.36 - 0.55 m Brown (7.5YR4/4-Moist); ; Medium clay; Moderate grade of structure, 2-5 mm, Subangular blocky; Rough-ped fabric; Very coarse, (20 - 50) mm crack; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Few (<1 per 100mm2) Fine (1-2mm) macropores, Moderately moderately plastic; Moderately sticky; Few cutans, <10% of ped faces or walls coated; Few (2 - 10 %), Ferromanganiferous, Fine (0 - 2 mm), Fragments, weak, segregations;Common, very fine (0-1mm) roots; Clear, Smooth change to - B22 0.55 - 0.71 m Strong brown (7.5YR4/6-Moist); ; Medium clay; Moderate grade of structure, 10-20 mm, Angublocky; , Prismatic; Smooth-ped fabric; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Fine, (0 - 5) mm crack; Common (1-5 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Weak consistence; Moderately plastic; Very sticky; Common cutans, 10-50 of ped faces or walls coated; Few (2 - 10 %), Ferromanganiferous, Medium (2 - 6 mm), Nodules, strong, segregations;Few, very fine (0-1mm) roots; Few, fine (1-2mm) roots; Abrupt, Smooth change to - BC 0.71 - 0.92 m Dark yellowish brown (10YR4/4-Moist); Biological mixing, 2.5YR44, 2-10% , Distinct; Heavy clay; Moderate grade of structure, 10-20 mm, crack; Fine, (0 - 5) mm crack; Mediately plastic; Very sticky; Common cutans, 10-50% of ped facie; Fine, Fine,				rounded, dispersed, coarse	fragments; Commor	n, very fine	(0-1mm)	roots; Few, fine (1-2mm)		
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 roots; Few, fine (1-2mm) roots; Few, medium (2-5mm) roots; Abrupt, Smooth change to - B21 0.36 - 0.55 m Brown (7.5YR4/4-Moist); Medium clay; Moderate grade of structure, 2-5 mm, Subangular blocky; Rough-ped fabric; Very coarse, (20 - 50) mm crack; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Few (<1 per 100mm2) Fine (1-2mm) macropores, Moderately motivation of ped faces or walls coated; Few (2 - 10 %), Ferromanganiferous, Fine (0 - 2 mm), Fragments, weak, segregations;Common, very fine (0-1mm) roots; Clear, Smooth change to - B22 0.55 - 0.71 m Strong brown (7.5YR4/6-Moist); Medium clay; Moderate grade of structure, 10-20 mm, Angublocky; Prismatic; Smooth-ped fabric; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Fine, (0 - 5) mm crack; Common (1-5 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Weak consistence; Moderately plastic; Very sticky; Common cutans, 10-50 of ped faces or walls coated; Few (2 - 10 %), Ferromanganiferous, Medium (2 -6 mm), Nodules, strong, segregations;Few, very fine (0-1mm) roots; Few, fine (1-2mm) noots; Abrupt, Smooth change to - BC 0.71 - 0.92 m Dark yellowish brown (10YR4/4-Moist); Biological mixing, 2.5YR44, 2-10% , Distinct; Heavy clay; Moderate grade of structure, 10 - 20 mm, Angular blocky; , Prismatic; Smooth-ped fabric; Coarse, (10 - 20) mm crack; Moderately moist; Firm consistence; Moderately plastic; Very sticky; Ommon cutans, 10-50% of ped fabric coarse, (10 - 20 mm, Angular blocky; , Prismatic; Smooth-ped fabric; Coarse, (10 - 20 mm, Crack; Medium, (5 - 10) mm crack; Moderately moist; Firm consistence; Moderately plastic; Very sticky; Ommon cutans, 10-50% of ped faces or walls coated; Few (2 - 10 %), Ferromanganiferous, Medium (2 -6 mm), Nodules, strong, Segregations; Few, Very fine (0 - 1mm) roots; Few, fine (-1-2mm) roots; Abrupt, Smooth change to - 										
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 blocky; Rough-ped fabric; Very coarse, (20 - 50) mm crack; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Few (<1 per 100mm2) Fine (1-2mm) macropores, Moderately mc Firm consistence; Moderately plastic; Moderately sticky; Few cutans, <10% of ped faces or walls coated; Few (2 - 10%), Ferromanganiferous, Fine (0 - 2 mm), Fragments, weak, segregations;Common, very fine (0-1mm) roots; Clear, Smooth change to - B22 0.55 - 0.71 m Strong brown (7.5YR4/6-Moist); ; Medium clay; Moderate grade of structure, 10-20 mm, Angu blocky; , Prismatic; Smooth-ped fabric; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Common (1-5 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Weak consistence; Moderately plastic; Very sticky; Common cutans, 10-50 of ped faces or walls coated; Few (2 - 10%), Ferromanganiferous, Medium (2 - 6 mm), Nodules, strong, segregations;Few, very fine (0-1mm) roots; Few, fine (1-2mm) roots; Abrupt, Smooth change to - BC 0.71 - 0.92 m Dark yellowish brown (10YR4/4-Moist); Biological mixing, 2.5YR44, 2-10%, Distinct; Heavy clay; Moderate grade of structure, 10-20 mm, Angular blocky; , Prismatic; Smooth-ped fabric; Coarse, (10 - 20) mm crack; Moderately moist; Firm consistence; Moderately plastic; Very sticky; Common cutans, 10-50% of ped fabric; coarse, (10 - 20) mm crack; Fiew (2 - 10%), Ferromanganiferous, Medium (2 - 6 mm), Nodules, strong, segregate of structure, 10-20 mm, Angular blocky; , Prismatic; Smooth-ped fabric; coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Fiew (2 - 10%), Ferromanganiferous, Medium (2 - 6 mm), Nodules, strong, or walls coated; Few (2 - 10%), Ferromanganiferous, Medium (2 - 6 mm), Nodules, strong, or walls coated; Few (2 - 10%), Ferromanganiferous, Medium (2 - 6 mm), Nodules, strong, or walls coated; Few (2 - 10%), Ferromanganiferous, Medium (2 - 6 mm), Nodules, strong, or walls coated; Few (2 - 10%), Ferromanganiferous, Medium (2 - 6 mm), Nodules, strong, or walls coated; Few (2 - 10%), Ferromanganifero						<i>.</i>				
 Medium, (5 - 10) mm crack; Few (<1 per 100mm2) Fine (1-2mm) macropores, Moderately moderately consistence; Moderately plastic; Moderately sticky; Few cutans, <10% of ped faces or walls coated; Few (2 - 10%), Ferromanganiferous, Fine (0 - 2 mm), Fragments, weak, segregations; Common, very fine (0-1mm) roots; Clear, Smooth change to - B22 0.55 - 0.71 m Strong brown (7.5YR4/6-Moist); ; Medium clay; Moderate grade of structure, 10-20 mm, Angublocky; , Prismatic; Smooth-ped fabric; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crac Fine, (0 - 5) mm crack; Common (1-5 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Weak consistence; Moderately plastic; Very sticky; Common cutans, 10-50 of ped faces or walls coated; Few (2 - 10%), Ferromanganiferous, Medium (2 - 6 mm), Nodules, strong, segregations;Few, very fine (0-1mm) roots; Few, fine (1-2mm) roots; Abrupt, Smooth change to - BC 0.71 - 0.92 m Dark yellowish brown (10YR4/4-Moist); Biological mixing, 2.5YR44, 2-10%, Distinct; Heavy clay; Moderate grade of structure, 10-20 mm, Angular blocky; , Prismatic; Smooth-ped fabric; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Fine, (0 - 5) mm crack; Moderately moist; Firm consistence; Moderately plastic; Very sticky; Common cutans, 10-50 of ped faces or walls coated; Few (2 - 10%), Ferromanganiferous, Medium (2 - 6 mm), Nodules, strong, segregations;Few, very fine (0-1mm) roots; Few, fine (1-2mm) roots; Abrupt, Smooth change to - 	B21	0.36 - 0.5	55 m	(, , , , , , , , , , , , , , , , , , ,		0		, , U		
 Firm consistence; Moderately plastic; Moderately sticky; Few cutans, <10% of ped faces or walls coated; Few (2 - 10 %), Ferromanganiferous, Fine (0 - 2 mm), Fragments, weak, segregations;Common, very fine (0-1mm) roots; Clear, Smooth change to - B22 0.55 - 0.71 m Strong brown (7.5YR4/6-Moist); ; Medium clay; Moderate grade of structure, 10-20 mm, Angublocky; , Prismatic; Smooth-ped fabric; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crac Fine, (0 - 5) mm crack; Common (1-5 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Weak consistence; Moderately plastic; Very sticky; Common cutans, 10-50 of ped faces or walls coated; Few (2 - 10 %), Ferromanganiferous, Medium (2 - 6 mm), Nodules, strong, segregations;Few, very fine (0-1mm) roots; Few, fine (1-2mm) roots; Abrupt, Smooth change to - BC 0.71 - 0.92 m Dark yellowish brown (10YR4/4-Moist); Biological mixing, 2.5YR44, 2-10%, Distinct; Heavy clay; Moderate grade of structure, 10-20 mm, Angular blocky; , Prismatic; Smooth-ped fabric; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Fine, (0 - 5) mm crack; Moderately moist; Firm consistence; Moderately plastic; Very sticky; Common cutans, 10-50% of ped faces or walls coated; Few (2 - 10 %), Ferromanganiferous, Medium (2 - 6 mm), Nodules, strong, or walls coated; Few (2 - 10 %), Ferromanganiferous, Medium (2 - 6 mm), Nodules, strong, Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Fine, (0 - 5) mm crack; Moderately moist; Firm consistence; Moderately plastic; Very sticky; Common cutans, 10-50% of ped face or walls coated; Few (2 - 10 %), Ferromanganiferous, Medium (2 - 6 mm), Nodules, strong, or walls coated; Few (2 - 10 %), Ferromanganiferous, Medium (2 - 6 mm), Nodules, strong, or walls coated; Few (2 - 10 %), Ferromanganiferous, Medium (2 - 6 mm), Nodules, strong, or walls coated; Few (2 - 10 %), Ferromanganiferous, Medium (2 - 6 mm), Nodules, strong, or walls coated; Few (2 - 10 %), Ferromanganiferous, Medium (2 - 6 mm), Nodules, strong, or wa										
 walls coated; Few (2 - 10 %), Ferromanganiferous, Fine (0 - 2 mm), Fragments, weak, segregations;Common, very fine (0-1mm) roots; Clear, Smooth change to - B22 0.55 - 0.71 m Strong brown (7.5YR4/6-Moist); ; Medium clay; Moderate grade of structure, 10-20 mm, Angu blocky; , Prismatic; Smooth-ped fabric; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crac Fine, (0 - 5) mm crack; Common (1-5 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Weak consistence; Moderately plastic; Very sticky; Common cutans, 10-50 of ped faces or walls coated; Few (2 - 10 %), Ferromanganiferous, Medium (2 - 6 mm), Nodules, strong, segregations;Few, very fine (0-1mm) roots; Few, fine (1-2mm) roots; Abrupt, Smooth change to - BC 0.71 - 0.92 m Dark yellowish brown (10YR4/4-Moist); Biological mixing, 2.5YR44, 2-10%, Distinct; Heavy clay; Moderate grade of structure, 10-20 mm, Angular blocky; , Prismatic; Smooth-ped fabric; Coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Fine, (0 - 5) mm crack; Moderately moist; Firm consistence; Moderately plastic; Very sticky; Common cutans, 10-50% of ped facric; coarse, (10 - 20) mm crack; Medium, (5 - 10) mm crack; Smooth-ped fabric; coarse, if moist; Few (2 - 10 %), Ferromanganiferous, Medium (2 - 6 mm), Nodules, strong, moist; Firm consistence; Moderately plastic; Very sticky; Common cutans, 10-50% of ped facric) or walls coated; Few (2 - 10 %), Ferromanganiferous, Medium (2 - 6 mm), Nodules, strong, 										
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Morphological Notes	Morph	ological I	Notes							

Morphological Notes
Observation Notes

Project Name:SOIL STRUCTURE & MANAGEMENTProject Code:SSMSite ID:Agency Name:CSIRO Division of Soils (ACT)

Observation ID: 1

Site Notes

HEGGATON 2 PERMENANT PASTURE

Project Name: Project Code: Agency Name: SOIL STRUCTURE & MANAGEMENT SSM Site ID: SS CSIRO Division of Soils (ACT) Site ID: SSM109

Observation ID: 1

Laboratory Test Results:

Laboratory rest Results.												
Depth	рН	1:5 EC		hangeable			Exchangeable	CEC		ECEC	;	ESP
m		dS/m	Ca	Mg	к	Na Cmol (+	Acidity ⊦)/kg					%
0 - 0.02 0.01 - 0.085	4.86B	0.384A	6.14J	4.92	0.73	0.1		10.08	31			0.99
0.02 - 0.05	4.5B	0.221A	3.87J	3.78	0.3	0.06		7.35	I			0.82
0.05 - 0.1	4.76B	0.05A	4.6J	5.3	0.16	0.04		9.21				0.43
0.1 - 0.36	5.2B	0.049A		7.83	0.1	0.05		10.6′				0.47
0.36 - 0.46 0.38 - 0.455	5.37B	0.032A	3.46J	10.39	0.08	0.08		11.78	31			0.68
0.7 - 0.8	5.5B	0.022A	4.2J	18.17	0.1	0.17		16.69	91			1.02
Depth	CaCO3	Organic C	Avail. P	Total P	Total N	Tota K	l Bulk Density	Pa GV	article CS	Size FS	Analysi: Silt	s Clay
m	%	%	mg/kg	%	%	%	Mg/m3	0.		%	oiit	olay
0 - 0.02 0.01 - 0.085		5.9C					1.38				23	16
0.02 - 0.05		3.42C					1.00				26	21
0.05 - 0.1		2.21C									24	25
0.1 - 0.36		0.96C									20	32
0.36 - 0.46		0.57C									9	70
0.38 - 0.455							1.67					
0.7 - 0.8		0.37C									15	40
Depth COLE Gravimetric/Volumetric Water Contents K sat K unsat												
m		Sat.	0.05 Bar	0.1 Bar α/	0.5 Bar /q - m3/m	1 Bar 3	5 Bar 15	Bar	mm	ı/h	mm/h	
				5	5							
0 - 0.02												
0.01 - 0.085		0.45F	0.36F	0.331		0.22F	0.17D					
0.02 - 0.05												
0.05 - 0.1												
0.1 - 0.36												
0.36 - 0.46		0.075	0.005	0.041								
0.38 - 0.455		0.37F	0.33F	0.311								

0.38 - 0.455 0.7 - 0.8

Project Name:SOIL STRUCTURE & MANAGEMENTProject Code:SSMSite ID:Agency Name:CSIRO Division of Soils (ACT)

Observation ID: 1

Laboratory Analyses Completed for this profile

13A1_AL 13A1_FE 13A1_MN 13A1_SI 13C1_AL 13C1_FE 13C1_FE 13C1_SI 13C1_SI 14H1_CA 14H1_K 14H1_K 14H1_MG 14H1_NA 15F1_CA	Oxalate-extractable aluminium Oxalate-extractable iron Oxalate-extractable manganese Oxalate-extractable manganese Oxalate-extractable silicon Citrate/dithionite-extractable iron, aluminium, Manganese and Silicon Soluble bases/SE (Ca,Mg,K,Na) Soluble bases/SE (Ca,Mg,K,Na) Soluble bases/SE (Ca,Mg,K,Na) Soluble bases/SE (Ca,Mg,K,Na) Soluble bases/SE (Ca,Mg,K,Na) Soluble bases/SE (Ca,Mg,K,Na)
15F1_K	Exchangeable bases by 0.01m (AgTU)+, no pretreatment for soluble salts
15F1_MG 15F1_NA	Exchangeable bases by 0.01m (AgTU)+, no pretreatment for soluble salts Exchangeable bases by 0.01m (AgTU)+, no pretreatment for soluble salts
15F3	CEC by 0.01M silver-thiourea (AgTU)+
15N1	Exchangeable sodium percentage (ESP)
3A1	EC of 1:5 soil/water extract
4B1	pH of 1:5 soil/0.01M calcium chloride extract - direct
6B3	Total organic carbon - high frequency induction furnace, infrared
P10_CF_C P10_CF_Z	Clay (%) - Coventry and Fett pipette method Silt (%) - Coventry and Fett pipette method
P3A1	Bulk density - g/cm3
P3B3VLc001	0.01 BAR Moisture m3/m3 - Volumetric using undisturbed 98mm diameter core on suction plate
P3B3VLc003	0.03 BAR Moisture m3/m3 - Volumetric using undisturbed 98mm diameter core on suction plate
P3B3VLc005	0.05 BAR Moisture m3/m3 - Volumetric using undisturbed 98mm diameter core on suction plate
P3B3VLc01	0.1 BAR Moisture m3/m3 - Volumetric using undisturbed 98mm diameter core on suction plate
P3B3VLc03	0.3 BAR Moisture m3/m3 - Volumetric using undisturbed 98mm diameter core on suction plate
P3B3VLcSAT P3B3VLd06	Saturated Moisture m3/m3 - Volumetric using undisturbed 98mm diameter core on suction plate
	0.6 BAR Moisture m3/m3 - Volumetric using undisturbed 48mm diameter and 15mm height core on pressure plate
P3B3VLd1	1 BAR Moisture m3/m3 - Volumetric using undisturbed 48mm diameter and 15mm height core on pressure plate
P3B3VLd3	3 BAR Moisture m3/m3 - Volumetric using undisturbed 48mm diameter and 15mm height core on pressure plate
P3B3VLd5	5 BAR Moisture m3/m3 - Volumetric using undisturbed 48mm diameter and 15mm height core on pressure plate
P6_LP	Dispersion Index (Loveday and Pyle, 1973)
PWS1-2mm	1000-2000 micron fraction (%) - Wet Sieving after chemical dispersion
PWS20-63	20-63 micron fraction (%) - Wet Sieving after chemical dispersion
PWS212-425	212-425 micron fraction (%) - Wet Sieving after chemical dispersion
PWS425-1mm	425-1000 micron fraction (%) - Wet Sieving after chemical dispersion
PWS63-212	63-212 micron fraction (%) - Wet Sieving after chemical dispersion