

APPENDIX

J

Soil Assessment Report

Part 3 of 4

BORDER TO GOWRIE REVISED DRAFT ENVIRONMENTAL IMPACT STATEMENT

APPENDIX

J

Soil Assessment Report

Appendix A Representative, detailed, and less detailed soil profile and check site descriptions

CONTINUED

BORDER TO GOWRIE REVISED DRAFT ENVIRONMENTAL IMPACT STATEMENT



Location 1



Location 2



Surface 1



pH, slaking, dispersion



Profile

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.1	6.55	NEU	15.3	L	118	5.27	M	1204	L	2	1.14	M1	0.43	93.4	11.2	0.73

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H ₂ O)		EC (dS/m)	Salinity Rating [^]	Cl ⁻ (mg/kg)	Exchangeable cations (meq/100 g)							ESP (%)	Sodicity [*]	Emerson class	Ca:Mg ratio
	Clay	Silt	Sand	Gravel	-	Rating [#]				H+	Al+	Ca+	Mg+	K+	Na+	CEC				
0.0-0.1	7.8	2.2	90.0	0.3	6.55	NEU	0.04	VL	31.1	-	0.01	12.9	12.1	0.56	6.89	32.5	21.2	SS	7	1.07
0.25-0.35	30.6	4.4	65.1	1.5	5.67	MAC	0.08	VL	71.6	-	1.10	8.61	5.89	0.85	1.10	17.5	6.27	S	5	1.46
0.65-0.75	25.2	0.4	74.4	0.9	5.78	MAC	0.06	VL	72.8	-	0.14	7.00	4.78	0.87	1.22	14.0	8.73	S	3b	1.46
0.9-1.0	14.0	0.4	85.6	0.2	6.09	SLAC	0.07	L	70.1	-	0.04	5.37	3.63	0.92	0.90	10.9	8.24	S	3b	1.48
1.1-1.2	9.9	2.3	87.8	0.2	5.95	MAC	0.06	VL	63.7	-	0.02	3.74	2.49	0.95	0.64	7.85	8.20	S	3b	1.50
1.4-1.5	10.2	6.1	83.7	0.2	6.47	SLAC	0.08	L	83.4	-	0.01	4.42	2.90	0.94	0.86	9.13	9.43	S	2	1.52

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL													
Date:	30/08/2021		Describer:	H Marvell		Site:	310-03-TP3071		Type:	Detailed			
MSU:	1.2.3.2b?		ASC:	Brown Sodosol?									
PSC:	Downfall			Chainage (m):		80235		Elevation (m):		318			
Coordinates:	Easting:		319814		Northing:		6868190		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Moderately
Landform element:	Riseslope	Drainage:	Mod. well-drained
Landform pattern:	Rises	Geology:	Qs
Relief modal class:	Undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2?	SCL:	No
Disturbance:	Cleared, pasture		
Surface condition:	Loose; soft?		
Surface fragments:	No surface fragments		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, moderate)?		
Vegetation:	Very sparse, crowns well separated (0.25-20%); cypress, poplar box, Moreton Bay ash, wilga?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1?	0-100?	Dark brown (10YR3/3 (moist))?; no mottles?; earthy, massive (no peds)?; moderately moist, very weak?; sandy clay loam?; no fragments?; no segregations?; no pans?; gradual boundary to -
A2e?	100-200?	Brown (10YR4/3 (moist))?; very pale brown (10YR7/3 (dry))?; no mottles?; sandy (grains prominent), single grain (no peds); moist, weak?; loamy sand?; few (2-10%), medium (6-20 mm), subangular gravel?; no segregations?; no pans?; abrupt boundary to -
B21?	200-500?	Dark yellowish brown (10YR4/4 (moist))?; mottles, 10-20%, 15-30 mm, prominent, dark, clear?; moist, firm?; light clay, sandy?; few (2-10%), medium (6-20 mm), subangular gravel?; few (2-10%), medium (2-6 mm), calcareous, soft segregations, highly effervescent?; no pans?; gradual boundary to -
B22?	500-1500?	Grey (10YR5/1 (moist))?; mottles, 10-20%, 15-30 mm, faint, dark, diffuse?; mottles, 10-20%, 15-30 mm, faint, brown, diffuse?; moist, very firm?; light medium clay, sandy?; few (2-10%), medium (6-20 mm), subangular gravel?; few (2-10%), medium (2-6 mm), calcareous, soft segregations, highly effervescent?; no pans?



Profile 1



Profile 2



Location 1



Location 2



Stockpile 1

GENERAL									
Date:	15/08/2021	Describer:	H Marvell	Site:	310-03-AH3317	Type:	Partial		
MSU:	5.2.3.2b	ASC:	Brown Sodosol						
PSC:	Weranga		Chainage (m):		80581		Elevation (m):		317
Coordinates:	Easting:	319856	Northing:	6868537		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Moderately
Landform element:	Riseslope	Drainage:	Mod.well-drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Extensive clearing		
Surface condition:	Loose, soft		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, present)		
Vegetation:	Very sparse, crowns well separated (0.25-20%); cypress pine, poplar box, Moreton Bay ash		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-200	Dark greyish brown (10YR4/2 (moist)); no mottles; earthy, massive (no peds); moderately moist, very weak; loamy sand; coarse fragments 2-10%, 2-6 mm, subangular, quartz; no segregations; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 6.0; gradual boundary to -
A21	200-420	Yellowish brown (10YR5/4 (moist)); no mottles; sandy (grains prominent), massive (no peds); moderately moist, very weak; loamy sand; coarse fragments 2-10%, 2-6 mm, subangular, quartz; no segregations; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 6.0; gradual boundary to -
A22	420-700	Brown (10YR5/3 (moist)); no mottles; sandy (grains prominent), massive (no peds); moderately moist, very weak; loamy sand; coarse fragments 2-10%, 6-20 mm, subrounded, gravel; no segregations; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 5.5; clear boundary to -
B21	700-	Yellowish brown (10YR5/6 (moist)); mottles 20-50%, 5-15 mm, faint, orange, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, weak; light clay, coarse sandy; no fragments; no segregations; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 5.5



Location 1



Location 2



Erosion 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	30/08/2021	Describer:	H Marvell	Site:	310-03-TP3218	Type:	Detailed		
MSU:	1.2.3.2b?	ASC:	Brown Sodosol?						
PSC:	Downfall?		Chainage (m):		809437		Elevation (m):		315
Coordinates:	Easting:	319986	Northing:	6868879		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Moderately rapid
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Mod. well-drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Cleared, pasture		
Surface condition:	Firm; loose?		
Surface fragments:	2-10%, 20-60 mm, subrounded quartz		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, moderate)?		
Vegetation:	Very sparse, crowns well separated (0.25-20%); cypress, poplar box, Moreton Bay ash, wilga, bullock?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1?	0-150?	Dark brown (7.5YR3/3 (moist))?. no mottles?. earthy, massive (no peds)?. moderately moist, very weak?. loamy sand?. few (2-10%), medium (6-20 mm), subangular gravel?. no segregations?. no pans?. clear boundary to -
A2e?	150-300	Brown (7.5YR4/3 (moist))?. light grey (7.5YR7/1 (dry))?. no mottles?. earthy, massive (no peds)?. moderately moist, very weak?. loamy sand?. few (2-10%), medium (6-20 mm), subangular gravel?. no segregations?. no pans?. abrupt boundary to -
B21?	300-500	Yellowish brown (7.5YR5/4 (moist))?. brown mottles, 10-20%, 5-15 mm, faint, diffuse?. rough ped?. moderate, 50-100 mm, subangular blocky?. moist, firm?. light clay, sandy?. no fragments?. few (2-10%), medium (2-6 mm), calcareous, nodules, highly effervescent?. no pans?. gradual boundary to -
B22?	500-700	Brown (7.5YR4/3 (moist))?. dark mottles, 10-20%, 15-30 mm, prominent, diffuse?. rough ped. moderate, 100-200 mm, subangular blocky?. moist, firm?. light clay, sandy?. no fragments?. few (2-10%), medium (2-6 mm), calcareous, nodules, highly effervescent?. no pans?. gradual boundary to -
B23?	700-1,000?	Yellowish brown (10YR5/4 (moist))?. white mottles, 10-20%, 15-30 mm, prominent, clear (potentially calcareous segregations)?. rough ped?. moderate, 10-20 mm, subangular blocky?. moist, firm?. light clay?. no fragments?. few (2-10%), calcareous, concretions, medium (2-6 mm)?. no pans?. gradual boundary to -
B24?	1,000-1,300	Yellowish brown (10YR5/4 (moist))?. dark mottles, 10-20%, 15-30 mm, faint, diffuse?. rough ped?. moderate, 10-20 mm, subangular blocky?. moist, firm?. light clay?. no fragments?. few (2-10%), calcareous, concretions, medium (2-6 mm)?. no pans?. gradual boundary to -
B3?	1,300-1,500?	Dark greyish brown (7.5YR4/2 (moist))?. white mottles, 10-20%, 15-30 mm, prominent, diffuse (potentially calcareous)?. rough ped?. moderate, 10-20 mm, subangular blocky?. moist, firm?. light medium clay?. 10-20%, 6-20 mm, gravel fragments?. few (2-10), calcareous, soft segregations, medium (2-6 mm)?. no pans?



Profile 1



Profile 2



Location 1



Location 2



Stockpile 1

GENERAL									
Date:	15/08/2021	Describer:	H Marvell	Site:	310-03-AH3320	Type:	Partial		
MSU:	1.2.1.2	ASC:	Brown Dermosol						
PSC:	Downfall		Chainage (m):		81223		Elevation (m):		315
Coordinates:	Easting:	319937	Northing:	6869173		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Mod.rapid
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Extensive clearing		
Surface condition:	Firm, hard setting, surface crust, cryptogam surface		
Surface fragments:	2-10%, 20-60 mm, subrounded, quartz		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, present)		
Vegetation:	Very sparse, crowns well separated (0.25-20%); cypress, bullock, poplar box		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-50	Very dark brown (10YR2/2 (moist)); no mottles; rough ped, weak, 20-50 mm, subangular blocky, moderately moist, weak; clay loam, sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 6.0; clear boundary to -
A2e	50-100	Very dark greyish brown (10YR3/2 (moist)); light greyish brown (10YR6/3 (dry)); mottles 10-20%, 5-15 mm, prominent, orange, clear; rough ped, weak, 20-50 mm, subangular blocky; dry, firm; clay loam, sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 5.5; clear boundary to -
B21	100-300	Dark brown (10YR3/3 (moist)); mottles 20-50%, 15-30 mm, faint, brown, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; medium clay, sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.0; clear boundary to -
B22	300-400	Brown (10YR5/3 (moist)); mottles 20-50%, 5-15 mm, faint, brown, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light clay, sandy; coarse fragments 2-10%, 2-6 mm, subangular, gravel; many 20-50%, calcareous, soft segregations, very coarse 20-60 mm, very highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5; clear boundary to -
B31	400-530	Light yellowish brown (10YR6/4 (moist)); mottles 20-50%, 15-30 mm, prominent, orange, clear; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, firm; medium clay, sandy; segregations many 20-50%, calcareous, soft segregations, coarse 6-20 mm, very highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5; gradual boundary to -
B32	530-	Light brownish grey (10YR6/2 (moist)); mottles 10-20%, 5-15 mm, faint, dark, clear; rough ped, moderate, 20-50 mm, subangular blocky, moderately moist, firm; light medium clay, sandy; segregations very many >50%, calcareous, concretions, very coarse 20-60 mm, very highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5



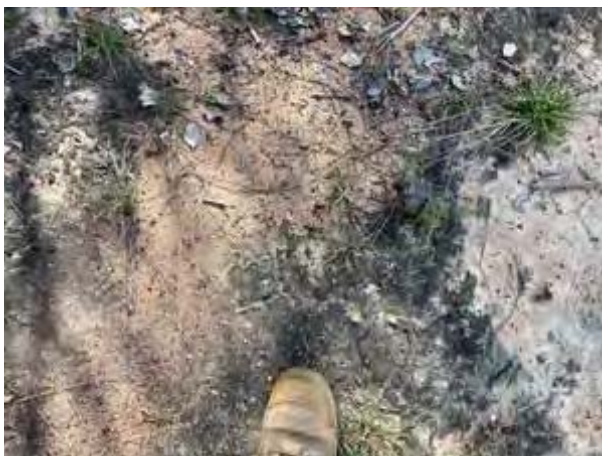
Location 1



Location 2



Surface 1



Surface 2



GENERAL									
Date:	15/08/2021	Describer:	H Marvell	Site:	310-03-AH3321	Type:	Check site		
MSU:	5.2.3.2b	ASC:	Sodosol						
PSC:	Weranga		Chainage (m):		81512		Elevation (m):		319
Coordinates:	Easting:	319972	Northing:	6869460	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Extensive clearing		
Surface condition:	Firm, hard setting		
Surface fragments:	2-10%, 2-6 mm, subrounded, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, present)		
Vegetation:	Very sparse, crowns well separated (0.25-20%); cypress pine, Moreton Bay ash, bullock		



Location 1



Location 2



Location 3



Location 4



Erosion 1



Erosion 2



Surface 1

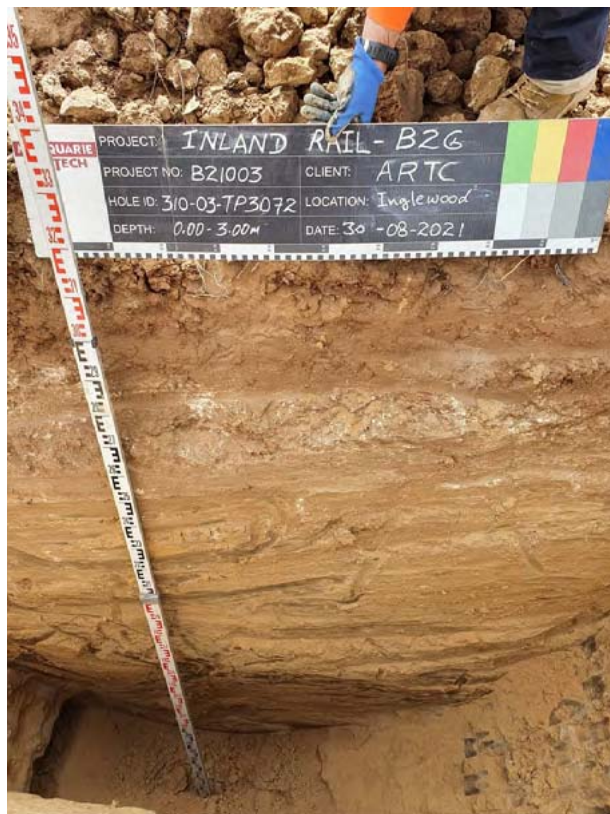


Surface 2

GENERAL									
Date:	30/08/2021	Describer:	H Marvell	Site:	310-03-TP3072	Type:	Detailed		
MSU:	1.3.3.2b?	ASC:	Brown Sodosol?						
PSC:	Downfall?		Chainage (m):		81800		Elevation (m):		321
Coordinates:	Easting:	320007	Northing:	6869737		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Moderately rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Qs
Relief modal class:	Undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Extensive clearing		
Surface condition:	Firm; hard setting?		
Surface fragments:	2-10%, 200-600 mm, subangular sandstone?; 2-10%, 20-60 mm, subangular sandstone?		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, moderate)?		
Vegetation:	Very sparse, crowns well separated (0.25-20%); cypress, poplar box, bulloak?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1?	0-100?	Brown (10YR4/3 (moist))?; no mottles?; earthy, massive (no peds)?; moderately moist, very weak?; loamy sand?; no coarse fragments?; no segregations?; no pans?; gradual boundary to -
A2e	100-150	Light yellowish brown (10YR6/4 (moist))?; no mottles?; earthy, massive (no peds)?; moderately moist, very weak?; sandy clay loam?; no fragments?; no segregations?; no pans?; abrupt boundary to -
B21?	150-400	Yellowish brown (10YR5/4 (moist))?; mottles, 10-20%, 5-15 mm, faint, brown, diffuse?; rough ped; moderate, 10-20 mm, subangular blocky; moderately moist, firm?; light clay?; no fragments?; no segregations?; no pans; gradual boundary to -
B22?	400-700	Yellowish brown (10YR5/8 (moist))?; mottles, 10-20%, 15-30 mm, faint, pale, diffuse?; rough ped, moderate, 5-10 mm, subangular blocky; moist, firm?; sandy clay?; no coarse fragments?; common (10-20%) segregations, calcareous, nodules(?), coarse (6-20 mm)?; no pans; partial slaking in 10 minutes; partial dispersion in 10 minutes; gradual boundary to -
B23?	700-1,500	Brown (10YR5/4 (moist))?; mottles, 10-20%, >30 mm, faint, dark, diffuse (increasing with depth)?; rough ped; moderate, 5-10 mm, subangular blocky; moist, firm?; light medium clay?; 2-10%, 20-60 mm, gravel?; few (2-10%) segregations, calcareous, nodules(?), coarse (6-20 mm)?; no pans



Profile 1



Profile 2



Location 1



Location 2



Stockpile 1

GENERAL									
Date:	15/08/2021	Describer:	A Kaur	Site:	310-03-AH3322	Type:	Representative		
MSU:	5.2.3.2b	ASC:	Hypocalcic Mottled-Mesonatric Brown Sodosol						
PSC:	Weranga		Chainage (m):		82083		Elevation (m):		319
Coordinates:	Easting:	320038	Northing:	6870028		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Highly (roads, mines)		
Surface condition:	Hard setting		
Surface fragments:	2-10%, 200-600 mm, angular, sandstone		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, severe), rill (active, present)		
Vegetation:	Very sparse, crowns well separated (0.25-20%); poplar box, cypress pine, bulloak; rooting depth 550 mm.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-100	Vary dark brown (7.5YR2.5/1 (moist)); no mottles; rough ped, weak, 5-10 mm, polyhedral; dry, very weak; clay loam, sandy; coarse fragments 2-10%, 2-6 mm, subangular, sandstone; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 6.5; clear boundary to -
A2e	100-200	Very dark grey (7.5YR3/1 (moist)); pinkish grey (7.5YR6/2 (dry)); no mottles; rough ped, weak, 5-10 mm, polyhedral; dry, very weak; clay loam, sandy; coarse fragments <2%, 2-6 mm, subangular, sandstone; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 5.0; abrupt boundary to -
B21	200-300	Strong brown (7.5YR4/6 (moist)); mottles 20-50%, 5-15 mm, prominent, orange, diffuse; rough ped, moderate, 20-50 mm, polyhedral; dry, weak; light medium clay, fine sandy; no fragments; very few <2%, ferromanganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 7.0; clear boundary to -
B22	300-550	Brown (7.5YR5/4 (moist)); mottles 2-10%, 5-15 mm, prominent, orange, clear; rough ped, moderate, 20-50 mm, subangular blocky; dry, weak; light clay, fine sandy; coarse fragments 2-10%, 20-60 mm, subangular, sandstone; common 10-20%, calcareous, soft segregations, medium 2-6 mm, highly calcareous; no pans; pH 9.5



Location 1



Location 2



Erosion 1



Surface 1



Surface 2



pH, slaking, dispersion



Profile

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.1	7.26	NEU	10.1	L	96.4	1.97	L	782	L	1.9	1.06	M1	<0.20	10.4	12.2	0.32

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H2O)		EC (dS/m)	Salinity Rating^	Cl^- (mg/kg)	Exchangeable cations (meq/100 g)							ESP (%)	Sodicity^	Emerson class	Ca:Mg ratio
	Clay	Silt	Sand	Gravel	-	Rating#				H+	Al+	Ca+	Mg+	K+	Na+	CEC				
0.0-0.1	6.1	9.5	84.4	4.7	7.26	NEU	0.06	VL	39.2	-	0.01	7.19	2.02	0.89	0.79	10.9	7.26	S	3b	3.57
0.1-0.2	11.6	5.9	82.5	1.9	7.20	NEU	0.05	VL	54.3	-	0.01	3.73	1.18	1.00	0.66	6.57	9.99	S	2	3.17
0.2-0.3	25.4	6.1	68.4	2.1	7.54	SLAL	0.22	M	75.9	-	-	3.02	4.01	0.42	2.54	10.0	25.4	SS	1	0.75
0.45-0.55	30.7	2.3	66.9	6.0	9.44	VSAL	0.41	M	92.3	-	-	13.2	5.59	0.45	3.30	22.6	14.6	S	1	2.37

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL									
Date:	15/08/2021	Describer:	H Marvell	Site:	310-03-AH3323	Type:	Partial		
MSU:	1.2.1.2		ASC:	Brown Dermosol					
PSC:	No suitable soil		Chainage (m):		82354		Elevation (m):		316
Coordinates:	Easting:	320077	Northing:	6870295		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod.rapid
Morphological type:	Open depression (vale)	Permeability:	Moderately
Landform element:	Drain depres.	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Qs
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Cleared, pasture		
Surface condition:	Surface crusting, hard setting		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); poplar box, <i>E. chloroclada</i> , bulloak		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-100	Brown (10YR4/2 (moist)); no mottles; weak, 5-10 mm, polyhedral; dry, very weak; clay loam, sandy; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 6.0; clear boundary to -
B21	100-190	Greyish brown (10YR5/2 (moist)); mottles 10-20%, 5-15 mm, faint, orange, diffuse; moderate, 20-50 mm, polyhedral; moderately moist, weak; clay loam, sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 6.0; clear boundary to -
2B22	190-400	Brown (10YR5/3 (moist)); mottles 10-20%, 5-15 mm, prominent, orange, diffuse; rough ped, weak, 20-50 mm, polyhedral; moist, weak; sandy clay loam; no fragments; no segregations; no pans partial slake in 10 mins; slight dispersion within 10 mins; pH 6.5; gradual boundary to -
2B/C	400-550	Brown (10YR5/3 (moist)); mottles 10-20%, 5-15 mm, prominent, orange, diffuse; rough ped, moderate, 20-50 mm, polyhedral; moderately moist, firm; sandy clay loam; no fragments; no segregations; no pans complete slake in 10 mins; slight dispersion within 10 mins; pH 7.5



Location 1



Erosion 1



Profile



Surface 1



pH, slaking, dispersion

GENERAL									
Date:	15/08/2021	Describer:	T Beck	Site:	310-03-AH3324	Type:	Check site		
MSU:	5.2.3.2b	ASC:	Sodosol						
PSC:	Weranga		Chainage (m):		82656		Elevation (m):		357
Coordinates:	Easting:	320118	Northing:	6870595	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod.rapid
Morphological type:	Flat	Permeability:	Very slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Extensive clearing		
Surface condition:	Firm, hard setting, cryptogam surface		
Surface fragments:	2-10%, 6-20 mm, angular, metamorphic and subrounded quartz		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, present)		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); poplar box, cypress pine, bulloak		



Location 1



Location 2



Surface 1



Surface 2

GENERAL									
Date:	30/08/2021	Describer:	H Marvell	Site:	310-03-TP3073	Type:	Detailed		
MSU:	1.1.3.2b?	ASC:	Brown Sodosol?						
PSC:	Downfall?		Chainage (m):		82894		Elevation (m):		321
Coordinates:	Easting:	320145	Northing:	6870831		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Residual crest	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Qs
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Cleared, pasture		
Surface condition:	Firm; hard setting?		
Surface fragments:	2-10%, 6-20 mm, subangular conglomerate?; 2-10%, 20-60 mm, subangular gravel?		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)?		
Vegetation:	Very sparse, crowns well separated (0.25-20%); cypress, poplar box, bulloak, wattles, <i>Eucalyptus</i> sp.?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1?	0-200?	Brown (10YR4/3 (moist)); no mottles?; earthy, massive (no peds)?; moderately moist, very weak?; loamy sand?; 2-10% coarse fragments, 20-60 mm, subangular gravel?; no segregations?; no pans?; clear boundary to -
A2j?	200-300?	Brown (10YR6/3 (moist)); no mottles?; earthy, massive (no peds)?; moderately moist, very weak?; sandy clay loam?; 2-10% coarse fragments, 20-60 mm, subangular gravel?; no segregations?; no pans; abrupt boundary to -
B21?	300-500?	Brown (10YR5/2 (moist)); mottles, 10-20%, 5-15 mm, faint, dark, diffuse?; rough ped; moderate, 10-20 mm, subangular blocky; moist, firm?; light medium clay?; no coarse fragments?; no segregations?; no pans; gradual boundary to -
B22?	500-900?	Brown (10YR4/3 (moist)); mottles, 10-20%, 15-30 mm, faint, orange, diffuse?; rough ped; moderate, 10-20 mm, subangular blocky; moist, firm?; light clay?; no coarse fragments?; no segregations?; no pans; gradual boundary to -
B23?	1000-1500?	Brown (10YR5/4 (moist)); mottles, 10-20%, >30 mm, faint, dark, diffuse?; rough ped; moderate, 10-20 mm, subangular blocky; mottles, 10-20%, 15-30 mm, faint, grey, diffuse?; moist, firm?; light medium clay?; no coarse fragments?; no segregations?; no pans?



Profile 1



Profile 2



Surface 1



Location 1



Stockpile 1

GENERAL									
Date:	15/08/2021	Describer:	H Marvell	Site:	310-03-AH3325	Type:	Partial		
MSU:	5.1.3.2b	ASC:	Brown Sodosol						
PSC:	Weranga		Chainage (m):		83204		Elevation (m):		326
Coordinates:	Easting:	320180	Northing:	6871140		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Mod.rapid
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Lower slope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Cleared, pasture		
Surface condition:	Surface crust		
Surface fragments:	2-10%, 20-60 mm, subangular, chert		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (stabilised, present, <1.5 m).		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); bulloak, poplar box, cypress pine		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A2e and B21	0-110	Dark brown (7.5YR3/2 (moist)); pink (7.5YR7/3 (dry)); no mottles; rough ped, weak, 5-10 mm, polyhedral; dry, weak; sandy clay loam; no fragments; no segregations; no pans; mixed with dark brown (7.5YR3/3 (moist)); mottles 10-20%, 5-15 mm, faint, orange, diffuse; rough ped, moderate, 20-50 mm, polyhedral; dry, weak; light clay, sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 6.0; gradual boundary to -
B22	110-550	Brown (7.5YR5/4 (moist)); mottles 10-20%, 15-30 mm, faint, orange, diffuse; rough ped, moderate, 10-20 mm, polyhedral; moderately moist, very firm; sandy clay loam; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 7.0; gradual boundary to -
B23	550-	Brown (7.5YR5/4 (moist)); mottles 10-20%, 5-15 mm, prominent, orange, diffuse; rough ped, moderate, 20-50 mm, polyhedral; moderately moist, firm; medium clay, sandy; coarse fragments <2%, 2-6 mm, subrounded, mudstone; few 2-10%, calcareous, soft segregations, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 9.0



Location 1



Location 2



Erosion 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL							
Date:	15/08/2021	Describer:	A Kaur	Site:	310-03-AH3327	Type:	Check site
MSU:	1.1.1.2/5.1.3.2b	ASC:	Dermosol/Sodosol				
PSC:	No suitable soil/Weranga	Chainage (m):	83492	Elevation (m):	322		
Coordinates:	Easting:	320214	Northing:	6871426	Zone:	56	Datum: GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Open depression (vale)	Permeability:	Slowly
Landform element:	Drain depres.	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Qs/Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Highly (roads, mines)		
Surface condition:	Surface crusting in drainage line, firm to hard setting out of drainage line		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, present)		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); poplar box, bulloak, wattle		



Location 1



Location 2



Surface 1



Surface 2

GENERAL									
Date:	15/08/2021	Describer:	T Beck	Site:	310-03-AH3328	Type:	Partial		
MSU:	5.1.3.2b	ASC:	Brown Sodosol						
PSC:	Weranga		Chainage (m):		83837		Elevation (m):		364
Coordinates:	Easting:	320258	Northing:	6871767		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Mod.rapid
Morphological type:	Flat	Permeability:	Very slowly
Landform element:	Residual crest	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Extensive clearing		
Surface condition:	Loose, firm		
Surface fragments:	2-10%, 20-60 mm, subrounded, quartz		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); cypress pine, bullock, poplar box		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-20	Black (10YR2/1 (moist)); no mottles; earthy, massive (no peds); dry, very weak; clayey sand; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion in 2 hrs; pH 6.5; gradual boundary to -
A21	20-70	Very dark brown (10YR2/2 (moist)); no mottles; earthy, massive (no peds); moderately moist, very weak; loamy sand; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 6.5; clear boundary to -
A22e	80-150	Very dark greyish brown (10YR3/2 (moist)) light grey (10YR7/1 (dry)); no mottles; earthy, massive (no peds); moderately moist, weak; loamy sand; coarse fragments 2-10%, 6-20 mm, subrounded, quartz; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 6.5; sharp boundary to -
B21	150-300	Light olive brown (2.5Y5/4 (moist)); mottles 10-20%, 5-15 mm, faint, orange, clear; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, firm; light medium clay; coarse fragments 2-10%, 6-20 mm, subrounded, gravel; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.0; gradual boundary to -
B22	300-370	Light olive brown (2.5Y5/3 (moist)); mottles 20-50%, 15-30 mm, faint, yellow, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; dry, very firm; light medium clay, fine sandy; coarse fragments 2-10%, 2-6 mm, subrounded, quartz; no segregations; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 7.5; clear boundary to -
B23	370-400	Light olive brown (2.5Y5/3 (moist)); mottles 20-50%, 5-15 mm, faint, yellow, diffuse; earthy, massive (no peds); dry, weak; light clay, coarse sandy; coarse fragments 10-20%, 6-20 mm, subrounded, gravel; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 7.0; clear boundary to -
B24	400-550	Greyish brown (2.5Y5/2 (moist)); mottles 10-20%, 5-15 mm, faint, brown, diffuse; rough ped, moderate, 100-200 mm, subangular blocky; moderately moist, very firm; light medium clay, sandy; coarse fragments 10-20%, 6-20 mm, subrounded, gravel; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
B3	550-	Greyish brown (2.5Y5/2 (moist)); mottles 20-50%, 5-15 mm, prominent, orange, clear; rough ped, moderate, 100-200 mm, subangular blocky; moderately moist, firm; light medium clay, fine sandy; coarse fragments 10-20%, 6-20 mm, subrounded, gravel; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0



Location 1



Location 2



Erosion 1



Surface 1



Profile



Surface 2



pH, slaking, dispersion

GENERAL									
Date:	30/08/2021	Describer:	H Marvell	Site:	310-03-TP3074	Type:	Detailed		
MSU:	1.2.3.2b?	ASC:	Brown Sodosol?						
PSC:	Downfall?		Chainage (m):		84148		Elevation (m):		319
Coordinates:	Easting:	320297	Northing:	6872072		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Residual rise	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Qs
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Extensive clearing		
Surface condition:	Loose; firm?		
Surface fragments:	2-10%, 20-60 mm, subrounded quartz?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor)?		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); cypress, poplar box, bulloak, mountain coolabah, wilga?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1?	0-100?	Brown (7.5YR4/3 (moist))?. no mottles?. earthy, massive (no peds)?. moderately moist, very weak?. sandy clay loam?. 20-50% coarse fragments, 20-60 mm, subangular gravel?. no segregations?. no pans?. gradual boundary to -
A2?	100-200?	Brown (7.5YR5/3 (moist))?. no mottles?. earthy, massive (no peds)?. moderately moist, very weak?. sandy clay loam?. 2-10% coarse fragments, 20-60 mm, subangular gravel?. no segregations?. no pans?. abrupt boundary to -
B21?	200-600?	Brown (10YR4/3 (moist))?. mottles, 10-20%, 15-30 mm, prominent, dark, diffuse?. rough ped, moderate, 10-20 mm, subangular blocky?. moist, firm?. light clay, sandy?. 2-10% coarse fragments, 20-60 mm, subangular gravel?. many (20-50%), calcareous, soft segregations, very coarse (20-60 mm), highly effervescent?. no pans?. gradual boundary to -
B22?	600-1,500?	Dark yellowish brown (10YR4/4 (moist))?. dark mottles, 20-50%, >30 mm, prominent, diffuse?. rough ped, moderate, 10-20 mm, subangular blocky?. moist, firm?. light clay, sandy?. 2-10%, 20-60 mm, subangular gravel?. common (10-20%), calcareous, soft segregations, very coarse (20-60 mm), highly effervescent?. no pans



Profile 1



Profile 2



Profile 3



Location 1



Location 2



Stockpile 1

GENERAL									
Date:	15/08/2021	Describer:	A Kaur	Site:	310-03-AH3326	Type:	Partial		
MSU:	1.1.1.2	ASC:	Black Dermosol						
PSC:	No suitable soil		Chainage (m):		84380		Elevation (m):		323
Coordinates:	Easting:	320204	Northing:	6872284	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Open depression (vale)	Permeability:	Slowly
Landform element:	Drain depres.	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Qs
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Highly (roads, mines)		
Surface condition:	Loose, soft		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, present)		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); bulloak, <i>Angophora</i> sp., <i>Eucalyptus</i> sp.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-100	Very dark greyish brown (10YR3/2 (moist)); mottles <2%, <5 mm, faint, pale, diffuse; rough ped, moderate, 10-20 mm, subangular blocky; moist, weak; sandy clay loam; coarse fragments 10-20%, 20-60 mm, angular, sandstone; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 6.0; clear boundary to -
B21	100-200	Very dark grey (10YR3/1 (moist)); mottles 2-10%, 5-15 mm, prominent, orange, diffuse; rough ped, moderate, 20-50 mm, polyhedral; moist, very weak; light clay, sandy; coarse fragments 2-10%, 6-20 mm, angular, sandstone; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.0; gradual boundary to -
B22	200-400	Dark grey (10YR4/1 (moist)); mottles 2-10%, 5-15 mm, faint, orange, diffuse; rough ped, moderate, 20-50 mm, subangular blocky; moist, weak; light medium clay, sandy; coarse fragments 2-10%, 2-6 mm, subangular, sandstone; very few <2%, calcareous, nodules, medium 2-6 mm, moderately calcareous; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 9.0; diffuse boundary to -
2B23	400-600	Dark grey (10YR4/1 (moist)); mottles 2-10%, 5-15 mm, faint, yellow, diffuse; rough ped, weak, 20-50 mm, subangular blocky; moist, weak; clayey sand; coarse fragments 2-10%, 2-6 mm, subangular, sandstone; few 2-10%, calcareous, fragments, fine <2 mm, moderately calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 9.0; gradual boundary to -
3B31	600-	Grey (10YR6/1 (moist)); no mottles; sandy (grains prominent), single grain (no peds); wet, loose; loamy sand; coarse fragments 2-10%, 6-20 mm, angular, sandstone; no segregations; no pans; complete slake in 10 mins; slight dispersion within 10 mins; pH 9.5



Location 1



Location 2



Surface 1



Surface 2



Profile



pH, slaking, dispersion

GENERAL									
Date:	31/08/2021	Describer:	H Marvell	Site:	310-03-TP3075	Type:	Detailed		
MSU:	1.1.3.2b?	ASC:	Brown Sodosol?						
PSC:	Downfall?		Chainage (m):		84777		Elevation (m):		319
Coordinates:	Easting:	320014	Northing:	6872621		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Moderately
Landform element:	Residual crest	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Qs
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Loose; soft?		
Surface fragments:	2-10%, 2-6 mm, subangular quartz?		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)?		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); cypress pine, poplar box, bulloak, <i>Angolophora</i> , <i>Eucalyptus</i> sp.?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1?	0-100?	Brown (7.5YR4/3 (moist))?. no mottles?. earthy, massive (no peds)?. moderately moist, very weak?. sandy loam?. 2-10% coarse fragments, 6-20 mm, subangular gravel?. no segregations?. no pans?. clear boundary to -
A21?	100-200?	Light brown (7.5YR6/3 (moist))?. no mottles?. sandy (grains prominent), single grain (no peds). moderately moist, very weak?. loamy sand?. no coarse fragments?. no segregations?. no pans?. clear boundary to -
A22?	200-500?	Brown (7.5YR4/3 (moist))?. no mottles?. sandy (grains prominent), single grain (no peds). moist, weak?. sandy clay loam?. no coarse fragments?. no segregations?. no pans?. gradual boundary to -
B22?	500-1,300?	Yellowish brown (10YR5/6 (moist))?. mottles, 10-20%, >30 mm, prominent, dark, diffuse?. mottles, 10-20%, >30 mm, prominent, grey, diffuse?. rough ped; moderate, 10-20 mm, subangular blocky?. moist, firm?. light clay?. no coarse fragments?. no segregations?. no pans; gradual boundary to -
B23?	1,300-1,500?	Brown (10YR4/3 (moist))?. mottles, 10-20%, >30 mm, prominent, dark, diffuse?. mottles, 10-20%, >30 mm, prominent, red, clear?. rough ped; moderate, 10-20 mm, subangular blocky?. moist, firm?. light clay?. no coarse fragments?. no segregations?. no pans?



Profile 1



Profile 2



Location 1



Stockpile 1

GENERAL									
Date:	15/08/2021	Describer:	H Marvell	Site:	310-03-AH3318	Type:	Representative		
MSU:	5.2.3.2b	ASC:	Supracalcic Mottled-Mesonatric Brown Sodosol						
PSC:	Weranga		Chainage (m):		85061		Elevation (m):		324
Coordinates:	Easting:	319875	Northing:	6872870		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Moderately
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Loose, soft		
Surface fragments:	2-10%, 2-6 mm, subangular, quartz		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, present)		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); cypress pine, poplar box, bullock; rooting depth 280 mm.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-60	Brown (10YR4/3 (moist)); no mottles; earthy, massive (no peds); moderately moist, very weak; sandy loam; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.0; clear boundary to -
A2e	60-180	Greyish brown (10YR5/2 (moist)); light grey (10YR7/1 (dry)); no mottles; earthy, massive (no peds); moderately moist, very weak; loamy sand; no fragments; no segregations; no pans; complete slake in 10 mins; slight dispersion within 10 mins; pH 6.5; abrupt boundary to -
B2	180-280	Light yellowish brown (10YR6/4 (moist)); mottles 10-20%, 5-15 mm, faint, brown, clear; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, weak; light clay, sandy; no fragments; very few <2%, concretions, fine <2 mm, highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5; clear boundary to -
BC	280-450	Yellowish brown (10YR5/4 (moist)); mottles 10-20%, 5-15 mm, faint, brown, clear; rough ped, moderate, 10-20 mm, subangular blocky; dry, firm; light medium clay, sandy; no fragments; many 20-50%, concretions, coarse 6-20 mm, very highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 9.0;



Location 1



Location 2



Surface 1



pH, slaking, dispersion



Profile

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.06	6.20	SLAC	4.85	VL	96.4	3.69	L	383	VL	1	0.59	VL	<0.20	43.2	9.78	0.36

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H ₂ O)		EC (dS/m)	Salinity Rating [^]	Cl ⁻ (mg/kg)	Exchangeable cations (meq/100 g)							ESP (%)	Sodicity [*]	Emerson class	Ca:Mg ratio
	Clay	Silt	Sand	Gravel	-	Rating [#]				H+	Al+	Ca+	Mg+	K+	Na+	CEC				
0.0-0.06	4.3	0.8	94.9	0.6	6.20	SLAC	0.03	VL	26.0	-	0.01	1.77	0.78	0.97	0.12	3.65	3.16	NS	7	2.28
0.08-0.18	8.1	0.4	91.5	1.6	6.57	NEU	0.03	VL	24.8	-	0.01	0.65	0.66	1.03	0.34	2.68	12.7	S	1	0.98
0.18-0.28	22.5	0.4	77.1	3.6	9.25	VSAL	0.51	H	285	-	-	10.2	5.17	0.43	3.13	18.9	16.5	SS	1	1.97
0.3-0.4	27.7	4.3	68.0	7.5	9.66	VSAL	0.58	H	207	-	-	12.0	5.50	0.43	3.69	21.6	17.1	SS	1	2.18

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL									
Date:	15/08/2021	Describer:	T Beck	Site:	310-03-AH3315	Type:	Check site		
MSU:	5.1.3.2b	ASC:	Sodosol						
PSC:	Weranga		Chainage (m):		85331		Elevation (m):		366
Coordinates:	Easting:	319744	Northing:	6873106	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Residual crest	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Loose, firm		
Surface fragments:	2-10%, 6-20 mm, subrounded, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); bulloak, cypress pine, poplar box		



Location 1



Location 2



Surface 1



Surface 2

GENERAL												
Date:	31/08/2021		Describer:	H Marvell		Site:	310-03-TP3801		Type:	Detailed		
MSU:	5.1.3.2b?		ASC:	Brown Sodosol?								
PSC:	Weranga			Chainage (m):			85586		Elevation (m):		325	
Coordinates:	Easting:		319618		Northing:		6873334		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Moderately
Landform element:	Residual crest	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Loose; soft?		
Surface fragments:	2-10%, 2-6 mm, subangular quartz? (other fragments observed but unlikely natural)		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)?		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); cypress pine, poplar box, bullock, <i>Angolophora</i> , <i>Eucalyptus</i> sp.?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1?	0-150?	Greyish brown (10YR5/2 (moist))?; no mottles?; earthy, massive (no peds)?; moderately moist, very weak?; sandy loam?; 2-10%, 60-200 mm, subangular gravel fragments?; 10-20%, 20-60 mm, subangular gravel fragments?; no segregations; no pans?; clear boundary to -
A2e	150-400?	Light grey (10YR7/2 (moist))?; no mottles?; sandy (grains prominent), single grain (no peds); dry, very weak?; loamy sand?; 10-20%, 20-60 mm, subangular gravel fragments?; no segregations; no pans?; abrupt boundary to -
B21?	400-600?	Dark yellowish brown (10YR4/4 (moist))?; dark mottles, 10-20%, 5-15 mm, faint, diffuse?; rough ped?; moderate, 5-10 mm, subangular blocky?; moderately moist, firm?; light clay, sandy?; 10-20%, 20-60 mm, subangular gravel fragments?; no segregations?; no pans?; gradual boundary to -
B22?	600-1,250	Yellowish brown (10YR5/6 (moist))?; orange mottles, 10-20%, 5-15 mm, faint, diffuse?; rough ped?; moderate, 10-20 mm, subangular blocky?; moderately moist, firm?; light clay, sandy?; 10-20%, 20-60 mm, subangular gravel fragments?; no segregations?; no pans?; gradual boundary to -
B23?	1,250-1,500?	Brown (10YR4/3 (moist))?; dark mottles, 10-20%, >30 mm, prominent, diffuse?; red mottles, 10-20%, 15-30 mm, faint, diffuse?; rough ped?; moderate, 10-20 mm, subangular blocky?; moist, firm?; light clay, sandy?; 10-20%, 20-60 mm, subangular gravel fragments?; no segregations?; no pans?



Profile 1



Profile 2



Location 1



Surface 1



Stockpile 1

GENERAL									
Date:	31/08/2021	Describer:	H Marvell	Site:	310-03-TP3076	Type:	Detailed		
MSU:	5.1.3.2b?	ASC:	Brown Sodosol?						
PSC:	Weranga?		Chainage (m):		85827		Elevation (m):		328
Coordinates:	Easting:	319542	Northing:	6873566		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Moderately
Landform element:	Residual rise	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Loose; soft?		
Surface fragments:	2-10%, 2-6 mm, subangular quartz? (other fragments observed but unlikely natural)		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)?		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); cypress pine, poplar box, bulloak, <i>Angolphora</i> , <i>Eucalyptus</i> sp.?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1?	0-200?	Very dark brown (10YR3/2 (moist))?.; no mottles?.; earthy, massive (no peds)?.; moderately moist, very weak?.; loamy sand?.; 2-10% coarse fragments, 60-200 mm, subangular gravel?.; 10-20% coarse fragments, 20-60 mm, subangular gravel?.; no segregations?.; no pans?.; clear boundary to -
A2e?	200-350?	Grey (7.5YR6/3 (moist))?.; no mottles?.; sandy (grains prominent), single grain (no peds); dry, very weak?.; loamy sand?.; 10-20%, 20-60 mm, subangular gravel?.; no segregations?.; no pans?.; abrupt boundary to -
B21?	350-900?	Brown (7.5YR5/4 (moist))?.; mottles, 10-20%, 5-15 mm, faint, dark, diffuse?.; rough ped, moderate, 5-10 mm, subangular blocky?.; moderately moist, firm?.; light clay, sandy?.; 10-20%, 20-60 mm, subangular gravel?.; no segregations?.; no pans?.; gradual boundary to -
B22?	900-1,200	Brown (7.5YR5/3 (moist))?.; mottles, 10-20%, 5-15 mm, faint, dark, diffuse?.; rough ped, moderate, 10-20 mm, subangular blocky?.; moderately moist, firm?.; light clay, sandy?.; 10-20%, 20-60 mm, subangular gravel?.; no segregations?.; no pans?.; gradual boundary to -
B23?	1,200-1,500?	Red (7.5YR4/6 (moist))?.; mottles, 10-20%, >30 mm, faint, dark, diffuse?.; mottles, 10-20%, 15-30 mm, faint, red, diffuse?.; rough ped,; moderate, 10-20 mm, subangular blocky?.; moist, very firm?.; light clay, sandy?.; 10-20%, 20-60 mm, subangular gravel?.; no segregations?.; no pans?



Profile 1



Profile 2



Location 1



Location 2



Stockpile 1

GENERAL									
Date:	31/08/2021	Describer:	H Marvell	Site:	310-03-TP3802	Type:	Detailed		
MSU:	5.2.3.2b?	ASC:	Brown Sodosol?						
PSC:	Weranga		Chainage (m):		86151		Elevation (m):		328
Coordinates:	Easting:	319446	Northing:	6873876		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Moderately
Landform element:	Residual rise	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Loose; soft?		
Surface fragments:	2-10%, 2-6 mm, subangular quartz?; 2-10%, 60-200, subangular conglomerate?		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)?		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); cypress pine, bulloak, wilga, <i>Angophora</i> , <i>Eucalyptus</i> sp.?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1?	0-200?	Brown (10YR5/3 (moist))?; no mottles?; earthy, massive (no peds)?; dry, very weak?; sandy loam?; 10-20%, 20-60 mm, subangular gravel fragments?; no segregations; no pans?; abrupt boundary to -
B21?	200-500?	Yellowish brown (10YR5/6 (moist))?; brown mottles, 10-20%, 5-15 mm, faint, diffuse?; rough ped, moderate, 10-20 mm, subangular blocky?; dry, firm?; light clay, sandy?; 2-10%, 6-20 mm, subangular gravel fragments?; no segregations; no pans?; gradual boundary to -
B22?	500-1,050?	Yellowish brown (10YR5/4 (moist))?; dark mottles, 10-20%, 15-30 mm, faint, diffuse?; rough ped, moderate, 10-20 mm, subangular blocky?; moderately moist, firm?; light clay, sandy?; no fragments?; few (2-10%) segregations, calcareous, concretions, medium (2-6 mm)?; no pans?; gradual boundary to -
B24?	1,050-1,500?	Brown (10YR4/3 (moist))?; grey mottles, 20-50%, >30 mm, prominent, diffuse?; red mottles, 10-20%, >30 mm, prominent, diffuse?; rough ped, moderate, 10-20 mm, subangular blocky?; moist, firm?; light clay, sandy?; no fragments?; no segregations?; no pans?



Profile 1



Profile 2



Location 1



Location 2



Stockpile 1

GENERAL									
Date:	31/08/2021	Describer:	H Marvell	Site:	310-03-TP3077	Type:	Detailed		
MSU:	5.2.3.2b?	ASC:	Brown Sodosol?						
PSC:	Weranga?		Chainage (m):		86434		Elevation (m):		331
Coordinates:	Easting:	319359	Northing:	6874146		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Moderately
Landform element:	Residual rise	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Firm?		
Surface fragments:	2-10%, 2-6 mm, subangular quartz?		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)?		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); cypress pine, bulloak, wilga, <i>Angophora</i> , <i>Eucalyptus</i> sp.?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1?	0-150?	Brown (10YR4/3 (moist))?.; no mottles?.; earthy, massive (no peds)?.; dry, very weak?.; sandy loam?.; 10-20% coarse fragments, 20-60 mm, subangular gravel?.; no segregations?.; no pans?.; clear boundary to -
A2e?	150-200?	Light brownish grey (10YR6/2 (moist))?.; ADD dry colour?.; no mottles?.; rough ped, moderate, 5-10 mm, subangular blocky?.; dry, loose?.; loamy sand?.; 2-10% coarse fragments, 6-20 mm, subangular gravel?.; no segregations?.; no pans?.; abrupt boundary to -
B21?	200-500?	Brown (10YR5/3 (moist))?.; no mottles?.; rough ped, moderate, 5-10 mm, subangular blocky?.; dry, weak?.; silty clay loam?.; 2-10% 6-20 mm, subangular gravel?.; no segregations?.; no pans?.; gradual boundary to -
B22?	500-1,100?	Brown (10YR4/3 (moist))?.; mottles, 10-20%, faint, dark, diffuse?.; rough ped?.; moderate, 5-10 mm, subangular blocky?.; moderately moist, firm?.; light clay?.; no fragments?.; few (2-10%) segregations, calcareous, concretions, medium (2-6 mm)?.; no pans?.; gradual boundary to -
B22?	1,100-1,500?	Reddish brown (2.5YR4/4 (moist))?.; mottles, 10-20%, >30 mm, prominent, grey, diffuse?.; mottles, 10-20%, >30 mm, faint, brown, diffuse?.; mottles, 10-20%, >30 mm, prominent, dark, diffuse?.; rough ped, moderate, 5-10 mm, subangular blocky?.; moist, firm?.; light clay, sandy?.; no fragments?.; no segregations?.; no pans?



Profile 1



Profile 2



Location 1



Location 2



Stockpile 1

GENERAL									
Date:	01/09/2021	Describer:	H Marvell	Site:	310-03-TP3803	Type:	Detailed		
MSU:	5.2.3.2b?	ASC:	Brown Sodosol?						
PSC:	Weranga?		Chainage (m):		86792		Elevation (m):		329
Coordinates:	Easting:	319252	Northing:	6874487		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Moderately
Landform element:	Residual rise	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Firm; loose?		
Surface fragments:	2-10%, 2-6 mm, subangular quartz?		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)?		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); cypress pine, bulloak, wilga, <i>Angophora</i> , <i>Eucalyptus</i> sp.?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1?	0-100?	Brown (7.5YR4/3 (moist))?. no mottles?. earthy, massive (no peds)?. dry, very weak?. sandy loam?. 10-20% fragments, 20-60 mm, subangular gravel?. no segregations; no pans?. clear boundary to -
A2e?	100-200?	Light brown (7.5YR6/3 (moist))?. ADD dry colour?. no mottles?. earthy, massive (no peds)?. dry, loose?. loamy sand?. 2-10% fragments, 6-20 mm, subangular gravel fragments?. no segregations?. no pans?. abrupt boundary to -
B21?	200-500?	Yellowish brown (10YR5/6 (moist))?. dark mottles, 10-20%, 5-15 mm, faint, diffuse?. rough ped, moderate, 10-20 mm, subangular blocky?. dry, weak?. light clay, sandy?. 2-10% fragments, 6-20 mm, subangular gravel?. no segregations?. no pans?. gradual boundary to -
B22?	500-1,000?	Dark yellowish brown (10YR4/6 (moist))?. dark mottles, 10-20%, 5-15 mm, faint, diffuse?. rough ped, moderate, 10-20 mm, subangular blocky?. moderately moist, firm?. light clay, sandy?. no fragments?. no segregations?. no pans?. gradual boundary to -
B23?	1,000-1,500	Yellowish brown (10YR5/4 (moist))?. dark mottles, 20-50%, >30 mm, prominent, diffuse?. white mottles, 10-20%, >30 mm, prominent, clear?. rough ped, moderate, 10-20 mm, subangular blocky?. moderately moist, firm?. light clay (light medium?), sandy?. no fragments?. few (2-10%), calcareous, soft segregations(?), medium (2-6 mm), highly effervescent?. no pans?



Profile 1



Profile 2



Profile 3



Location 1



Location 2



Stockpile 1

GENERAL									
Date:	15/08/2021	Describer:	C Traill	Site:	310-03-AH3298	Type:	Partial		
MSU:	1.1.3.2b	ASC:	Brown Sodosol						
PSC:	Downfall		Chainage (m):		87112		Elevation (m):		363
Coordinates:	Easting:	319161	Northing:	6874795		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Open depression (vale)	Permeability:	Moderately
Landform element:	Drain depres.	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Highly (roads, mines)		
Surface condition:	Loose		
Surface fragments:	<2%, 2-6 mm, subangular, sandstone		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); <i>Eucalyptus</i> sp., <i>Angophora</i> sp., cypress pine		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A11	0-150	Very dark greyish brown (10YR3/2 (moist)); no mottles; sandy (grains prominent), single grain (no peds); moderately moist, loose; loamy sand; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 6.0; gradual boundary to -
A12	150-400	Very dark greyish brown (10YR3/2 (moist)); no mottles; sandy (grains prominent), single grain (no peds); moderately moist, loose; loamy sand; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 7.5; gradual boundary to -
A13	400-550	Dark greyish brown (10YR4/2 (moist)); no mottles; sandy (grains prominent), single grain (no peds); moderately moist, loose; clay loam, sandy; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 7.0; gradual boundary to -
A14	550-700	Dark brown (10YR3/3 (moist)); no mottles; rough ped, weak, 10-20 mm, polyhedral; moist, weak; clay loam, fine sandy; coarse fragments <2%, 2-6 mm, subangular, sandstone; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 6.5; clear boundary to -
A21	700-800	Brown (10YR5/3 (moist)); no mottles; sandy (grains prominent), single grain (no peds); moist, loose; loamy sand; no fragments; no segregations; no pans; complete slake in 10 mins; slight dispersion within 10 mins; pH 7.0; clear boundary to -
A22e	800-950	Dark yellowish brown (10YR4/4 (moist)); no mottles; sandy (grains prominent), single grain (no peds); wet, loose; loamy sand; no fragments; no segregations; no pans; complete slake in 10 mins; strong dispersion within 10 mins; pH 7.0; abrupt boundary to -
B21	950-	Dark yellowish brown (10YR3/6 (moist)); mottles 10-20%, 5-15 mm, prominent, orange, diffuse; rough ped, moderate, 20-50 mm, subangular blocky; moist, firm; light clay, sandy; no fragments; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 7.0



Location 1



Location 2a



Location 3



Surface 1



Surface 2



Profile



pH, slaking, dispersion

GENERAL									
Date:	16/08/2021	Describer:	T Beck	Site:	310-03-AH3297	Type:	Detailed		
MSU:	1.2.3.2b	ASC:	Brown Sodosol						
PSC:	Downfall		Chainage (m):		87302		Elevation (m):		374
Coordinates:	Easting:	319098	Northing:	6874974		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod.rapid
Morphological type:	Open depression (vale)	Permeability:	Slowly
Landform element:	Drain depres.	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Extensive clearing		
Surface condition:	Loose, firm		
Surface fragments:	<2%, 2-6 mm, Subangular, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); bull oak, cypress pine, poplar box		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-100	Dark brown (10YR3/3 (moist)); no mottles; earthy, massive (no peds); moderately moist, very weak; sandy loam; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 5.0; gradual boundary to -
A21	100-170	Brown (10YR4/3 (moist)); no mottles; sandy (grains prominent), single grain (no peds); moderately moist, very weak; clayey sand; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 5.0; gradual boundary to -
A22	170-250	Brown (10YR5/3 (moist)); mottles 10-20%, 5-15 mm, faint, orange, diffuse; earthy, massive (no peds); moderately moist, very weak; clayey sand; no fragments; no segregations; no pans; complete slake in 10 mins; slight dispersion within 10 mins; pH 6.0; clear boundary to -
A23e	250-300	Greyish brown (10YR5/2 (moist)); light grey (10YR7/1); mottles 10-20%, 5-15 mm, prominent, orange, clear; rough ped, weak, 10-20 mm, subangular blocky; moderately moist, weak; clayey sand, fine sandy; no fragments; no segregations; no pans; complete slake in 10 mins; slight dispersion within 10 mins; pH 6.0; clear boundary to -
B21	350-500	Brown (10YR5/3 (moist)); mottles 10-20%, 15-30 mm, prominent, orange, clear; rough ped, moderate, 50-100 mm, subangular blocky, moderately moist, weak; light medium clay, fs; partial slake in 10 mins; slight dispersion within 10 mins; pH 6.5; gradual boundary to -
B22	500-650	Yellowish brown (10YR5/4 (moist)); mottles 10-20%, 5-15 mm, faint, orange, clear; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, firm; light medium clay, sine sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 7.0; clear boundary to -
B22	650-1,250	Yellowish brown (10YR5/6 (moist)); mottles 10-20%, 5-15 mm, faint, orange, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay, fine sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 7.5; clear boundary to -

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
B23	1250-1,350	Brown (10YR5/3 (moist)); mottles 2-10%, 5-15 mm, faint, orange, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.0; gradual boundary to -
B24	1350-1,500	Yellowish brown (10YR5/4 (moist)); no mottles; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, weak; light clay, fine sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.0



Location 1



Location 2



Surface 1



Profile



Surface 2



pH, slaking, dispersion

GENERAL											
Date:	15/08/2021		Describer:	T Beck		Site:	310-03-AH3293		Type:	Check site	
MSU:	1.1.3.2b		ASC:	Sodosol							
PSC:	Downfall			Chainage (m):			87551		Elevation (m):		367
Coordinates:	Easting:	319025		Northing:	6875212		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Mod.rapid
Morphological type:	Open depression (vale)	Permeability:	Slowly
Landform element:	Drain depres.	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Firm, hard setting		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Very sparse, crowns well separated (0.25-20%); cypress pine, bullock, poplar box		



Location 1



Location 2



Surface 1



Surface 2

GENERAL									
Date:	16/08/2021	Describer:	H Marvell	Site:	310-03-AH3292	Type:	Representative		
MSU:	1.2.3.2b	ASC:	Eutrophic Mottled-Subatric Brown Sodosol						
PSC:	Downfall		Chainage (m):		87815		Elevation (m):		328
Coordinates:	Easting:	318946	Northing:	6875468		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Open depression (vale)	Permeability:	Moderately
Landform element:	Drain depres.	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Loose		
Surface fragments:	10-20%, 60-200 mm, angular, chert		
Microrelief:	Mounds and/or depressions on flat surf, inc. termites, termite, mound		
Erosion:	Sheet (active, present)		
Vegetation:	Mid-dense, crowns touching/slight sep. (50-80%); <i>Eucalyptus populnea</i> , bulloak, rusty gum; rooting depth 1190 mm.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-90	Dark yellowish brown (10YR3/4 (moist)); no mottles; earthy, massive (no peds); dry, loose; loamy sand; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 6.5; clear boundary to -
A2e	90-260	Brown (10YR4/3 (moist)); light grey (10YR7/2 (dry)); no mottles; earthy, massive (no peds); dry, very weak; loamy sand; no fragments; no segregations; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 6.0; clear boundary to -
B21	260-390	Brown (10YR5/3 (moist)); mottles 10-20%, 5-15 mm, faint, grey, diffuse; rough ped, moderate, 10-20 mm, polyhedral; dry, firm; light clay, sandy; no fragments; no segregations; no pans; complete slake in 10 mins; slight dispersion within 10 mins; pH 5.5; clear boundary to -
B22	390-750	Grey (10YR6/1 (moist)); mottles 20-50%, 5-15 mm, prominent, red, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, strong; medium clay, sandy; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 5.5; clear boundary to -
B23	750-950	Grey (10YR5/1 (moist)); mottles 20-50%, 5-15 mm, faint, orange, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light clay, sandy; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 5.5; clear boundary to -
B24	950-1,190	Dark grey (10YR4/1 (moist)); mottles 20-50%, 5-15 mm, prominent, orange, diffuse; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, firm; medium clay, sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 5.5; gradual boundary to -
B3	1190-1,500	Dark greyish brown (10YR4/2 (moist)); mottles 10-20%, 5-15 mm, prominent, orange, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; medium clay, sandy; no fragments; no segregations; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 7.0



Location 1



Location 2



Surface 1



pH, slaking, dispersion



Profile

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.09	6.47	SLAC	7.8	VL	82.5	5.3	M	730	L	1.4	0.82	L2	<0.2	44.7	17.2	1.18

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H2O)		EC (dS/m)	Salinity Rating^	Cl^- (mg/kg)	Exchangeable cations (meq/100 g)						ESP (%)	Sodicity^	Emerson class	Ca:Mg ratio	
	Clay	Silt	Sand	Gravel	-	Rating#				H+	Al+	Ca+	Mg+	K+	Na+					CEC
0.0-0.09	10.0	4.2	85.8	6.2	6.47	SLAC	0.03	VL	19.5	-	0.01	2.42	1.18	0.72	0.13	4.46	3	NS	3b	2.06
0.1-0.2	9.9	7.8	82.2	0.3	6.21	SLAC	0.01	VL	7.54	-	0.01	0.94	0.83	0.77	0.18	2.73	6.45	S	3b	1.13
0.29-0.39	18.0	6.2	75.8	0.1	5.50	STAC	0.02	VL	10.4	-	0.01	0.92	1.35	0.75	0.47	3.49	13.3	S	3b	0.68
0.5-0.6	42.1	2.5	55.4	11.2	5.14	STAC	0.1	VL	83.2	-	0.08	2.44	5.3	0.47	1.11	9.41	11.8	S	3b	0.46
0.8-0.9	26.0	2.4	71.6	<0.1	5.37	STAC	0.1	L	97	-	0.04	2.25	4.31	0.65	1.20	8.44	14.2	S	3a	0.52
1.0-1.1	27.1	10.6	62.3	<0.1	5.46	STAC	0.12	L	124		0.01	3.16	5.4	0.57	1.68	10.8	15.6	SS	1	0.58
1.4-1.5	35.2	12.7	52.1	0.1	6.35	SLAC	0.17	L	192		0.01	6.09	9.4	0.29	2.98	18.8	15.9	SS	1	0.65

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL									
Date:	01/09/2021	Describer:	H Marvell	Site:	310-03-TP3078	Type:	Detailed		
MSU:	1.2.3.2b?	ASC:	Brown Sodosol?						
PSC:	Downfall?		Chainage (m):		88065		Elevation (m):		325
Coordinates:	Easting:	318910	Northing:	6875724		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Firm; loose?		
Surface fragments:	2-10%, 20-60 mm, subangular chert?		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); cypress pine, bulloak, <i>Angolphora</i> , <i>Eucalyptus</i> sp.?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1?	0-200?	Dark greyish brown (10YR4/2 (moist))?; no mottles?; earthy, massive (no peds)?; moist, very weak?; sandy loam?; no fragments?; no segregations?; no pans?; gradual boundary to -
A2e?	200-400?	Greyish brown (10YR5/2 (moist))?; no mottles?; earthy, massive (no peds)?; moist, loose?; loamy sand?; 2-10% coarse fragments, 6-20 mm, subangular gravel?; no segregations?; no pans?; abrupt boundary to -
B21?	400-1,000?	Dark yellowish brown (10YR4/4 (moist))?; mottles, 10-20%, >30 mm, prominent, orange, diffuse?; rough ped, moderate, 5-10 mm, subangular blocky?; moist, very firm?; clay loam, sandy?; no fragments?; no pans?; gradual boundary to -
B22?	1,000-1,500?	Dark greyish brown (10YR4/2 (moist))?; mottles, 20-50%, >30 mm, prominent, dark, diffuse?; rough ped, moderate, 10-20 mm, subangular blocky?; moderately moist, very firm?; light clay, sandy?; no fragments?; no segregations?; no pans?



Profile 1



Profile 2



Profile 3



Location 1



Location 2



Stockpile 1

GENERAL										
Date:	01/09/2021		Describer:	H Marvell		Site:	310-03-TP3079		Type:	Detailed
MSU:	5.3.3.2b?		ASC:	Brown Sodosol?						
PSC:	Weranga?			Chainage (m):		88485		Elevation (m):		328
Coordinates:	Easting:	318970		Northing:	6876151		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Moderate
Morphological type:	Simple slope	Permeability:	Moderately
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Firm; loose?		
Surface fragments:	2-10%, 20-60 mm, subangular chert?		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)?		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); cypress pine, bulloak, <i>Angolophora</i> , <i>Eucalyptus</i> sp.?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1?	0-100?	Dark greyish brown (10YR4/2 (moist))?.; no mottles?.; earthy, massive (no peds)?.; moist, very weak?.; loamy sand?.; 10-20% coarse fragments, 6-20 mm, subangular chert? 10-20%, 20-60 mm, subangular chert?.; no segregations?.; no pans?.; gradual boundary to -
A21?	100-1,100	Greyish brown (10YR5/2 (moist))?.; no mottles?.; earthy, massive (no peds)?.; moist, very weak?.; loamy sand?.; 10-20% coarse fragments, 6-20 mm, subangular chert? 10-20%, 20-60 mm, subangular chert?.; no segregations?.; no pans?.; gradual boundary to -
A22e?	1,100-1,200?	Greyish brown (10YR5/2 (moist))?.; light grey (10YR7/1 (dry))?.; no mottles?.; earthy, massive (no peds)?.; moist, very weak?.; loamy sand?.; 10-20% coarse fragments, 6-20 mm, subangular chert? 10-20%, 20-60 mm, subangular chert?.; no segregations?.; no pans?.; abrupt boundary to -
B21?	1,200-1,500?	Dark yellowish brown (10YR4/6 (moist))?.; mottles, 20-50%, >30 mm, prominent, grey, diffuse?.; mottles, 10-20%, >30 mm, prominent, orange, diffuse?.; rough ped, moderate, 10-20 mm, subangular blocky?.; moist, firm?.; light clay, sandy?.; no fragments?.; many (20-50%), calcareous, soft segregations, very coarse (20-60 mm), highly effervescent?.; no pans?



Profile 1



Profile 2



Profile 3



Location 1



Location 2



Stockpile 1

GENERAL									
Date:	16/08/2021	Describer:	H Marvell	Site:	310-03-AH3296	Type:	Partial		
MSU:	5.2.3.2b	ASC:	Brown Sodosol						
PSC:	Weranga	Chainage (m):	89089	Elevation (m):	339				
Coordinates:	Easting:	319087	Northing:	6876742	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Moderately
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Firm, surface crust, hard setting		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); cypress pine, bulloak, wilga		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-100	Brown (10YR4/3 (moist)); no mottles; earthy, massive (no peds); dry, very weak; sandy clay loam; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 5.5; clear boundary to -
A2e	100-150	Brown (10YR4/3 (moist)); pinkish grey (7.5YR7/2 (dry)); no mottles; earthy, massive (no peds); dry, weak; sandy loam; coarse fragments 2-10%, 6-20 mm, subangular, quartz; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 6.0; abrupt boundary to -
B2	150-400	Dark yellowish brown (10YR4/4 (moist)); mottles 10-20%, 5-15 mm, faint, brown, diffuse; rough ped, weak, 5-10 mm, subangular blocky; moderately moist, firm; coarse fragments 20-50%, 20-60 mm, subangular, sandstone; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 5.5; gradual boundary to -
C	400-	Refusal



Location 1



Location 2



Location 3



Erosion 1



Surface 1



Surface 2



Profile



pH, slaking, dispersion

GENERAL											
Date:	01/09/2021		Describer:	H Marvell		Site:	310-03-TP3080		Type:	Detailed	
MSU:	5.2.3.2b		ASC:	Brown Sodosol?							
PSC:	Weranga			Chainage (m):			89416		Elevation (m):		335
Coordinates:		Easting:	319151		Northing:	6877063		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Moderately
Landform element:	Residual rise	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Firm; loose?		
Surface fragments:	2-10%, 20-60 mm, subangular chert?		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)?		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); cypress pine, bulloak, <i>Angophora</i> , <i>Eucalyptus</i> sp.?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/A2j?	0-150?	Greyish brown (10YR5/2 (moist))?. no mottles?. earthy, massive (no peds)?. dry, very weak?. sandy loam?. 10-20% fragments, 6-20 mm, subangular chert?. 10-20% fragments, 20-60 mm, subangular chert?. no segregations; no pans?. abrupt boundary to -
B21?	150-800?	Yellowish brown (10YR5/4 (moist))?. dark mottles, 10-20%, 15-30 mm, diffuse?. rough ped, moderate, 5-10 mm, subangular blocky?. moist, weak?. clay loam, sandy?. 2-10% fragments, 6-20 mm, subangular gravel?. no segregations?. no pans?. gradual boundary to -
B22?	800-1,350?	Dark yellowish brown (10YR4/6 (moist))?. orange mottles, 10-20%, >30 mm, prominent, diffuse?. grey mottles, 10-20%, >30 mm, prominent, diffuse?. moist, firm?. light medium clay, sandy?. no fragments?. few (10-20%) segregations, calcareous, concretions, medium (2-6 mm), highly effervescent?. no pans?. gradual boundary to -
B23?	1,350-1,500?	Dark yellowish brown (10YR4/4 (moist))?. red mottles, 10-20%, >30 mm, faint, diffuse?. orange mottles, 10-20%, >30 mm, faint, diffuse?. rough ped, moderate, 10-20 mm, subangular blocky?. moist, very firm?. light medium clay, sandy?. no fragments?. no segregations?. no pans?



Profile 1



Profile 2



Profile 3



Location 1



Location 2



Stockpile 1

GENERAL									
Date:	16/08/2021	Describer:	T Beck	Site:	310-03-AH3300	Type:	Partial		
MSU:	5.1.3.2b	ASC:	Brown Sodosol						
PSC:	Weranga		Chainage (m):		89714		Elevation (m):		379
Coordinates:	Easting:	319208	Northing:	6877356		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Mod.rapid
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Residual crest	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Extensive clearing		
Surface condition:	Loose, firm		
Surface fragments:	<2%, 20-60 mm, subangular, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); narrow-leaved ironbark, cypress pine, bullock; rooting depth 220 mm.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-120	Dark brown (10YR3/3 (moist)); no mottles; earthy, massive (no peds); moderately moist, weak; clay loam, fine sandy; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 5.5; clear boundary to -
A2e	120-200	Dark greyish brown (10YR4/2 (moist)); pinkish grey (7.5YR7/2 (dry)); no mottles; earthy, massive (no peds); moderately moist, very weak; sandy loam; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 6.0; abrupt boundary to -
B21	200-400	Brown (10YR4/3 (moist)); mottles 20-50%, 15-30 mm, faint, brown, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, weak; light medium clay, sandy; partial slake in 10 mins; slight dispersion within 10 mins; pH 7.0; gradual boundary to -
B22	400-	Dark yellowish brown (10YR4/4 (moist)); mottles 10-20%, 5-15 mm, distinct, red, clear; rough ped, moderate, 100-200 mm, subangular blocky; moderately moist, weak; light medium clay, fine sandy; complete slake in 10 mins; slight dispersion within 2 hrs; pH 7.5



Location 1



Location 2



Surface 1



Surface 2



pH, slaking, dispersion	Profile
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GENERAL															
Date:	01/09/2021		Describer:		H Marvell		Site:	310-03-TP3081		Type:	Detailed				
MSU:	5.2.3.2b		ASC:		Brown Sodosol										
PSC:	Weranga			Chainage (m):			90005			Elevation (m):			336		
Coordinates:		Easting:		319264		Northing:		6877641		Zone:		56	Datum:		GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Moderately
Landform element:	Residual rise	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Firm; loose?		
Surface fragments:	2-10%, 20-60 mm, subangular chert?		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)?		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); cypress pine, bullock, <i>Angophora</i> , <i>Eucalyptus</i> sp.?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1?	0-200?	Greyish brown (10YR5/2 (moist))?; no mottles?; earthy, massive (no peds)?; dry, very weak?; loamy sand?; 10-20% fragments, 6-20 mm, subangular chert? 10-20% fragments, 20-60 mm, subangular chert?; no segregations?; no pans?; gradual boundary to -
B21?	200-300?	Brown (7.5YR5/3 (moist))?; dark mottles, 10-20%, 15-30 mm, faint, diffuse?; rough ped, moderate, 10-20 mm, subangular blocky?; moist, weak?; sandy clay loam?; no fragments?; no segregations?; no pans?; gradual boundary to -
B22?	300-600?	Brown (10YR4/3 (moist))?; dark mottles, 10-20%, 15-30 mm, faint, diffuse?; rough ped, moderate, 10-20 mm, subangular blocky?; moist, weak?; clay loam sandy?; no fragments?; no segregations?; no pans?; gradual boundary to -
B23?	600-900?	Brown (10YR5/4 (moist))?; grey mottles, 10-20%, >30 mm, prominent, diffuse?; dark mottles, 10-20%, >30 mm, prominent, diffuse ?; rough ped, moderate, 10-20 mm, subangular blocky?; moist, firm?; light clay, sandy?; no fragments?; no segregations?; no pans?; gradual boundary to -
B24?	900-1,500?	Brown (10YR5/4 (moist))?; grey mottles, 20-50%, >30 mm, prominent, diffuse? red mottles, 10-20%, >30 mm, faint, diffuse?; rough ped, moderate, 10-20 mm, subangular blocky?; moist, very firm?; light clay, sandy?; no fragments?; no segregations?; no pans?



Profile 1



Profile 2



Profile 3



Location 1



Location 2



Stockpile 1

GENERAL												
Date:	16/08/2021		Describer:	H Marvell		Site:	310-03-AH3302		Type:	Check site		
MSU:	5.2.3.2b		ASC:	Brown Sodosol								
PSC:	Weranga			Chainage (m):			90313		Elevation (m):		340	
Coordinates:	Easting:		319321		Northing:		6877944		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Moderately
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Loose, soft		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Very sparse, crowns well separated (0.25-20%); bulloak, cypress pine, <i>Angophora leiocarpa</i>		

	
Location 1	Location 2
	
Surface 1	Surface 2

GENERAL									
Date:	16/08/2021	Describer:	H Marvell	Site:	310-03-AH3305	Type:	Partial		
MSU:	5.2.3.2b	ASC:	Brown Sodosol						
PSC:	Weranga		Chainage (m):		90647		Elevation (m):		339
Coordinates:	Easting:	319391	Northing:	6878271		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Moderately
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Loose, soft		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Very sparse, crowns well separated (0.25-20%); bulloak, cypress pine, <i>Angophora leiocarpa</i>		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A11	0-100	Brown (10YR4/3 (moist)); no mottles; earthy, massive (no peds); dry, very weak; sandy clay loam; no fragments; no segregations; no peds; partial slake in 10 mins; no dispersion within 2 hrs; pH 5.5; gradual boundary to -
A12	100-250	Dark brown (10YR3/3 (moist)); no mottles; earthy, massive (no peds); moderately moist, very weak; sandy clay loam; no fragments; no segregations; no peds; partial slake in 10 mins; slight dispersion within 2 hrs; pH 6.0; clear boundary to -
A2e	250-350	Brown (10YR5/3 (moist)); pink (7.5YR7/3 (dry)); no mottles; sandy (grains prominent), massive (no peds); dry, very weak; sandy loam; no fragments; no segregations; no peds; partial slake in 10 mins; slight dispersion within 2 hrs; pH 6.5; abrupt boundary to -
B21	350-	Yellowish brown (10YR5/4 (moist)); mottles 10-20%, <5 mm, prominent, pale, clear; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, very firm; light clay, sandy; no fragments; no segregations; no peds; partial slake in 10 mins; slight dispersion within 10 mins; pH 7.0



Location 1



Location 2



Surface 1



Profile



Surface 2



pH, slaking, dispersion

GENERAL									
Date:	02/09/2021	Describer:	H Marvell	Site:	310-03-TP3082	Type:	Detailed		
MSU:	5.2.3.2b?	ASC:	Brown Sodosol?						
PSC:	Weranga?		Chainage (m):		90971		Elevation (m):		330
Coordinates:	Easting:	319451	Northing:	6878589		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Moderately
Landform element:	Residual rise	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Soft; loose?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed?		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); cypress pine, bullock, <i>Angophora</i> , <i>Eucalyptus</i> sp.?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1?	0-250?	Brown (10YR5/2 (moist)); no mottles?; earthy, massive (no peds)?; dry, very weak?; loamy sand?; 10-20%, 20-60 mm, subangular gravel?; no segregations?; no pans?; gradual boundary to -
A2?	250-300?	Brown (10YR5/3 (moist)); no mottles?; moderately moist, weak?; loamy sand?; no fragments?; no segregations?; no pans?; abrupt boundary to -
B21?	300-600?	Brown (10YR4/2 (moist)); dark mottles, 10-20%, 15-30 mm, faint, diffuse?; yellow mottles, 10-20%, 15-30 mm, faint, diffuse?; moist, firm?; clay loam, sandy?; no fragments?; no segregations?; no pans?; gradual boundary to -
B22?	600-1,500?	Brown (10YR4/4 (moist)); grey mottles, 10-20%, >30 mm, faint, diffuse?; dark mottles, 10-20%, >30 mm, faint, diffuse ?; moist, firm?; light clay, sandy?; no fragments?; no segregations?; no pans?



Profile 1



Profile 2



Profile 3



Location 1



Location 2



Stockpile 1

GENERAL									
Date:	16/08/2021	Describer:	H Marvell	Site:	310-03-AH3309	Type:	Representative		
MSU:	5.1.3.2b	ASC:	Magnesic Mottled-Hypernatric Brown Sodosol						
PSC:	Weranga		Chainage (m):		91383		Elevation (m):		335
Coordinates:	Easting:	319534	Northing:	6878993		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Moderately
Landform element:	Riseslope	Drainage:	Mod.well-drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Extensive clearing		
Surface condition:	Loose, soft		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); bullock, cypress pine, <i>Eucalyptus</i> sp.; rooting depth 1,500 mm.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-60	Very dark brown (10YR2/2 (moist)); no mottles; earthy, massive (no peds); dry, loose; clay loam, fine sandy; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 4.5; gradual boundary to -
A21	60-200	Dark greyish brown (10YR4/2 (moist)); no mottles; earthy, massive (no peds); moderately moist, very weak; clayey sand; no fragments; no segregations; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 5.0; gradual boundary to -
A22j	200-300	Brown (10YR4/3 (moist)); light grey (10YR7/2 (dry)); no mottles; sandy (grains prominent), single grain (no peds); moist, loose; loamy sand; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 6.0; clear boundary to -
B21	300-400	Brown (10YR5/3 (moist)); mottles 20-50%, 15-30 mm, prominent, orange, clear; rough ped, moderate, 50-100 mm, subangular blocky, moderately moist, firm; light medium clay, FS; coarse fragments <2%, 2-6 mm, subrounded, gravel; partial slake in 10 mins; slight dispersion within 10 mins; pH 5.5; gradual boundary to -
B22	400-620	10YR4/6 (moist); mottles 20-50%, 15-30 mm, faint, orange, diffuse; rough ped, strong, 50-100 mm, subangular blocky, moderately moist, firm; light medium clay, S; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 7.5; abrupt boundary to -
B23	620-970	Dark yellowish brown (10YR3/4 (moist)); mottles 20-50%, >30 mm, faint, yellow, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moist, firm; medium clay, fine sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 7.5; clear boundary to -
B31	970-1,130	Light yellowish brown (10YR6/4 (moist)); mottles 20-50%, 15-30 mm, faint, orange, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay, sandy; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 7.5; clear boundary to -

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
B32	1,130-1,400	Dark yellowish brown (10YR4/6 (moist)); mottles 20-50%, 15-30 mm, prominent, orange, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay, coarse sandy; no fragments; very few <2%, soft segregations, medium 2-6 mm, non-calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0; clear boundary to -
B/C	1,400-1,500	Dark yellowish brown (10YR3/6 (moist)); mottles 20-50%, 5-15 mm, faint, orange, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; dry, very firm; light medium clay, fine sandy; no fragments; no segregations; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Surface 1



Profile



Surface 2



pH, slaking, dispersion

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.1	5.25	STAC	8.78	VL	99	3.15	L	1273	L	4.1	2.33	VH2	<0.20	173	31.8	1.48

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H ₂ O)		EC (dS/m)	Salinity Rating^	Cl ⁻ (mg/kg)	Exchangeable cations (meq/100 g)							ESP (%)	Sodicity [*]	Emerson class	Ca:Mg ratio
	Clay	Silt	Sand	Gravel	-	Rating#				H+	Al+	Ca+	Mg+	K+	Na+	CEC				
0.0-0.1	9.9	4.1	85.9	0.5	5.25	STAC	0.07	VL	75.9	-	0.01	2.99	1.58	0.87	0.36	5.80	6.22	S	5	1.90
0.3-0.4	22.0	2.3	75.6	1.1	5.81	MAC	0.28	M	259	-	0.01	0.53	6.55	0.91	2.86	10.9	26.3	SS	1	0.08
0.5-0.6	22.1	0.4	77.5	0.6	7.57	SLAL	0.41	M	449	-	-	0.75	6.07	0.43	2.50	9.76	25.7	SS	2	0.12
0.8-0.9	26.9	4.5	68.6	4.9	8.09	MAL	0.47	H	477	-	-	0.62	7.91	0.47	2.32	11.3	20.5	SS	3b	0.08
1.1-1.2	17.8	0.4	81.8	1.0	8.20	MAL	0.31	M	363	-	-	0.61	6.39	0.44	1.83	9.28	19.7	SS	3a	0.10
1.4-1.5	31.6	4.3	64.1	0.8	8.10	MAL	0.30	M	357	-	-	0.63	6.39	0.41	1.99	9.43	21.1	SS	3a	0.10

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL									
Date:	27/07/2021	Describer:	H Marvell	Site:	310-03-TP3083	Type:	Detailed		
MSU:	5.2.3.2b?	ASC:	Brown Sodosol?						
PSC:	Weranga?		Chainage (m):		91796		Elevation (m):		334
Coordinates:	Easting:	319666	Northing:	6879387		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Moderately
Landform element:	Residual rise	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Soft; loose?		
Surface fragments:	2-10%, 6-20 mm, subangular chert?		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)?		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); cypress pine, bullock, <i>Angophora</i> , <i>Eucalyptus</i> sp.?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/A2e?	0-200?	Greyish brown (10YR5/2 (moist))?; light grey (10YR7/2 (dry))?; no mottles?; earthy, massive (no peds)?; dry, very weak?; loamy sand?; 10-20%, 20-60 mm, subangular gravel?; no segregations?; no pans?; abrupt boundary to -
B21?	200-500?	Brown (10YR5/3 (moist))?; orange mottles, 2-10%, 5-15 mm, faint, diffuse?; rough ped?; weak, 10-20 mm, subangular blocky?; moderately moist, weak?; clay loam, sandy?; no fragments?; no segregations?; no pans?; gradual boundary to -
B22?	500-1,200?	Brown (10YR5/3 (moist))?; orange mottles, 20-50%, 5-15 mm, prominent, diffuse; pale mottles, 2-10%, 5-15 mm, prominent, diffuse; rough ped, moderate, 10-20 mm, subangular blocky; moderately moist, firm; light clay, sandy; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion in 2 hrs; gradual boundary to -
B23?	1,200-1,500?	Dark greyish brown (10YR4/2 (moist))?; dark mottles, 10-20%, 15-30 mm, faint, diffuse?; yellow mottles, 10-20%, 15-30 mm, faint, diffuse?; rough ped, moderate, 20-50 mm, subangular blocky?; moist, firm?; light clay, sandy?; no fragments?; no segregations?; no pans?



Profile 1



Profile 2



Location 1



Location 2



Stockpile 1

GENERAL									
Date:	14/08/2021	Describer:	T Beck	Site:	310-03-AH3314	Type:	Check site		
MSU:	5.2.3.2b	ASC:	Sodosol						
PSC:	Weranga		Chainage (m):		92029		Elevation (m):		382
Coordinates:	Easting:	319731	Northing:	6879615	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Upper slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Qs
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Loose, firm		
Surface fragments:	<2%, 20-60 mm, subrounded, conglomerate		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); bulloak, cypress pine, poplar box		



Location 1



Location 2



Surface 1



Surface 2

GENERAL									
Date:	14/08/2021	Describer:	H Marvell	Site:	310-03-AH3319	Type:	Partial		
MSU:	5.2.3.2b	ASC:	Brown Sodosol						
PSC:	Weranga		Chainage (m):		92309		Elevation (m):		338
Coordinates:	Easting:	319897	Northing:	6879846		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Loose, firm		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); cypress pine, bulloak, <i>Eucalyptus</i> sp.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-100	Very dark greyish brown (10YR3/2 (moist)); no mottles; earthy, massive (no peds); moderately moist, very weak; clayey sand; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 5.5; gradual boundary to -
A2e	100-220	Dark greyish brown (10YR4/2 (moist)); no mottles; earthy, massive (no peds); moderately moist, very weak; clayey sand; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.0; abrupt boundary to -
B21	220-650	Brown (10YR5/3 (moist)); mottles 20-50%, 15-30 mm, prominent, yellow, clear; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay, sandy; no fragments; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 7.5; gradual boundary to -
B22	650-	Greyish brown (2.5Y5/2 (moist)); mottles 20-50%, 15-30 mm, prominent, yellow, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, very firm; light medium clay, fine sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5



Location 1



Location 2



Surface 1



Surface 2



Profile



pH, slaking, dispersion

GENERAL									
Date:	27/07/2021	Describer:	H Marvell	Site:	310-03-TP3084	Type:	Detailed		
MSU:	5.2.1.2?	ASC:	Brown Dermosol						
PSC:	Weranga?		Chainage (m):		92568		Elevation (m):		330
Coordinates:	Easting:	320076	Northing:	6880035		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Jw
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Firm; loose?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed?		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); cypress pine, bulloak, <i>Angophora</i> , <i>Eucalyptus</i> sp.?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1?	0-100?	Very dark greyish brown (10YR3/2 (moist))?. no mottles?. earthy, massive (no peds)?. moderately moist, very weak?. loamy sand? no fragments?. no segregations?. no pans?. clear boundary to -
A2e?	100-200?	Greyish brown (10YR5/2 (moist))?. light grey (10YR7/1 (dry))?. no mottles?. earthy, massive (no peds)?. moderately moist, very weak?. loamy sand?. no fragments?. no segregations?. no pans?. abrupt boundary to -
B2?	200-500?	Brown (10YR5/3 (moist))?. yellow mottles, 10-20%, 15-30 mm, prominent, clear?. rough ped, moderate, 100-200 mm, subangular blocky?. moderately moist, firm?. clay loam, sandy?. no fragments?. no segregations?. no pans?. gradual boundary to -
B3?	500-1,500?	Brown (7.5YR5/4 (moist))?. yellow mottles, 10-20%, 15-30 mm, prominent, clear; rough ped; moderate, 100-200 mm, subangular blocky; moderately moist, firm; sandy clay loam; no fragments; 50-90% fragments, coarse (6-20 mm), calcareous, concretions, highly effervescent; no pans; partial slaking within 10 minutes; no dispersion within 10 minutes



Profile 1



Profile 2



Location 1



Location 2



Stockpile 1

GENERAL												
Date:	27/07/2021		Describer:	H Marvell		Site:	310-03-TP3085		Type:	Detailed		
MSU:	1.2.1.1a		ASC:	Brown Vertosol								
PSC:	Langlands?			Chainage (m):		92997		Elevation (m):		326		
Coordinates:	Easting:		320416		Northing:		6880295		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Extensive clearing		
Surface condition:	Firm; surface crust, surface cracking?		
Surface fragments:	None?		
Microrelief:	Normal, other, shelf, mounds/shelf/depressions, shelf prominent?		
Erosion:	Sheet (active, minor)?		
Vegetation:	Very sparse, crowns well separated (0.25-20%); brigalow, belah, <i>Eucalyptus</i> sp., wilga, finger lime, black tea tree?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-200?	Black (10YR2/1 (moist))?; no mottles?; rough ped, moderate, 20-50 mm, subangular blocky?; moist, weak?; light clay, fine sandy? no fragments?; no segregations?; no pans?; clear boundary to -
B22?	200-400?	Brown (7.5YR5/3 (moist))?; no mottles?; rough ped, strong, 20-50 mm, subangular blocky?; moist, firm?; light medium clay, fine sandy?; no fragments?; common (10-20%), medium (2-6 mm), calcareous, concretions, highly effervescent?; no pans?; gradual boundary to -
B23?	400-700?	Brown (7.5YR4/3 (moist))?; no mottles?; rough ped, strong, 20-50 mm, subangular blocky?; moist, firm?; medium clay, fine sandy?; no fragments?; few (2-10%), medium (2-6 mm), calcareous, concretions, highly effervescent?; no pans?; gradual boundary to -
B24?	700-1,500?	Yellowish brown (10YR5/4 (moist))?; dark mottles, 2-10%, 15-30 mm, faint, diffuse?; rough ped, strong, 20-50 mm, subangular blocky?; moist, very firm?; medium clay, fine sandy?; no fragments?; few (2-10%), medium (2-6 mm), calcareous, concretions, highly effervescent?; no pans



Profile 1



Profile 2



Location 1



Location 2



Stockpile 1

GENERAL												
Date:	14/08/2021		Describer:	M Mooney		Site:	310-03-AH3329		Type:	Check site		
MSU:	1.1.1.1a		ASC:	Vertosol								
PSC:	Langlands?			Chainage (m):			93305		Elevation (m):		370	
Coordinates:	Easting:		320676		Northing:		6880461		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	C2	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Cracking, firm, surface crust		
Surface fragments:	2-10%, 2-6 mm, subangular, other		
Microrelief:	Normal, other, shelf, mound/shelf/depressions, shelf prominent, VI:0.3 m, HI:5 m		
Erosion:	Sheet (active, minor)		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); brigalow, belah, <i>Eucalyptus</i> sp.		

	
Location 1	Location 2
	
Location 3	Surface 1



Surface 2



Surface 3



Surface 4



Surface 5

GENERAL									
Date:	28/07/2021	Describer:	H Marvell	Site:	310-03-TP3086	Type:	Detailed		
MSU:	1.2.1.2	ASC:	Brown Dermosol?						
PSC:	No suitable soil		Chainage (m):		93617		Elevation (m):		327
Coordinates:	Easting:	320947	Northing:	6880615		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Residual rise	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Qs?
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	C2?	SCL:	No
Disturbance:	Extensive clearing		
Surface condition:	Loose; Firm?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet, active, minor?		
Vegetation:	Very sparse, crowns well separated (0.25-20%); belah, <i>Eucalyptus</i> sp., wilga, cypress pine, poplar box?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-200?	Brown (10YR4/3 (moist))?; dark mottles, 10-20%, 5-15 mm, faint, diffuse?; rough ped?, moderate, 100-200 mm, subangular blocky?; moist, firm?; light clay? no fragments?; no segregations; no pans; clear boundary to -
B22?	200-600?	Dark yellowish brown (10YR4/4 (moist))?; dark mottles, 10-20%, 5-15 mm, faint, diffuse?; yellow mottles, 10-20%, 15-30 mm, faint, diffuse?; rough ped?, moderate, 100-200 mm, subangular blocky?; moist, firm?; light medium clay?; no fragments?; no segregations?; no pans; gradual boundary to -
B23?	600-1200?	Strong brown (7.5YR5/6 (moist))?; dark mottles, 10-20%, 15-30 mm, prominent, diffuse?; yellow mottles, 10-20%, 5-15 mm, faint, diffuse?; rough ped?, moderate, 100-200 mm, subangular blocky?; moist, firm?; medium clay?; <2 fragments, 2-6 mm, subangular?; common (10-20%), calcareous, soft segregations, coarse (6-20 mm)?; no pans; partial slaking within 10 minutes; no dispersion within 10 minutes; gradual boundary to -
B24?	1200-1500?	Yellowish brown (10YR5/4 (moist))?; dark mottles, 2-10%, 15-30 mm, faint, diffuse?; orange mottles, 10-20%, >30 mm, faint, diffuse?; rough ped, strong, 100-200 mm, subangular blocky?; moist, very firm?; medium clay?; no fragments?; common (10-20%), calcareous, soft segregations, coarse (6-20 mm)?; no pans



Profile 1



Profile 2



Location 1



Location 2



Stockpile 1

GENERAL									
Date:	14/08/2021	Describer:	M Mooney	Site:	310-03-AH3330	Type:	Representative		
MSU:	1.2.3.2b	ASC:	Eutrophic Mottled-Mesonatric Grey Sodosol						
PSC:	Leyburn		Chainage (m):		93834		Elevation (m):		362
Coordinates:	Easting:	320984	Northing:	6880972		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod.rapid
Morphological type:	Open depression (vale)	Permeability:	Slowly
Landform element:	Drain depression	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Firm, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); <i>Eucalyptus populnea</i> , <i>Callitris</i> spp., <i>Eucalyptus chloroclada</i> ; rooting depth 800 mm.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A11	0-100	Very dark greyish brown (10YR3/2 (moist)); no mottles; earthy, massive (no peds); moderately moist, very weak; clay loam, sandy; no fragments; no segregations; no pans; no slaking within 10 mins; no dispersion within 2 hrs; pH 5.5; gradual boundary to -
A12	100-220	Dark greyish brown (10YR4/2 (moist)); no mottles; earthy, massive (no peds); moderately moist, very weak; sandy clay loam; no fragments; no segregations; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 5.5; diffuse boundary to -
A2e	220-550	Brown (10YR5/3 (moist)); light grey (10YR7/1 (dry)); no mottles; sandy (grains prominent), single grain (no peds); moderately moist, loose; loamy sand; coarse fragments 2-10%, 6-20 mm, subrounded, sandstone; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 6.0; abrupt boundary to -
B2	600-800	Light greyish brown (10YR6/2 (moist)); mottles 10-20%, 5-15 mm, prominent, orange, clear; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, weak; light medium clay, coarse sandy; coarse fragments <2%, 2-6 mm, rounded, sandstone; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 7.0; clear boundary to -
BC	800-1,150	Light greyish brown (10YR6/2 (moist)); mottles 10-20%, 5-15 mm, prominent, orange, diffuse; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, very weak; sandy clay loam; no fragments; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 8.0; clear boundary to -
C	1100-	Light grey (10YR7/1 (moist)); mottles 10-20%, 5-15 mm, faint, orange, diffuse; rough ped, weak, 10-20 mm, subangular blocky; dry, very weak; sandy clay loam; no fragments; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 8.5



Location 1



Location 2



Erosion 1



Surface 1



Surface 1



Profile



pH, slaking, dispersion

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.1	5.93	MAC	7.92	VL	72.2	1.9	L	848	L	1.9	1.06	M1	0.26	85.9	35.1	0.5

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H2O)		EC (dS/m)	Salinity Rating^	Cl ⁻ (mg/kg)	Exchangeable cations (meq/100 g)						ESP (%)	Sodicity [*]	Emerson class	Ca:Mg ratio	
	Clay	Silt	Sand	Gravel	-	Rating#				H+	Al+	Ca+	Mg+	K+	Na+					CEC
0.0-0.1	13.6	6.0	80.3	0.3	5.93	MAC	0.03	VL	17.8	-	0.01	2.74	1.07	0.77	0.23	4.82	4.82	NS	8	2.57
0.12-0.22	11.6	5.8	82.6	0.7	5.66	MAC	0.02	VL	22.2	-	0.01	1.30	0.86	0.82	0.10	3.09	3.21	NS	3b	1.51
0.4-0.5	10.0	4.1	85.9	5.0	6.56	NEU	0.01	VL	26.7	-	0.01	0.70	0.51	1.01	0.06	2.28	2.59	NS	2	1.36
0.7-0.8	23.6	4.2	72.2	3.4	7.73	SLAL	0.07	VL	51.2	-	-	1.65	1.59	0.45	0.94	4.64	20.2	SS	1	1.04
0.95-1.05	13.7	2.3	84.0	0.7	6.56	NEU	0.07	L	66.5	-	0.01	2.34	2.13	0.96	1.50	6.94	21.7	SS	1	1.09
1.3-1.4	19.8	2.3	77.9	0.1	7.73	SLAL	0.09	L	69.3	-	-	1.73	1.28	0.46	1.14	4.61	24.7	SS	1	0.28

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL									
Date:	07/08/2021	Describer:	C Traill	Site:	310-03-BH3009	Type:	Detailed		
MSU:	1.2.3.2b?	ASC:	Grey Sodosol?						
PSC:	Downfall?		Chainage (m):		93840		Elevation (m):		323
Coordinates:	Easting:	321140	Northing:	6880729		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop?
ALC:	B	SCL:	No
Disturbance:	Limited clearing?		
Surface condition:	Firm, soft?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed?		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); <i>Eucalyptus populnea</i> , <i>Callitris</i> spp., <i>Eucalyptus chloroclada</i> ?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1?	0-200?	Very dark greyish brown (10YR3/2 (moist)); no mottles?; earthy, massive (no peds)?; moderately moist, very weak?; sandy loam?; few (2-10%), fine (2-6 mm), subrounded gravel?; no segregations?; no pans?; abrupt boundary to -
B21?	200-600?	Brown (10YR5/3 (moist)); mottles, 20-50%, >30 mm, distinct, orange, diffuse?; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, firm; light medium clay, fine sandy; no fragments?; few (2-10%), medium (2-6 mm), calcareous, soft segregations, moderately effervescent?; no pans; complete slake within 10 mins; no dispersion within 10 mins; diffuse boundary to -
B22?	600-1,000?	Greyish brown (10YR5/2 (moist)); mottles 10-20%, 5-15 mm, prominent, orange, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; medium clay, fine sandy; no fragments?; few (2-10%), medium (2-6 mm), calcareous, concretions, highly effervescent?; no pans; complete slake within 10 mins; no dispersion within 10 mins; clear boundary to -
B23?	1,000-1,500?	Brown (10YR4/3 (moist)); no mottles?; earthy, massive (no peds)?; dry, very weak; loamy sand, fine?; common (10-20%), coarse (20-60 mm), subangular gravel?; no segregations?; no pans?



Profile 1



Sample 1



Sample 2



Slaking and dispersion

GENERAL									
Date:	23/08/2021	Describer:	H Marvell	Site:	310-03-TP3087	Type:	Detailed		
MSU:	1.2.1.2	ASC:	Brown Dermosol?						
PSC:	No suitable soil		Chainage (m):		94107		Elevation (m):		322
Coordinates:	Easting:	321351	Northing:	6880890		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Moderately rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Qs?
Relief modal class:	Undulating rises	Rock outcrop:	No rock outcrop
ALC:	B?	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Firm?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet, active, minor?		
Vegetation:	Very sparse, crowns well separated (0.25-20%); wilga, poplar box, cypress pine?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1?	0-100?	Yellowish brown (10YR5/4 (moist))?. no mottles?. earthy, massive (no peds)?. moist, weak?. loamy sand?. no fragments?. no segregations; no pans?. clear boundary to -
B21?	100-400?	Brown (10YR5/3 (moist))?. no mottles?. rough ped?, moderate, 100-200 mm, subangular blocky?. dry, firm?. light clay?. no fragments?. no segregations?. no pans?. gradual boundary to -
B22?	400-700?	Brown (10YR4/3 (moist))?. dark mottles, 10-20%, 15-30 mm, faint, diffuse?. moist, very firm?. medium clay?. no fragments?. few (2-10%), calcareous, soft segregations, coarse (6-20 mm)?. no pans?. gradual boundary to -
B23?	700-1500?	Dark yellowish brown (10YR4/4 (moist))?. dark mottles, 2-10%, 15-30 mm, faint, diffuse?. rough ped?, moderate, 100-200 mm, subangular blocky?. moist, very firm?. medium clay?. no fragments?. no segregations?. no pans?



Profile 1



Profile 2



Location 1



Location 2



Stockpile 1

GENERAL									
Date:	16/06/2021	Describer:	H Marvell	Site:	310-03-TP3713	Type:	Detailed		
MSU:	1.1.3.2b?	ASC:	Brown Sodosol?						
PSC:	Leyburn?		Chainage (m):		94308		Elevation (m):		325
Coordinates:	Easting:	321463	Northing:	6881056		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs?
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop?
ALC:	B	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Loose; firm?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)?		
Vegetation:	Very sparse, crowns well separated (0.25-20%); wilga, cypress pine, poplar box?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1?	0-200?	Greyish brown (10YR5/2 (moist))?.; no mottles?.; earthy, massive (no peds)?.; dry, weak?.; sandy loam? no fragments?.; no segregations; no pans?.; gradual boundary to -
A21?	200-450?	Yellowish brown (10YR5/4 (moist))?.; no mottles?.; earthy, massive (no peds)?.; dry, loose?.; loamy sand?.; no fragments?.; no segregations?.; no pans?.; clear boundary to -
A22e?	450-500?	Yellowish brown (10YR5/4 (moist))?.; light grey (10YR7/1 (dry))?.; no mottles?.; earthy, massive (no peds)?.; dry, loose?.; loamy sand?.; no fragments?.; no segregations?.; no pans?.; abrupt boundary to -
B2?	500-1,500?	Dark yellowish brown (10YR4/4 (moist))?.; dark mottles, 20-50%, 15-30 mm, prominent, diffuse?.; rough ped, 10-20 mm, moderate, subangular blocky?.; moist, very firm?.; medium clay, fine sandy?.; no fragments?.; no segregations?.; no pans?



Profile 1



Profile 2

GENERAL									
Date:	14/08/2021	Describer:	H Marvell	Site:	310-03-AH3331	Type:	Partial		
MSU:	1.1.1.2	ASC:	Brown Dermosol						
PSC:	Downfall		Chainage (m):		94621		Elevation (m):		328
Coordinates:	Easting:	321629	Northing:	6881315	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Mod.rapid
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Loose, hard setting		
Surface fragments:	None		
Microrelief:	Mounds and/or depressions on flat surf, inc. termites, termite, elongate mound		
Erosion:	Sheet (active, minor)		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); poplar box, wilga, cypress pine		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-100	Brown (10YR4/3 (moist)); no mottles; rough ped, weak, 5-10 mm, polyhedral; dry, very weak; sandy clay loam; no fragments; no segregations; no pans; no slaking within 10 mins; slight dispersion within 2 hrs; pH 5.0; abrupt boundary to -
A2e	100-200	Brown (10YR5/3 (moist)); very pale brown (10YR7/3 (dry)); mottles 10-20%, 5-15 mm, prominent, orange, diffuse; rough ped, weak, 10-20 mm, subangular blocky; moderately moist, weak; sandy clay loam; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 5.5; clear boundary to -
B21	200-350	Brown (10YR5/3 (moist)); mottles 10-20%, 5-15 mm, prominent, orange, diffuse; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, weak; clay loam, sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 6.0; gradual boundary to -
B22	350-500	Brown (10YR5/3 (moist)); mottles <2%, <5 mm, faint, pale, diffuse; rough ped, strong, 20-50 mm, subangular blocky; moderately moist, firm; light clay, sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 6.0; gradual boundary to -
B23	500-	Brown (10YR5/3 (dry)); mottles <2%, <5 mm, prominent, orange, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light clay, sandy; no fragments; common 10-20%, soft segregations, very coarse 20-60 mm, very highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5



Location 1



Location 2



Surface 1



Surface 2



Profile



pH, slaking, dispersion

GENERAL									
Date:	16/06/2021	Describer:	H Marvell	Site:	310-03-TP3088	Type:	Detailed		
MSU:	1.2.1.2?	ASC:	Brown Dermosol?						
PSC:	Downfall?		Chainage (m):		94895		Elevation (m):		325
Coordinates:	Easting:	321708	Northing:	6881574		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Moderately rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	B?	SCL:	No
Disturbance:	Extensive clearing		
Surface condition:	Surface crust; firm?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor)?		
Vegetation:	Very sparse, crowns well separated (0.25-20%); poplar box, wilga, cypress pine?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-300?	Very dark greyish brown (10YR3/2 (moist)); no mottles?; rough ped, weak, 50-100 mm, subangular blocky?; moderately moist, firm?; light clay? no fragments?; no segregations; no pans?; clear boundary to -
B22?	300-700?	Very dark greyish brown (10YR3/2 (moist)); no mottles?; rough ped, moderate, 100-200 mm, subangular blocky?; moderately moist, firm?; light medium clay?; no fragments?; no segregations?; no pans?; gradual boundary to -
B23?	700-1,100?	Brown (10YR4/3 (moist)); dark mottles, 10-20%, 5-15 mm, faint, diffuse?; rough ped, strong, 100-200 mm, subangular?; moist, very firm?; medium clay?; no fragments?; few (2-10%), calcareous, concretions, medium (2-6 mm), moderately effervescent?; no pans?; gradual boundary to -
B24?	1,100-1,500?	Dark greyish brown (10YR4/2 (moist)); dark mottles, 10-20%, 15-30 mm, faint, clear?; rough ped, strong, 100-200 mm, subangular blocky; moist, very firm?; medium clay?; no fragments?; common (10-20%), calcareous, concretions, medium (2-6 mm), highly effervescent?; no pans?



Profile 1



Profile 2



Location 1



Stockpile 1

GENERAL									
Date:	14/08/2021	Describer:	H Marvell	Site:	310-03-AH3332	Type:	Partial		
MSU:	1.2.1.2	ASC:	Brown Dermosol						
PSC:	Downfall	Chainage (m):	95138	Elevation (m):	328				
Coordinates:	Easting:	321734	Northing:	6881817	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod.rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Surface crusting, loose, hard setting		
Surface fragments:	None		
Microrelief:	Mounds and/or depressions on flat surf, inc. termites, Other, Elongate mound		
Erosion:	Sheet (active, present).		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); popular box, wilga, sheoak		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-50	Dark greyish brown (10YR4/2 (moist)); no mottles; rough ped, weak, 20-50 mm, subangular blocky; dry, loose; silty clay loam; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 5.0; clear boundary to -
B21	50-350	Very dark greyish brown (10YR3/2 (moist)); mottles 10-20%, 5-15 mm, prominent, orange, diffuse; rough ped, moderate, 20-50 mm, polyhedral; moderately moist, very firm; light clay, silty; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 5.0; gradual boundary to -
B22	350-500	Dark greyish brown (10YR4/2 (moist)); mottles 2-10%, <5 mm, faint, pale, diffuse; rough ped, strong, 20-50 mm, polyhedral; moderately moist, very strong; medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 7.5; gradual boundary to -
B22	500-	Yellowish brown (10YR5/4 (moist)); mottles <2%, <5 mm, faint, pale, diffuse; rough ped, strong, 20-50 mm, polyhedral; moderately moist, very strong; light medium clay, silty; no fragments; few 2-10%, soft segregations, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.0



Location 1



Location 2



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	14/08/2021	Describer:	T Beck	Site:	310-03-AH3333	Type:	Representative		
MSU:	1.1.1.2d	ASC:	Mottled-Sodic Hypocalcic Black Dermosol						
PSC:	Downfall		Chainage (m):		95377		Elevation (m):		370
Coordinates:	Easting:	321765	Northing:	6882054	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	No
Disturbance:	Extensive clearing		
Surface condition:	Surface crusting, loose, firm, hard setting		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); poplar box, bulloak; rooting depth 500 mm.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1e	0-100	Brown (10YR4/3 (moist)); light grey (10YR7/1 (dry)); no mottles; rough ped, weak, 5-10 mm, subangular blocky; dry, very weak; clay loam, fine sandy; no fragments; no segregations; no pans; no slaking within 10 mins; no dispersion within 2 hrs; pH 6.5; abrupt boundary to -
B21	100-250	Very dark greyish brown (10YR3/2 (moist)); mottles 10-20%, 5-15 mm, faint, pale, diffuse; rough ped, moderate, 100-200 mm, subangular blocky; dry, firm; medium clay, fine sandy; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.5; diffuse boundary to -
B22	250-500	Dark greyish brown (10YR4/2 (moist)); mottles 20-50%, >30 mm, prominent, brown, diffuse; rough ped, strong, 100-200 mm, subangular blocky; dry, firm; medium clay, fine sandy; coarse fragments 2-10%, 2-6 mm, subangular, quartz; few 2-10%, concretions, fine <2 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B23	500-1,000	Dark brown (7.5YR3/3 (moist)); mottles 2-10%, 15-30 mm, faint, brown, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; no fragments; common 10-20%, concretions, medium 2-6 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B24	1000-1,500	Dark greyish brown (10YR4/2 (moist)); mottles 2-10%, >30 mm, prominent, orange, clear; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; no fragments; common 10-20%, concretions, medium 2-6 mm, very highly calcareous; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5



Location 1



Erosion 1



Surface 1



pH, slaking, dispersion



Profile

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.1	6.73	NEU	10	L	76.5	1.78	L	905	L	3.7	2.1	VH1	<0.20	31.7	22.8	0.56

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H2O)		EC (dS/m)	Salinity Rating^	Cl^- (mg/kg)	Exchangeable cations (meq/100 g)							ESP (%)	Sodicity^	Emerson class	Ca:Mg ratio
	Clay	Silt	Sand	Gravel	-	Rating#				H+	Al+	Ca+	Mg+	K+	Na+	CEC				
0.0-0.1	6.4	2.4	91.2	3.6	6.73	NEU	0.08	VL	50.5	-	0.01	5.30	3.57	0.55	0.57	10.0	5.74	NS	5	1.49
0.1-0.2	39.6	13.5	46.8	0.1	7.46	SLAL	0.42	M	277	-	-	9.88	5.33	0.47	2.34	18.0	13.0	S	2	1.86
0.3-0.4	41.4	11.2	47.4	1.7	8.84	STAL	0.77	H	718	-	-	14.5	5.61	0.45	2.68	23.2	11.5	S	4	2.58
0.7-0.8	39.8	6.9	53.3	0.8	8.79	STAL	0.89	VH	799	-	-	16.1	8.32	0.55	4.47	29.4	15.2	SS	2	1.93
1.1-1.2	37.8	4.9	57.4	1.2	8.84	STAL	0.98	VH	938	-	-	14.6	5.53	0.53	3.93	24.6	16.0	SS	4	2.64
1.4-1.5	42.3	8.7	48.9	0.5	8.87	STAL	0.87	H	781	-	-	7.66	4.88	0.47	4.09	17.1	23.9	SS	2	1.57

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL									
Date:	14/08/2021	Describer:	H Marvell	Site:	310-03-AH3334	Type:	Partial		
MSU:	1.1.1.2d	ASC:	Brown Dermosol						
PSC:	Downfall		Chainage (m):		95624		Elevation (m):		330
Coordinates:	Easting:	321799	Northing:	6882298	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Mod.rapid
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Firm, hard setting		
Surface fragments:	None		
Microrelief:	Mounds and/or depressions on flat surf, inc. termites, termite, mound		
Erosion:	Sheet (active, minor)		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); poplar box, wilga, bulloak		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-100	Dark yellowish brown (10YR4/4 (moist)); no mottles; earthy, massive (no peds); dry, very weak; silty loam; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 6.5; gradual boundary to -
A2	100-350	Dark yellowish brown (10YR4/4 (moist)); no mottles; rough ped, weak, 5-10 mm, polyhedral; dry, weak; silty loam; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 6.0; sharp boundary to -
B2	350-	Dark yellowish brown (10YR4/6 (moist)); mottles 10-20%, 5-15 mm, faint, orange, diffuse; rough ped, 10-20 mm, angular blocky; dry, weak; light clay, silty; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 7.0



Location 1



Location 2



Surface 1



Profile



pH, slaking, dispersion

GENERAL									
Date:	15/06/2021	Describer:	H Marvell	Site:	310-03-TP3089	Type:	Detailed		
MSU:	1.1.1.2d	ASC:	Brown Dermosol						
PSC:	Downfall		Chainage (m):		95840		Elevation (m):		325
Coordinates:	Easting:	321845	Northing:	6882509		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Moderately rapid
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	No
Disturbance:	Extensive clearing		
Surface condition:	Firm?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor)?		
Vegetation:	Very sparse, crowns well separated (0.25-20%); poplar box, wilga, cypress pine?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/A2e?	0-200?	Very dark greyish brown (10YR3/2 (moist))?; light grey (10YR7/1 (dry))?; no mottles?; rough ped, weak, 20-50 mm, subangular blocky?; dry moist, firm?; light clay? no fragments?; no segregations; no pans?; clear boundary to -
B21?	200-400?	Dark brown (10YR3/2 (moist))?; dark mottles, 20-50%, >30 mm, faint, diffuse?; rough ped, moderate, 20-50 mm, subangular blocky?; moderately moist, firm?; light medium clay?; no fragments?; no segregations?; no pans?; gradual boundary to -
B223?	400-700?	Strong brown (10YR4/6 (moist))?; dark mottles, 20-50%, 5-15 mm, faint, clear?; orange mottles, 10-20%, 5-15 mm, faint, diffuse? rough ped, strong, 10-20 mm, subangular blocky?; moist, very firm?; medium clay?; no fragments?; few (2-10%), calcareous, concretions, medium (2-6 mm)?; no pans?; gradual boundary to -
B23?	700-1,200?	Brown (10YR4/3 (moist))?; dark mottles, 20-50%, 15-30 mm, faint, clear?; rough ped, strong, 10-20 mm, subangular blocky; moist, very firm?; medium clay?; no fragments?; few (2-10%), calcareous, concretions, medium (2-6 mm)?; no pans?; gradual boundary to -
B3?	1,200-1,500?	Dark brown (10YR3/2 (moist))?; dark mottles, 20-50%, 15-30 mm, faint, clear?; rough ped, strong, 20-50 mm, subangular blocky; moist, strong?; medium clay?; no fragments?; no segregations?; no pans?



Profile 1



Location 1



Location 2



Stockpile 1

GENERAL									
Date:	14/08/2021	Describer:	H Marvell	Site:	310-03-AH3335	Type:	Partial		
MSU:	1.1.1.1a	ASC:	Brown Vertosol						
PSC:	Millmerran	Chainage (m):	96100	Elevation (m):	327				
Coordinates:	Easting:	321870	Northing:	6882769	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	No
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, firm, hard setting		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%); poplar box		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, moderate, 10-20 mm, polyhedral; dry, firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 6.0; gradual boundary to -
B22	50-300	Very dark brown (10YR2/2 (moist)); mottles 20-50%, 15-30 mm, faint, dark, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, very firm; medium clay; no fragments; few 2-10%, concretions, medium 2-6 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B23	300-	Brown (10YR4/3 (moist)); mottles 20-50%, 15-30 mm, faint, dark, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, very firm; medium clay; coarse fragments 2-10%, 20-60 mm, angular tabular, gravel; common 10-20%, soft segregations, coarse 6-20 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5



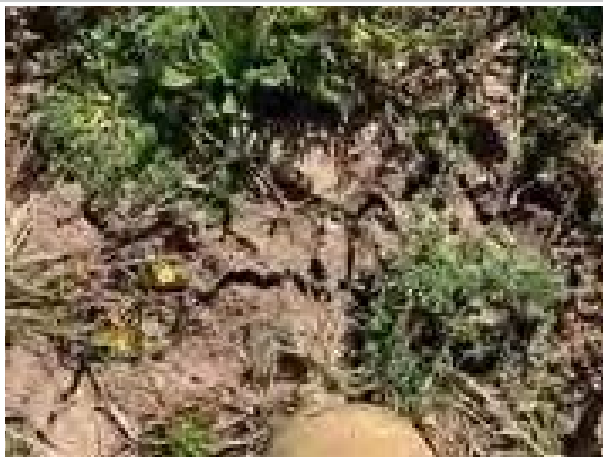
Location 1



Location 2



Surface 1



Surface 2



pH, slaking, dispersion



Profile

GENERAL									
Date:	14/08/2021	Describer:	H Marvell	Site:	310-03-AH3336	Type:	Representative		
MSU:	1.1.1.1a	ASC:	Episodic-Endocalcareous Epipedal Brown Vertosol						
PSC:	Millmerran		Chainage (m):		96357		Elevation (m):		327
Coordinates:	Easting:	321891	Northing:	6883025		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Mod.rapid
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	No
Disturbance:	Cleared, pasture		
Surface condition:	Loose		
Surface fragments:	None		
Microrelief:	Mounds and/or depressions on flat surf, inc. termites, termite, mound		
Erosion:	No erosion observed		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%); cypress pine, poplar box; rooting depth 700 mm		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Very dark greyish brown (10YR3/2 (moist)); mottles <2%, 5-15 mm, faint, yellow, diffuse; rough ped, weak, 10-20 mm, polyhedral; dry, weak; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 5.0 clear boundary to -
B22	100-200	Dark greyish brown (10YR4/2 (moist)); mottles <2%, <5 mm, faint, pale, diffuse; rough ped, strong, 10-20 mm, polyhedral; moderately moist, firm; medium clay; no fragments; no segregations; no pans; complete slake in 10 mins; strong dispersion within 10 mins; pH 6.0; gradual boundary to -
B23	200-450	Dark grey (10YR4/1 (moist)); mottles <2%, <5 mm, faint, pale, diffuse; rough ped, strong, 20-50 mm, subangular blocky, moderately moist, very firm; medium heavy clay; no fragments; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 8.0; gradual boundary to -
B24	450-700	Brown (10YR5/3 (moist)); mottles <2%, <5 mm, faint, pale, diffuse; rough ped, strong, 20-50 mm, subangular blocky; moderately moist, strong; medium heavy clay; coarse fragments <2%, 6-20 mm, subangular, limestone; few 2-10%, nodules, medium 2-6 mm, slightly calcareous; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 7.5; gradual boundary to -
B31	700-1,000	Pale brown (10YR6/3 (moist)); mottles 2-10%, <5 mm, faint, brown, diffuse; rough ped, strong, 20-50 mm, angular blocky; moderately moist, strong; medium clay; coarse fragments 2-10%, 2-6 mm, angular, limestone; common 10-20%, calcareous, nodules, coarse 6-20 mm, moderately calcareous; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 5.5; gradual boundary to -
B32	1000-1,500	Pale brown (10YR6/3 (moist)); mottles 10-20%, 5-15 mm, prominent, brown, diffuse; rough ped, strong, 20-50 mm, subangular blocky; moderately moist, very firm; light medium clay; coarse fragments 2-10%, 2-6 mm, angular, limestone; common 10-20%, calcareous, nodules, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5



Location 1



Location 2



Surface 1



pH, slaking, dispersion



Profile

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.1	6.05	SLAC	10.3	L	123	5.94	M	1132	L	2.2	1.23	M2	0.78	48.9	54.1	0.6

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H2O)		EC (dS/m)	Salinity Rating^	Cl^- (mg/kg)	Exchangeable cations (meq/100 g)							ESP (%)	Sodicity^	Emerson class	Ca:Mg ratio
	Clay	Silt	Sand	Gravel	-	Rating#				H+	Al+	Ca+	Mg+	K+	Na+	CEC				
0.0-0.1	32.6	6.1	61.2	0.4	6.05	SLAC	0.40	M	17.7	-	-	5.93	3.68	0.55	0.43	10.6	4.04	NS	3a	1.61
0.1-0.2	32.6	6.1	61.2	0.4	7.58	SLAL	0.07	VL	23.6	-	-	6.33	4.15	0.25	1.20	11.9	10.0	S	1	1.52
0.3-0.4	41.1	6.5	52.4	1.9	8.44	STAL	0.28	M	237	-	-	7.98	2.63	0.28	1.13	12.0	9.4	S	2	3.03
0.55-0.65	36.2	2.5	61.2	0.4	8.67	STAL	0.98	VH	1285	-	-	10.1	6.38	0.34	3.38	20.2	16.7	SS	4	1.58
0.8-0.9	35.3	2.3	62.3	1.2	8.71	STAL	0.88	VH	1111	-	-	11.2	7.33	0.38	4.03	22.9	17.6	SS	3b	1.52
1.3-1.4	33.5	2.4	64.1	0.3	9.12	VSAL	0.62	H	564	-	-	7.26	5.25	0.32	3.42	16.3	21.1	SS	1	1.38

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL									
Date:	14/08/2021	Describer:	M Mooney	Site:	310-03-AH3337	Type:	Partial		
MSU:	1.2.1.1a	ASC:	Black Vertosol						
PSC:	Millmerran		Chainage (m):		96657		Elevation (m):		368
Coordinates:	Easting:	321921	Northing:	6883323		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	No
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, firm, hard setting, surface crust, cryptogam surface, poached		
Surface fragments:	None		
Microrelief:	Incipient		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); <i>Eucalyptus</i> sp.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21j	0-100	Very dark grey (10YR3/1 (moist)); light grey (10YR7/1 (dry)); rough ped, weak, 10-20 mm, subangular blocky; dry, weak; light clay, fine sandy; coarse fragments <2%, 2-6 mm, rounded, ferricrete; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 5.5
B22	100-400	Dark greyish brown (10YR4/2 (moist)); mottles 2-10%, <5 mm, faint, orange, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moist, firm; medium heavy clay; no fragments; very few <2%, concretions, medium 2-6 mm, very highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 9.0; abrupt boundary to -
B23	400-600	Dark yellowish brown (10YR4/4 (moist)); mottles 10-20%, <5 mm, faint, orange, diffuse; rough ped, strong, 100-200 mm, polyhedral; moderately moist, very firm; heavy clay; no fragments; common 10-20%, concretions, coarse 6-20 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 9.5; gradual boundary to -
B24	600-	Yellowish brown (10YR5/4 (moist)); mottles 20-50%, <5 mm, faint, pale, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; dry, very firm; medium clay; no fragments; few 2-10%, concretions, medium 2-6 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Location 3



Surface 1



Surface 2



Surface 3



Profile



pH, slaking, dispersion

GENERAL									
Date:	15/06/2021	Describer:	H Marvell	Site:	310-03-TP3090	Type:	Detailed		
MSU:	1.1.1.1a	ASC:	Brown Vertosol						
PSC:	Millmerran		Chainage (m):		96924		Elevation (m):		329
Coordinates:	Easting:	321934	Northing:	6883590		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	No
Disturbance:	Cleared, pasture		
Surface condition:	Cracking; surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); <i>Eucalyptus</i> sp.?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-200?	Dark grey (10YR4/1 (moist))?; no mottles?; rough ped, moderate, 10-20 mm, subangular blocky?; dry, firm?; light clay?; no fragments?; no segregations?; no pans?; gradual boundary to -
B22?	200-750?	Brown (10YR4/3 (moist))?; yellow mottles, 10-20%, 5-15 mm, faint, diffuse?; rough ped, strong, 20-50 mm, subangular blocky?; moist, firm?; light medium clay?; no fragments?; no segregations?; no pans?; gradual boundary to -
B23?	750-1,500?	Dark brown (10YR3/2 (moist))?; dark mottles, 10-20%, 5-15 mm, faint, clear?; orange mottles, 10-20%, 5-15 mm, faint, diffuse?; rough ped, strong, 10-20 mm, subangular blocky?; moist, very firm?; medium clay?; no fragments?; common (10-20%), calcareous, soft segregations (?), coarse (6-20 mm)?; no pans?



Profile 1



Profile 2



Location 1



Stockpile 1

GENERAL									
Date:	14/08/2021	Describer:	T Beck	Site:	310-03-AH3338	Type:	Partial		
MSU:	1.1.1.1a	ASC:	Grey Vertosol						
PSC:	Millmerran		Chainage (m):		97103		Elevation (m):		370
Coordinates:	Easting:	321945	Northing:	6883769		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	No
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, firm, hard setting		
Surface fragments:	None		
Microrelief:	Incipient		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Greyish brown (10YR5/2 (moist)); no mottles; rough ped, weak, 5-10 mm, subangular blocky; dry, weak; light clay; no fragments; no segregations; no peds; partial slake in 10 mins; no dispersion within 2 hrs; pH 5.5; clear boundary to -
B22	100-150	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, moderate, 100-200 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; no segregations; no peds; partial slake in 10 mins; slight dispersion within 10 mins; pH 5.5; gradual boundary to -
B23	150-300	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, moderate, 100-200 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; no segregations; no peds; partial slake in 10 mins; slight dispersion within 2 hrs; pH 7.5; gradual boundary to -
B24	300-500	Very dark greyish brown (10YR3/2 (moist)); mottles 10-20%, 5-15 mm, faint, dark, clear; rough ped, moderate, 100-200 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; few 2-10%, concretions, medium 2-6 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B25	500	Dark yellowish brown (10YR4/4 (moist)); mottles 2-10%, 5-15 mm, prominent, dark, clear; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; few 2-10%, concretions, medium 2-6 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Surface 1



Surface 2



pH, slaking, dispersion



Profile

GENERAL									
Date:	15/06/2021	Describer:	H Marvell	Site:	310-03-TP3091	Type:	Detailed		
MSU:	1.1.1.1a	ASC:	Black Vertosol						
PSC:	Millmerran		Chainage (m):		97274		Elevation (m):		328
Coordinates:	Easting:	321967	Northing:	6883939		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qa
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	No
Disturbance:	Cleared, pasture		
Surface condition:	Firm?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); <i>Eucalyptus</i> sp.?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-200?	Very dark grey (10YR3/1 (moist))?; no mottles?; rough ped, moderate, 50-100 mm, subangular blocky?; moderately moist, firm?; light clay? no fragments?; no segregations; no pans?; gradual boundary to -
B22?	200-400?	Very dark grey (10YR3/1 (moist))?; no mottles?; rough ped, strong, 100-200 mm, subangular blocky?; moist, firm?; light medium clay?; no fragments?; no segregations?; no pans?; gradual boundary to -
B23?	400-1,100?	Brown (10YR4/2 (moist))?; dark mottles, 10-20%, 5-15 mm, faint, clear?; rough ped, strong, 100-200 mm, subangular blocky?; moist, very firm?; medium clay?; no fragments?; common (10-20%), coarse (medium 2-6 mm), calcareous, soft segregations, highly effervescent?; no pans?; gradual boundary to -
B24?	1,100-1,500?	Dark brown (10YR3/4 (moist))?; dark mottles, 10-20%, 5-15 mm, faint, clear?; rough ped, strong, 100-200 mm, subangular blocky?; moist, very firm?; medium heavy clay?; no fragments?; common (10-20%), coarse (6-20 mm), calcareous, soft segregations, highly effervescent?; no pans?



Profile 1



Profile 2



Stockpile 1



Surface 1

GENERAL									
Date:	19/02/2021	Describer:	B Rose	Site:	310-03-BH3011	Type:	Detailed		
MSU:	1.2.1.1a	ASC:	Brown Vertosol						
PSC:	Condamine?		Chainage (m):		97424		Elevation (m):		327
Coordinates:	Easting:	321983	Northing:	6884083		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod. rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Qa
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop?
ALC:	B	SCL:	No
Disturbance:	Extensive clearing		
Surface condition:	Firm?		
Surface fragments:	2-10%, 6-20 mm, subangular gravel?		
Microrelief:	Zero or no microrelief?		
Erosion:	Active (sheet, minor)?		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); wilga; black teatree; <i>Eucalyptus</i> sp.?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-200?	Very dark greyish brown (10YR3/2 (moist))?. no mottles?. rough ped, moderate, 20-50 mm, subangular blocky?. moist, weak?. light clay?. no fragments?. no segregations?. no pans?. clear boundary to -
B22?	200-550?	Black (10YR2/1 (moist))?. no mottles?. rough ped, weak, 50-100 mm, subangular blocky?. moist, weak?. light medium clay?. no segregations?. no pans?. clear boundary to -
B23?	550-700?	Dark greyish brown (10YR4/2 (moist))?. mottles, 20-50%, >30 mm, faint, pale, diffuse?. rough ped, strong, 100-200 mm, subangular blocky?. moist, weak?. medium clay?. no fragments?. few (2-10%), medium (2-6 mm), calcareous, soft segregations, moderately effervescent?. no pans?. gradual boundary to -
B24?	700-1,000?	Brown (7.5YR4/3 (moist))?. mottles, 20-50%, >30 mm, distinct, pale, diffuse?. rough ped, strong, 100-200 mm, subangular blocky?. moist, firm?. medium clay?. no fragments?. common (10-20%), medium (2-6 mm), calcareous, soft segregations, highly effervescent?. no pans?. gradual boundary to -
B25?	1,000-1,500?	Dark greyish brown (2.5Y4/2 (moist))?. mottles, 20-50%, >30 mm, faint, pale, diffuse?. rough ped, strong, 100-200 mm, subangular blocky?. moist, very firm?. medium heavy clay?. common (10-20%), coarse (20-60 mm), subangular gravel?. few (2-10%), medium (2-6 mm), calcareous, soft segregations, highly effervescent?. no pans?



Core 1

GENERAL									
Date:	14/08/2021	Describer:	M Mooney	Site:	310-03-AH3339	Type:	Partial		
MSU:	1.2.1.1a	ASC:	Black Vertosol						
PSC:	Condamine		Chainage (m):		97646		Elevation (m):		365
Coordinates:	Easting:	322004	Northing:	6884309	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Open depression (vale)	Permeability:	Slowly
Landform element:	Drain depres.	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qa
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	No
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, firm, hard setting, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Streambank (active, present)		
Vegetation:	Emergent (<5% of total); river red gum		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-200	Very dark greyish brown (10YR3/2 (moist)); mottles 10-20%, <5 mm, prominent, brown, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; light medium clay, fine sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 6.0; gradual boundary to -
B22	200-650	Very dark grey (10YR4/1 (moist)); mottles 10-20%, <5 mm, faint, brown, diffuse; smooth ped, strong, 100-200 mm, polyhedral; wet, firm; light clay, fine sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 7.5; gradual boundary to -
B23	650-	Very dark grey (10YR4/1 (moist)); mottles 20-50%, <5 mm, faint, yellow, diffuse; smooth ped, moderate, 50-100 mm, polyhedral, moderately moist, firm; light clay, fine sandy; partial slake in 10 mins; slight dispersion within 10 mins; pH 9.0



Location 1



Location 2



Location 2



Erosion 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL											
Date:	16/08/2021		Describer:	H Marvell		Site:	310-03-AH3340		Type:	Check site	
MSU:	1.1.1.1a		ASC:	Vertosol							
PSC:	Millmerran			Chainage (m):			97898		Elevation (m):		330
Coordinates:	Easting:	321931		Northing:	6884568		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Mod.rapid
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qa
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	No
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, surface crust		
Surface fragments:	2-10%, 20-60 mm, subangular, slate		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); cypress pine, <i>Eucalyptus</i> sp., <i>Corymbia</i> sp.		

	
Location 1	Location 2
	
Surface 1	Surface 2

GENERAL									
Date:	14/12/2021	Describer:	H Marvell	Site:	310-03-AH3788	Type:	Check site		
MSU:	1.1.1.1a	ASC:	Vertosol						
PSC:	Condamine?			Chainage (m):	98055		Elevation (m):		329
Coordinates:	Easting:	321976	Northing:	6884722	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Closed depression	Permeability:	Moderately
Landform element:	Oxbow	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qs/Qal
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	No
Disturbance:	Extensive clearing		
Surface condition:	Soft		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); poplar box, river red gum, sedges		



Location 1



Location 2



Surface 1



Surface 2

GENERAL									
Date:	16/08/2021	Describer:	H Marvell	Site:	310-03-AH3341	Type:	Representative		
MSU:	1.1.1.1a	ASC:	Episodic-Endocalcareous Epipedal Black Vertosol						
PSC:	Millmerran		Chainage (m):		98181		Elevation (m):		330
Coordinates:	Easting:	321984	Northing:	6884847		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	No
Disturbance:	Cleared, pasture		
Surface condition:	Soft, firm		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); river red gum, grey box, cypress pine; rooting depth 550 mm.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, moderate, 50-100 mm, polyhedral; moist, very firm; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 6.0; clear boundary to -
B22	50-550	Very dark grey (10YR3/1 (moist)); mottles 2-10%, <5 mm, faint, dark, diffuse; strong, >500 mm, polyhedral; moist, very strong; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 7.0; gradual boundary to -
B31	550-800	Brown (10YR4/3 (moist)); mottles 10-20%, 15-30 mm, faint, brown, clear; rough ped, strong, 100-200 mm, polyhedral; moderately moist, very firm; medium heavy clay; no fragments; few 2-10%, concretions, coarse 6-20 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 9.0; gradual boundary to -
B32	800-1,200	Greyish brown (10YR5/2 (moist)); mottles 20-50%, 15-30 mm, prominent, orange, clear; rough ped, moderate, 20-50 mm, polyhedral; moderately moist, strong; medium clay; no fragments; very few <2%, concretions, medium 2-6 mm, highly calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B33	1,200-1,500	Greyish brown (10YR5/2 (moist)); mottles 10-20%, 5-15 mm, faint, orange, diffuse; rough ped, weak, 100-200 mm, polyhedral; moderately moist, very firm; medium clay; no fragments; very few <2%, concretions, medium 2-6 mm, moderately calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0



Location 1



Location 2



Location 3



Surface 1



pH, slaking, dispersion



Profile

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.1	6.21	SLAC	9.88	VL	209	5.84	M	1458	L	2.9	1.67	H1	0.98	57.3	88.8	1.1

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H2O)		EC (dS/m)	Salinity Rating^	Cl^- (mg/kg)	Exchangeable cations (meq/100 g)							ESP (%)	Sodicity^	Emerson class	Ca:Mg ratio
	Clay	Silt	Sand	Gravel	-	Rating#				H+	Al+	Ca+	Mg+	K+	Na+	CEC				
0.0-0.05	9.4	9.2	81.4	2.1	6.21	SLAC	0.08	VL	28.3	-	0.01	5.94	3.53	0.55	0.83	10.9	7.61	S	2	1.68
0.2-0.3	44.8	11.1	44.0	0.2	7.54	SLAL	0.14	L	70.1	-	-	7.17	5.77	0.26	2.60	15.8	16.4	SS	1	1.24
0.65-0.75	37.8	8.7	53.5	0.9	8.62	STAL	1.06	VH	1317	-	-	10.3	5.73	0.33	2.82	19.2	14.7	S	2	1.80
0.9-1.0	42.8	10.4	46.7	0.3	8.63	STAL	1.08	VH	1404	-	-	8.88	6.06	0.33	2.67	18.0	14.9	S	4	1.47
1.1-1.2	41.3	6.9	51.8	<0.1	8.55	STAL	1.07	VH	1378	-	-	7.17	7.04	0.33	3.86	18.4	21.0	SS	6	1.02
1.4-1.5	35.2	10.6	54.2	0.1	8.22	MAL	0.85	VH	953	-	-	5.17	5.94	0.26	3.23	14.6	22.1	SS	2	0.87

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL									
Date:	16/08/2021	Describer:	H Marvell	Site:	310-03-AH3342	Type:	Partial		
MSU:	1.1.1.1a	ASC:	Black Vertosol						
PSC:	Millmerran		Chainage (m):		98444		Elevation (m):		331
Coordinates:	Easting:	322033	Northing:	6885106	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Soft, firm		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); poplar box, wilga		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-150	Very dark brown (10YR2/2 (moist)); no mottles; rough ped, weak, 20-50 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.0; gradual boundary to -
B22	150-400	Very dark grey (10YR3/1 (moist)); mottles 2-10%, 5-15 mm, faint, brown, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moist, firm; medium clay; no fragments; no segregations; no pans; pH 7.0; gradual boundary to -
B23	400-	Dark grey (10YR4/1 (moist)); mottles 2-10%, 5-15 mm, faint, brown, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moist, firm; medium heavy clay, fine sandy; no fragments; few 2-10%, concretions, medium 2-6 mm, very highly calcareous; no pans; pH 8.0



Location 1



Location 2



Surface 1



pH, slaking, dispersion



Profile

GENERAL											
Date:	14/12/2021		Describer:	H Marvell		Site:	310-03-AH3789		Type:	Detailed	
MSU:	1.1.2.2			ASC:	Tenosol						
PSC:	Davy				Chainage (m):		98695		Elevation (m):		330
Coordinates:		Easting:	322073		Northing:	6885356		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qa
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Loose, soft		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); poplar box, cypress pine, river red gum		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-300	Dark brown (10YR3/3 (moist)); no mottles; earthy, massive (no peds); moderately moist, loose; loamy sand; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 6.5; diffuse boundary to -
A12	300-700	Dark brown (10YR3/3 (moist)); no mottles; earthy, massive (no peds); moderately moist, loose; sand; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 6.5; diffuse boundary to -
A21	700-1,500	Dark yellowish brown (10YR4/4 (moist)); pale brown (10YR6/3 (dry)); mottles 2-10%, <5 mm, prominent, brown, clear; sandy (grains prominent), massive (no peds); moderately moist, loose; sand; no fragments; no segregations; no pans; complete slake in 10 mins; slight dispersion within 10 mins; pH 7.0; diffuse boundary to -
A22	1500-	Dark yellowish brown (10YR4/4 (moist)); no mottles; sandy (grains prominent), single grain (no peds), wet, loose; sand; no fragments; no segregations; no pans; complete slake in 10 mins; strong dispersion within 10 mins; pH 7.0; water table intercepted



Location 1



Location 2



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	16/08/2021	Describer:	M Mooney	Site:	310-03-AH3343	Type:	Partial		
MSU:	1.1.1.2	ASC:	Grey Dermosol						
PSC:	Downfall		Chainage (m):		99004		Elevation (m):		369
Coordinates:	Easting:	322046	Northing:	6885664	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Firm, surface crust, cryptogam surface		
Surface fragments:	<2%, 2-6 mm, rounded, ferricrete; <2%, 6-20 mm, angular, quartz		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Very sparse, crowns well separated (0.25-20%); brigalow, poplar box, wilga		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-80	Very dark greyish brown (10YR3/2 (moist)); no mottles; earthy, massive (no peds); moderately moist, weak; light clay, sandy; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.0; clear boundary to -
A2e	80-180	Dark greyish brown (10YR4/2 (moist)); white (10YR8/1 (dry)); no mottles; earthy, massive (no peds); dry, weak; light clay, sandy; no fragments; very few <2%, ferruginous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 6.5; abrupt boundary to -
B23	180-400	Greyish brown (10YR4/3 (moist)); mottles 10-20%, <5 mm, faint, brown, diffuse; rough ped, strong, 20-50 mm, subangular blocky; moderately moist, very firm; medium heavy clay; no fragments; no segregations; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 7.5; gradual boundary to -
B24	400-	Brown (10YR5/3 (moist)); mottles 10-20%, <5 mm, faint, orange, diffuse; rough ped, strong, 20-50 mm, subangular blocky; medium clay; no fragments; common 10-20%, concretions, coarse 6-20 mm, highly calcareous; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 8.0



Location 1



Location 2



Erosion 1



Location 1



Surface 1



Profile



Surface 2



pH, slaking, dispersion

GENERAL									
Date:	16/08/2021	Describer:	T Beck	Site:	310-03-AH3344	Type:	Detailed		
MSU:	1.1.1.1a	ASC:	Black Vertosol						
PSC:	Millmerran		Chainage (m):		99284		Elevation (m):		373
Coordinates:	Easting:	322047	Northing:	6885944		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Firm, surface crust		
Surface fragments:	2-10%, 2-6 mm, subrounded, gravel		
Microrelief:	Incipient		
Erosion:	Sheet (active, present)		
Vegetation:	Very sparse, crowns well separated (0.25-20%); wilga, brigalow, poplar box		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 10-20 mm, subangular blocky; moderately moist, weak; light medium clay; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 7.0; gradual boundary to -
B22	100-530	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; common 10-20%, concretions, medium 2-6 mm, very highly calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0; clear boundary to -
B23	530-830	Dark grey (10YR4/1 (moist)); mottles 2-10%, 5-15 mm, prominent, dark, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; common 10-20%, veins, medium 2-6 mm, very highly calcareous; no pans; pH 8.0; gradual boundary to -
B24	830-1,330	Brown (10YR5/3 (moist)); no mottles; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; common 10-20%, concretions, coarse 6-20 mm, very highly calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B3	1330-1,500	Brown (10YR5/3 (moist)); mottles 2-10%, <5 mm, prominent, brown, clear; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.5



Location 1



Location 2



Surface 1



Surface 2



pH, slaking, dispersion



Profile

GENERAL									
Date:	16/08/2021	Describer:	T Beck	Site:	310-03-AH3345	Type:	Check site		
MSU:	1.1.1.2	ASC:	Dermosol						
PSC:	Downfall		Chainage (m):		99556		Elevation (m):		381
Coordinates:	Easting:	322048	Northing:	6886216	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Mod.rapid
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Loose, firm		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); brigalow, poplar box, wilga		



Location 1



Location 2



Surface 1



Surface 2

GENERAL									
Date:	14/12/2021	Describer:	H Marvell	Site:	310-03-AH3790	Type:	Partial		
MSU:	1.2.1.1a	ASC:	Brown Vertosol						
PSC:	Millmerran			Chainage (m):	99808		Elevation (m):		334
Coordinates:	Easting:	322085	Northing:	6886469		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	No
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, soft, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); brigalow, poplar box		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Very dark grey (10R3/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, weak; light medium clay, silty; no fragments; no segregations; no pans; no slaking within 10 mins; no dispersion within 2 hrs; pH 7.0; clear boundary to -
2B22	100-300	Brown (7.5YR4/4 (moist)); mottles 2-10%, <5 mm, faint, dark, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, weak; light clay, fine sandy; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 7.0; gradual boundary to -
2B23	300-550	Dark yellowish brown (10YR4/4 (moist)); mottles 10-20%, <5 mm, prominent, grey, clear; rough ped, strong, 100-200 mm, subangular blocky; dry, very firm; medium heavy clay, fine sandy; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 7.0; gradual boundary to -
2B24	550-	Brown (10YR4/3 (moist)); mottles 10-20%, <5 mm, prominent, grey, clear; rough ped, moderate, 20-50 mm, subangular blocky; dry, firm; medium clay, fine sandy; no fragments; few 2-10%, concretions, medium 2-6 mm, highly calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 9.0



Location 1



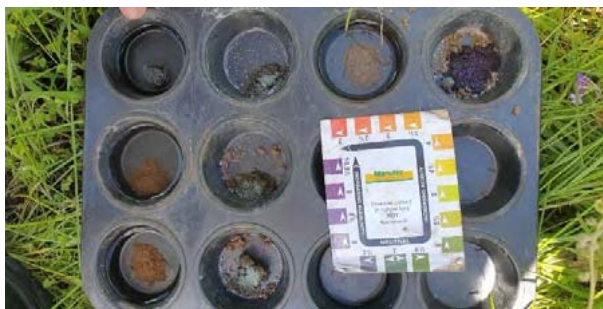
Location 2



Location 3



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	05/07/2021	Describer:	H Marvell	Site:	310-03-BH3013	Type:	Detailed		
MSU:	1.1.1.1a?	ASC:	Black Vertosol?						
PSC:	Millmerran?		Chainage (m):		100065		Elevation (m):		334
Coordinates:	Easting:	322066	Northing:	6886725	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Plain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qa
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	No
Disturbance:	Cleared, pasture		
Surface condition:	Firm?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Very sparse, crowns well separated (0.25-20%); poplar box.?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-300?	Black (10YR2/1 (moist))?. no mottles?. rough ped, moderate, 50-100 mm, subangular blocky?. moderately moist, firm?. light medium clay, fine sandy?. no fragments?. no segregations?. no pans?. gradual boundary to -
B22?	300-500?	Dark brown (10YR3/2 (moist))?. no mottles?. rough ped, strong, 100-200 mm, subangular blocky?. moist, firm?. medium clay, fine sandy?. no fragments?. no segregations?. no pans?. clear boundary to -
B/C?	500-1,100?	Brown (10YR5/3 (moist))?. red mottles, 20-50%, 15-30 mm, faint, diffuse?. brown mottles, 10-20%, 15-30 mm, faint, diffuse?. rough ped, moderate, 100-200 mm, subangular blocky?. moist, firm?. light clay, sandy?. no fragments?. few (2-10%), calcareous, concretions, medium (2-6 mm)?. no pans?. gradual boundary to -
C?	1,100-1,500?	Grey (10YR5/1 (moist))?. brown mottles, 20-50%, 15-30 mm, faint, diffuse?. rough ped, strong, 50-100 mm, subangular blocky?. moist, firm?. light clay, sandy?. no fragments?. no segregations?. no pans?



Profile 1

GENERAL											
Date:	05/07/2021		Describer:	H Marvell		Site:	310-03-BH3014		Type:	Detailed	
MSU:	1.1.1.2?		ASC:	Black Dermosol?							
PSC:	Downfall?			Chainage (m):			100215		Elevation (m):		334
Coordinates:		Easting:	322058		Northing:	6886874		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Plain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qa
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	No
Disturbance:	Cleared, pasture		
Surface condition:	Firm?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Very sparse, crowns well separated (0.25-20%); poplar box?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1?	0-300?	Black (10YR2/1 (moist))?; no mottles?; earthy, massive (no peds)?; moist, firm?; silty loam?; no fragments?; no segregations?; no pans?; gradual boundary to -
B21?	150-950?	Dark brown (10YR3/2 (moist))?; no mottles?; rough ped, strong, 100-200 mm, subangular blocky?; moist, firm?; light medium clay, fine sandy?; no fragments?; many (20-50%), 5-15 mm, calcareous, soft segregations, highly effervescent?; no pans?; gradual boundary to -
B/C?	950-1,500?	Brown (10YR5/3 (moist))?; grey mottles, 20-50%, 15-30 mm, faint, diffuse?; brown mottles, 10-20%, 15-30 mm, faint, diffuse?; rough ped, strong, 20-50 mm, subangular blocky?; moist, firm?; light clay, fine sandy?; no fragments?; few (2-10%), calcareous, concretions, medium (2-6 mm)?; no pans?



Core 1

GENERAL									
Date:	23/08/2021	Describer:	H Marvell	Site:	310-03-TP3096	Type:	Detailed		
MSU:	1.1.1.2?	ASC:	Brown Dermosol?						
PSC:	No suitable soil		Chainage (m):		100790		Elevation (m):		337
Coordinates:	Easting:	322381	Northing:	6888412	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qa
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	B?	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Loose; Soft?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Very sparse, crowns well separated (0.25-20%); <i>Eucalyptus</i> sp., brigalow, wilga, bloodwood, cypress pine?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-300?	Dark grey (10YR4/1 (moist))?; no mottles?; rough ped?, moderate, 100-200 mm, subangular blocky?; moist, firm?; light medium clay?; no fragments?; no segregations; no pans?; gradual boundary to -
B22?	300-700?	Dark greyish brown (10YR4/2 (moist))?; no mottles?; rough ped?, moderate, 100-200 mm, subangular blocky?; moist, firm?; light medium clay?; no fragments?; few (2-10%), calcareous, nodules (?), medium (2-6 mm)?; no pans?; gradual boundary to -
B23?	700-1,500?	Yellowish brown (10YR5/4 (moist))?; dark mottles, 10-20%, 5-15 mm, faint, clear?; rough ped?, moderate, 100-200 mm, subangular blocky?; moist, firm?; light clay?; no fragments?; no segregations?; no pans?



Profile 1



Profile 2



Location 1



Stockpile 1

GENERAL									
Date:	16/08/2021	Describer:	H Marvell	Site:	310-03-AH3346	Type:	Partial		
MSU:	1.1.1.2	ASC:	Black Dermosol						
PSC:	Downfall		Chainage (m):		101105		Elevation (m):		340
Coordinates:	Easting:	322154	Northing:	6887764	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qa
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	No
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, loose, firm		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); brigalow, poplar box, cypress pine		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-100	Dark brown (10YR3/3 (moist)); no mottles; rough ped, weak, 10-20 mm, subangular blocky; dry, weak; light clay, sandy; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.0; clear boundary to -
A2e	100-250	Dark greyish brown (10YR4/2 (moist)); light grey (10YR7/2 (dry)); no mottles; rough ped, weak, 5-10 mm, polyhedral; dry, very weak; clay loam, sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 7.5; abrupt boundary to -
B21	250-500	Very dark greyish brown (10YR3/2 (moist)); mottles 10-20%, 5-15 mm, faint, orange, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; few 2-10%, concretions, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH ?6.0; diffuse boundary to -
B22	500-	Dark brown (10YR3/3 (moist)); mottles 10-20%, 5-15 mm, prominent, orange, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; few 2-10%, concretions, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.0



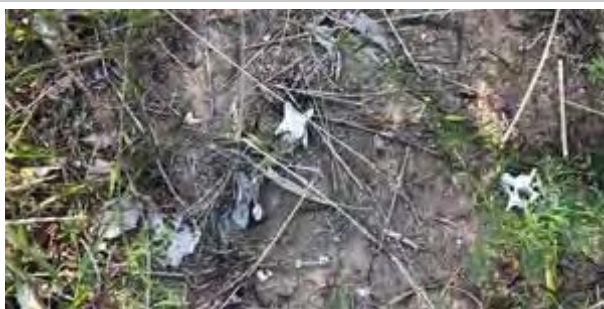
Location 1



Location 2



Location 3



Surface 1



Profile



pH, slaking, dispersion

GENERAL									
Date:	16/08/2021	Describer:	H Marvell	Site:	310-03-AH3347	Type:	Check site		
MSU:	1.1.1.2	ASC:	Dermosol						
PSC:	Downfall		Chainage (m):		101369		Elevation (m):		340
Coordinates:	Easting:	322220	Northing:	6888021	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qa
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	No
Disturbance:	Extensive clearing		
Surface condition:	Loose, soft		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); bloodwood, poplar box, wilga		

	
Location 1	Location 2
	
Surface 1	Surface 2

GENERAL									
Date:	16/08/2021	Describer:	H Marvell	Site:	310-03-AH3348	Type:	Representative		
MSU:	1.1.3.2b	ASC:	Hypocalcic Mottled-Subnatric Grey Sodosol						
PSC:	Downfall		Chainage (m):		101582		Elevation (m):		340
Coordinates:	Easting:	322288	Northing:	6888222		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qa
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	No
Disturbance:	Extensive clearing		
Surface condition:	Loose, soft		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); <i>Eucalyptus</i> sp., brigalow, bloodwood, cypress pine; rooting depth 800 mm.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A11	0-100	Very dark grey (10YR3/1 (moist)); no mottles; earthy, massive (no peds); moderately moist, very weak; sandy clay loam; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.5; clear boundary to -
A12	100-200	Brown (10YR4/3 (moist)); no mottles; earthy, massive (no peds); moderately moist, very weak; sandy loam; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 6.5; clear boundary to -
A21	200-300	Dark greyish brown (10YR4/2 (moist)); no mottles; earthy, massive (no peds); moderately moist, very weak; sandy loam; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 6.0; clear boundary to -
A22e?	300-400	Greyish brown (10YR5/2 (moist)); no mottles; sandy (grains prominent), massive (no peds); moist, loose; sandy loam; no fragments; no segregations; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 7.0; abrupt boundary to -
B21	400-800	Greyish brown (10YR5/2 (moist)); mottles 2-10%, <5 mm, prominent, orange, diffuse; rough ped, strong, 200-500 mm, subangular blocky; moist, firm, medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 7.0; gradual boundary to -
B22	800-1,250	Greyish brown (10YR5/2 (moist)); mottles 10-20%, <5 mm, prominent, orange, diffuse; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, firm; medium heavy clay; no fragments; few 2-10%, concretions, coarse 6-20 mm, highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.0
B23	1250-1,500	Light grey (10YR7/1 (moist)); mottles 20-50%, 5-15 mm, prominent, orange, clear; rough ped, moderate, 20-50 mm, subangular blocky; light medium clay, sandy; no fragments; few 2-10%, concretions, medium 2-6 mm, slightly calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5



Location 1



Location 2



Location 3



Surface 1



pH, slaking, dispersion



Profile

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.1	6.32	SLAC	9.19	VL	164	8.12	M	1138	L	1.6	0.92	L2	0.32	30.7	28	0.66

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H2O)		EC (dS/m)	Salinity Rating^	Cl^- (mg/kg)	Exchangeable cations (meq/100 g)							ESP (%)	Sodicity^	Emerson class	Ca:Mg ratio
	Clay	Silt	Sand	Gravel	-	Rating#				H+	Al+	Ca+	Mg+	K+	Na+	CEC				
0.0-0.1	8.7	6.5	84.8	1.0	6.32	SLAC	0.05	VL	21.4	-	0.01	4.07	1.79	0.57	0.50	6.94	7.14	S	3b	2.27
0.1-0.2	9.7	5.8	84.4	0.5	6.37	SLAC	0.03	VL	10.8	-	0.01	2.28	0.91	0.49	0.31	4.00	7.74	S	3b	2.50
0.2-0.3	6.6	6.3	87.2	1.0	6.15	SLAC	0.03	VL	18.3	-	0.01	2.18	0.70	0.49	0.07	3.46	2.05	NS	3b	3.10
0.3-0.4	4.8	6.5	88.6	0.5	6.50	SLAC	0.02	VL	11.6	-	0.01	1.50	0.60	0.39	0.27	2.76	9.86	S	2	2.50
0.5-0.6	22.6	4.9	72.4	0.2	7.34	SLAL	0.08	VL	27.9	-	-	4.51	4.68	0.57	0.83	10.6	7.88	S	2	0.96
0.9-1.0	20.2	5.7	74.1	22.8	9.11	VSAL	0.19	M	49.2	-	-	14.1	4.97	0.51	0.80	20.4	3.95	NS	4	2.84
1.4-1.5	26.9	10.5	62.6	0.9	8.73	STAL	0.16	L	75.0	-	-	3.51	5.37	0.50	1.23	10.6	11.6	S	2	0.65

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL									
Date:	16/08/2021	Describer:	A Kaur	Site:	310-03-AH3349	Type:	Partial		
MSU:	1.2.1.1a	ASC:	Brown Vertosol						
PSC:	Moola		Chainage (m):		102021		Elevation (m):		342
Coordinates:	Easting:	322421	Northing:	6888641	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Drain depres.	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qa
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, surface flake		
Surface fragments:	<2%, 6-20 mm, subrounded, sandstone		
Microrelief:	Mounds and/or depressions on flat surf, inc. termites, ant, mound; incipient gilgai		
Erosion:	Sheet (active, severe), rill (active, severe), gully (active, moderate, <1.5 m)		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%); birgalow, wilga, wattle		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	10YR3/2 (moist); no mottles; rough ped, weak, 20-50 mm, angular blocky, moderately moist, loose; light clay, sandy; coarse fragments <2%, 2-6 mm, subangular, sandstone; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8; clear boundary to -
B22	100-300	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, weak, 20-50 mm, subangular blocky; moderately moist, weak; light clay, fine sandy; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0; clear boundary to -
B23	300-600	Very dark grey (10YR3/1 (moist)); mottles 2-10%, 5-15 mm, faint, brown, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light clay, sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.0; gradual boundary to -
B24	600-	Very dark greyish brown (10YR3/2 (moist)); mottles 2-10%, 5-15 mm, prominent, orange, diffuse; smooth ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; very few <2%, soft segregations, medium 2-6 mm, moderately calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5



Location 1



Location 2



Erosion 1



Profile



Surface 1



pH, slaking, dispersion

GENERAL									
Date:	26/07/2021	Describer:	H Marvell	Site:	310-03-TP3097	Type:	Detailed		
MSU:	1.2.1.1a?	ASC:	Brown Vertosol?						
PSC:	Moola?		Chainage (m):		102254		Elevation (m):		345
Coordinates:	Easting:	322490	Northing:	6888864	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Qs
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B?	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking; Soft?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Very sparse, crowns well separated (0.25-20%); brigalow?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-150?	Dark brown (10YR3/2 (moist))?. no mottles?. rough ped?. moderate, 10-20 mm, subangular blocky?. moist, firm?. light medium clay? no fragments?. no segregations; no pans?. gradual boundary to -
B22?	150-500?	Dark greyish brown (10YR4/2 (moist))?. dark mottles, 10-20%, 5-15 mm, faint, clear?. red mottles, 2-10%, 15-30 mm, faint, diffuse?. rough ped?. moderate, 10-20 mm, subangular blocky?. moist, firm?. medium clay?. no fragments?. common (10-20%), calcareous, soft segregations, coarse (6-20 mm)?. no pans?. gradual boundary to -
B23?	500-900?	Brown (10YR5/3 (moist))?. dark mottles, 2-10%, 5-15 mm, faint, clear?. rough ped?. moderate, 20-50 mm, subangular blocky?. moist, firm?. medium clay?. no fragments?. few (2-10%), calcareous, concretions, medium (2-6 mm)?. no pans?. gradual boundary to -
B24?	900-1,500	Dark yellowish brown (7.5YR4/4 (moist))?. dark mottles, 2-10%, 5-15 mm, faint, diffuse?. rough ped?. moderate, 10-20 mm, subangular blocky?. moist, firm?. medium clay?. no fragments?. no segregations?. no pans?



Profile 1



Profile 2



Location 1



Stockpile 1

GENERAL									
Date:	17/08/2021	Describer:	M Mooney	Site:	310-03-AH3350	Type:	Detailed		
MSU:	1.2.1.1a	ASC:	Black Vertosol						
PSC:	Moola		Chainage (m):		102489		Elevation (m):		387
Coordinates:	Easting:	322544	Northing:	6889093	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Poorly drained
Landform pattern:	Rises	Geology:	Qs
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, self-mulching, soft, surface crust		
Surface fragments:	<2%, 20-60 mm, angular, igneous		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Very sparse, crowns well separated (0.25-20%); brigalow		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Black (10YR2/1 (moist)); no mottles; rough ped, weak, 10-20 mm, angular blocky; dry, very firm; medium clay; no fragments; very few <2%, concretions, fine <2 mm, moderately calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.0; gradual boundary to -
B22	50-600	Very dark grey (10YR3/1 (moist)); mottles 10-20%, 5-15 mm, faint, dark, diffuse; rough ped, moderate, 20-50 mm, angular blocky; dry, strong; medium heavy clay; coarse fragments <2%, 2-6 mm, subrounded, ferricrete; few 2-10%, concretions, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; clear boundary to -
B23	600-800	Dark brown (10YR3/3 (moist)); mottles 10-20%, 5-15 mm, prominent, dark, clear; rough ped, strong, 100-200 mm, angular blocky; dry, very strong; heavy clay; no fragments; few 2-10%, concretions, fine <2 mm, highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.5
B24	800-1,500	Brownish yellow (10YR6/6 (moist)); mottles 2-10%, <5 mm, faint, orange, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, strong; medium heavy clay; no fragments; few 2-10%, concretions, fine <2 mm, highly calcareous; no pans; complete slake in 10 mins; slight dispersion within 10 mins; pH 7.0



Location 1



Erosion 1



Surface 1



Surface 2



Surface 3



Profile



pH, slaking, dispersion

GENERAL									
Date:	16/08/2021	Describer:	T Beck	Site:	310-03-AH3351	Type:	Partial		
MSU:	1.1.1.1a	ASC:	Grey Vertosol						
PSC:	Edgefield		Chainage (m):		102726		Elevation (m):		387
Coordinates:	Easting:	322609	Northing:	6889321	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Residual crest	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Qs
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Loose, firm		
Surface fragments:	<2%, 20-60 mm, subrounded, quartz		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); wattle, brigalow		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-50	Dark greyish brown (10YR4/2 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B21	50-160	Dark greyish brown (10YR4/2 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; clear boundary to -
B22	150-300	Dark greyish brown (10YR4/2 (moist)); mottles 10-20%, 15-30 mm, faint, brown, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; common 10-20%, soft segregations, very coarse 20-60 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; clear boundary to -
B23	300-	Light yellowish brown (10YR6/4 (moist)); mottles 10-20%, >30 mm, faint, dark, clear; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, very firm; light medium clay; no fragments; very many >50%, soft segregations, very coarse 20-60 mm, very highly calcareous; few 2-10%, manganiferous, concretions, fine <2 mm; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0



Location 1



Location 2



Surface 1



Surface 2



Profile



pH, slaking, dispersion

GENERAL									
Date:	02/09/2021	Describer:	H Marvell	Site:	310-03-TP3098	Type:	Detailed		
MSU:	1.2.1.1a?	ASC:	Brown Vertosol?						
PSC:	Moola?		Chainage (m):		103005		Elevation (m):		347
Coordinates:	Easting:	322727	Northing:	6889577	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Qs
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B?	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Soft?; Cracking?		
Surface fragments:	2-10%, 6-20 mm, subangular quartz?		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Very sparse, crowns well separated (0.25-20%); brigalow?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-300?	Dark greyish brown (10YR4/2 (moist))?; no mottles?; rough ped?; moderate, 10-20 mm, subangular blocky?; dry, firm?; light clay? 2-10%, 60-200 mm, subangular gravel?; no segregations; no pans; gradual boundary to -
B22?	300-550?	Brown (10YR3/2 (moist))?; no mottles?; rough ped, moderate?; moist, firm?; light medium clay?; no fragments?; no segregations; no pans; gradual boundary to -
B23?	550-700	Brown (7.5YR4/3 (moist))?; no mottles?; rough ped, moderate?; moist, firm?; light medium clay?; no fragments?; common (10-20%), calcareous, concretions, medium (2-6 mm)?; no pans; clear boundary to -
B24?	700-1000?	Yellowish brown (10YR5/4 (moist))?; dark mottles, 2-10%, 5-15 mm, faint, clear?; rough ped, strong?; moist, very firm?; medium clay?; no fragments?; no segregations?; no pans; gradual boundary to -
B3?	1000-1500	Yellowish brown (10YR5/4 (moist))?; dark mottles, 2-10%, 5-15 mm, faint, clear?; rough ped, strong?; moist, very firm?; medium clay?; 2-10%, 20-60 mm, subangular gravel?; no segregations?; no pans;



Profile 1



Profile 2



Location 1



Stockpile 1

GENERAL												
Date:	09/11/2021		Describer:	H Marvell		Site:	310-03-AH3352		Type:	Partial		
MSU:	1.1.1.1a			ASC:	Black Vertosol							
PSC:	Edgefield				Chainage (m):		103290		Elevation (m):		352	
Coordinates:	Easting:		322803		Northing:		6889850		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Imperfectly drained
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, soft, firm		
Surface fragments:	2-10%, 6-20 mm, subangular, quartz		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, weak, 20-50 mm, subangular blocky; moist, firm; light clay; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.5; clear boundary to -
B22	50-150	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moist, firm; light medium clay; no fragments; many 20-50%, laminae, coarse 6-20 mm, very highly calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 9.0; clear boundary to -
B23	150-350	Brown (10YR5/3 (moist)); mottles 2-10%, <5 mm, prominent, dark, clear; rough ped, moderate, 50-100 mm, subangular blocky; moist, firm; medium heavy clay; no fragments; common 10-20%, concretions, coarse 6-20 mm, very highly calcareous; few 2-10%, manganiferous, 2-6 mm, concretions; no pans; partial slake in 10 mins; no dispersion within 2 hrs; 8.5; gradual boundary to -
B24	350-	Brown (10YR4/3 (moist)); mottles 2-10%, 5-15 mm, prominent, dark, clear; rough ped, moderate, 50-100 mm, platy; moderately moist, very firm; light medium clay; no fragments; many 20-50%, soft segregations, coarse 6-20 mm, very highly calcareous; few 2-10%, manganiferous, 2-6 mm, concretions; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 9.0



Location 1



Location 2



Location 3



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	09/11/2021	Describer:	H Marvell	Site:	310-03-AH3353	Type:	Detailed		
MSU:	1.2.1.1a	ASC:	Grey Vertosol						
PSC:	Edgefield			Chainage (m):	103565		Elevation (m):		354
Coordinates:	Easting:	322870	Northing:	6890118		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Residual rise	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Qs
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Soft, firm		
Surface fragments:	2-10%, 2-6 mm, subangular, quartz		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1p/B21	0-100	Very dark greyish brown (10YR3/2 (moist)); mottles <2%, <5 mm, faint, red, clear; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, weak; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; clear boundary to -
B22	100-200	Dark greyish brown (10YR4/2 (moist)); mottles 10-20%, 5-15 mm, faint, pale, diffuse; rough ped, moderate, 20-50 mm, subangular blocky; moist, firm; light medium clay; no fragments; few 2-10%, manganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B23	200-400	Brown (10YR4/3 (moist)); mottles <2%, 5-15 mm, faint, dark, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; common 10-20%, concretions, coarse 6-20 mm, very highly calcareous; few 2-10%, manganiferous, concretions, medium 2-6 mm; no pans; pH 8.5; gradual boundary to -
B24	400-800	Brown (10YR4/3 (moist)); mottles 2-10%, 5-15 mm, faint, dark, diffuse; rough ped, strong, 200-500 mm, subangular blocky; moderately moist, strong; heavy clay; no fragments; many 20-50%, concretions, coarse 6-20 mm, very highly calcareous; few 2-10%, manganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.5; gradual boundary to -
B31	800-1,300	Dark yellowish brown (10YR3/6 (moist)); mottles 2-10%, 5-15 mm, faint, dark, diffuse; rough ped, moderate, 100-200 mm, subangular blocky; moderately moist, very strong; medium clay; no fragments; few 2-10%, nodules, fine <2 mm, highly calcareous; few 2-10%, manganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 9.0; gradual boundary to -
B32	1300-1,500	Dark yellowish brown (10YR4/4 (moist)); mottles <2%, <5 mm, faint, dark, diffuse; mottles 2-10%, 5-15 mm, faint, orange, clear; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, strong; medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 9.0



Location 1



Location 2



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	24/11/2021	Describer:	H Marvell	Site:	310-03-AH3354	Type:	Partial		
MSU:	1.2.1.1a	ASC:	Brown Vertosol						
PSC:	Edgefield			Chainage (m):	103858		Elevation (m):		356
Coordinates:	Easting:	322948	Northing:	6890403		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)		Runoff: Slow
Morphological type:	Lower slope		Permeability: Slowly
Landform element:	Footslope		Drainage: Imperfectly drained
Landform pattern:	Low hills		Geology: Qs
Relief modal class:	Undulating low hills		Rock outcrop: No rock outcrop
ALC:	A1/B		SCL: Yes
Disturbance:	Cleared, pasture		
Surface condition:	Soft, firm		
Surface fragments:	<2%, 2-6 mm, subrounded, quartz		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-200	Very dark brown (10YR2/2 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moist, firm; medium heavy clay; coarse fragments 2-10%, 2-6 mm, subrounded, metamorphic; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B22	200-500	Very dark greyish brown (10YR3/2 (moist)); mottles 10-20%, 5-15 mm, faint, brown, clear; mottles 10-20%, <5 mm, faint, dark, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moist, firm; medium heavy clay; coarse fragments 2-10%, 6-20 mm, subrounded, metamorphic; few 2-10%, concretions, coarse 6-20 mm, very highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.5; clear boundary to -
B23	500-	Dark greyish brown (10YR4/2 (moist)); mottles 10-20%, 5-15 mm, prominent, brown, diffuse; mottles 10-20%, 5-15 mm, prominent, dark, clear; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, strong; medium heavy clay; coarse fragments 2-10%, 2-6 mm, subrounded, metamorphic; many 20-50%, soft segregations, very coarse 20-60 mm, very highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 9.0



Location 1



Location 2



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	24/11/2021	Describer:	L Arnold	Site:	310-03-AH3355	Type:	Detailed		
MSU:	1.2.1.1a	ASC:	Brown Vertosol						
PSC:	Edgefield			Chainage (m):	104111		Elevation (m):		362
Coordinates:	Easting:	323026	Northing:	6890638		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Lower slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Self-mulching, firm		
Surface fragments:	<2%, 2-6 mm, subangular, metamorphic		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); brigalow		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-200	Very dark brown (10YR2/2 (moist)); mottles <2%, 15-30 mm, prominent, brown, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay, fine sandy; coarse fragments <2%, 20-60 mm, subrounded, quartz; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; clear boundary to -
B22	200-500	Very dark brown (10YR2/2 (moist)); mottles 2-10%, 5-15 mm, prominent, brown, clear; mottles 2-10%, 5-15 mm, prominent, dark, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; medium clay; coarse fragments <2%, 2-6 mm, subrounded, gravel; few 2-10%, laminae, coarse 6-20 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; clear boundary to -
B23	500-800	Brown (7.5YR4/3 (moist)); mottles <2%, 5-15 mm, prominent, dark, clear; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, strong; medium heavy clay; coarse fragments <2%, 6-20 mm, subrounded, quartz; common 10-20%, laminae, very coarse 20-60 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; diffuse boundary to -
B24	800-1,500	Dark greyish brown (10YR4/4 (moist)); mottles <2%, 5-15 mm, prominent, dark, clear; mottles <2%, 5-15 mm, prominent, red, clear; rough ped, strong, 50-100 mm, subangular blocky; dry, strong; medium heavy clay; coarse fragments <2%, 2-6 mm, subangular, metamorphic; few 2-10%, concretions, coarse 6-20 mm, highly calcareous; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 9.0



Location 1



Location 2



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	24/11/2021	Describer:	H Marvell	Site:	310-03-AH3791	Type:	Check site		
MSU:	1.2.1.1a	ASC:	Brown Vertosol						
PSC:	Millmerran			Chainage (m):	104335	Elevation (m):		355	
Coordinates:	Easting:	323134	Northing:	6890844	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod.rapid
Morphological type:	Lower slope	Permeability:	Slowly
Landform element:	Footslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qa
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	No
Disturbance:	Cleared, pasture		
Surface condition:	Soft, firm, hard setting, surface crust		
Surface fragments:	2-10%, 60-200 mm, subrounded, silcrete		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor), scald (active, minor)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); poplar box, river gum		



Location 1



Location 2



Surface 1



Surface 2

GENERAL									
Date:	24/11/2021	Describer:	H Marvell	Site:	310-03-AH3356	Type:	Check site		
MSU:	1.1.1.1a	ASC:	Vertosol						
PSC:	Millmerran			Chainage (m):	104431		Elevation (m):		354
Coordinates:	Easting:	323176	Northing:	6890926		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Mod.rapid
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Levee	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qa-QLD
Relief modal class:	Undulating plain	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	No
Disturbance:	Extensive clearing		
Surface condition:	Cracking, soft, firm		
Surface fragments:	2-10%, 60-200 mm, subrounded, conglomerate		
Microrelief:	Zero or no microrelief		
Erosion:	Gully (active, minor, <1.5 m)		
Vegetation:	Very sparse, crowns well separated (0.25-20%); river gum, wilga, poplar box		



Location 1



Location 2



Erosion 1



Surface 1

GENERAL									
Date:	24/11/2021	Describer:	H Marvell	Site:	310-03-AH3792	Type:	Detailed		
MSU:	1.2.1.1a	ASC:	Episodic-Endocalcareous Massive Brown Vertosol						
PSC:	Millmerran			Chainage (m):	104518	Elevation (m):		353	
Coordinates:	Easting:	323220	Northing:	6891004	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)		Runoff: Slow
Morphological type:	Flat		Permeability: Slowly
Landform element:	Backplain		Drainage: Imperfectly drained
Landform pattern:	Alluvial plain		Geology: Qa
Relief modal class:	Gently undulating plain		Rock outcrop: No rock outcrop
ALC:	B		SCL: No
Disturbance:	Cleared, pasture, previously cultivated		
Surface condition:	Firm, hard setting		
Surface fragments:	2-10%, 60-200 mm, subangular, silcrete		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Very sparse, crowns well separated (0.25-20%); poplar box, wilga, black tea tree; rooting depth 700 mm.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, moderate, 10-20 mm, subangular; moist, weak; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 6.0; clear boundary to -
B22	100-200	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, strong, 50-100 mm, subangular blocky; moist, firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; complete dispersion within 10 mins; pH 6.5; abrupt boundary to -
B23	200-400	Very dark greyish brown (10YR3/2 (moist)); mottles 10-20%, 5-15 mm, prominent, brown, clear; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 7.5; gradual boundary to -
B24	400-550	Dark greyish brown (10YR4/2 (moist)); mottles 10-20%, 5-15 mm, prominent, brown, clear; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, very firm; medium clay; no fragments; few 2-10%, concretions, medium 2-6 mm, very highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.0; gradual boundary to -
B31	550-700	Dark greyish brown (10YR4/2 (moist)); mottles 10-20%, 5-15 mm, prominent, brown, clear; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, very firm; light medium clay; no fragments; many 20-50%, concretions, medium 2-6 mm, very highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.5; clear boundary to -
B32	700-1,400	Brown (10YR4/3 (moist)); mottles 10-20%, 5-15 mm, faint, brown, clear; mottles 10-20%, 5-15 mm, prominent, dark, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; common 10-20%, soft segregations, coarse 6-20 mm, very highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5; clear boundary to -
B33	1400-1,500	Brown (7.5YR4/4 (moist)); mottles 10-20%, <5 mm, faint, orange, clear; mottles 10-20%, <5 mm, prominent, dark, clear; mottles 10-20%, <5 mm, prominent, grey, clear; rough ped, moderate, 20-50 mm, subangular blocky; dry, very firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 8.5



Location 1



Location 2



Erosion 1



Surface 1



Profile



Surface 2



Surface 3



Slaking, dispersion



pH

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-01	6.36	SLAC	17.6	L	173	25.7	H	936	L	1.7	0.98	L2	2.17	59	20.7	1.32

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H2O)		EC (dS/m)	Salinity Rating^	Cl- (mg/kg)	Exchangeable cations (meq/100 g)						ESP (%)	Sodicity*	Emerson class	Ca:Mg ratio	
	Clay	Silt	Sand	Gravel	-	Rating#				H+	Al+	Ca+	Mg+	K+	Na+					CEC
0.0-0.1	28.50	18.10	53.50	<0.1	6.36	SLAC	0.08	VL	26.6	-	0.01	6.94	5.03	0.62	1.29	13.9	9.3	S	3a	1.38
0.2-0.3	40.40	15.20	44.40	<0.1	6.75	NEU	0.10	VL	49.2	-	0.01	12.1	10.8	0.49	3.18	26.6	11.9	S	2	1.12
0.4-0.5	37.80	22.80	39.40	<0.1	8.08	MAL	0.25	M	245	-	-	10.8	10.3	0.17	4.25	25.5	16.7	SS	2	1.05
0.6-0.7	42.35	15.70	42.05	1.3	8.96	STAL	0.71	H	946	-	-	9.89	10.8	0.17	5.07	26.0	19.5	SS	3b	0.92
0.85-0.95	32.36	20.70	47.04	0.5	9.04	VSAL	0.67	H	907	-	-	8.37	9.63	0.21	4.73	23.0	20.6	SS	3b	0.87
1.1-1.2	29.05	19.13	51.82	1.2	9.14	VSAL	0.67	H	655	-	-	7.23	8.52	0.19	4.20	20.1	20.8	SS	2	0.85
1.4-1.5	28.54	14.87	56.58	0.5	9.15	VSAL	0.59	H	621	-	-	5.70	5.85	0.16	3.18	14.9	21.4	SS	2	0.97

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL									
Date:	16/08/2021	Describer:	A Kaur	Site:	310-03-AH3357	Type:	Partial		
MSU:	1.1.1.1a	ASC:	Grey Vertosol						
PSC:	Millmerran			Chainage (m):	104864		Elevation (m):		355
Coordinates:	Easting:	323386	Northing:	6891306		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qa
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	No
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%); poplar box, river red gum		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-300	Very dark grey (10YR3/1 (moist)); mottles <2%, <5 mm, faint, pale, diffuse; rough ped, moderate, 50-100 mm, polyhedral; moderately moist, very firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 7.0; clear boundary to -
B22	300-400	Very dark grey (10YR3/1 (moist)); mottles <2%, <5 mm, faint, pale, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, very strong; light medium clay; no fragments; no segregations; cultivation pan; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5; gradual boundary to -
B23	400-	Dark grey (10YR4/1 (moist)); mottles 2-10%, <5 mm, prominent, brown, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, very strong; light medium clay; no fragments; few 2-10%, concretions, medium 2-6 mm, moderately calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5



Location 1



Location 2



Surface 1



pH, slaking, dispersion



Profile



Surface 2

GENERAL									
Date:	02/09/2021	Describer:	H Marvell	Site:	310-03-TP3101	Type:	Detailed		
MSU:	1.1.1.1a?	ASC:	Grey Vertosol?						
PSC:	Edgefield?		Chainage (m):		105148		Elevation (m):		355
Coordinates:	Easting:	323522	Northing:	6891555	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	B?	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm?; Surface crust; Cracking?		
Surface fragments:	2-10%, 6-20 mm, subangular conglomerate?		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Isolated clumps of 2 to many plants ~ 100 m apart (<0.25%); <i>Eucalyptus</i> sp.?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-200?	Very dark grey (10YR3/1 (moist))?; no mottles?; rough ped?; moderate, 10-20 mm, subangular blocky?; dry, firm?; light clay?; no fragments?; no segregations; no pans; clear boundary to -
2B22?	200-300?	Grey (10YR5/1 (moist))?; no mottles?; earthy, massive?; dry, loose?; loamy sand?; no fragments?; no segregations; no pans?; clear boundary to -
3B23?	300-900?	Dark grey (10YR4/1 (moist))?; no mottles?; rough ped?; moderate, 20-50 mm, subangular blocky?; moist, very firm?; medium clay?; no fragments?; potentially few (2-10%), calcareous, concretions, medium (2-6 mm) with depth?; no pans?; diffuse boundary to -
3B24?	900-1,500	Dark brown (10YR3/3 (moist))?; dark mottles, 10-20%, 5-15 mm, faint, diffuse?; rough ped?; moderate, 20-50 mm, subangular blocky?; moist, firm?; light medium clay?; no fragments?; no segregations?; no pans?



Profile 1



Profile 2



Profile 3



Location 1



Location 2



Stockpile 1

GENERAL									
Date:	16/08/2021	Describer:	A Kaur	Site:	310-03-AH3359	Type:	Check site		
MSU:	1.2.1.1a	ASC:	Vertosol						
PSC:	Edgefield			Chainage (m):	105371		Elevation (m):		359
Coordinates:	Easting:	323621	Northing:	6891756		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Lower slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Qs
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, surface crust		
Surface fragments:	<2%, 60-200 mm, subangular, sandstone, conglomerate		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%); poplar box, wilga, belah		

	
Location 1	Location 2
	
Surface 1	Surface 2

GENERAL									
Date:	16/08/2021	Describer:	A Kaur	Site:	310-03-AH3360	Type:	Partial		
MSU:	1.2.1.1a	ASC:	Black Vertosol						
PSC:	Edgefield			Chainage (m):	105613		Elevation (m):		363
Coordinates:	Easting:	323720	Northing:	6891974		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod.rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Qs
Relief modal class:	Gently undulating rises	Rock outcrop:	Very slightly rocky (<2%), silcrete
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, self-mulching		
Surface fragments:	10-20%, 200-600 mm, subangular, silcrete		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor).		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%); poplar box, belah		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-300	Very dark grey (10YR3/1 (moist)); mottles <2%, 5-15 mm, faint, gley, diffuse; rough ped, strong, 20-50 mm, subangular blocky; moderately moist, weak; light clay; no fragments; few 2-10%, laminae, fine <2 mm, highly calcareous; few 2-10%, ferruginous, nodules, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.0; gradual boundary to -
B22	300-	Black (10YR2/1 (moist)); mottles 10-20%, 5-15 mm, prominent, brown, diffuse; rough ped, strong, 50-100 mm, moderately moist, strong; light medium clay; coarse fragments 2-10%, 6-20 mm, subangular platy, silcrete; common 10-20%, laminae, coarse 6-20 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Surface 1



Profile



Surface 2



Surface 3



pH, slaking, dispersion

GENERAL									
Date:	02/09/2021	Describer:	H Marvell	Site:	310-03-TP3102	Type:	Detailed		
MSU:	1.2.1.1a?	ASC:	Brown Vertosol?						
PSC:	Edgefield?		Chainage (m):		105854		Elevation (m):		364
Coordinates:	Easting:	323768	Northing:	6892210		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Qs
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B?	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm?; Cracking?		
Surface fragments:	<2%, 6-20 mm, subangular mudstone?		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Very sparse, crowns well separated (<0.25-20%); brigalow, belah?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-300?	Very dark grey (10YR3/1 (moist))?; no mottles?; rough ped?; moderate, 20-50 mm, subangular blocky?; moderately moist, firm?; light clay?; 20-50%, 20-60 mm, subangular mudstone?; no segregations; no pans?; clear boundary to -
B22?	300-500?	Black (10YR2/1 (moist))?; no mottles?; rough ped?; moderate, 10-20 mm, subangular blocky?; moist, firm?; light medium clay?; 2-10%, 20-60 mm, subangular mudstone?; no segregations; no pans?; clear boundary to -
B23?	500-1,000?	Brown (10YR5/3 (moist))?; dark mottles, 10-20%, 5-15 mm, faint, diffuse?; rough ped?; moderate, 10-20 mm, subangular blocky?; moist, very firm?; light medium clay?; 10-20%, 20-60 mm, subangular mudstone?; no segregations?; no pans?; diffuse boundary to -
B24?	1,000-1,500	Brown (10YR5/3 (moist))?; dark mottles, 10-20%, 5-15 mm, faint, diffuse?; rough ped?; moderate, 10-20 mm, subangular blocky?; moist, very firm?; medium clay?; <2%, 20-60 mm, subangular mudstone?; no segregations?; no pans?



Profile 1



Profile 2



Profile 3



Location 1



Location 2



Stockpile 1

GENERAL										
Date:	16/08/2021	Describer:	A Kaur	Site:	310-03-AH3358	Type:	Partial			
MSU:	1.3.1.1a	ASC:	Black Vertosol							
PSC:	Edgefield			Chainage (m):		105856		Elevation (m):		364
Coordinates:	Easting:	323516	Northing:	6892242		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Qs
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Loose, firm		
Surface fragments:	<2%, 6-20 mm, subangular, mudstone		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); belah, brigalow		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Very dark greyish brown (10YR3/2 (moist)); mottles <2%, <5 mm, faint, pale, diffuse; rough ped, weak, 10-20 mm, subangular blocky; moderately moist, loose; light clay, sandy; coarse fragments 2-10%, 6-20 mm, subangular, mudstone; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 7.0; clear boundary to -
B22	100-250	Very dark grey (10YR3/1 (moist)); mottles 2-10%, <5 mm, faint, brown, diffuse; rough ped, strong, 5-10 mm, subangular blocky; moderately moist, firm; medium clay; coarse fragments 2-10%, 6-20 mm, subangular, mudstone; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 7.5
B23	250-550	Black (10YR2/1 (moist)); mottles 2-10%, <5 mm, faint, brown, diffuse; rough ped, strong, 20-50 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 9.0; diffuse boundary to -
B24	550-	Very dark grey (10YR3/1 (moist)); mottles 2-10%, 5-15 mm, prominent, brown, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; coarse fragments 2-10%, 6-20 mm, subangular platy, mudstone; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 9.5



Location 1



Location 2



Erosion 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	23/07/2021	Describer:	H Marvell	Site:	310-03-TP3804	Type:	Detailed		
MSU:	1.2.1.2?	ASC:	Brown Dermosol? (Brown Vertosol?)						
PSC:	Edgefield?		Chainage (m):		106075		Elevation (m):		369
Coordinates:	Easting:	323754	Northing:	6892432	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Qs
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B?	SCL:	Yes
Disturbance:	Extensively cleared		
Surface condition:	Firm?		
Surface fragments:	2-10%, 200-600 mm, subrounded, sandstone? (unable to discern type)		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Very sparse, crowns well separated (<0.25-20%); brigalow, belah, black teatree?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-250?	Brown (7.5YR4/3 (moist))?; no mottles?; rough ped?; moderate, 10-20 mm, subangular blocky?; moderately moist, firm?; light clay?; 2-10%, 6-20 mm, subangular gravel?; no segregations; no pans?; clear boundary to -
B22?	250-400?	Dark yellowish brown (10YR4/4 (moist))?; red mottles, 10-20%, >30 mm, faint, diffuse?; rough ped?; moderate, 10-20 mm, subangular blocky?; moist, firm?; light medium clay?; 10-20%, 6-20 mm, subangular gravel?; no segregations; no pans?; gradual boundary to -
B23?	400-1300?	Yellowish brown (10YR5/4 (moist))?; dark mottles, 10-20%, 5-15 mm, faint, diffuse?; rough ped?; moderate, 10-20 mm, subangular blocky?; moist, very firm?; medium clay?; no fragments?; no segregations?; no pans?; diffuse boundary to -
B24?	1300-1500	Brown (10YR5/6 (moist))?; grey mottles, 10-20%, >30 mm, faint, diffuse?; rough ped?; moderate, 10-20 mm, subangular blocky?; moist, very firm?; medium clay?; no fragments?; no segregations?; no pans?



Profile 1



Profile 2



Location 1



Stockpile 1

GENERAL									
Date:	23/07/2021	Describer:	H Marvell	Site:	310-03-TP3805	Type:	Detailed		
MSU:	1.2.1.1a?	ASC:	Brown Vertosol?						
PSC:	Edgefield?		Chainage (m):		106074		Elevation (m):		370
Coordinates:	Easting:	323851	Northing:	6892570		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Qs
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B?	SCL:	Yes
Disturbance:	Extensively cleared		
Surface condition:	Firm?		
Surface fragments:	2-10%, 20-60 mm, subangular conglomerate?		
Microrelief:	Sheet (active, minor)?		
Erosion:	No erosion observed?		
Vegetation:	Very sparse, crowns well separated (<0.25-20%); belah?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-300?	Very dark greyish brown (10YR3/2 (moist))?. no mottles?. rough ped?. moderate, 10-20 mm, subangular blocky?. moderately moist, firm?. light clay?. no fragments?. no segregations; no pans?. clear boundary to -
B22?	300-650?	Greyish brown (10YR5/2 (moist))?. dark mottles, 20-50%, 15-30 mm, prominent, diffuse?. rough ped?. moderate, 10-20 mm, subangular blocky?. moist, firm?. light medium clay?. no fragments?. no segregations; no pans?. gradual boundary to -
B23?	650-1100?	Brown (7.5YR4/2 (moist))?. dark mottles, 10-20%, 15-30 mm, faint, diffuse?. rough ped?. moderate, 10-20 mm, subangular blocky?. moist, very firm?. medium clay?. 2-10%, 6-20 mm, subangular gravel?. no segregations?. no pans?. gradual boundary to -
B24?	1100-1500	Strong brown (10YR5/6 (moist))?. grey mottles, 10-20%, >30 mm, faint, diffuse?. rough ped?. moderate, 10-20 mm, subangular blocky?. moist, very firm?. medium clay?. no fragments?. no segregations?. no pans?



Profile 1



Profile 2



Location 1



Stockpile 1

GENERAL										
Date:	16/08/2021	Describer:	A Kaur	Site:	310-03-AH3361	Type:	Partial			
MSU:	1.3.1.1a	ASC:	Black Vertosol							
PSC:	Edgefield			Chainage (m):		106550		Elevation (m):		370
Coordinates:	Easting:	323875	Northing:	6892897		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, surface crust		
Surface fragments:	<2%, 60-200 mm, subangular, silcrete		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%); brigalow, belah		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-200	Black (10YR2/1 (moist)); mottles 2-10%, <5 mm, faint, pale, diffuse; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, weak; light clay; coarse fragments <2%, 6-20 mm, subangular, silcrete; very few <2%, soft segregations, fine <2 mm, moderately calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 7.5; gradual boundary to -
B22	200-500	Black (10YR2/1 (moist)); mottles 2-10%, <5 mm, faint, brown, diffuse; rough ped, strong, 20-50 mm, subangular blocky; moderately moist, firm; light medium clay; coarse fragments <2%, 20-60 mm, subangular, silcrete; few 2-10%, soft segregations, medium 2-6 mm, moderately calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 9.0; gradual boundary to -
B23	500-	Very dark grey (10YR3/1 (moist)); mottles 10-20%, <5 mm, faint, pale, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; few 2-10%, soft segregations, medium 2-6 mm, moderately calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Surface 1



Surface 2



pH, slaking, dispersion



Profile

GENERAL									
Date:	16/08/2021	Describer:	A Kaur	Site:	310-03-AH3362	Type:	Representative		
MSU:	1.3.1.1a	ASC:	Epicalcareous-Endohypersodic Crusty Black Vertosol						
PSC:	Edgefield		Chainage (m):		106897		Elevation (m):		374
Coordinates:	Easting:	323899	Northing:	6893244	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, surface crust		
Surface fragments:	<2%, 60-200 mm, subangular, silcrete		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, present)		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%); belah, wilga, brigalow; rooting depth 1200 mm.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Black (10YR2/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light clay, silty; no fragments; no segregations; no pans; pH 5.5; gradual boundary to -
B22	200-400	Black (10YR2/1 (moist)); mottles <2%, <5 mm, prominent, grey, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; medium clay, silty; no fragments; few 2-10%, calcareous, nodules, medium 2-6 mm, moderately calcareous; no pans; partial slake in 10 mins; no dispersion within 10 mins; pH 8.5; gradual boundary to -
B23	450-650	Very dark grey (10YR3/1 (moist)); mottles <2%, <5 mm, faint, pale, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, very firm; light medium clay, silty; coarse fragments <2%, 6-20 mm, subangular platy, silcrete; very few <2%, calcareous, soft segregations, fine <2 mm, moderately calcareous; no pans; partial slake in 10 mins; no dispersion within 10 mins; pH 8.5; abrupt boundary to -
B/C	650-900	Brown (10YR5/3 (moist)); mottles 10-20%, 5-15 mm, prominent, yellow, diffuse; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, very firm; light clay, fine sandy; no fragments; few 2-10%, calcareous, laminae, fine <2 mm, non-calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 7.0; diffuse boundary to -
C	900-1,200	Brownish yellow (10YR6/6 (moist)); mottles 20-50%, 5-15 mm, prominent, brown, clear; rough ped, weak, 20-50 mm, subangular blocky; moderately moist, weak; light clay, fine sandy; no fragments; common 10-20%, calcareous, laminae, fine <2 mm, non-calcareous; no pans; complete slake in 10 mins; slight dispersion within 10 mins; pH 4.5



Location 1



Location 2



Surface 1



Profile



Surface 2



pH, slaking, dispersion

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-01	7.04	NEU	14	L	188	12	H	2284	M	3.7	2.09	VH1	0.52	34.5	16.7	0.68

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H2O)		EC (dS/m)	Salinity Rating^	Cl- (mg/kg)	Exchangeable cations (meq/100 g)						ESP (%)	Sodicity*	Emerson class	Ca:Mg ratio	
	Clay	Silt	Sand	Gravel	-	Rating#				H+	Al+	Ca+	Mg+	K+	Na+					CEC
0.0-0.1	31.8	8.8	59.4	3.2	7.04	NEU	1.00	VH	31.1	-	-	18.1	6.20	0.89	0.83	26.1	3.2	NS	2	2.93
0.2-0.3	35.9	5.2	58.9	1.7	8.52	STAL	0.25	M	87.5	-	-	16.4	7.15	0.34	1.90	25.8	7.36	S	2	2.29
0.5-0.6	39.6	4.3	56.1	0.5	8.80	STAL	0.82	VH	876	-	-	13.7	8.32	0.23	3.75	26.0	14.4	S	4	1.64
0.8-0.9	27.6	2.4	70.0	<0.1	5.67	MAC	0.72	H	878	-	-	7.58	8.93	0.28	4.57	21.4	21.4	SS	1	0.85
1.1-1.2	27.7	8.8	63.5	<0.1	5.20	STAC	0.78	VH	1075	-	-	7.05	9.04	0.29	5.06	21.5	23.5	SS	2	0.78

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL									
Date:	22/07/2021	Describer:	C Traill	Site:	310-03-TP3103	Type:	Representative		
MSU:	1.2.1.1a	ASC:	Endocalcareous-Endohypersodic Crusty Black Vertosol						
PSC:	Edgefield		Chainage (m):		107250		Elevation (m):		374
Coordinates:	Easting:	503330	Northing:	6963462		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Lower slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Qs
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, surface crust		
Surface fragments:	<2%, 60-200 mm, angular tabular, conglomerate		
Microrelief:	Zero or no microrelief		
Erosion:	Scald (active, present)		
Vegetation:	Very sparse, crowns well separated (0.25-20%); brigalow, belah, black tea tree, wilga; rooting depth 1400 mm.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-300	Black (10YR2/1 (moist)); no mottles; rough ped, strong, 100-200 mm, subangular blocky; moist, weak; light medium clay, fine sandy; coarse fragments <2%, 6-20 mm, subrounded, conglomerate; no segregations; no pans; gradual boundary to -
B22	300-500	Very dark greyish brown (10YR3/2 (moist)); mottles 20-50%, 15-30 mm, prominent, orange, diffuse; strong, 200-500 mm, subangular blocky; moist, weak; medium clay, fine sandy; no fragments; few 2-10%, calcareous, soft segregations, coarse 6-20 mm, highly calcareous; no pans; gradual boundary to -
B23	500-1,400	Very dark grey (10YR3/1 (moist)); mottles 20-50%, 5-15 mm, prominent, orange, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, very firm; light medium clay, fine sandy; no fragments; many 20-50%, calcareous, soft segregations, very coarse 20-60 mm, highly calcareous; no pans; diffuse boundary to -
B31	1400-1,600	Greyish brown (10YR5/2 (moist)); mottles 10-20%, 5-15 mm, prominent, yellow, diffuse; smooth ped, strong, 100-200 mm, subangular blocky; dry, firm; light clay, fine sandy; no fragments; common 10-20%, calcareous, soft segregations, coarse 6-20 mm, highly calcareous; no pans;
B/C	1600-1,900	Not recorded
C	1900-	Not recorded



Location 1



Location 2



Location 3



Surface 1



Surface 2



Profile



Surface 3

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-01	6.91	NEU	24.50	M	135	14.90	H	1,743	M	2.7	1.56	M3	0.28	20.7	15.9	0.25

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H ₂ O)		EC (dS/m)	Salinity Rating [^]	Cl ⁻ (mg/kg)	Exchangeable cations (meq/100 g)							ESP (%)	Sodicity [*]	Emerson class	Ca:Mg ratio
	Clay	Silt	Sand	Gravel	-	Rating [#]				H+	Al+	Ca+	Mg+	K+	Na+	CEC				
0.0-0.1	23.32	10.11	66.57	0.1	6.91	NEU	0.07	VL	17.0	-	-	12.5	3.24	0.64	0.32	16.7	1.89	NS	3b	3.87
0.2-0.3	24.15	10.52	65.33	0.2	7.90	MAL	0.09	L	20.5	-	-	13.2	5.75	0.41	1.42	20.7	6.85	S	3a	2.29
0.5-0.6	30.43	8.41	61.16	0.1	9.70	VSAL	0.25	M	383	-	-	7.19	6.38	0.26	3.76	17.6	21.4	SS	3a	1.13
0.8-0.9	33.93	5.51	60.56	0.1	9.27	VSAL	0.75	H	609	-	-	5.64	5.78	0.33	4.70	16.5	28.5	SS	3a	0.97
1.1-1.2	17.72	13.61	68.67	0.1	9.61	VSAL	0.32	M	680	-	-	5.33	5.67	0.29	4.73	16.0	29.5	SS	3a	0.94
1.4-1.5	18.62	7.09	74.29	1.2	9.20	VSAL	0.69	VH	570	-	-	4.56	4.97	0.28	4.14	13.9	29.7	SS	1	0.92

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL									
Date:	16/08/2021	Describer:	A Kaur	Site:	310-03-AH3363	Type:	Partial		
MSU:	1.2.1.1a	ASC:	Brown Vertosol						
PSC:	Edgefield			Chainage (m):	107567		Elevation (m):		381
Coordinates:	Easting:	323974	Northing:	6893910		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)		Runoff: Slow
Morphological type:	Simple slope		Permeability: Slowly
Landform element:	Hillslope		Drainage: Imperfectly drained
Landform pattern:	Low hills		Geology: Qs
Relief modal class:	Undulating low hills		Rock outcrop: No rock outcrop
ALC:	A1/B		SCL: Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, self-mulching, surface crust		
Surface fragments:	<2%, 6-20 mm, subangular, silcrete		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Emergent (<5% of total)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Black (10YR2/1 (moist)); mottles 2-10%, 5-15 mm, prominent, pale, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, weak; light medium clay; no fragments very few <2%, soft segregations, medium 2-6 mm, slightly calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0; clear boundary to -
B22	100-400	Dark greyish brown (10YR4/2 (moist)); mottles 10-20%, 5-15 mm, prominent, dark, clear; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; many 20-50%, laminae, medium 2-6 mm, moderately calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 9.0; gradual boundary to -
B23	400-	Brown (7.5YR5/4 (moist)); mottles 10-20%, 5-15 mm, prominent, dark, clear; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, very firm; light medium clay; no fragments; common 10-20%, laminae, medium 2-6 mm, moderately calcareous; few 2-10%, ferromagniferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 9.0



Location 1



Location 2



Location 3



pH, slaking, dispersion



Profile



Surface 1

GENERAL										
Date:	16/08/2021	Describer:	A Kaur	Site:	310-03-AH3366	Type:	Partial			
MSU:	1.2.1.1a		ASC:	Brown Vertosol						
PSC:	Edgefield			Chainage (m):		107873		Elevation (m):		378
Coordinates:	Easting:	324189	Northing:	6894191		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Open depression (vale)	Permeability:	Slowly
Landform element:	Drain depres.	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, self-mulching, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%); <i>Eucalyptus</i> sp., poplar box, brigalow		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	100-200	Black (10YR2/1 (moist)); mottles <2%, <5 mm, faint, brown, diffuse; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, weak; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.5; gradual boundary to -
B22	100-300	Black (10YR2/1 (moist)); mottles <2%, 5-15 mm, prominent, pale, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light clay, fine sandy; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B23	300-500	Very dark grey (10YR3/1 (moist)); mottles 2-10%, 5-15 mm, faint, pale, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, very firm; light medium clay, fine sandy; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B24	500-	Dark grey (10YR4/1 (moist)); mottles 2-10%, 5-15 mm, faint, pale, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light clay, fine sandy; no fragments; few 2-10%, soft segregations, fine <2 mm, moderately calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Location 3



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	02/09/2021	Describer:	H Marvell	Site:	310-03-TP3104	Type:	Detailed		
MSU:	1.3.1.1a?	ASC:	Grey Vertosol?						
PSC:	Edgefield?		Chainage (m):		107884		Elevation (m):		381
Coordinates:	Easting:	324017	Northing:	6894224	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Moderately rapid
Morphological type:	Lower slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B?	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm; Self-mulching; Surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Isolated plants, trees ~ 100 m apart (<0.25%); brigalow, belah?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-100?	Brown (10YR5/3 (moist))?. no mottles?. rough ped, moderate, 100-200 mm, subangular blocky?. dry, firm?. light clay?. 10-20%, 20-60 mm, subangular gravel?. no segregations; no pans?. clear boundary to -
B22?*	100-200?	Brown (10YR5/3 (moist))?. no mottles?. rough ped?, strong, 100-200 mm, subangular blocky?. dry, weak?. light clay?. 10-20%, 20-60 mm, subangular gravel?. no segregations; no pans?. clear boundary to -
B23?	200-600?	Very dark grey (10YR3/1 (moist))?. dark mottles, 10-20%, 5-15 mm, faint, diffuse?. rough ped?, strong, 100-200 mm, subangular blocky?. moist, very firm?. light medium clay?. no fragments?. no segregations?. no pans?. gradual boundary to -
B24?	600-1000?	Brown (10YR4/3 (moist))?. dark mottles, 10-20%, 15-30 mm, prominent, diffuse?. rough ped?, strong, 100-200 mm, subangular blocky?. moist, very firm?. medium clay?. <2%, 20-60 mm, subangular mudstone?. no segregations?. no pans?. clear boundary to -
B3?	1000-1500?	Yellowish brown (10YR5/4 (moist))?. dark mottles, 10-20%, 15-30 mm, faint, diffuse?. yellow mottles, 20-50%, >30 mm, faint, diffuse? rough ped?, moderate, 100-200 mm, subangular blocky?. moist, very firm?. light medium clay?. no fragments?. no segregations?. no pans?



Profile 1



Profile 2



Profile 3



Location 1



Location 2



Stockpile 1

GENERAL										
Date:	18/08/2021	Describer:	T Beck	Site:	310-03-AH3373	Type:	Representative			
MSU:	1.2.1.2w		ASC:	Mottled-Sodic Calcic Black Dermosol						
PSC:	Walker			Chainage (m):		107899		Elevation (m):		422
Coordinates:	Easting:	324449	Northing:	6894185		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Poorly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Self-mulching, loose		
Surface fragments:	<2%, 20-60 mm, subangular tabular, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%); rooting depth 900 mm.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-100	Black (7.5YR2.5/1 (moist)); no mottles; rough ped, weak, 20-50 mm, subangular blocky; moderately moist, weak; light clay, sandy; coarse fragments 2-10%, 2-6 mm, subangular, gravel; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 6.5; clear boundary to -
B21	100-300	Black (10YR2/1 (moist)); no mottles; rough ped, weak, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay, sandy; coarse fragments 2-10%, 2-6 mm, subangular, gravel; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; clear boundary to -
B22	300-600	Black (10YR2/1 (moist)); mottles 10-20%, <5 mm, faint, brown, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moist, firm; light medium clay; coarse fragments <2%, 20-60 mm, angular, gravel; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5; gradual boundary to -
B3	600-900	Yellowish brown (10YR5/4 (moist)); mottles 20-50%, 5-15 mm, prominent, dark, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay, fine sandy; no fragments; common 10-20%, soft segregations, medium 2-6 mm, very highly calcareous; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 8.5; gradual boundary to -
C	900-1,000	Yellowish brown (10YR5/4 (moist)); mottles 20-50%, <5 mm, faint, orange, diffuse; rough ped, weak, 20-50 mm, polyhedral; moderately moist, very weak; light clay, sandy; coarse fragments 2-10%, 6-20 mm, subangular, gravel; common 10-20%, concretions, medium 2-6 mm, moderately calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 9.0; refusal



Location 1



Location 2



Location 3



Surface 1



Profile



pH, slaking, dispersion

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-01	7.33	SLAL	17	L	243	18.4	H	2173	M	3.5	2.02	VH1	0.36	104	63.3	4.64

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H2O)		EC (dS/m)	Salinity Rating^	Cl- (mg/kg)	Exchangeable cations (meq/100 g)						ESP (%)	Sodicity*	Emerson class	Ca:Mg ratio	
	Clay	Silt	Sand	Gravel	-	Rating#				H+	Al+	Ca+	Mg+	K+	Na+					CEC
0.0-0.1	17.9	4.3	77.8	29.7	7.33	SLAL	0.13	L	36.9	-	0.01	13.3	0.01	1.13	0.97	20.0	4.87	NS	2	2.92
0.2-0.3	31.8	0.4	67.8	7.8	8.29	MAL	0.11	L	19.3	-	0.01	19.9	0.01	0.50	1.24	27.9	4.46	NS	2	3.16
0.4-0.5	27.1	0.5	72.4	0.5	9.11	VSAL	0.33	M	56.4	-	0.01	30.7	0.01	0.47	5.40	46.2	11.7	S	2	3.22
0.7-0.8	36.4	5.0	58.6	0.1	9.49	VSAL	0.43	M	604	-	0.01	25.9	0.01	0.41	8.97	43.8	20.5	SS	2	3.05
0.9-1.0	13.8	4.2	82.0	2.1	8.52	STAL	0.64	VH	560	-	0.01	22.2	0.01	0.29	7.88	37.0	21.3	SS	1	3.36

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL										
Date:	09/12/2021	Describer:	H Marvell	Site:	310-03-AH3364	Type:	Check site			
MSU:	1.1.1.1a	ASC:	Vertosol							
PSC:	Edgefield			Chainage (m):		108223		Elevation (m):		382
Coordinates:	Easting:	324072	Northing:	6894558		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)		Runoff: Slow
Morphological type:	Lower slope		Permeability: Slowly
Landform element:	Riseslope		Drainage: Poorly drained
Landform pattern:	Rises		Geology: Qs-SQ
Relief modal class:	Undulating rises		Rock outcrop: No rock outcrop
ALC:	A1/B		SCL: Yes
Disturbance:	Cleared, pasture		
Surface condition:	Soft, trampled		
Surface fragments:	<2%, 20-60 mm, subangular, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		



Location 1



Location 2



Location 3



Surface 1

GENERAL									
Date:	09/12/2021	Describer:	H Marvell	Site:	310-03-AH3365	Type:	Partial		
MSU:	1.2.1.1a	ASC:	Black Vertosol						
PSC:	Edgefield			Chainage (m):	108540		Elevation (m):		382
Coordinates:	Easting:	324107	Northing:	6894874		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod.rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Poorly drained
Landform pattern:	Low hills	Geology:	Qs-SQ
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Soft, firm		
Surface fragments:	<2%, 20-60 mm, rounded, chert		
Microrelief:	Zero or no microrelief		
Erosion:	Gully (active, minor, <1.5 m)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, weak, 20-50 mm, subangular blocky; wet, firm; light medium clay; coarse fragments 2-10%, 2-6 mm, rounded, gravel; few 2-10%, concretions, medium 2-6 mm, very highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 9.0; clear boundary to -
B22	50-200	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moist, firm; light medium clay; no fragments; few 2-10%, concretions, medium 2-6 mm, very highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 9.0; gradual boundary to -
B23	200-	Dark grey (10YR4/1 (moist)); mottles 2-10%, <5 mm, faint, dark, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moist, firm; light medium clay; no fragments; few 2-10%, soft segregations, medium 2-6 mm, very highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 9.0



Location 1



Location 2



Erosion 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL															
Date:	09/12/2021		Describer:	H Marvell		Site:	310-03-AH3793		Type:	Detailed					
MSU:	1.3.1.1a			ASC:	Endoacidic-Mottled Crusty Black Vertosol										
PSC:	Gate				Chainage (m):		108997		Elevation (m):		403				
Coordinates:		Easting:		3241534		Northing:		6895328		Zone:	56	Datum:		GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Slow
Morphological type:	Upper slope	Permeability:	Very slowly
Landform element:	Hillslope	Drainage:	Poorly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Natural		
Surface condition:	Cracking, soft		
Surface fragments:	<2%, 60-200 mm, rounded, chert		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Rooting depth 800 mm.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, weak, 20-50 mm, subangular blocky; moderately moist, weak; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5; gradual boundary to -
B22	50-400	Very dark grey (10YR3/1 (moist)); mottles 2-10%, 5-15 mm, faint, brown, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, very firm; medium clay; coarse fragments <2%, 2-6 mm, angular, chert; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5; gradual boundary to -
B23	400-600	Greyish brown (10YR5/2 (moist)); mottles 2-10%, 5-15 mm, prominent, dark, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, strong; medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B24	600-800	Greyish brown (10YR5/2 (moist)); mottles 20-50%, 5-15 mm, prominent, dark, diffuse; mottles 2-10%, <5 mm, prominent, yellow, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, strong; light medium clay; coarse fragments <2%, 2-6 mm, angular, chert; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 5.0; gradual boundary to -
B31	800-1,000	Light brownish grey (10YR6/2 (moist)); mottles <2%, 5-15 mm, faint, grey, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, strong; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 5.0; gradual boundary to -
B32	1000-1,150	Very pale brown (10YR7/3 (moist)); mottles 2-10%, 5-15 mm, prominent, yellow, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, strong; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 5.0; gradual boundary to -
B33	1150-1,300	Pale brown (10YR6/3 (moist)); mottles 10-20%, 5-15 mm, prominent, orange, diffuse; mottles 2-10%, 5-15 mm, prominent, yellow, diffuse; rough ped, moderate, 20-50 mm, subangular blocky; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 4.5; gradual boundary to -

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
B34	1300-1,500	Light brownish grey (10YR6/2 (moist)); mottles 20-50%, 5-15 mm, prominent, yellow, diffuse; rough ped, moderate, 20-50 mm, subangular blocky; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 4.5



Location 1



Location 2



pH, slaking, dispersion



pH, slaking, dispersion



Profile



Surface 1



Surface 2

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-01	7.34	SLAL	33.3	M	247	<0.50	VL	2641	H	2.9	1.65	H1	3.69	97.6	110	2.42

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H2O)		EC (dS/m)	Salinity Rating^	Cl^- (mg/kg)	Exchangeable cations (meq/100 g)							ESP (%)	Sodicity^	Emerson class	Ca:Mg ratio
	Clay	Silt	Sand	Gravel	-	Rating#				H+	Al+	Ca+	Mg+	K+	Na+	CEC				
0.0-0.05	39.86	20.88	41.37	0.4	7.34	SLAL	0.14	L	86.4	-	-	11.0	4.06	0.86	0.44	16.4	2.71	NS	7	2.71
0.2-0.3	60.70	4.00	35.30	<0.1	9.17	VSAL	0.27	L	79.9	-	-	14.5	4.19	0.20	0.90	19.8	4.57	NS	4	3.46
0.45-0.55	60.90	13.90	25.20	<0.1	8.26	MAL	0.95	H	163	-	-	9.07	5.95	0.19	2.50	17.8	14.1	S	5	1.52
0.65-0.75	57.62	21.64	20.64	0.2	5.39	STAC	1.00	VH	1179	-	-	4.30	6.37	0.19	2.71	13.7	19.8	SS	3b	0.68
0.85-0.95	56.30	23.00	20.80	<0.1	5.11	STAC	0.75	H	767	-	-	4.38	8.49	0.26	4.44	19.1	23.2	SS	2	0.52
1.0-1.1	42.10	24.10	33.80	<0.1	5.00	VSAC	0.61	H	89.8	-	-	3.00	5.88	0.16	3.17	14.4	21.9	SS	2	0.51
1.2-1.3	55.30	26.00	18.70	<0.1	4.36	VSAC	0.95	H	1423	-	-	4.88	9.97	0.43	4.29	20.6	20.8	SS	2	0.49
1.4-1.5	41.00	28.10	30.90	<0.1	5.72	MAC	1.04	VH	1040	-	-	3.06	8.41	0.37	4.29	18.4	23.3	SS	2	0.36

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL														
Date:	09/12/2021		Describer:	H Marvell		Site:	310-03-AH3368		Type:	Partial				
MSU:	1.3.1.1a			ASC:	Grey Vertosol									
PSC:	Gate				Chainage (m):		109558		Elevation (m):		401			
Coordinates:		Easting:		324233		Northing:		689588		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Mod.rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Soft, firm, trampled		
Surface fragments:	<2%, 60-200 mm, subrounded, conglomerate		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, weak, 50-100 mm, angular blocky; wet, weak; light clay; no fragments; very few <2%, concretions, medium 2-6 mm, very highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.0; clear boundary to -
B22	50-300	Dark grey (10YR4/1 (moist)); mottles 10-20%, 5-15 mm, faint, dark, diffuse; rough ped, strong, 50-100 mm, subangular blocky; wet, firm; light medium clay; no fragments; few 2-10%, concretions, medium 2-6 mm, very highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.5; gradual boundary to -
B23	300-	Brown (10YR5/3 (moist)); mottles 10-20%, 5-15 mm, prominent, dark, diffuse; rough ped, strong, 50-100 mm, subangular blocky; wet, firm; light medium clay; no fragments; many 20-50%, concretions, medium 2-6 mm, very highly calcareous; no pans; no slaking in 10 mins, no dispersion within 2 hrs; pH 9.0



Location 1



Location 2



Location 3



Surface 1



pH, slaking, dispersion



Profile

GENERAL

Date:	26/07/2021	Describer:	H Marvell	Site:	310-03-TP3108	Type:	Detailed
MSU:	1.3.1.1a?	ASC:	Brown Vertosol?				
PSC:	Gate?	Chainage (m):	112083	Elevation (m):	437		
Coordinates:	Easting:	324530	Northing:	6898391	Zone:	56	Datum: GDA94

SITE DESCRIPTION

Slope:	Gently inclined (3-10%)	Runoff:	Moderately rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B?	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm; Surface crust?		
Surface fragments:	None? (unable to discern)		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Isolated plants, trees ~ 100 m apart (<0.25%);		

SOIL DESCRIPTION

Horizon	Depth (mm)	Description
A1/B21?	0-200?	Very dark greyish brown (10YR3/2 (moist))?; no mottles?; rough ped?; moderate, 10-20 mm, subangular blocky?; moderately moist, firm?; light clay?; no fragments?; no segregations; no pans?; clear boundary to -
B22?	200-800?	Yellowish brown (7.5YR5/4 (moist))?; orange mottles, 10-20%, 5-15 mm, faint, diffuse?; rough ped?; strong, 10-20 mm, subangular blocky?; moist, firm?; light medium clay?; no fragments?; no segregations; no pans?; diffuse boundary to -
B23?	800-1,500?	Light yellowish brown (7.5YR6/4 (moist))?; potentially dark mottles, 2-10%, 5-15 mm, faint, diffuse?; rough ped?; strong, 10-20 mm, subangular blocky?; moist, very firm?; medium clay?; no fragments?; no segregations?; no pans?;



Profile 1



Profile 2



Location 1



Location 2



Stockpile 1

GENERAL									
Date:	23/08/2021	Describer:	M Mooney	Site:	310-03-AH3369	Type:	Partial		
MSU:	1.3.1.1a	ASC:	Black Vertosol						
PSC:	Moola			Chainage (m):	112096		Elevation (m):		473
Coordinates:	Easting:	324270	Northing:	6898437		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Mod.rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Self-mulching, soft, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-200	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 10-20 mm, polyhedral; dry, very weak; light clay, sandy; coarse fragments 2-10%, 6-20 mm, angular platy, shale; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 7.5; clear boundary to -
B22	200-700	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; coarse fragments 10-20%, 6-20 mm, subangular, sandstone; few 2-10%, soft segregations, fine <2 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 9.0; gradual boundary to -
B23	700-	Dark grey (10YR4/1 (moist)); mottles 2-10%, 5-15 mm, faint, grey, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, very firm; light medium clay; coarse fragments <2%, 6-20 mm, angular, sandstone; common 10-20%, soft segregations, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0



Location 1



Location 2



Location 3



Location 4



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	23/08/2021	Describer:	M Mooney	Site:	310-03-AH3381	Type:	Check site		
MSU:	1.3.1.2	ASC:	Dermosol						
PSC:	Walker			Chainage (m):	112102		Elevation (m):		475
Coordinates:	Easting:	324780	Northing:	6898380	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Mod.rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture, previously cultivated		
Surface condition:	Self-mulching, soft, surface crust		
Surface fragments:	<2%, 60-200 mm, angular, shale, metamorphic, silcrete		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); brigalow, various shrub sp.		

	
Location 1	Location 2
	
Location 3	Location 4



Surface 1



Surface 2



Surface 3



Surface 4



Surface 5



Surface 6

GENERAL										
Date:	17/08/2021	Describer:	A Kaur	Site:	310-03-AH3375	Type:	Representative			
MSU:	1.3.1.1a	ASC:	Epicalcareous-Endohypersodic Epipedal Black Vertosol							
PSC:	Gate			Chainage (m):		112419		Elevation (m):		441
Coordinates:	Easting:	324566	Northing:	6898726		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Mod. rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Poorly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, firm		
Surface fragments:	<2%, 6-20 mm, subangular platy, silcrete		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%); brigalow, belah, poplar box; rooting depth 1500 mm.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Dark brown (7.5YR3/2 (moist)); mottles <2%, <5 mm, faint, dark, diffuse; rough ped, weak, 20-50 mm, subangular blocky; moderately moist, weak; light clay; coarse fragments <2%, 6-20 mm, subangular platy, sandstone; few 2-10%, soft segregations, fine <2 mm, slightly calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 7.0; gradual boundary to -
B22	100-200	Dark brown (7.5YR3/2 (moist)); mottles 10-20%, 5-15 mm, prominent, brown, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; very few <2%, soft segregations, fine <2 mm, slightly calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.0; clear boundary to -
B23	200-500	Very dark greyish brown (10YR3/2 (moist)); mottles <2%, <5 mm, faint, brown, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; few 2-10%, laminae, fine <2 mm, moderately calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5; gradual boundary to -
B24	500-700	Dark greyish brown (10YR4/2 (moist)); mottles 2-10%, 5-15 mm, prominent, red, clear; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, firm; light clay, fine sandy; no fragments; few 2-10%, laminae, fine <2 mm, moderately calcareous; no pans; complete slake in 10 mins; strong dispersion within 10 mins; pH 9.0
B31	700-1,000	Yellowish brown (10YR5/4 (moist)); mottles <2%, <5 mm, faint, dark, diffuse; rough ped, strong, 20-50 mm, subangular blocky; moderately moist, firm; light clay, fine sandy; no fragments; very few <2%, soft segregations, fine <2 mm, moderately calcareous; no pans; complete slake in 10 mins; slight dispersion within 10 mins; pH 9.5; clear boundary to -
B32	1000-1,500	Light yellowish brown (10YR6/4 (moist)); mottles 2-10%, <5 mm, faint, orange, diffuse; rough ped, strong, 20-50 mm, subangular blocky; moderately moist, strong; light clay, sandy; no fragments; very few <2%, calcareous, soft segregations, fine <2 mm, non-calcareous; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.0



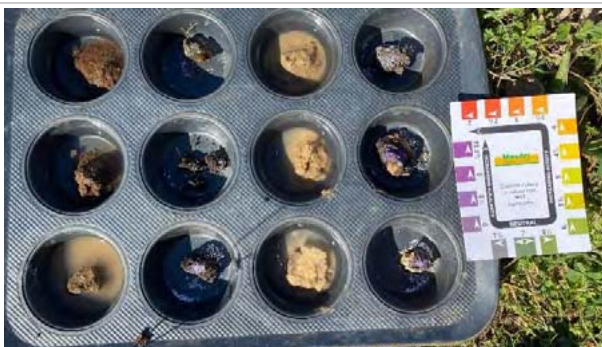
Location 1



Erosion 1



Surface 1



pH, slaking, dispersion



Profile

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.1	7.94	MAL	9.77	VL	357	9.5	M	1674	9.77	VL	357	9.5	M	1674	9.77	VL

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H ₂ O)		EC (dS/m)	Salinity Rating [^]	Cl ⁻ (mg/kg)	Exchangeable cations (meq/100 g)							ESP (%)	Sodicity [*]	Emerson class	Ca:Mg ratio
	Clay	Silt	Sand	Gravel	-	Rating [#]				H+	Al+	Ca+	Mg+	K+	Na+	CEC				
0.0-0.1	31.2	4.5	64.3	11.1	7.94	MAL	0.16	L	64.3	-	-	14.6	2.72	0.48	0.34	18.1	18.1	18.1	5	5.36
0.1-0.2	36.1	4.6	59.3	5.0	8.73	STAL	0.18	L	59.3	-	-	17.2	4.42	0.31	0.97	22.9	22.9	22.9	2	3.89
0.3-0.4	29.6	0.5	69.9	1.6	9.01	VSAL	0.42	M	69.9	-	-	16.5	6.23	0.29	3.60	26.6	26.6	26.6	2	2.64
0.55-0.65	27.5	0.4	72.1	3.5	9.17	VSAL	0.72	H	72.1	-	-	16.5	7.27	0.30	5.26	29.3	29.3	29.3	3b	2.27
0.8-0.9	18.3	0.4	81.3	8.0	9.78	VSAL	0.39	H	81.3	-	-	15.5	8.22	0.24	6.68	30.6	30.6	30.6	1	1.88
1.1-1.2	34.0	2.5	63.5	0.5	6.52	NEU	0.26	M	63.5	-	0.01	9.20	13.4	0.3	12.9	35.8	35.8	35.8	8	0.69
1.4-1.5	25.9	2.4	71.7	0.5	6.30	SLAC	0.23	M	71.7	-	0.01	6.99	12.8	0.31	13.3	33.4	33.4	33.4	1	0.55

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL									
Date:	26/07/2021	Describer:	H Marvell	Site:	310-03-TP3109	Type:	Detailed		
MSU:	1.3.1.1a?	ASC:	Brown Vertosol?						
PSC:	Gate?		Chainage (m):		112872		Elevation (m):		437
Coordinates:	Easting:	324630	Northing:	6899174	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Moderately rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B?	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm; Surface crust; Cracking?		
Surface fragments:	None? (unable to discern)		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Very sparse, crowns well separated (0.25-20%); brigalow, belah?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-300?	Dark grey (5.5YR4/1 (moist))?; pale mottles, 10-20%, 5-15 mm, faint, diffuse?; rough ped?; moderate, 20-50 mm, subangular blocky?; moderately moist, firm?; light clay?; no fragments?; no segregations; no pans?; gradual boundary to -
B22?	300-600?	Dark yellowish brown (5.5YR4/4 (moist))?; dark mottles, 10-20%, 5-15 mm, prominent, diffuse?; rough ped?; moderate, 20-50 mm, subangular blocky?; moist, firm?; light medium clay?; no fragments?; no segregations; no pans?; diffuse boundary to -
B23?	600-1,200?	Yellowish brown (10YR5/4 (moist))?; dark mottles, 2-10%, 15-30 mm, faint, diffuse?; rough ped?; moderate, 10-20 mm, subangular blocky?; moist, very firm?; medium clay?; no fragments?; potentially few (2-10%), calcareous, concretions, medium (2-6 mm)?; no pans?; diffuse boundary to -
B24?	1,200-1,500	Brown (10YR5/3 (moist))?; dark mottles, 10-20%, 15-30 mm, faint, diffuse?; rough ped?; moderate, 10-20 mm, subangular blocky?; moist, very firm?; light medium clay?; 2-10%, 6-20 mm, subangular gravel?; potentially few (2-10%), calcareous, concretions, medium (2-6 mm)?; no pans?



Profile 1



Profile 2



Location 1



Stockpile 1

GENERAL														
Date:	17/08/2021		Describer:	A Kaur		Site:	310-03-AH3378		Type:	Partial				
MSU:	1.2.1.1a			ASC:	Black Vertosol									
PSC:	Gate				Chainage (m):		113153		Elevation (m):		436			
Coordinates:		Easting:		324673		Northing:		6899452		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, self-mulching, surface crust		
Surface fragments:	<2%, 6-20 mm, subrounded, quartz		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Emergent (<5% of total)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Black (10YR2/1 (moist)); mottles 2-10%, <5 mm, faint, orange, diffuse; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, weak; light clay, fine sandy; coarse fragments <2%, 2-6 mm, subangular, silcrete; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B22	100-300	Very dark grey (10YR3/1 (moist)); mottles <2%, <5 mm, prominent, brown, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; very few <2%, soft segregations, fine <2 mm, slightly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B23	300-600	Very dark greyish brown (10YR3/2 (moist)); mottles 2-10%, 5-15 mm, prominent, pale, diffuse; rough ped, strong, 20-50 mm, subangular blocky; moderately moist, very firm; medium clay; coarse fragments 2-10%, 6-20 mm, subangular platy, silcrete; few 2-10%, soft segregations, fine <2 mm, moderately calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 7.5; gradual boundary to -
B24	600-	Brown (10YR4/3 (moist)); mottles 20-50%, 15-30 mm, prominent, pale, diffuse; rough ped, strong, 20-50 mm, subangular blocky; moderately moist, strong; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.0



Location 1



Location 2



Location 3



Surface 1



pH, slaking, dispersion



Profile

GENERAL											
Date:	17/08/2021		Describer:	A Kaur		Site:	310-03-AH3380		Type:	Check site	
MSU:	1.3.1.1a		ASC:	Vertosol							
PSC:	Gate			Chainage (m):		113421		Elevation (m):		439	
Coordinates:	Easting:	324694		Northing:	6899719		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, self-mulching, surface crust, surface flake		
Surface fragments:	<2%, 6-20 mm, subrounded, quartz		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Emergent (<5% of total)		



Location 1



Location 2



Surface 1



Surface 2

GENERAL									
Date:	26/07/2021	Describer:	H Marvell	Site:	310-03-TP3110	Type:	Detailed		
MSU:	1.3.1.1a?	ASC:	Brown Vertosol?						
PSC:	Gate?		Chainage (m):		113683		Elevation (m):		443
Coordinates:	Easting:	324732	Northing:	6899978	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Moderately rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B?	SCL:	No
Disturbance:	Cleared, pasture		
Surface condition:	Firm; Surface crust; Cracking?		
Surface fragments:	None? (unable to discern)		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Isolated plants, trees ~ 100 m apart (<0.25%); brigalow, belah? (no imagery to identify)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-300?	Dark brown (7.5YR3/2 (moist))?; brown mottles, 10-20%, 5-15 mm, faint, diffuse?; rough ped?, moderate, 100-200 mm, subangular blocky?; moderately moist, firm?; light clay?; no fragments?; no segregations; no pans?; gradual boundary to -
B22?	300-600?	Brown (7.5YR4/2 (moist))?; no mottles?; rough ped?; moderate, 100-200 mm, subangular blocky?; moist, firm?; light medium clay?; no fragments?; no segregations; no pans?; diffuse boundary to -
B23?	600-1,000?	Brown (7.5YR5/3 (moist))?; brown mottles, 2-10%, 15-30 mm, faint, diffuse?; rough ped?, moderate, 100-200 mm, subangular blocky?; moist, very firm?; medium clay?; no fragments?; no segregations?; no pans?; diffuse boundary to -
B24	1,000-1,200?	Brown (7.5YR4/3 (moist))?; dark mottles, 10-20%, 15-30 mm, faint, diffuse?; rough ped, strong, 200-500 mm, subangular blocky?; moist, very firm?; medium clay?; no fragments?; no segregations?; no pans?; gradual boundary to -
B/C?	1,200-1,500?	Brown (7.5YR4/3 (moist)); red mottles, 10-20%, 15-30 mm, faint, diffuse; rough ped; strong, 200-500 mm, subangular blocky; moist, very firm; medium clay; no fragments; potentially common (10-20%), calcareous, concretions/soft segregations, medium (2-6 mm); no pans; partial slake in 10 mins; no dispersion in 10 mins



Profile 1



Profile 2



Location 1



Stockpile 1



Sample 1



Slaking and dispersion

GENERAL									
Date:	24/07/2021	Describer:	H Marvell	Site:	310-03-TP3111	Type:	Detailed		
MSU:	1.3.1.1a?	ASC:	Grey Vertosol?						
PSC:	Gate?		Chainage (m):		114036		Elevation (m):		448
Coordinates:	Easting:	324775	Northing:	6900329	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Moderately rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B?	SCL:	No
Disturbance:	Cleared, pasture		
Surface condition:	Firm; Surface crust; Cracking?		
Surface fragments:	None? (unable to discern)		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Isolated plants, trees ~ 100 m apart (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-300?	Dark grey (10YR4/1 (moist))?; no mottles?; rough ped?, moderate, 100-200 mm, subangular blocky?; moderately moist, firm?; light clay?; 2-10%, 6-20 mm, subangular gravel?; no segregations; no pans?; gradual boundary to -
B22?	300-700?	Very dark greyish brown (10YR3/2 (moist))?; pale mottles, 10-20%, 5-15 mm, faint, diffuse?; rough ped?, moderate, 100-200 mm, subangular blocky?; moist, firm?; light medium clay?; no fragments?; no segregations; no pans?; gradual boundary to -
B23?	700-1,100?	Dark greyish brown (10YR4/2 (moist))?; dark mottles, 2-10%, 15-30 mm, faint, diffuse?; rough ped, strong, 100-200 mm, subangular blocky?; moist, very firm?; medium clay?; no fragments?; no segregations?; no pans; gradual boundary to -
B24?	1,100-1,500?	Yellowish brown (10YR5/4 (moist))?; dark mottles, 10-20%, 15-30 mm, faint, diffuse?; rough ped?, strong, 100-200 mm, subangular blocky?; moist, very firm?; medium clay?; no fragments?; no segregations?; no pans?



Profile 1



Profile 2



Location 1



Location 2



Stockpile 1

GENERAL									
Date:	24/07/2021	Describer:	H Marvell	Site:	310-03-TP3112	Type:	Detailed		
MSU:	1.3.1.1a?	ASC:	Brown Vertosol?						
PSC:	Gate?		Chainage (m):		114285		Elevation (m):		449
Coordinates:	Easting:	324802	Northing:	6900578	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Moderately rapid
Morphological type:	Lower slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B?	SCL:	No
Disturbance:	Cleared, pasture		
Surface condition:	Firm; Surface crust; Cracking?		
Surface fragments:	None? (unable to discern)		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Very sparse, crowns well separated (0.25-20%); brigalow, <i>Eucalyptus</i> sp.?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-300?	Very dark greyish brown (10YR3/2 (moist))?. no mottles?. rough ped?. strong, 100-200 mm, subangular blocky?. moderately moist, firm?. light medium clay?. no fragments?. no segregations; no pans?. gradual boundary to -
B22?	300-600?	Greyish brown (10YR5/2 (moist))?. red mottles, 2-10%, 5-15 mm, faint, diffuse?. rough ped?. strong, 100-200 mm, subangular blocky?. moist, very firm?. medium clay?. 2-10%, 6-20 mm, subangular gravel?. no segregations; no pans?. gradual boundary to -
B23?	600-800	Greyish brown (10YR5/2 (moist))?. dark mottles, 2-10%, 5-15 mm, faint, diffuse?. rough ped?. strong, 100-200 mm, subangular blocky?. moist, very firm?. medium clay?. 2-10%, 6-20 mm, subangular gravel?. few (2-10%), calcareous, concretions, medium (2-6 mm)?. no pans?. gradual boundary to -
B24?	800-1500?	Yellowish brown (10YR5/4 (moist))?. brown mottles, 2-10%, 15-30 mm, faint, diffuse?. dark mottles, 2-10%, 15-30 mm, faint, diffuse?. rough ped?. strong, 100-200 mm, subangular blocky?. moist, very firm?. medium clay?. no fragments?. few (2-10%), calcareous, concretions, medium (2-6 mm)?. no pans?



Profile 1



Profile 2



Location 1



Location 2



Stockpile 1

GENERAL									
Date:	24/07/2021	Describer:	H Marvell	Site:	310-03-TP3113	Type:	Detailed		
MSU:	1.3.1.1a?	ASC:	Brown Vertosol?						
PSC:	Gate?		Chainage (m):		114521		Elevation (m):		457
Coordinates:	Easting:	324791	Northing:	6900811		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Moderately rapid
Morphological type:	Lower slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B?	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm; Surface crust; Cracking?		
Surface fragments:	None? (unable to discern)		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Very sparse, crowns well separated (0.25-20%); <i>Eucalyptus</i> sp.? (unable to accurately identify species – limited imagery)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-300?	Very dark greyish brown (10YR3/2 (moist))?; no mottles?; rough ped?, moderate, 100-200 mm, subangular blocky?; moderately moist, firm?; light medium clay?; no fragments?; no segregations; no pans?; clear boundary to -
B22?	300-700?	Brown (10YR5/3 (moist))?; dark mottles, 10-20%, 5-15 mm, prominent, clear?; rough ped?, strong, 100-200 mm, subangular blocky?; moist, very firm?; light medium clay?; no fragments?; no segregations; no pans?; gradual boundary to -
B23?	700-1,500	Light yellowish brown (10YR6/4 (moist))?; orange mottles, 20-50%, >30 mm, faint, diffuse?; dark mottles, 2-10%, 5-15 mm, prominent, clear?; rough ped?, strong, 100-200 mm, subangular blocky?; moist, very firm?; medium clay?; no fragments?; no segregations?; no pans?



Profile 1



Profile 2



Location 1



Location 2



Stockpile 1

GENERAL									
Date:	24/07/2021	Describer:	H Marvell	Site:	310-03-TP3114	Type:	Detailed		
MSU:	1.3.1.1a?	ASC:	Brown Vertosol?						
PSC:	Gate?		Chainage (m):		114699		Elevation (m):		459
Coordinates:	Easting:	324752	Northing:	6900985	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Moderately rapid
Morphological type:	Lower slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B?	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm; Surface crust; Cracking?		
Surface fragments:	None? (unable to discern)		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); (unable to accurately identify)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-300?	Very dark greyish brown (10YR3/2 (moist))?. no mottles?. rough ped?, moderate, 100-200 mm, subangular blocky?. moderately moist, firm?. light medium clay?. no fragments?. no segregations; no pans?. clear boundary to -
B22?	300-700?	Brown (10YR4/3 (moist))?. dark mottles, 10-20%, 5-15 mm, prominent, clear?. pale mottles, 10-20%, 5-15 mm, faint, diffuse?. rough ped?, strong, 100-200 mm, subangular blocky?. moist, very firm?. light medium clay?. 2-10%, 6-20 mm, subangular gravel?. no segregations; no pans?. gradual boundary to -
B23?	700-1300	Light yellowish brown (10YR6/4 (moist))?. dark mottles, 10-20%, 15-30 mm, prominent, clear?. rough ped?, strong, 100-200 mm, subangular blocky?. moist, very firm?. medium clay?. no fragments?. no segregations?. no pans?. gradual boundary to -
B24?	1300-1500?	Greyish brown (10YR5/2 (moist))?. orange mottles, 10-20%, 15-30 mm, faint, diffuse?. dark mottles, 2-10%, 5-15 mm, prominent, clear?. rough ped?, strong, 200-500 mm, subangular blocky?. moist, very firm?. medium clay?. no fragments?. no segregations?. no pans?



Profile 1



Profile 2



Location 1



Location 2



Stockpile 1

GENERAL														
Date:	17/08/2021		Describer:	A Kaur		Site:	310-03-AH3379		Type:	Partial				
MSU:	1.3.1.1a			ASC:	Black Vertosol									
PSC:	Gate				Chainage (m):		114946		Elevation (m):		456			
Coordinates:		Easting:		324714		Northing:		6901231		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Mod.rapid
Morphological type:	Lower slope	Permeability:	Slowly
Landform element:	Footslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, self-mulching, surface crust		
Surface fragments:	2-10%, 6-20 mm, subangular, silcrete		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%); belah		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-150	Very dark grey (10YR3/1 (moist)); mottles <2%, <5 mm, faint, brown, diffuse; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, weak; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 7.5; gradual boundary to -
B22	150-450	Black (10YR2/1 (moist)); mottles 2-10%, 5-15 mm, prominent, grey, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.5; diffuse boundary to -
B23	450-	Dark greyish brown (10YR4/2 (moist)); mottles 2-10%, 5-15 mm, prominent, yellow, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, strong; light medium clay; coarse fragments <2%, 2-6 mm, subangular, sandstone few 2-10%, organic, root linings, coarse 6-20 mm; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5



Location 1



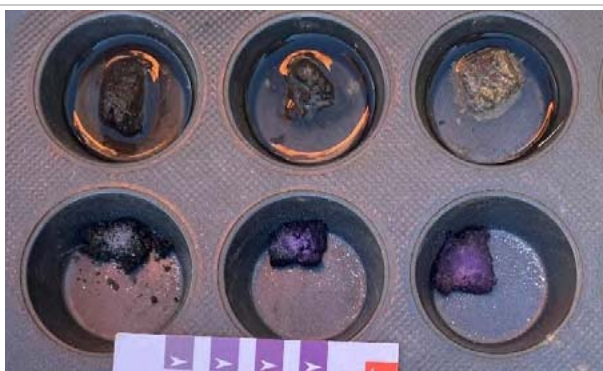
Location 2



Location 3



Surface 1



pH, slaking, dispersion



Profile

GENERAL														
Date:	17/08/2021		Describer:	A Kaur		Site:	310-03-AH3377		Type:	Partial				
MSU:	1.6.1.1a			ASC:	Black Vertosol									
PSC:	Gate				Chainage (m):		115187		Elevation (m):		461			
Coordinates:		Easting:		324633		Northing:		6901459		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod.rapid
Morphological type:	Crest	Permeability:	Slowly
Landform element:	Hillcrest	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, self-mulching, surface crust, surface flake		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Emergent (<5% of total)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-250	Very dark brown (10YR2/2 (moist)); mottles <2%, 5-15 mm, prominent, brown, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, weak; light medium clay; no fragments; very few <2%, soft segregations, fine <2 mm, slightly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B22	250-600	Very dark greyish brown (10YR3/2 (moist)); mottles 20-50%, 15-30 mm, prominent, dark, clear; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, very firm; medium clay; no fragments; common 10-20%, laminae, fine <2 mm, moderately calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 9.0; diffuse boundary to -
B23	600-	Brown (10YR4/3 (moist)); mottles 20-50%, 5-15 mm, prominent, yellow, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, very firm; medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Location 3



Surface 1



pH, slaking, dispersion



Profile

GENERAL												
Date:	17/08/2021		Describer:	H Marvell		Site:	310-03-AH3371		Type:	Check site		
MSU:	1.2.1.1a			ASC:	Vertosol							
PSC:	Gate				Chainage (m):		115399		Elevation (m):		447	
Coordinates:		Easting:	324353		Northing:		6901629		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Lower slope	Permeability:	Moderately
Landform element:	Footslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Self-mulching, soft		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); brigalow, native pea		



Location 1



Location 2



Surface 1

GENERAL									
Date:	24/07/2021	Describer:	H Marvell	Site:	310-03-TP3115	Type:	Detailed		
MSU:	1.3.1.1a?	ASC:	Brown Vertosol						
PSC:	Gate?		Chainage (m):		115401		Elevation (m):		452
Coordinates:	Easting:	324583	Northing:	6901667		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Moderately rapid
Morphological type:	Lower slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B?	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm; Surface crust; Cracking?		
Surface fragments:	None? (unable to discern)		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); (unable to accurately identify – limited imagery)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-300?	Very dark greyish brown (10YR3/2 (moist))?; no mottles?; rough ped?, strong, 100-200 mm, subangular blocky?; moderately moist, firm?; light medium clay?; no fragments?; no segregations; clear boundary to -
B22?	300-700?	Brown (10YR5/3 (moist))?; dark mottles, 10-20%, 15-30 mm, prominent, clear?; rough ped?, strong, 100-200 mm, subangular blocky?; moist, very firm?; light medium clay?; 2-10%, 6-20 mm, subangular gravel?; few (2-10%), calcareous, nodules (?), coarse (6-20 mm)?; no pans?; gradual boundary to -
B23?	700-1,500	Light yellowish brown (10YR6/4 (moist)); dark mottles, 10-20%, 15-30 mm, faint, diffuse; orange mottles, 5-15 mm, faint, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moist, very firm; medium clay; 2-10%, 6-20 mm, subangular gravel; few (2-10%), calcareous, nodules (?), coarse (6-20 mm)?; no pans; partial slake within 10 mins; no dispersion within 10 mins



Profile 1



Profile 2



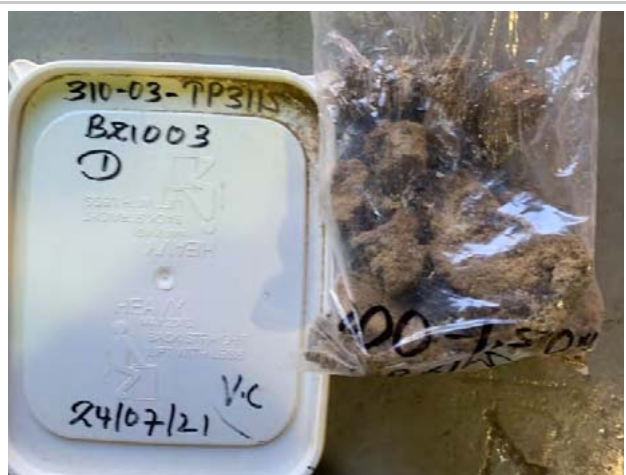
Location 1



Location 2



Stockpile 1



Sample 1



Slaking and dispersion

GENERAL									
Date:	02/08/2021	Describer:	H Marvell	Site:	310-03-TP3116	Type:	Detailed		
MSU:	1.3.1.1a?	ASC:	Brown Vertosol?						
PSC:	Gate?		Chainage (m):		115673		Elevation (m):		455
Coordinates:	Easting:	324589	Northing:	6901941		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Moderately rapid
Morphological type:	Lower slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B?	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm; Surface crust; Cracking?		
Surface fragments:	None? (unable to discern)		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); (unable to accurately identify)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-200?	Very dark greyish brown (10YR3/2 (moist))?; no mottles?; rough ped?, moderate, 100-200 mm, subangular blocky?; moderately moist, firm?; light medium clay?; no fragments?; no segregations; no pans?; clear boundary to -
B22?	200-600?	Brown (10YR5/3 (moist))?; dark mottles, 10-20%, 15-30 mm, prominent, clear?; rough ped, strong, 100-200 mm, subangular blocky?; moist, very firm?; light medium clay?; no fragments?; no segregations?; no pans?; gradual boundary to -
B23?	600-1,500?	Light yellowish brown (10YR6/4 (moist))?; dark mottles, 10-20%, 15-30 mm, faint, diffuse?; grey mottles, 10-20%, 15-30 mm, faint, diffuse?; rough ped?, moderate, 100-200 mm, subangular blocky?; moist, very firm?; medium clay?; no fragments?; no segregations?; no pans?



Profile 1



Profile 2



Location 1



Location 2



Stockpile 1

GENERAL														
Date:	17/08/2021		Describer:	H Marvell		Site:	310-03-AH3382		Type:	Partial				
MSU:	1.3.1.1a			ASC:	Grey Vertosol									
PSC:	Gate				Chainage (m):		115717		Elevation (m):		465			
Coordinates:		Easting:		324796		Northing:		6901971		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Mod.rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, self-mulching, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); brigalow		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 5-10 mm, subangular blocky; dry, very firm; medium heavy clay; no fragments; no segregations; no pans; pH 6.5; gradual boundary to -
B22	50-350	Dark grey (10YR4/1 (moist)); mottles 2-10%, 15-30 mm, prominent, brown, clear; strong, >500 mm, subangular blocky; moderately moist, very firm; medium heavy clay; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.5
B23	350-550	Dark greyish brown (10YR4/2 (moist)); mottles 20-50%, 15-30 mm, distinct, grey, sharp; rough ped, strong, 200-500 mm, polyhedral; moderately moist, very strong; medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5
B24	550-	Greyish brown (10YR5/2 (moist)); mottles 10-20%, <5 mm, faint, yellow, diffuse; rough ped, strong, 200-500 mm, subangular blocky; dry, very firm; medium clay; no fragments; no segregations; no pans; complete slake in 10 mins; slight dispersion within 10 mins; pH 9.0



Location 1



Location 2



Surface 1



Surface 2



Profile



pH, slaking, dispersion

GENERAL									
Date:	02/08/2021	Describer:	H Marvell	Site:	310-03-TP3117	Type:	Detailed		
MSU:	1.3.1.1a?	ASC:	Brown Vertosol?						
PSC:	Gate?		Chainage (m):		116160		Elevation (m):		470
Coordinates:	Easting:	324743	Northing:	6902399	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Moderately rapid
Morphological type:	Mid slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B?	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm; Cracking?		
Surface fragments:	None? (unable to discern)		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); (unable to accurately identify)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-200?	Very dark greyish brown (10YR3/2 (moist))?. no mottles?. rough ped?, moderate, 100-200 mm, subangular blocky?. moderately moist, firm?. light medium clay?. 2-10%, 6- 20 mm, subangular gravel?. no segregations; no pans; clear boundary to -
B22?	200-600?	Dark greyish brown (10YR4/2 (moist))?. dark mottles, 10-20%, 15-30 mm, prominent, clear?. rough ped?, strong, 100-200 mm, subangular blocky?. moist, firm?. medium clay?. 2-10%, 6- 20 mm, subangular gravel?. few (2-10%), calcareous, concretions, medium (2-6 mm)?. no pans?. gradual boundary to -
B23?	600-1,200?	Brown (10YR5/3 (moist))?. pale mottles, 10-20%, 15-30 mm, faint, diffuse?. dark mottles, 2-10%, 5-15 mm, prominent, clear?. rough ped?, strong, 100-200 mm, subangular blocky?. moist, very firm?. medium clay?. 2-10%, 6- 20 mm, subangular gravel?. few (2-10%), calcareous, concretions, medium (2-6 mm)?. no pans?. gradual boundary to -
B24?	1,200-1,500?	Yellowish brown (10YR5/4 (moist))?. dark mottles, 10-20%, 15-30 mm, prominent, diffuse?. rough ped?, strong, 100-200 mm, subangular blocky?. moist, very firm?. medium clay?. no fragments?. no segregations?. no pans?



Profile 1



Profile 2



Location 1



Location 2



Stockpile 1

GENERAL											
Date:	17/08/2021		Describer:	H Marvell		Site:	310-03-AH3376		Type:	Check site	
MSU:	1.3.1.1a		ASC:	Vertosol							
PSC:	Gate			Chainage (m):		116400		Elevation (m):		484	
Coordinates:	Easting:	324603		Northing:	6902729		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Mod.rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, surface crust		
Surface fragments:	2-10%, 6-20 mm, subangular, igneous		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); brigalow, <i>Leptospermum</i> sp., wilga		



Location 1



Location 2



Location 3



Location 4



Surface 1



Surface 2

GENERAL												
Date:	23/11/2021		Describer:	P Hewavitharana		Site:	310-03-AH3838		Type:	Check site		
MSU:	3.6.1.1a			ASC:	Vertosol							
PSC:	Gate				Chainage (m):		116405		Elevation (m):		522	
Coordinates:	Easting:		324507		Northing:		-6902795		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Mod.rapid
Morphological type:	Crest	Permeability:	Slowly
Landform element:	Hillcrest	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Td/q
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Limited clearing		
Surface condition:	Cracking, self-mulching, firm, surface crust		
Surface fragments:	<2%, 20-60 mm, subrounded, igneous		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); brigalow, belah, black tea tree, wilga		

	
Location 1	Location 2
	
Location 3	Location 4
	
Surface 1	Surface 2

GENERAL														
Date:	17/08/2021		Describer:	H Marvell		Site:	310-03-AH3384		Type:	Partial				
MSU:	1.3.1.1a			ASC:	Black Vertosol									
PSC:	Gate				Chainage (m):		116410		Elevation (m):		470			
Coordinates:		Easting:		325025		Northing:		6902509		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Slow
Morphological type:	Lower slope	Permeability:	Slowly
Landform element:	Footslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Self-mulching, firm		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%); brigalow, <i>Leptospirosis</i> sp.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Very dark greyish brown (10YR3/2 (moist)); no mottles; moderate, 5-10 mm, polyhedral; dry, weak; light clay; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 6.0; clear boundary to -
B22	100-300	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, strong, 10-20 mm, subangular blocky; dry, weak; light medium clay; no fragments; very few <2%, soft segregations, medium 2-6 mm, slightly calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0
B23	300-600	Very dark greyish brown (10YR3/2 (moist)); mottles 10-20%, 5-15 mm, , grey, ; rough ped, weak, 10-20 mm, subangular blocky; moderately moist, very strong; light medium clay; coarse fragments 2-10%, 6-20 mm, angular, igneous; common 10-20%, concretions, medium 2-6 mm, highly calcareous; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 8.5; gradual boundary to -
B24	600-	Very dark brown (10YR2/2 (moist)); mottles 10-20%, 15-30 mm, faint, brown, diffuse; strong, 100-200 mm, subangular blocky; moderately moist, very strong; light medium clay; coarse fragments 2-10%, 6-20 mm, subrounded, igneous; common 10-20%, soft segregations, medium 2-6 mm, moderately calcareous; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 8.0



Location 1



Location 2



Location 3



Surface 1



Profile



Surface 2



pH, slaking, dispersion

GENERAL												
Date:	23/11/2021		Describer:	P Hewavitharana		Site:	310-03-AH3383		Type:	Detailed		
MSU:	1.2.1.1a			ASC:	Epicalcareous-Epihypersodic Crusty Black Vertosol							
PSC:	Gate				Chainage (m):		116659		Elevation (m):		502	
Coordinates:	Easting:		324939		Northing:		6902857		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Mid-slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Qs
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, firm, surface crust		
Surface fragments:	2-10%, 2-6 mm, angular, metamorphic; <2%, 6-20 mm, subangular tabular, breccia		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	N/A; rooting depth 900 mm.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-300	Black (10YR2/1 (moist)); mottles 10-20%, 5-15 mm, prominent, pale, clear; rough ped, strong, 10-20 mm, subangular blocky; moderately moist, firm; medium clay; coarse fragments <2%, 2-6 mm, subangular, metamorphic; many 20-50%, concretions, fine <2 mm, moderately calcareous; common 10-20%, ferromanganiferous, concretions, medium 2-6 mm; no pans; pH 8.5; gradual boundary to -
B22	300-500	Dark greyish brown (2.5Y4/2 (moist)); mottles 10-20%, 5-15 mm, prominent, dark, clear; rough ped, strong, 20-50 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; many 20-50%, concretions, medium 2-6 mm, moderately calcareous; few 2-10%, ferromanganiferous, concretions, medium 2-6 mm; no pans; pH 9.0; gradual boundary to -
B23	500-900	Dark greyish brown (2.5Y4/2 (moist)); mottles 10-20%, 5-15 mm, prominent, dark, clear; mottles <2%, 5-15 mm, prominent, red, clear; rough ped, strong, 20-50 mm, subangular blocky; medium clay; no fragments; common 10-20%, concretions, medium 2-6 mm, moderately calcareous; common 10-20%, ferromanganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; diffuse boundary to -
B24	900-1,100	Light olive brown (2.5Y5/3 (moist)); mottles 2-10%, 5-15 mm, prominent, red, clear; smooth ped, strong, 20-50 mm, lenticular; moderately moist, very firm; medium heavy clay; coarse fragments <2%, 2-6 mm, subangular, metamorphic; very few <2%, concretions, fine <2 mm, moderately calcareous; few 2-10%, ferromanganiferous, concretions, medium 6-20 mm; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 7.5; diffuse boundary to -
B3	1100-1,500	Light olive brown (2.5Y5/4 (moist)); mottles 2-10%, <5 mm, faint, orange, diffuse; smooth ped, strong, 20-50 mm, lenticular; moderately moist, firm; medium clay; no fragments; few 2-10%, concretions, fine <2 mm, moderately calcareous; common 10-20%, ferromanganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 4.5



Surface 1



Surface 2



Surface 3



Surface 4



Ferromanganiferous concretions



Profile



pH, slaking, dispersion

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.1	8.91	STAL	6.81	VL	347	2	L	1104	L	1.1	0.62	L1	0.75	4.93	5.35	0.38

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H2O)		EC (dS/m)	Salinity Rating^	Cl- (mg/kg)	Exchangeable cations (meq/100 g)							ESP (%)	Sodicity^	Emerson class	Ca:Mg ratio
	Clay	Silt	Sand	Gravel	-	Rating#				H+	Al+	Ca+	Mg+	K+	Na+	CEC				
0.0-0.1	33.5	7.3	59.2	1.8	8.91	STAL	0.21	M	56.2	-	-	20.3	7.39	0.37	1.74	29.9	5.83	NS	4	2.75
0.2-0.3	27.4	3.5	69.1	6.3	9.1	VSAL	0.36	M	94.6	-	-	16.9	9.27	0.26	4.29	30.7	14	S	3b	1.82
0.35-0.45	34.4	5.1	60.5	3.3	9.18	VSAL	0.55	H	319	-	-	13.6	7.67	0.2	4.09	25.5	16	SS	3b	1.77
0.5-0.6	30.8	5.6	63.7	6.4	8.83	STAL	0.96	VH	726	-	-	13.6	9.23	0.23	5.63	28.7	19.7	SS	3b	1.47
0.8-0.9	26.3	7.5	66.4	5.7	9.01	VSAL	0.76	VH	744	-	-	11.6	8.14	0.19	5.7	25.6	22.2	SS	1	1.42
1.0-1.1	28.3	3.4	68.3	<0.1	7.9	MAL	0.72	H	797	-	-	11.7	8.68	0.19	6.48	27.1	23.9	SS	1	1.35
1.3-1.4	35.8	7.4	56.9	<0.1	5.78	MAC	0.56	H	840	-	-	5.3	10.2	0.16	4.59	20.2	22.7	SS	1	0.52

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL									
Date:	17/08/2021	Describer:	H Marvell	Site:	310-03-AH3386	Type:	Check site		
MSU:	1.2.1.1a	ASC:	Vertosol						
PSC:	Edgefield			Chainage (m):	116753		Elevation (m):		462
Coordinates:	Easting:	325274	Northing:	6902763		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Lower slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, self-mulching, surface crust		
Surface fragments:	2-10%, 6-20 mm, subrounded, igneous		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); brigalow, belah		

	
Location 1	Location 2
	
Location 3	Surface 1

GENERAL									
Date:	02/08/2021	Describer:	H Marvell	Site:	310-03-TP3118	Type:	Detailed		
MSU:	1.2.1.1a?	ASC:	Grey Vertosol?						
PSC:	Gate?		Chainage (m):		116915		Elevation (m):		466
Coordinates:	Easting:	325042	Northing:	6903075		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod. rapid
Morphological type:	Mid slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Qs
Relief modal class:	Undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B?	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm; Surface crust?; Cracking?		
Surface fragments:	None? (unable to discern)		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); (unable to accurately identify)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-200?	Black (10YR2/1 (moist))?; no mottles?; rough ped?, moderate, 100-200 mm, subangular blocky?; moderately moist, firm?; light clay?; 2-10%, 6- 20 mm, subangular gravel?; no segregations; no pans; clear boundary to -
B22?	200-600?	Grey (10YR5/1 (moist))?; dark mottles, 10-20%, >30 mm, faint, diffuse?; brown mottles, 2-10%, 15-30 mm, faint, diffuse?; rough ped?, strong, 100-200 mm, subangular blocky?; moist, firm?; light medium clay?; no fragments?; common (10-20%), calcareous, concretions (?), medium (2-6 mm)?; no pans; gradual boundary to -
B23?	600-1,000?	Dark grey (10YR4/1 (moist))?; dark mottles, 10-20%, >30 mm, prominent, clear?; orange mottles, 2-10%, 5-15 mm, prominent, clear?; rough ped?, strong, 100-200 mm, subangular blocky?; moist, very firm?; medium clay?; 2-10%, 6- 20 mm, subangular gravel?; common (10-20%), calcareous, concretions (?), medium (2-6 mm)?; no pans; gradual boundary to -
B24?	1,000-1,500?	Dark grey (10YR4/1 (moist))?; dark mottles, 10-20%, >30 mm, prominent, clear?; orange mottles, 2-10%, 5-15 mm, prominent, clear?; rough ped?, strong, 100-200 mm, subangular blocky?; moist, very firm?; medium clay?; 2-10%, 6- 20 mm, subangular gravel?; few (2-10%), calcareous, concretions (?), medium (2-6 mm)?; no pans



Profile 1



Profile 2



Location 1



Location 2



Stockpile 1

GENERAL										
Date:	17/08/2021	Describer:	A Kaur	Site:	310-03-AH3385	Type:	Partial			
MSU:	1.2.1.1a		ASC:	Black Vertosol						
PSC:	Edgefield			Chainage (m):		117257		Elevation (m):		461
Coordinates:	Easting:	325177	Northing:	6903390		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Lower slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, self-mulching, surface flake		
Surface fragments:	<2%, 6-20 mm, subangular, silcrete		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%); brigalow		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, weak; light medium clay, fine sandy; no fragments; very few <2%, concretions, medium 2-6 mm, slightly calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B22	100-300	Black (10YR2/1 (moist)); mottles 2-10%, <5 mm, faint, pale, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; coarse fragments <2%, 6-20 mm, subangular, sandstone; few 2-10%, laminae, fine <2 mm, moderately calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B23	300-600	Dark greyish brown (10YR4/2 (moist)); mottles <2%, 5-15 mm, prominent, dark, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; medium clay; coarse fragments <2%, 6-20 mm, subangular, quartz; few 2-10%, concretions, medium 2-6 mm, slightly calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 9.0; gradual boundary to -
B24	600-	Dark greyish brown (7.5YR4/2 (moist)); mottles <2%, 5-15 mm, prominent, dark, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, very firm; medium clay; no fragments; few 2-10%, concretions, fine <2 mm, moderately calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Location 3



Surface 1



pH, slaking, dispersion



Profile

GENERAL										
Date:	17/08/2021	Describer:	A Kaur	Site:	310-03-AH3387	Type:	Partial			
MSU:	1.2.1.1a	ASC:	Black Vertosol							
PSC:	Edgefield			Chainage (m):		117497		Elevation (m):		459
Coordinates:	Easting:	325265	Northing:	6903614		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Lower slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, surface crust		
Surface fragments:	<2%, 2-6 mm, subangular, quartz		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%); brigalow, black tea tree		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-200	Very dark grey (10YR3/1 (moist)); mottles <2%, 5-15 mm, faint, dark, diffuse; rough ped, moderate, 20-50 mm, angular blocky; moderately moist, firm; light clay, fine sandy; no fragments; very few <2%, nodules, fine <2 mm, moderately calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B22	200-350	Dark greyish brown (10YR4/2 (moist)); mottles 2-10%, 5-15 mm, prominent, dark, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, very firm; light medium clay; no fragments; common 10-20%, laminae, fine <2 mm, moderately calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 9.0; gradual boundary to -
B23	350-	Brown (10YR4/3 (moist)); mottles 2-10%, 5-15 mm, faint, dark, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; coarse fragments <2%, 2-6 mm, subangular, sandstone; few 2-10%, nodules, medium 2-6 mm, moderately calcareous; few 2-10%, laminae, <2 mm, moderately calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 9.0



Location 1



Location 2



Location 3



Surface 1



Profile



pH, slaking, dispersion

GENERAL									
Date:	17/08/2021	Describer:	A Kaur	Site:	310-03-AH3388	Type:	Detailed		
MSU:	1.2.1.1a	ASC:	Black Vertosol						
PSC:	Edgefield			Chainage (m):	117705		Elevation (m):		460
Coordinates:	Easting:	325339	Northing:	6903809		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)		Runoff: Very slow
Morphological type:	Lower slope		Permeability: Slowly
Landform element:	Hillslope		Drainage: Imperfectly drained
Landform pattern:	Low hills		Geology: Qs
Relief modal class:	Undulating low hills		Rock outcrop: No rock outcrop
ALC:	A1/B		SCL: Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, surface crust		
Surface fragments:	<2%, 60-200 mm, subangular, basalt, ?gabbro, and ?arenite		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%); brigalow		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-150	Very dark greyish brown (10YR3/2 (moist)); mottles <2%, <5 mm, faint, pale, diffuse; rough ped, moderate, 20-50 mm, angular blocky; moderately moist, firm; light clay; coarse fragments 2-10%, 2-6 mm, subrounded, mudstone; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.5; gradual boundary to -
B22	150-350	Very dark brown (10YR2/2 (moist)); mottles <2%, <5 mm, faint, brown, diffuse; rough ped, moderate, 20-50 mm, angular blocky; moderately moist, firm; light medium clay; coarse fragments <2%, 2-6 mm, subangular, quartz; very few <2%, soft segregations, fine <2 mm, moderately calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B23	350-900	Black (10YR2/1 (moist)); no mottles; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, strong; medium clay; no fragments; common 10-20%, laminae, fine <2 mm, highly calcareous; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 8.5; gradual boundary to -
B24	900-1,150	Dark grey (10YR4/1 (moist)); mottles 2-10%, <5 mm, faint, dark, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, strong; light medium clay, fine sandy; no fragments; very few <2%, soft segregations, fine <2 mm, moderately calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B31	1150-1,500	Brown (7.5YR4/3 (moist)); mottles 10-20%, 5-15 mm, prominent, orange, diffuse; rough ped, strong, 20-50 mm, subangular blocky; moderately moist, very strong; light clay; no fragments; very few <2%, nodules, fine <2 mm, slightly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5



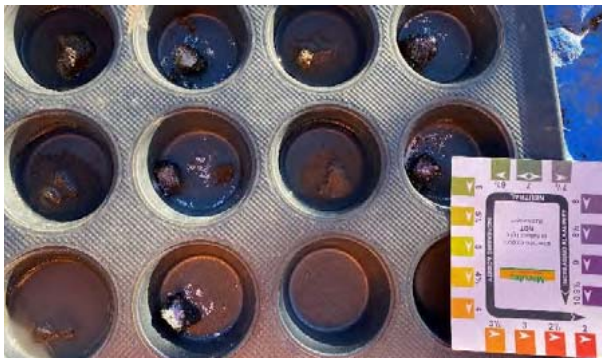
Location 1



Surface 1



Surface 2



pH, slaking, dispersion



Profile

GENERAL										
Date:	17/08/2021	Describer:	T Beck	Site:	310-03-AH3389	Type:	Partial			
MSU:	1.3.1.1a		ASC:	Black Vertosol						
PSC:	Edgefield			Chainage (m):		117906		Elevation (m):		492
Coordinates:	Easting:	325460	Northing:	6903975		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Very slow
Morphological type:	Lower slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Loose, firm, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, moderate, 5-10 mm, subangular blocky; dry, weak; medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; clear boundary to -
B22	50-200	Very dark greyish brown (10YR3/2 (moist)); mottles 2-10%, >30 mm, prominent, dark, clear; rough ped, strong, 50-100 mm, subangular blocky; dry, firm; medium clay; ; no fragments; common 10-20%, soft segregations, medium 2-6 mm, highly calcareous; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B23	200-450	Dark grey (10YR4/1 (moist)); mottles 20-50%, 15-30 mm, faint, dark, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; medium clay; ; no fragments; few 2-10%, soft segregations, coarse 6-20 mm, very highly calcareous; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B24	450-	Dark greyish brown (10YR4/2 (moist)); mottles 20-50%, >30 mm, faint, dark, clear; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; medium clay; ; no fragments; common 10-20%, concretions, medium 2-6 mm, very highly calcareous; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Erosion 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL										
Date:	17/08/2021	Describer:	H Marvell	Site:	310-03-AH3390	Type:	Check site			
MSU:	1.2.1.1a	ASC:	Vertosol							
PSC:	Edgefield			Chainage (m):		118105		Elevation (m):		458
Coordinates:	Easting:	325513	Northing:	6904168		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod.rapid
Morphological type:	Lower slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Jw
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm, surface crust, trampled		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		



Location 1



Location 2



Location 3



Surface 1

GENERAL										
Date:	17/08/2021	Describer:	H Marvell	Site:	310-03-AH3391	Type:	Partial			
MSU:	1.3.1.1a		ASC:	Brown Dermosol						
PSC:	Edgefield			Chainage (m):		118306		Elevation (m):		459
Coordinates:	Easting:	325600	Northing:	6904350		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Slow
Morphological type:	Lower slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm, surface crust, trampled		
Surface fragments:	2-10%, 60-200 mm, subangular, igneous		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, moderate, 20-50 mm, subangular blocky; dry, very firm; light medium clay; coarse fragments 2-10%, 20-60 mm, subangular tabular, igneous; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.5; clear boundary to -
B22	50-160	Brown (10YR4/3 (moist)); mottles 10-20%, 5-15 mm, prominent, brown, clear; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; medium clay; coarse fragments 2-10%, 6-20 mm, subangular, quartz; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.5; gradual boundary to -
B23	160-400	Very dark brown (10YR2/2 (moist)); mottles 20-50%, 15-30 mm, prominent, dark, clear; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; medium heavy clay; no fragments; few 2-10%, soft segregations, medium 2-6 mm, slightly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B24	400-	Dark brown (10YR3/3 (moist)); mottles 20-50%, 15-30 mm, prominent, brown, clear; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; medium clay; coarse fragments 2-10%, 6-20 mm, subangular tabular, quartz; common 10-20%, soft segregations, coarse 6-20 mm, very highly calcareous; common 10-20%, concretions, medium 2-6 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0



Location 1



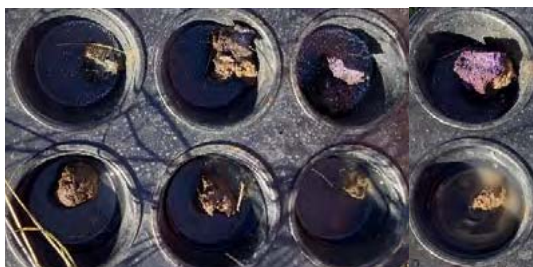
Location 1



Location 1



Surface 1



pH, slaking, dispersion



Profile



Surface 2



Surface 3

GENERAL									
Date:	17/08/2021	Describer:	T Beck	Site:	310-03-AH3392	Type:	Partial		
MSU:	1.2.1.1a	ASC:	Black Vertosol						
PSC:	Edgefield			Chainage (m):	118522		Elevation (m):		495
Coordinates:	Easting:	325691	Northing:	6904546		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)		Runoff: Very slow
Morphological type:	Lower slope		Permeability: Very slowly
Landform element:	Hillslope		Drainage: Imperfectly drained
Landform pattern:	Low hills		Geology: Qs
Relief modal class:	Undulating low hills		Rock outcrop: No rock outcrop
ALC:	A1/B		SCL: Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-130	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 10-20 mm, subangular blocky; dry, weak; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 6.0; clear boundary to -
B22	130-250	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; common 10-20%, soft segregations, coarse 6-20 mm, highly calcareous; partial slake in 10 mins; slight dispersion within 10 mins; pH 7.5; gradual boundary to -
B23	350-600	Dark grey (10YR4/1 (moist)); mottles <2-10%, <5 mm, faint, brown, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, very firm; medium heavy clay; no fragments; common 10-20%, concretions, coarse 6-20 mm, very highly calcareous; no pans; no slaking within 10 mins; no dispersion within 2 hrs; pH 8.0



Location 1



Location 2



Location 3



Surface 1



pH, slaking, dispersion



Profile

GENERAL										
Date:	17/08/2021	Describer:	T Beck	Site:	310-03-AH3393	Type:	Representative			
MSU:	1.3.1.1a	ASC:	Epicalcareous-Endohypersodic Epipedal Black Vertosol							
PSC:	Edgefield			Chainage (m):		118736		Elevation (m):		494
Coordinates:	Easting:	325789	Northing:	6904736		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Slow
Morphological type:	Lower slope	Permeability:	Very slowly
Landform element:	Footslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Qs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Loose, firm		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); rooting depth 1150 mm.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-200	Very dark brown (10YR2/2 (moist)); no mottles; rough ped, strong, 100-200 mm, subangular blocky; dry, very firm; light medium clay; coarse fragments <2%, 6-20 mm, subrounded, quartz; common 10-20%, soft segregations, medium 2-6 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.5; diffuse boundary to -
B22	200-500	Very dark greyish brown (10YR3/2 (dry)); no mottles; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, strong; medium clay; no fragments; common 10-20%, concretions, medium 2-6 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; diffuse boundary to -
B23	500-750	Very dark greyish brown (10YR3/2 (moist)); mottles 2-10%, 5-15 mm, faint, grey, diffuse; rough ped, moderate, 100-200 mm, subangular blocky; dry, strong; medium heavy clay; no fragments; few 2-10%, concretions, medium 2-6 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B24	750-1,150	Very dark grey (10YR3/1 (moist)); mottles 10-20%, 15-30 mm, faint, dark, diffuse; rough ped, strong, 100-200 mm, subangular blocky; dry, strong; medium heavy clay; no fragments; common 10-20%, concretions, medium 2-6 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; diffuse boundary to -
B3	1150-1,500	Dark brown (10YR3/3 (moist)); mottles 10-20%, 5-15 mm, prominent, orange, clear, mottles 10-20%, 5-15 mm, prominent, red, clear; rough ped, strong, 100-200 mm, subangular blocky; dry, very strong; light medium clay; no fragments; few 2-10%, soft segregations, coarse 6-20 mm, very highly calcareous, few 2-10%, concretions, coarse 6-20 mm, very highly calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0



Location 1



Location 2



Surface 1



pH, slaking, dispersion



Profile

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-01	8.25	MAL	28	M	175	4.16	L	1523	M	2.5	1.4	M3	0.62	13.9	8.98	0.46

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H2O)		EC (dS/m)	Salinity Rating^	Cl ⁻ (mg/kg)	Exchangeable cations (meq/100 g)							ESP (%)	Sodicity*	Emerson class	Ca:Mg ratio
	Clay	Silt	Sand	Gravel	-	Rating#				H+	Al+	Ca+	Mg+	K+	Na+	CEC				
0.0-0.1	45.6	4.9	49.5	1.0	8.25	MAL	0.15	L	0	-	0.01	24.9	8.73	0.73	1.61	36.0	4.48	NS	2	2.85
0.25-0.35	31.6	2.9	65.5	11.4	9.02	VSAL	0.36	M	0	-	0.01	28.7	12.0	0.52	6.17	47.3	13.0	S	2	2.39
0.55-0.65	5.41	0.6	94.0	11.2	8.73	STAL	1.07	VL	0	-	0.01	21.5	13.8	0.58	11.9	47.8	24.9	SS	2	1.55
0.85-0.95	17.4	0.5	82.1	19.7	9.43	VSAL	0.41	H	0	-	0.01	25.3	13.6	0.47	13.3	52.7	25.2	SS	2	1.86
1.15-1.25	26.9	4.2	68.9	6.1	8.98	STAL	1.06	VH	0	-	0.01	23.0	11.2	0.43	11.4	46.0	24.8	SS	3b	2.05
1.4-1.5	37.4	4.5	58.1	2.7	9.68	VSAL	0.48	H	0	-	0.01	23.3	11.0	0.47	11.0	45.7	24.0	SS	2	2.11

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL										
Date:	17/08/2021	Describer:	H Marvell	Site:	310-03-AH3394	Type:	Partial			
MSU:	1.2.1.1a	ASC:	Grey Vertosol							
PSC:	Edgefield			Chainage (m):		118944		Elevation (m):		455
Coordinates:	Easting:	325856	Northing:	6904935		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)		Runoff: Slow
Morphological type:	Flat		Permeability: Slowly
Landform element:	Backplain		Drainage: Imperfectly drained
Landform pattern:	Alluvial plain		Geology: Qs
Relief modal class:	Gently undulating plain		Rock outcrop: No rock outcrop
ALC:	A1/B		SCL: Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; few 2-10%, concretions, medium 2-6 mm, slightly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.5; clear boundary to -
B22	100-300	Dark grey (10YR4/1 (moist)); mottles 10-20%, 5-15 mm, prominent, brown, clear; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; common 10-20%, concretions, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B23	300-	Dark grey (10YR4/1 (moist)); no mottles; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; medium heavy clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Location 3



Surface 1



pH, slaking, dispersion



Profile

GENERAL										
Date:	17/08/2021	Describer:	H Marvell	Site:	310-03-AH3399	Type:	Partial			
MSU:	1.2.1.1a		ASC:	Black Vertosol						
PSC:	Edgefield			Chainage (m):		119108		Elevation (m):		454
Coordinates:	Easting:	326014	Northing:	6905076		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, firm		
Surface fragments:	2-10%, 2-6 mm, subrounded, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-80	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; segregations few 2-10%, calcareous, soft segregations, medium 2-6 mm, moderately calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B22	80-250	Very dark greyish brown (10YR3/2 (moist)); mottles 2-10%, 5-15 mm, faint, dark, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; medium heavy clay; coarse fragments 2-10%, 6-20 mm, subangular, gravel; segregations few 2-10%, calcareous, soft segregations, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; clear boundary to -
B23	250-	Dark grey (10YR4/1 (moist)); mottles 2-10%, 5-15 mm, prominent, dark, clear; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, very firm; medium heavy clay; no fragments; segregations few 2-10%, calcareous, soft segregations, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Erosion 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	23/07/2021	Describer:	H Marvell	Site:	310-03-TP3119	Type:	Detailed		
MSU:	1.2.1.1a?	ASC:	Brown Vertosol?						
PSC:	Edgefield?		Chainage (m):		119156		Elevation (m):		454
Coordinates:	Easting:	325883	Northing:	6905146		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slowly
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Qs
Relief modal class:	Undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B?	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm? Potentially cracking		
Surface fragments:	None? (unable to discern)		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); brigalow		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-150?	Very dark grey (10YR3/1 (moist))?. no mottles?. rough ped?, moderate, 100-200 mm, subangular blocky?, moderately moist, firm?. light medium clay?. no fragments?. no segregations?. no pans?. clear boundary to -
B22?	150-400?	Greyish brown (10YR5/2 (moist))?. dark mottles, 10-20%, >30 mm, faint, diffuse?. rough ped?, strong, 100-200 mm, subangular blocky?. moist, firm?. light medium clay?. no fragments?. no segregations?. no pans?. gradual boundary to -
B23?	400-1,000?	Dark grey (10YR4/1 (moist))?. dark brown mottles, 2-10%, 15-30 mm, faint, clear; rough ped, strong, 100-200 mm, subangular blocky; moist, very firm?. medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; gradual boundary to -
B24?	1,000-1,500?	Dark brown (10YR3/3 (moist))?. dark mottles, 10-20%, >30 mm, faint, diffuse?. rough ped?, strong, 100-200 mm, subangular blocky?. moist, very firm?. medium clay?. no fragments?. no segregations?. no pans?



Profile 1



Profile 2



Location 1



Location 2



Stockpile 1

GENERAL										
Date:	17/08/2021	Describer:	H Marvell	Site:	310-03-AH3395	Type:	Check site			
MSU:	1.2.1.1a	ASC:	Vertosol							
PSC:	Edgefield			Chainage (m):		119355		Elevation (m):		456
Coordinates:	Easting:	325910	Northing:	6905343		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm, self-mulching		
Surface fragments:	None		
Microrelief:	Incipient, other, elongate mound, equal mounds/depressions, no shelf present		
Erosion:	Gully (active, minor, <1.5 m)		
Vegetation:	Very sparse, crowns well separated (0.25-20%); brigalow, black tea tree		



Location 1



Location 2



Erosion 1



Surface 1

GENERAL									
Date:	07/10/2021	Describer:	T Montgomery	Site:	310-03-AH3396	Type:	Detailed		
MSU:	1.2.1.1a		ASC:	Black Vertosol					
PSC:	Edgefield			Chainage (m):				Elevation (m):	458
Coordinates:	Easting:	325945	Northing:	6905534	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)		Runoff: Mod.rapid
Morphological type:	Flat		Permeability: Slowly
Landform element:	Backplain		Drainage: Imperfectly drained
Landform pattern:	Alluvial plain		Geology: Qs-SQ
Relief modal class:	Gently undulating plain		Rock outcrop: No rock outcrop
ALC:	A1/B		SCL: Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, firm		
Surface fragments:	None		
Microrelief:	Normal, other, depression, equal mounds/depressions, no shelf present		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); brigalow, black tea tree		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Black (10YR2/1 (moist)); no mottles; rough ped, moderate, 10-20 mm, polyhedral; dry, very weak; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.5; gradual boundary to -
B22	100-550	Dark grey (10YR4/1 (moist)); no mottles; rough ped, strong, 50-100 mm, polyhedral; moderately moist, very firm; medium clay; no fragments; no segregations; no pans; no slaking within 10 mins; no dispersion within 2 hrs; pH 7.5; gradual boundary to -
B23	550-800	Very dark greyish brown (10YR3/2 (moist)); mottles 20-50%, 5-15 mm, faint, dark, diffuse; rough ped, strong, 50-100 mm, polyhedral; moderately moist, very firm; medium clay; no fragments; few 2-10%, concretions, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B24	800-1,200	Very dark greyish brown (10YR3/2 (moist));)); mottles 20-50%, 5-15 mm, faint, dark, diffuse; rough ped, strong, 50-100 mm, polyhedral; moderately moist, very firm; medium clay; no fragments; few 2-10%, concretions, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.0; gradual boundary to -
BC	1200-1,500	Brown (10YR4/3 (moist));)); mottles 20-50%, 5-15 mm, faint, dark, diffuse; rough ped, strong, 20-50 mm, polyhedral; dry, firm; light clay; no fragments; few 2-10%, concretions, fine <2 mm, highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.5



Location 1



Erosion 1



Surface 1



pH, slaking, dispersion



Profile

Project ABW Site 22 Observation 1

SALI2079

Project description	
Project name:	Soil Survey and Assessment of the Brigalow/Belah Region of the Darling Downs
Project status:	Data is from an active project and may be subject to change through additions/updates or further quality assessment processes
Location:	Brigalow/Belah Darling Downs

Site characteristics			
Date described:	1/01/1976	Observation type:	Not recorded (historical)
Site Type:		Observation class:	Class IIIa (limited chemistry)
Slope (%):	2	Morphological type:	Lower slope
Slope type	Abney level or clinometer and tape	Landform element:	Footslope
Geology:	Not recorded	Landform pattern:	Not recorded
Soil Name:	Not recorded	Substrate lithology:	Sandstone
Runoff:	Not recorded	Depth to free water:	Not recorded
Permeability:	Not recorded	Erosion:	Not recorded
Drainage:	Well drained	Microrelief type:	Not recorded
Disturbance:	Complete clearing - pasture - but never cultivated	Proportion gilgai:	N/A
Rock outcrop:	Not recorded	Vertical interval (m):	N/A
Surface condition:	Self-mulching; Periodic cracking	Horizontal interval (m):	N/A
Surface coarse fragments:	Not recorded	Microrelief component sampled:	N/A

Site location							
Datum	Latitude (dd)	Longitude (dd)	Zone	Easting (m)	Northing (m)	Location accuracy (m)	Location measurement method
GDA 94	-27.96241	151.22096	56	325004	6905687	Not recorded	Not recorded
GDA 2020	-27.96240	151.22097	56	325005	6905689		

Soil classification					
Australian Soil Classification (ASC)	Confidence	ASC Technical Reference	Buried	GSG	PPF
Self-mulching, Black Vertosol.	No analytical data are available but confidence is fair.	Isbell (2002) The Australian Soil Classification Revised Edition	N/A	Black earth	Ug5.16

Profile morphology											
No	Name	Upper depth (m)	Lower depth (m)	Colour	Mottles	Textures	Structures	Coarse fragments	Segregations	Strengths	Bounds
1		0	0.09	Black (7.5YR 2/1) moist [redacted]		Medium clay	Moderate 2-5 mm Subangular blocky structure;			Dry, Very strong strength;	
2		0.09	0.2	Black (7.5YR 2/1) moist [redacted]	few (2-10%) yellow mottles;	Medium heavy clay	Moderate 10-20 mm Subangular blocky structure;		Few (2-10%) Calcareous Concretions;	Dry, Very strong strength;	
3		0.2	0.3								
4		0.3	0.6								
5		0.6	0.9								
6		0.9	1.2								

Field test	
pH by Raupach and Tucker method	
Depth (m)	Value
0.09	6
0.2	7.5

Notes			
Note level	Horizon name	Horizon no	Note
Observation			Depth to substrate is unknown, it is greater than the depth of profile described.
Horizon		1	Ironstone gravel and fine sand present.

Laboratory test results										
				Sample	31	32	33	36	39	42
				Upper depth (m)	0	0.1	0.2	0.5	0.8	1.1
				Lower depth (m)	0.09	0.2	0.3	0.6	0.9	1.2
Group	Method	Code	Units	Bulked Sample	N	N	N	N	N	N
Profile General	pH - 1:5 water	4A1			7.2	8.2	9.0	9.5	9.3	7.7
	EC - 1:5 water	3A1	dS/m		0.09	0.12	0.18	0.58	0.82	0.37
	Cl - 1:5 water - automated	5A2	mg/kg		50	30	50	480	670	360
	OC - Walkley/Black	6A1	%		2.2	1.2				
	Total N - Kjeldahl, automated	7A2	%		0.18	0.11				
	Coarse sand	2Z2_CS	%		28		25	23	19	23
	Fine sand	2Z2_FS	%		35		31	34	35	38
	Silt	2Z2_Silt	%		11		10	11	9	7
	Clay	2Z2_Clay	%		23		32	31	35	29
	PSA sum	2Z2_sum			97		98	99	98	97
	Moisture content - air-dry	2A1	%		4.6		5.1	4.5	5.5	4.4
	Moisture content - 15 bar	2E1	%		12.0		13.0	14.0	16.0	
	Moisture content - 1/3 bar	2E2	%		24.0		29.0	33.0	37.0	
	Total S XRF	10A1	%				0.04	0.04	0.04	0.03
	Total P XRF	9A1	%				0.024	0.015	0.012	0.011
	Total K XRF	17A1	%				0.640	0.700	0.710	0.810
Acid Cations	Exch Ca - NH4Cl, pH7, no prewash	15A1_Ca	cmol_c/kg		14.00		14.00	5.60	4.40	3.10
	Exch Mg - NH4Cl, pH7, no prewash	15A1_Mg	cmol_c/kg		9.60		15.00	18.00	20.00	16.00
	Exch Na - NH4Cl, pH7, no prewash	15A1_Na	cmol_c/kg		0.80		2.10	5.90	7.80	6.50
	Exch K - NH4Cl, pH7, no prewash	15A1_K	cmol_c/kg		0.80		0.22	0.17	0.20	0.14
Other Cations	CEC - NH4Cl, pH7, no wash	15B1_CEC	cmol_c/kg		27		27	26	29	25
Other Bulk	Extr K - HCl	18B1	mg/kg		0.7	0.3	0.2	0.1	0.1	0.1
	P (Acid) - automated	9G2	mg/kg		7	4	4	4	3	2
	P (BiCarb Extr)- automated	9B2	mg/kg		8	4				

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GENERAL																
Date:	07/10/2021		Describer:		H Marvell		Site:	310-03-AH3397		Type:	Detailed					
MSU:	1.1.1.1a			ASC:		Black Vertosol										
PSC:	Edgefield					Chainage (m):		119722		Elevation (m):		458				
Coordinates:		Easting:		325983		Northing:		6905715		Zone:		56	Datum:		GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, firm, surface crust		
Surface fragments:	None		
Microrelief:	Normal, other, elongate depress., equal mounds/depressions, no shelf present		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Very dark grey (10YR3/1 (moist)); mottles 2-10%, <5 mm, prominent, red, clear; rough ped, moderate, 20-50 mm, polyhedral; dry, strong; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.5; gradual boundary to -
B22	100-250	Very dark grey (10YR3/1 (moist)); mottles 2-10%, <5 mm, faint, dark, diffuse; rough ped, strong, 50-100 mm, platy; dry, strong; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.5; gradual boundary to -
B23	250-450	Dark greyish brown (10YR4/2 (moist)); mottles 2-10%, <5 mm, prominent, red, clear; rough ped, strong, 50-100 mm, platy; dry, strong; light medium clay; no fragments; common 10-20%, concretions, coarse 6-20 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.0; gradual boundary to -
B24	450-660	Dark grey (10YR4/1 (moist)); mottles 2-10%, 5-15 mm, prominent, red, clear; rough ped, strong, 50-100 mm, platy; dry, strong; light medium clay; no fragments; common 10-20%, concretions, coarse 6-20 mm, very highly calcareous; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 7.0; gradual boundary to -
B31	660-820	Dark brown (10YR3/3 (moist)); mottles 2-10%, 5-15 mm, faint, dark, diffuse; rough ped, strong, 50-100 mm, platy; dry, strong; light medium clay; no fragments; common 10-20%, concretions, medium 2-6 mm, very highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.0; clear boundary to -
B32	820-1,050	Dark yellowish brown (10YR4/4 (moist)); mottles 10-20%, 5-15 mm, prominent, dark, diffuse; rough ped, moderate, 20-50 mm, platy; dry, strong; light clay, fine sandy; no fragments; few 2-10%, concretions, medium 2-6 mm, very highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5; refusal on parent material



Location 1



Erosion 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	07/10/2021	Describer:	H Marvell	Site:	310-03-AH3398	Type:	Check site		
MSU:	1.2.1.1a	ASC:	Vertosol						
PSC:	Edgefield			Chainage (m):	119906		Elevation (m):		459
Coordinates:	Easting:	326010	Northing:	6905898	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)		Runoff: Slow
Morphological type:	Flat		Permeability: Slowly
Landform element:	Backplain		Drainage: Poorly drained
Landform pattern:	Alluvial plain		Geology: Qs
Relief modal class:	Gently undulating plain		Rock outcrop: No rock outcrop
ALC:	A1/B		SCL: Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, loose, firm, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		



Location 1



Location 2



Location 3



Surface 1

GENERAL									
Date:	18/08/2021	Describer:	T Beck	Site:	310-03-AH3400	Type:	Partial		
MSU:	1.1.1.1	ASC:	Grey Vertosol						
PSC:	Edgefield			Chainage (m):	120153		Elevation (m):		499
Coordinates:	Easting:	325981	Northing:	6906134		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qa
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Firm		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); silver-leaved ironbark, Qld blue gum, black tea tree		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-300	Very dark grey (10YR3/1 (moist)); mottles 10-20%, 15-30 mm, faint, pale, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 7.5; gradual boundary to -
B22	300-500	Black (2.5Y2.5/1 (moist)); mottles 10-20%, 5-15 mm, faint, brown, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 7.5; gradual boundary to -
B23	500-	Strong brown (7.5YR4/6 (moist)); mottles 20-50%, >30 mm, distinct, dark, clear; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; light medium clay, sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 6.0



Location 1



Location 2



Erosion 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	18/08/2021	Describer:	H Marvell	Site:	310-03-AH3404	Type:	Partial		
MSU:	1.2.1.1a	ASC:	Black Vertosol						
PSC:	Edgefield			Chainage (m):	120179		Elevation (m):		454
Coordinates:	Easting:	326490	Northing:	6906143		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, firm, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%); belah		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21p	0-100	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; medium clay, fine sandy; no fragments; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 4.0; gradual boundary to -
B22	100-300	Very dark grey (10YR3/1 (moist)); mottles 10-20%, 5-15 mm, faint, dark, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; medium clay, fine sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 5.0; gradual boundary to -
B23	300-500	Black (10YR2/1 (moist)); mottles 10-20%, 5-15 mm, faint, dark, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay, fine sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.5; gradual boundary to -
B24	500-	Very dark grey (2.5YR3/1 (moist)); mottles 10-20%, 5-15 mm, prominent, dark, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay, fine sandy; coarse fragments 2-10%, 2-6 mm, subangular, gravel; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Location 3



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	21/07/2021	Describer:	H Marvell	Site:	310-03-TP3120	Type:	Detailed		
MSU:	1.2.1.1a?	ASC:	Grey Vertosol?						
PSC:	Edgefield?		Chainage (m):		120280		Elevation (m):		458
Coordinates:	Easting:	326030	Northing:	6906259		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slowly
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Qs
Relief modal class:	Undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Firm?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Very sparse, crowns well separated (0.25-20%); narrow leaved ironbark, blue gum, black tea tree, grey box?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-150?	Very dark grey (10YR3/1 (moist)); no mottles?; rough ped, moderate, 100-200 mm, subangular blocky?; moderately moist, firm?; clay loam, sandy?; no fragments?; no segregations?; no pans?; clear boundary to -
B22?	150-600?	Dark brown (10YR3/4 (moist)); dark mottles, 10-20%, >30 mm, faint, diffuse; rough ped, moderate, 20-50 mm, subangular blocky?; wet, loose?; light clay, fine sandy; no fragments; no segregations; no pans; complete slake within 10 mins; strong dispersion within 10 mins; clear boundary to -
B23?	600-900?	Dark grey (10YR4/1 (moist)); dark mottles, 10-20%, >30 mm, prominent, diffuse?; rough ped, strong, 20-50 mm, subangular blocky?; moist, firm?; light medium clay?; no fragments?; no segregations?; no pans?; gradual boundary to -
B24?	900-1,500?	Very dark greyish brown (10YR3/2 (moist)); dark mottles, 10-20%, 15-30 mm, faint, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moist, very firm; medium clay; no fragments; no segregations; no pans; partial slake within 10 mins; no dispersion within 10 mins



Profile 1



Profile 2



Location 1



Location 2



Stockpile 1



Sample 1



Sample 2



Slaking and dispersion

GENERAL									
Date:	18/08/2021	Describer:	M Mooney	Site:	310-03-AH3403	Type:	Check site		
MSU:	1.2.1.1a	ASC:	Vertosol						
PSC:	Edgefield			Chainage (m):	120475		Elevation (m):		497
Coordinates:	Easting:	326148	Northing:	6906450		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Very slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, surface crust		
Surface fragments:	<2%, 2-6 mm, angular, sandstone		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%)		

	
Location 1	Location 2
	
Surface 1	Surface 2

GENERAL									
Date:	18/08/2021	Describer:	H Marvell	Site:	310-03-AH3401	Type:	Partial		
MSU:	1.2.1.1a	ASC:	Black Vertosol						
PSC:	Edgefield			Chainage (m):	120531		Elevation (m):		461
Coordinates:	Easting:	326022	Northing:	6906510		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod.rapid
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, surface flake		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Gully (partly stabilised, minor, <1.5 m)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); brigalow		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, moderate, 100-200 mm, subangular blocky; moderately moist, very firm; medium clay, fine sandy; coarse fragments 2-10%, 2-6 mm, subangular, quartz; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 6.0; gradual boundary to -
B22	100-300	Very dark greyish brown (10YR3/2 (moist)); mottles 10-20%, 5-15 mm, faint, dark, clear; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, very firm; medium heavy clay, fine sandy; coarse fragments 2-10%, 2-6 mm, subangular quartz; few 2-10%, concretions, medium 2-6 mm, highly calcareous; few 2-10%, ferromanganiferous, concretions, fine <2 mm; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; clear boundary to -
B23	300-	Very dark greyish brown (2.5Y3/2 (moist)); mottles 10-20%, 5-15 mm, prominent, dark, clear; rough ped, strong, 100-200 mm, subangular blocky; moist, very firm; medium heavy clay, fine sandy; coarse fragments 2-10%, 2-6 mm, subangular, quartz; few 2-10%, concretions, medium 2-6 mm, highly calcareous; few 2-10%, ferromanganiferous, concretions, fine <2 mm; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Erosion 1



Surface 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	17/08/2021	Describer:	H Marvell	Site:	310-03-AH3402	Type:	Representative		
MSU:	5.2.1.1a	ASC:	Epicalcareous-Endohypersodic Crusty Black Vertosol						
PSC:	Edgefield			Chainage (m):	121287		Elevation (m):		467
Coordinates:	Easting:	326148	Northing:	6907251		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Jw
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); brigalow; rooting depth 1300 mm.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; few 2-10%, concretions, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.5; clear boundary to -
B22	100-700	Dark greyish brown (10YR4/2 (moist)); mottles 10-20%, 15-30 mm, faint, dark, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; few 2-10%, concretions, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B23	700-1,300	Dark greyish brown (10YR4/2 (moist)); mottles 20-50%, 15-30 mm, faint, brown, diffuse; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, very firm; medium heavy clay; coarse fragments <2%, 2-6 mm, subangular, quartz; very few <2%, concretions, fine <2 mm, highly calcareous; no pans; complete slake in 10 mins; slight dispersion within 10 mins; pH 8.5; clear boundary to -
B24	1300-1,500	Brown (10YR5/3 (moist)); mottles 20-50%, 5-15 mm, faint, orange, clear; rough ped, moderate, 20-50 mm, angular blocky; moderately moist, firm; light medium clay, sandy; coarse fragments <2%, 2-6 mm, subrounded, gravel; no segregations; no pans; complete slake in 10 mins; slight dispersion within 10 mins; pH 8.5



Location 1



Location 2



Location 3



Surface 1



pH, slaking, dispersion



Profile

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.1	7.40	SLAL	21.2	M	234	12.5	H	1566	M	2.9	1.68	H1	0.42	11.3	12.3	1.28

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H2O)		EC (dS/m)	Salinity Rating^	Cl⁻ (mg/kg)	Exchangeable cations (meq/100 g)							ESP (%)	Sodicity*	Emerson class	Ca:Mg ratio
	Clay	Silt	Sand	Gravel	-	Rating#				H+	Al+	Ca+	Mg+	K+	Na+	CEC				
0.0-0.1	30.3	4.4	65.3	0.3	7.40	SLAL	0.11	L	32.8	-	-	8.74	5.00	0.64	0.54	14.9	3.61	NS	8	1.75
0.2-0.3	22.3	2.6	75.1	0.9	8.91	STAL	0.24	M	36.2	-	-	13.4	9.63	0.34	2.28	25.7	8.88	S	2	1.39
0.5-0.6	21.5	2.5	75.9	1.6	9.12	VSAL	0.41	M	206	-	-	13.1	8.97	0.29	3.10	25.4	12.2	S	2	1.46
0.8-0.9	33.5	6.6	59.9	0.2	8.75	STAL	0.53	H	471	-	-	6.75	8.43	0.27	3.98	19.4	20.5	SS	1	0.80
1.1-1.2	22.9	2.5	74.6	0.1	8.82	STAL	0.39	M	574	-	-	6.29	7.48	0.28	4.17	18.2	22.9	SS	1	0.84
1.4-1.5	30.7	4.4	64.9	2.6	8.78	STAL	0.36	M	394	-	-	4.39	5.59	0.24	3.32	13.5	24.5	SS	1	0.78

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL									
Date:	21/12/2021	Describer:	H Marvell	Site:	310-03-BH3314	Type:	Detailed		
MSU:	5.2.1.1a?	ASC:	Brown Vertosol?						
PSC:	Edgefield?		Chainage (m):		121426		Elevation (m):		470
Coordinates:	Easting:	326107	Northing:	6907405		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Jw
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B?	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); brigalow		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-200?	Dark brown (10YR3/3 (moist))?; no mottles?; rough ped?, strong, 100-200 mm, subangular blocky?; dry, firm?; light medium clay?; no fragments?; few 2-10%, concretions, medium 2-6 mm?; no pans?; gradual boundary to -
B22?	200-1,500?	Dark brown (10YR3/3 (moist))?; mottles 20-50%, 15-30 mm, faint, brown, diffuse?; rough ped?, strong, 100-200 mm, subangular blocky?; moist, very firm?; medium clay?; no fragments?; few 2-10%, concretions, medium 2-6 mm?; no pans?

GENERAL									
Date:	14/12/2021	Describer:	B Rose	Site:	310-03-BH3316	Type:	Detailed		
MSU:	5.3.1.1a?	ASC:	Brown Vertosol?						
PSC:	Edgefield?		Chainage (m):		122146		Elevation (m):		482
Coordinates:	Easting:	326383	Northing:	6908072	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Mod. rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Jw
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B?	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Firm; Cracking; Surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed? (unable to identify – no imagery)		
Vegetation:	Isolated plants, trees ~ 100 m apart (<0.25%); no adjacent species?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-200?	Very dark greyish brown (10YR3/2 (moist))?. rough ped?, moderate, 100-200 mm, subangular blocky?. moderately moist, firm?. light medium clay? no fragments?. no segregations; no pans?. gradual boundary to -
B22?	200-500?	Very dark greyish brown (10YR3/2 (moist))?. pale mottles (potentially calcareous segregations?)?. rough ped?, moderate, 100-200 mm, subangular blocky?. moist, very firm?. medium clay?. 2-10%, 6-20 mm, subrounded gravel?. no segregations?. no pans?. gradual boundary to -
B23?	500-1,500?	Dark yellowish brown (10YR4/4 (moist))?. no mottles?. rough ped?, moderate, 100-200 mm, subangular blocky?. moist, firm?. light clay?. no fragments?. few (2-10%), calcareous?. no pans?

GENERAL									
Date:	23/08/2021	Describer:	M Mooney	Site:	310-03-AH3405	Type:	Check site		
MSU:	5.3.1.1a	ASC:	Vertosol						
PSC:	Edgefield			Chainage (m):	122476		Elevation (m):		520
Coordinates:	Easting:	326591	Northing:	6908344		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Jw
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Very sparse, crowns well separated (0.25-20%); brigalow, belah		

	
Location 1	Location 2
	
Surface 1	Surface 2

GENERAL									
Date:	15/11/2021	Describer:	H Marvell	Site:	310-03-BH3364	Type:	Detailed		
MSU:	5.3.1.1a?	ASC:	Brown Vertosol?						
PSC:	Edgefield?		Chainage (m):		122715		Elevation (m):		479
Coordinates:	Easting:	326572	Northing:	6908622	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Mod. rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Jw
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B?	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Firm; Cracking; Surface Crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Isolated plants, trees ~ 100 m apart (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-300?	Very dark greyish brown (7.5YR4/2 (moist))?. no mottles?. earthy; massive (no peds)?. moderately moist, firm?. light medium clay? 2-10%, 6-20 mm, subangular gravel?. no segregations; no pans?. gradual boundary to -
B22?	300-1,000?	Dark brown (10YR3/3 (moist))?. no mottles?. earthy; massive (no peds)?. moist, firm?. light medium clay?. no fragments?. no segregations?. no pans?. no slaking within 10 minutes; no dispersion within 10 minutes; gradual boundary to -
B/C?	1,000-1,500?	Dark brown (7.5YR3/2 (moist))?. dark mottles, 20-50%, 15-30 mm, faint, diffuse?. brown mottles, 10-20%, 15-30 mm, faint, diffuse?. orange mottles, 10-20%, 5-15 mm, faint, diffuse?. rough ped?, moderate, 100-200 mm, subangular blocky?. moist, very firm?. medium clay?. no fragments?. few (2-10%), calcareous, soft segregations, coarse (6-20 mm)?. no pans?



Core 1

GENERAL									
Date:	13/12/2021	Describer:	H Marvell	Site:	310-03-BH3318	Type:	Detailed		
MSU:	5.3.1.1a?	ASC:	Brown Vertosol?						
PSC:	Edgefield?		Chainage (m):		122990		Elevation (m):		471
Coordinates:	Easting:	326742	Northing:	6908852	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Mod. rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Jw
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B?	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Firm; Cracking; Surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed? (unable to identify – no imagery)		
Vegetation:	Isolated plants, trees ~ 100 m apart (<0.25%); no adjacent species?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-200?	Strong brown (7.5YR5/8 (moist))?; no mottles?; rough ped?; moderate, 10-20 mm, subangular blocky?; moderately moist, firm?; light medium clay? no fragments?; no segregations?; no pans?; gradual boundary to -
B22?	200-1500?	Brown (7.5YR4/4 (moist))?; no mottles?; rough ped?; moderate, 10-20 mm, subangular blocky?; moist, very firm?; medium clay?; no fragments?; no segregations?; no pans?

GENERAL

Date:	14/12/2021	Describer:	H Marvell	Site:	310-03-BH3319	Type:	Detailed	
MSU:	5.3.1.1a?	ASC:	Brown Vertosol?					
PSC:	Edgefield?		Chainage (m):		123320	Elevation (m):		479
Coordinates:	Easting:	326802	Northing:	6909178	Zone:	56	Datum:	GDA94

SITE DESCRIPTION

Slope:	Gently inclined (3-10%)	Runoff:	Mod. rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Jw
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B?	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Firm; Cracking; Surface Crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Isolated plants, trees ~ 100 m apart (<0.25%); brigalow?		

SOIL DESCRIPTION

Horizon	Depth (mm)	Description
A1/B21?	0-100?	Brown (10YR3/2 (moist))?. no mottles?. dry, firm?. light medium clay?. no fragments?. no segregations; gradual boundary to -
B22?	100-1200?	Brown (10YR4/2 (moist))?. dark mottles, 10-20%, >30 mm, faint, diffuse?. brown mottles, 2-10%, 15-30 mm, prominent, clear?. moist, very firm?. medium clay?. no fragments?. no segregations?. gradual boundary to -
B23?	1200-1500?	Brown (10YR4/3 (moist))?. no mottles?. orange mottles, 10-20%, 5-15 mm, faint, diffuse?. moist, very firm?. medium clay?. no fragments?. no segregations?



Core 1

GENERAL									
Date:	23/08/2021	Describer:	M Mooney	Site:	310-03-AH3407	Type:	Partial		
MSU:	5.2.1.1a	ASC:	Black Vertosol						
PSC:	Edgefield			Chainage (m):		123472	Elevation (m):		497
Coordinates:	Easting:	326973	Northing:	6909263	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod.rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Jw
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, self-mulching, surface crust		
Surface fragments:	10-20%, 20-60 mm, angular, igneous		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Emergent (<5% of total); brigalow, belah, <i>Eucalyptus</i> sp.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Yellowish brown (10YR5/4 (moist)); mottles 2-10%, 5-15 mm, prominent, red, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, weak; light medium clay; coarse fragments 2-10%, 6-20 mm, angular, igneous; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; clear boundary to -
B22	100-300	Black (5YR2.5/1 (moist)); mottles 20-50%, 15-30 mm, prominent, red, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; medium clay; coarse fragments <2%, 6-20 mm, angular, igneous; few 2-10%, ferromanganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.0; gradual boundary to -
B23	300-	Dark reddish brown (5YR3/2 (moist)); mottles 2-10%, 5-15 mm, prominent, dark, clear; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; medium heavy clay; coarse fragments <2%, 2-6 mm, angular, igneous; few 2-10%, concretions, medium 2-6 mm, highly calcareous; very few <2%, ferromanganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0



Location 1



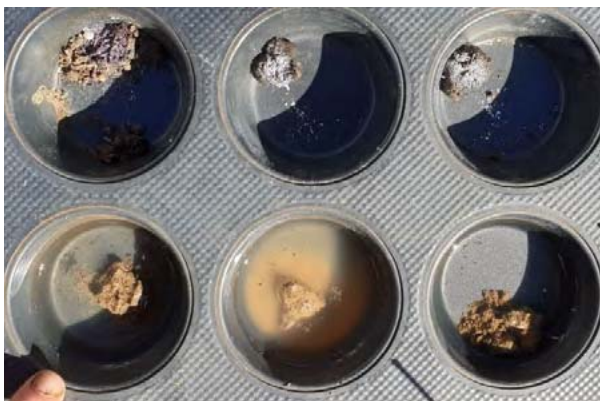
Location 2



Erosion 1



Surface 1



pH, slaking, dispersion



Profile

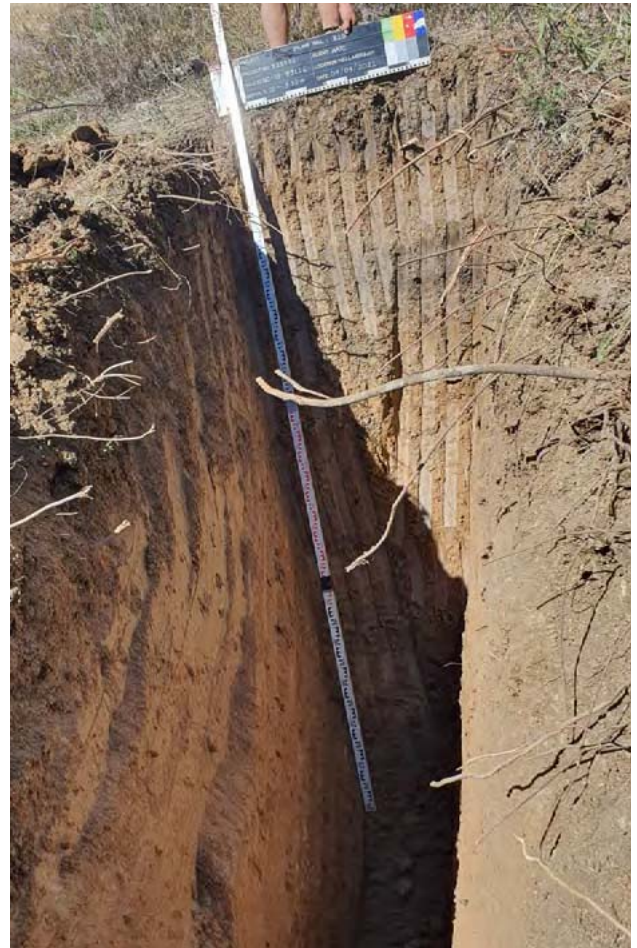
GENERAL									
Date:	07/09/2021	Describer:	H Marvell	Site:	310-03-TP3126	Type:	Detailed		
MSU:	5.2.1.1a	ASC:	Brown Vertosol?						
PSC:	Edgefield?		Chainage (m):		123762		Elevation (m):		449
Coordinates:	Easting:	326994	Northing:	6909569		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod. rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B?	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Firm?; Cracking?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Very sparse, crowns well separated (0.25-20%); <i>Acacia</i> sp.?, <i>Eucalyptus</i> sp.?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-300?	Dark greyish brown (10YR4/2 (moist))?; no mottles?; rough ped, moderate, 100-200 mm, subangular blocky?; moderately moist, firm?; light medium clay?; no fragments?; no segregations?; no pans?; gradual boundary to -
B22?	300-1,400?	Yellowish brown (10YR5/4 (moist))?; pale mottles, 10-20%, 15-30 mm, faint, diffuse?; rough ped, 100-200 mm, subangular blocky; moist, firm?; medium clay?; no fragments?; few (2-10%), calcareous, concretions (?), medium (2-6 mm)?; no pans?; gradual boundary to -
B23?	1,400-1,500?	Dark yellowish brown (10YR4/4 (moist))?; dark mottles, 10-20%, 15-30 mm, faint, diffuse?; rough ped, 100-200 mm, subangular blocky; moist, firm?; medium clay?; no fragments?; few (2-10%), calcareous, concretions (?), medium (2-6 mm)?; no pans?



Profile 1



Profile 2



Location 1



Location 2



Stockpile 1

GENERAL										
Date:	18/08/2021	Describer:	H Marvell	Site:	310-03-AH3406	Type:	Partial			
MSU:	5.2.1.1a	ASC:	Vertosol							
PSC:	Edgefield			Chainage (m):		123893		Elevation (m):		450
Coordinates:	Easting:	326894	Northing:	6909751		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod.rapid
Morphological type:	Mid- slope	Permeability:	Very slowly
Landform element:	Hillslope	Drainage:	Poorly drained
Landform pattern:	Low hills	Geology:	Jw
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, firm, recently cultivated		
Surface fragments:	<2%, 6-20 mm, subangular, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); brigalow, <i>Eucalyptus</i> sp.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21p	0-100	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, strong, 20-50 mm, subangular blocky; dry, very firm; medium heavy clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.0; gradual boundary to -
B22	100-500	Very dark greyish brown (10YR3/2 (moist)); mottles 10-20%, 5-15 mm, faint, dark, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, strong; heavy clay; no fragments; few 2-10%, concretions, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; diffuse boundary to -
B23	500-	Very dark greyish brown (10YR3/2 (moist)); mottles 10-20%, 5-15 mm, faint, dark, diffuse; rough ped, strong, 50-100 mm, polyhedral; moderately moist, very strong; heavy clay; no fragments; few 2-10%, concretions, fine <2 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Location 3



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	23/07/2021	Describer:	H Marvell	Site:	310-03-TP3127	Type:	Detailed		
MSU:	5.2.1.1a	ASC:	Brown Vertosol?						
PSC:	Edgefield?		Chainage (m):		123940		Elevation (m):		457
Coordinates:	Easting:	386409	Northing:	6958285	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod. rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B?	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm?; Cracking?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Isolated plants, trees ~ 100 m apart (<0.25%); <i>Acacia</i> sp.?, <i>Eucalyptus</i> sp.?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-200?	Dark brown (10YR3/3 (moist))?; no mottles?; rough ped, moderate, 100-200 mm, subangular blocky?; moderately moist, firm?; silty clay?; no fragments?; no segregations?; no pans? clear boundary to -
B22?	200-1,100?	Greyish brown (10YR5/2 (moist))?; white mottles, 10-20%, >30 mm, prominent, clear?; rough ped, moderate, 100-200 mm, subangular blocky?; moist, firm?; medium clay?; no fragments?; no segregations?; no pans? gradual boundary to -
B23	1,100?-1,500?	Dark greyish brown (10YR4/2)?; light brown mottles, 5-10%, <5 mm, faint, dark mottle 5-10%, <5 mm, prominent; rough ped, moderate, 100-200 mm, subangular blocky; medium-heavy clay; no fragments; no segregations; no pans



Profile 1



Profile 2



Location 1



Location 2



Stockpile 1

GENERAL									
Date:	18/08/2021	Describer:	A Kaur	Site:	310-03-AH3408	Type:	Detailed		
MSU:	5.2.1.1a	ASC:	Black Vertosol						
PSC:	Edgefield			Chainage (m):	124196		Elevation (m):		441
Coordinates:	Easting:	327163	Northing:	6909969		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Open depression (vale)	Permeability:	Slowly
Landform element:	Drain depres.	Drainage:	Poorly drained
Landform pattern:	Low hills	Geology:	Jw
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, surface flake		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%); brigalow		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-150	Very dark greyish brown (10YR3/2 (moist)); mottles 2-10%, <5 mm, faint, brown, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light clay; no fragments; very few <2%, nodules, fine <2 mm, slightly calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 6.0; gradual boundary to -
B22	150-300	Very dark greyish brown (10YR3/2 (moist)); mottles 20-50%, 5-15 mm, prominent, yellow, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, very firm; light clay; no fragments; few 2-10%, nodules, fine <2 mm, moderately calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; clear boundary to -
B23	300-500	Dark greyish brown (10YR4/2 (moist)); mottles <2%, 5-15 mm, faint, yellow, diffuse; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, firm; light clay, sandy; no fragments; common 10-20%, concretions, medium 2-6 mm, moderately calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B24	500-800	Dark greyish brown (10YR4/2 (moist)); mottles 20-50%, 5-15 mm, prominent, orange, diffuse; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, firm; light clay, sandy; no fragments; common 10-20%, nodules, fine <2 mm, moderately calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B31	800-1,050	Brown (10YR5/3 (moist)); mottles 10-20%, 5-15 mm, prominent, grey, diffuse; rough ped, strong, 20-50 mm, subangular blocky; moderately moist, very firm; light medium clay, fine sandy; coarse fragments <2%, 2-6 mm, subangular, quartz; few 2-10%, concretions, medium 2-6 mm, slightly calcareous; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 9.0; diffuse boundary to -
B32	1050-1,350	Brown (10YR5/3 (moist)); mottles 2-10%, 5-15 mm, faint, yellow, diffuse; rough ped, strong, 20-50 mm, subangular blocky; moderately moist, very firm; light clay, fine sandy; coarse fragments <2%, 6-20 mm, subangular, sandstone; common 10-20%, concretions, coarse 6-20 mm, highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5; diffuse boundary to -

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
B/C	1350-1,500	Brown (10YR5/3 (moist)); mottles 10-20%, 5-15 mm, prominent, grey, diffuse; rough ped, strong, 20-50 mm, subangular blocky; dry, firm; light clay, fine sandy; no fragments; many 20-50%, concretions, very coarse 20-60 mm, very highly calcareous; common 10-20%, laminae, fine <2 mm, moderately calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5



Location 1



Location 2



Surface 1



pH, slaking, dispersion



Profile

GENERAL										
Date:	18/08/2021	Describer:	H Marvell	Site:	310-03-AH3409	Type:	Partial			
MSU:	5.2.1.1a		ASC:	Brown Vertosol						
PSC:	Edgefield			Chainage (m):		124431		Elevation (m):		438
Coordinates:	Easting:	327249	Northing:	6910188		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod.rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Poorly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, firm, hard setting, surface crust		
Surface fragments:	2-10%, 6-20 mm, subrounded, mudstone		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21p	0-300	Dark brown (10YR3/3 (moist)); mottles 2-10%, 5-15 mm, faint, dark, clear; rough ped, strong, 20-50 mm, subangular blocky; dry, very firm; medium clay, fine sandy; coarse fragments 2-10%, 2-6 mm, subangular, mudstone; no segregations; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 7.0; gradual boundary to -
B22	300-550	Dark grey (10YR4/1 (moist)); mottles 20-50%, 5-15 mm, prominent, grey, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; medium heavy clay, fine sandy; coarse fragments <2%, 2-6 mm, angular, charcoal; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 7.5; gradual boundary to -
B23	550-700	Dark grey (10YR4/1 (moist)); mottles 20-50%, 15-30 mm, faint, grey, diffuse; rough ped, strong, 50-100 mm, angular blocky; moderately moist, firm; light medium clay, sandy; coarse fragments <2%, 2-6 mm, angular, charcoal; very few <2%, nodules, fine <2 mm, moderately calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5; gradual boundary to -
B24	700-	Dark greyish brown (10YR4/2 (moist)); mottles 10-20%, 5-15 mm, prominent, grey, diffuse; rough ped, strong, 50-100 mm, polyhedral; moist, firm; medium clay, fine sandy; coarse fragments <2%, 2-6 mm, angular, charcoal; very few <2%, nodules, fine <2 mm, moderately calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5



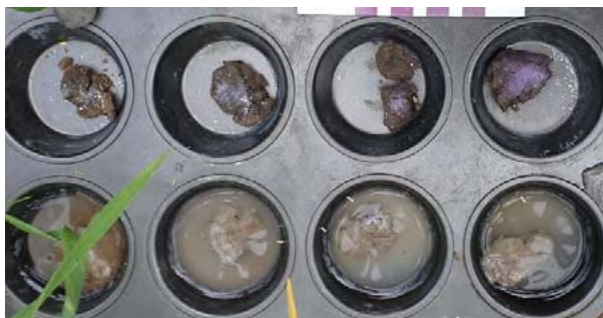
Surface 1



Surface 2



Surface 3



pH, slaking, dispersion



Profile

GENERAL									
Date:	21/07/2021	Describer:	H Marvell	Site:	310-03-TP3128	Type:	Detailed		
MSU:	5.2.1.1a	ASC:	Brown Vertosol?						
PSC:	Edgefield?		Chainage (m):		124688		Elevation (m):		313
Coordinates:	Easting:	327395	Northing:	6910403		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod. rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B?	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Firm?; Cracking?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet, active, minor?		
Vegetation:	Isolated plants, trees ~ 100 m apart (<0.25%); <i>Acacia</i> sp.?, <i>Eucalyptus</i> sp.?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-300?	Pale brown (10YR6/3 (moist))?; no mottles?; rough ped, strong, 100-200 mm, subangular blocky?; moderately moist, firm?; clayey sand?; 2-10%, 6-20 mm, subangular gravel?; no segregations?; no pans?; gradual boundary to -
B22?	300-700?	Brown (10YR5/3 (moist))?; no mottles?; rough ped, strong, 100-200 mm, subangular blocky?; moist, firm?; medium clay?; no fragments?; few (2-10%), calcareous, nodules, medium (2-6 mm); no pans?; gradual boundary to -
B23?	700-1,200?	Brown (10YR4/3 (moist))?; no mottles?; rough ped, moderate, 100-200 mm, subangular blocky?; moist, very firm?; silty clay loam?; 10-20% fragments, 6-20 mm, subangular gravel?; no segregations?; no pans?; gradual boundary to -
B24?	1,200-1,500?	Greyish brown (10YR5/2 (moist))?; grey mottles, 2-10%, 5-15 mm, prominent, clear?; brown mottles, 2-10%, 5-15 mm, prominent, clear?; rough ped, moderate, 50-100 mm, subangular blocky?; moist, very firm?; medium clay?; no fragments?; no segregations?; few (2-10%), calcareous, nodules, medium (2-6 mm); no pans?



Profile 1



Profile 2



Location 1



Stockpile 1

GENERAL									
Date:	18/08/2021	Describer:	A Kaur	Site:	310-03-AH3410	Type:	Check site		
MSU:	5.1.1.1a	ASC:	Vertosol						
PSC:	Edgefield			Chainage (m):		124938	Elevation (m):		432
Coordinates:	Easting:	327564	Northing:	6910587	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)		Runoff: Mod.rapid
Morphological type:	Flat		Permeability: Slowly
Landform element:	Riseslope		Drainage: Imperfectly drained
Landform pattern:	Rises		Geology: Jw
Relief modal class:	Gently undulating rises		Rock outcrop: No rock outcrop
ALC:	A1/B		SCL: Yes
Disturbance:	Irrigated cropping		
Surface condition:	Cracking, self-mulching, surface flake		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Emergent (<5% of total)		



Location 1



Location 2



Location 3



Surface 1

GENERAL										
Date:	18/08/2021	Describer:	H Marvell	Site:	310-03-AH3411	Type:	Detailed			
MSU:	5.2.1.1a	ASC:	Black Vertosol							
PSC:	Edgefield			Chainage (m):		125187		Elevation (m):		430
Coordinates:	Easting:	327748	Northing:	6910756		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Lower slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21p	0-150	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, very firm; light medium clay; no fragments; few 2-10%, concretions, coarse 6-20 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B22	150-350	Dark grey (10YR4/1 (moist)); mottles 10-20%, 5-15 mm, faint, brown, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, very firm; medium clay; no fragments; few 2-10%, concretions, fine <2 mm, highly calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B23	350-550	Dark grey (10YR4/1 (moist)); mottles 10-20%, 5-15 mm, faint, dark, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; medium clay; coarse fragments 2-10%, 2-6 mm, subangular, gravel; few 2-10%, concretions, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5; clear boundary to -
B24	550-800	Dark greyish brown (10YR4/2 (moist)); mottles 2-10%, 5-15 mm, faint, brown, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; medium clay; coarse fragments 2-10%, 2-6 mm, subangular, gravel; few 2-10%, nodules, medium 2-6 mm, moderately calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.5; gradual boundary to -
B31	800-1,300	Brown (7.5YR4/4 (moist)); mottles 10-20%, 5-15 mm, prominent, dark, sharp; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; medium clay, fine sandy; coarse fragments 10-20%, 2-6 mm, subangular, gravel; few 2-10%, nodules, fine <2 mm, moderately calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B32	1300-1,560	Brown (7.5YR5/4 (moist)); mottles 10-20%, 5-15 mm, faint, brown, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; medium clay, fine sandy; no fragments; very few <2%, nodules, fine <2 mm, highly calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.5



Location 1



Erosion 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL										
Date:	18/08/2021	Describer:	H Marvell	Site:	310-03-AH3412	Type:	Partial			
MSU:	5.2.1.1a		ASC:	Black Vertosol						
PSC:	Edgefield			Chainage (m):		125438		Elevation (m):		426
Coordinates:	Easting:	327919	Northing:	6910940		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod.rapid
Morphological type:	Open depression (vale)	Permeability:	Slowly
Landform element:	Drain depres.	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Firm, recently cultivated		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Emergent (<5% of total); <i>Eucalyptus</i> sp.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-200	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, strong, 50-100 mm, polyhedral; moist, very firm; medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 7.0; gradual boundary to -
B22	200-500	Dark greyish brown (10YR4/2 (moist)); mottles 2-10%, 5-15 mm, faint, brown, clear; rough ped, moderate, 100-200 mm, polyhedral; moist, very strong; medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.0; gradual boundary to -
B23	500-	Dark greyish brown (10YR4/2 (moist)); mottles 2-10%, 5-15 mm, faint, brown, clear; moderate, 100-200 mm, polyhedral; moist, very firm; heavy clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.5



Location 1



Location 2



Location 3



Surface 1



Surface 2



pH, slaking, dispersion



Profile

GENERAL									
Date:	21/07/2021	Describer:	H Marvell	Site:	310-03-TP3129	Type:	Detailed		
MSU:	5.3.1.1a	ASC:	Brown Vertosol?						
PSC:	Edgefield?		Chainage (m):		125699		Elevation (m):		423
Coordinates:	Easting:	328092	Northing:	6911136		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Mod. rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/B?	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Firm?; Cracking?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Emergent (<5% of total); <i>Eucalyptus</i> sp.?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-200?	Dark grey (7.5YR4/1 (moist))?; no mottles?; rough ped, moderate, 100-200 mm, subangular blocky?; moderately moist, firm?; light medium clay?; no fragments?; no segregations?; no pans?; clear boundary to -
B22?	200-400?	Brown (7.5YR5/3 (moist))?; dark mottles, 2-10%, 5-15 mm, prominent, diffuse?; rough ped, moderate, 100-200 mm, subangular blocky?; moist, firm?; medium clay?; no fragments?; no segregations?; no pans?; gradual boundary to -
B23?	400-900?	Brown (7.5YR4/2 (moist))?; dark mottles, 10-20%, 15-30 mm, prominent, clear?; rough ped, strong, 100-200 mm, subangular blocky?; moist, very firm?; medium clay?; no fragments?; no segregations?; no pans?; gradual boundary to -
B24?	900-1,500?	Strong brown (7.5YR5/6 (moist))?; dark mottles, 2-10%, 15-30 mm, faint, diffuse?; rough ped, strong, 100-200 mm, subangular blocky?; moist, very firm?; medium clay?; no fragments?; no segregations?; no pans?



Profile 1



Profile 2



Location 1



Lcoation 2



Stockpile 1

GENERAL									
Date:	18/08/2021	Describer:	M Mooney	Site:	310-03-AH3414	Type:	Check site		
MSU:	5.2.1.1a	ASC:	Vertosol						
PSC:	Edgefield			Chainage (m):	125986		Elevation (m):		460
Coordinates:	Easting:	328178	Northing:	6911474		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod.rapid
Morphological type:	Lower slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Poorly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, firm, hard setting, surface crust		
Surface fragments:	2-10%, 2-6 mm, subrounded, mudstone		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

	
Location 1	Location 2
	
Location 3	Surface 1

GENERAL										
Date:	18/08/2021	Describer:	T Montgomery	Site:	310-03-AH3416	Type:	Check site			
MSU:	5.2.1.2		ASC:	Dermosol						
PSC:	Downfall			Chainage (m):		126243		Elevation (m):		427
Coordinates:	Easting:	328509	Northing:	6911478		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)		Runoff: Mod.rapid
Morphological type:	Simple slope		Permeability: Slowly
Landform element:	Riseslope		Drainage: Imperfectly drained
Landform pattern:	Rises		Geology: Jw
Relief modal class:	Gently undulating rises		Rock outcrop: No rock outcrop
ALC:	A1/B		SCL: Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Hard setting, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Emergent (<5% of total)		



Location 1



Location 2



Location 3



Surface 1

GENERAL									
Date:	24/08/2021	Describer:	T Beck	Site:	310-03-AH3413	Type:	Representative		
MSU:	1.2.1.1a	ASC:	Epicalcareous-Enodhypersodic Epipedal Grey Vertosol						
PSC:	Millmerran			Chainage (m):		126314	Elevation (m):		460
Coordinates:	Easting:	328131	Northing:	6912454	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Loose, soft		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); wattle, poplar box; rooting depth 700 mm		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-150	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, weak, 50-100 mm, subangular blocky; moderately moist, firm; light clay, fine sandy; no fragments; few 2-10%, concretions, medium 2-6 mm, highly calcareous; no pans; no slaking within 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B22	150-400	Black (10YR2/1 (moist)); mottles 20-50%, 15-30 mm, faint, dark, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; common 10-20%, soft segregations, coarse 6-20 mm, very highly calcareous; no pans; no slaking within 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B23	400-650	Dark grey (2.5Y4/1 (moist)); mottles 20-50%, 15-30 mm, prominent, yellow, clear; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, very firm; light medium clay; no fragments; common 10-20%, soft segregations, coarse 6-20 mm, very highly calcareous; no pans; partial slaking within 10 mins; no dispersion within 2 hrs; pH 9.0; gradual boundary to -
B24	650-1,000	Dark greyish brown (2.5Y4/2 (moist)); mottles 2-10%, 5-15 mm, faint, yellow, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, very firm; light medium clay, fine sandy; coarse fragments <2%, 2-6 mm, subrounded, gravel; common 10-20%, soft segregations, coarse 6-20 mm, very highly calcareous; no pans; partial slaking within 10 mins; no dispersion within 2 hrs; pH 8.5; diffuse boundary to -
B31	1000-1,500	Greyish brown (2.5Y5/2 (moist)); mottles 2-10%, <5 mm, faint, dark, diffuse; rough ped, strong, 50-100 mm, subangular blocky; dry, very firm; light medium clay; no fragments; few 2-10%, concretions, medium 2-6 mm, very highly calcareous; no pans; no slaking within 10 mins; no dispersion within 2 hrs; pH 8.5



Location 1



Erosion 1



Surface 1



pH, slaking, dispersion



Profile

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.1	8.04	MAL	17	L	161	10.4	H	1,530	M	3.1	1.7	H1	0.59	11.5	6.42	0.46

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H2O)		EC (dS/m)	Salinity Rating^	Cl ⁻ (mg/kg)	Exchangeable cations (meq/100 g)							ESP (%)	Sodicity*	Emerson class	Ca:Mg ratio
	Clay	Silt	Sand	Gravel	-	Rating#				H+	Al+	Ca+	Mg+	K+	Na+	CEC				
0.0-0.1	32.8	8.7	58.5	6.7	8.04	MAL	0.42	M	392	-	-	20.3	6.32	0.59	0.61	27.9	2.18	NS	1	3.22
0.2-0.3	43.4	6.4	50.2	5.1	8.70	STAL	0.19	L	52.1	-	-	14.5	6.22	0.21	1.08	22.0	4.92	NS	4	2.33
0.5-0.6	42.8	6.7	50.5	5.6	8.72	STAL	0.55	M	424	-	-	7.53	6.16	0.08	1.89	15.7	12.1	S	4	1.22
0.8-0.9	41.1	6.4	52.5	3.6	8.75	STAL	0.76	H	583	-	-	5.74	6.05	0.05	2.14	14.0	15.3	SS	4	0.95
1.1-1.2	43.1	4.3	52.6	8.4	8.91	STAL	0.74	H	529	-	-	5.92	6.63	0.07	2.42	15.0	16.1	SS	4	0.89
1.4-1.5	53.0	6.6	40.4	4.4	8.80	STAL	0.73	H	527	-	-	8.98	10.3	0.10	4.39	23.7	18.5	SS	4	0.87

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL									
Date:	24/08/2021	Describer:	T Beck	Site:	310-03-AH3415	Type:	Partial		
MSU:	1.1.1.1a	ASC:	Grey Vertosol						
PSC:	Millmerran			Chainage (m):	126441		Elevation (m):		461
Coordinates:	Easting:	328387	Northing:	6912422		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, loose, soft		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); poplar box		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-300	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 20-50 mm, subangular blocky; dry, weak; light clay, fine sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 7.5; gradual boundary to -
B22	300-	Black (10YR2/1 (moist)); mottles 20-50%, 5-15 mm, faint, pale, diffuse; 50-100 mm, moderately moist, firm; light medium clay; no fragments; common 10-20%, concretions, medium 2-6 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0



Location 1



Location 2



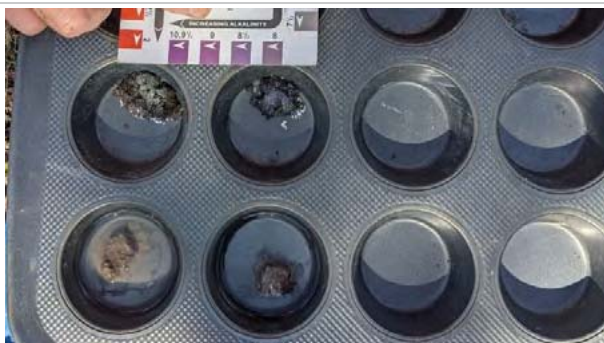
Location 3



Location 4



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	26/08/2021	Describer:	A Kaur	Site:	310-03-AH3417	Type:	Partial		
MSU:	1.2.1.1a	ASC:	Black Vertosol						
PSC:	Millmerraan			Chainage (m):		126544	Elevation (m):		418
Coordinates:	Easting:	328565	Northing:	6912402	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)		Runoff: Slow
Morphological type:	Flat		Permeability: Slowly
Landform element:	Backplain		Drainage: Imperfectly drained
Landform pattern:	Alluvial plain		Geology: Qs
Relief modal class:	Gently undulating plain		Rock outcrop: No rock outcrop
ALC:	A1/B		SCL: Yes
Disturbance:	Limited clearing		
Surface condition:	Cracking, firm, surface crust, poached		
Surface fragments:	2-10%, 6-20 mm, subrounded, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); poplar box, wilga		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Very dark grey (10YR3/1 (moist)); mottles 2-10%, 5-15 mm, faint, dark, diffuse; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, firm; light clay, fine sandy; no fragments; very few <2%, concretions, medium 2-6 mm, slightly calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 7.5; gradual boundary to -
B22	100-300	Very dark greyish brown (10YR3/2 (moist)); mottles 10-20%, 5-15 mm, faint, brown, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, very firm; light medium clay, fine sandy; no fragments; common 10-20%, concretions, fine <2 mm, highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 9.0; gradual boundary to -
B24	300-500	Brown (7.5YR4/4 (moist)); mottles 10-20%, 5-15 mm, prominent, dark, diffuse; rough ped, strong, 20-50 mm, subangular blocky; moderately moist, very firm; light clay, fine sandy; coarse fragments <2%, 2-6 mm, subrounded, mudstone; common 10-20%, concretions, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 9.0; gradual boundary to -
B31	500-	Yellowish brown (10YR5/4 (moist)); mottles 10-20%, 5-15 mm, prominent, dark, clear; rough ped, strong, 20-50 mm, subangular blocky; moderately moist, firm; light clay, fine sandy; coarse fragments 2-10%, 2-6 mm, subrounded, quartz; common 10-20%, concretions, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5



Location 1



Location 1



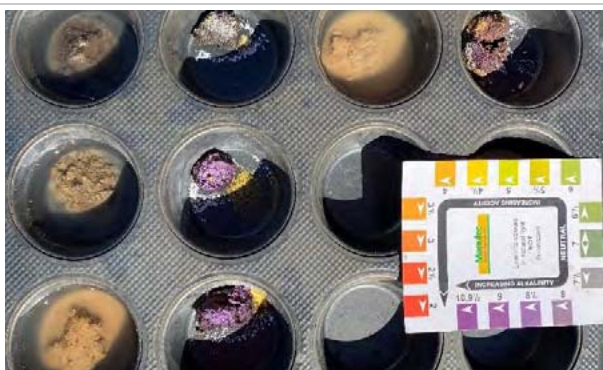
Location 1



Location 1



Surface 1



pH, slaking, dispersion

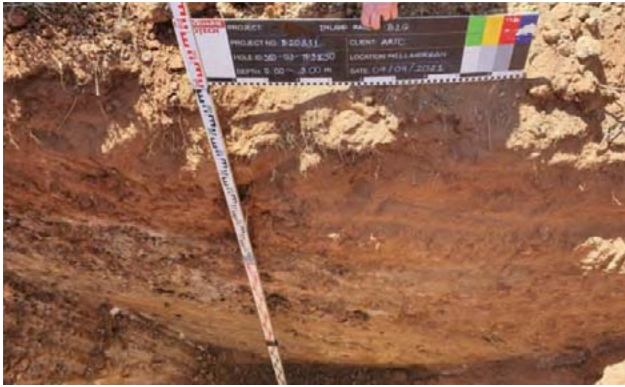


Profile

GENERAL									
Date:	7/09/2021	Describer:	S Kenway	Site:	310-03-TP3130	Type:	Detailed		
MSU:	5.6.1.2?	ASC:	Red Dermosol						
PSC:	Downfall?		Chainage (m):		126548		Elevation (m):		419
Coordinates:	Easting:	328791	Northing:	6911592		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Crest	Permeability:	Slowly
Landform element:	Residual crest	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Highly disturbed (road)		
Surface condition:	Hard setting, surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Very sparse, crowns well separated (0.25-20%); <i>Acacia</i> spp.?, <i>Eucalyptus</i> spp.?, wilga?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-400	Dark brown (7.5YR3/3 (moist))?; no mottles?; sandy, single grain (no peds)?; dry, loose?; loamy sand?; coarse fragments 10-20%, 20-60 mm, subrounded to subangular, gravel?; no segregations?; no pans?; clear boundary to? -
2B21	400-700	Red (2.5YR4/6 (moist))?; no mottles; rough ped, moderate, 100-200 mm, subangular blocky?; moderately moist, weak?; medium clay, sandy?; no fragments?; no segregations?; no pans?; clear boundary? to -
2B22	700-1,500	Brown (5YRYR4/4 (moist))?; mottles, 2-10%, 5-15 mm, prominent, orange, clear?; mottles, 2-10%, 5-15 mm, prominent, grey, clear?; rough ped, moderate, 100-200 mm, subangular blocky?; moderately moist, firm?; light medium clay, sandy?; coarse fragments 10-20%, 60-200 mm, subangular, sandstone?; no segregations?; no pans?



Test Pit 1



Surface Photo 1



Surface Photo 2



Stockpile



Test Pit 2

GENERAL									
Date:	26/08/2021	Describer:	A Kaur	Site:	310-03-AH3418	Type:	Check site		
MSU:	1.1.1.1a	ASC:	Vertosol						
PSC:	Millmerran			Chainage (m):	126658		Elevation (m):		417
Coordinates:	Easting:	328636	Northing:	6912577		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Back plain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Limited clearing		
Surface condition:	Cracking, self-mulching, loose, surface crust		
Surface fragments:	<2%, 2-6 mm, subrounded, gravel		
Microrelief:	Mounds and/or depressions on flat surf, inc. termites, ant, mound		
Erosion:	Sheet (active, minor)		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); poplar box, wilga, Moreton Bay ash		



Location 1



Location 1



Surface 1



Surface 2

GENERAL									
Date:	18/08/2021	Describer:	A Kaur	Site:	310-03-AH3421	Type:	Partial		
MSU:	5.1.1.2	ASC:	Brown Dermosol						
PSC:	Downfall			Chainage (m):	126689		Elevation (m):		417
Coordinates:	Easting:	328924	Northing:	6911638		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Footslope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Surface crust, hard setting		
Surface fragments:	10-20%, 20-60 mm, subangular, sandstone; 20-50%, 20-60 mm, subangular, conglomerate; 20-50%, so-26 mm, subrounded, quartz		
Microrelief:	Mounds and/or depressions on flat surf, inc. termites, termite, mound		
Erosion:	Scald (active, minor), sheet (active, minor)		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); poplar box, wilga, narrow-leaved ironbark		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-50	Very dark brown (10YR2/2 (moist)); mottles 2-10%, <5 mm, faint, yellow, diffuse; rough ped, moderate, 10-20 mm, subangular blocky; dry, loose; sandy clay loam; coarse fragments <2%, 2-6 mm, subangular, sandstone; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 5.0; gradual boundary to -
A2	50-100	Very dark greyish brown (10YR3/2 (moist)); mottles 2-10%, <5 mm, prominent, brown, diffuse; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, weak; silty clay loam; coarse fragments <2%, 2-6 mm, subrounded, quartz; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 5.0; gradual boundary to -
B21	100-250	Brown (10YR4/3 (moist)); mottles 2-10%, <5 mm, faint, dark, diffuse; rough ped, strong, 20-50 mm, subangular blocky; moderately moist, firm; light clay; coarse fragments 10-20%, 2-6 mm, subangular, quartz; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 5.0; gradual boundary to -
B22	250-500	Dark brown (10YR3/3 (moist)); mottles 2-10%, <5 mm, faint, dark, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay, sandy; coarse fragments <2%, 2-6 mm, subangular, quartz; no segregations; no pans; complete slake in 10 mins; slight dispersion within 10 mins; pH 7.5; gradual boundary to -
B23	500-	Dark brown (10YR3/3 (moist)); mottles 2-10%, <5 mm, faint, brown, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light clay, sandy; coarse fragments 10-20%, 2-6 mm, subangular, quartz; few 2-10%, nodules, fine <2 mm, slightly calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Erosion 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	26/08/2021	Describer:	A Kaur	Site:	310-03-AH3419	Type:	Detailed		
MSU:	1.2.1.1a	ASC:	Black Vertosol						
PSC:	Millmerran			Chainage (m):	126731		Elevation (m):		418
Coordinates:	Easting:	328658	Northing:	6912777		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)		Runoff: Slow
Morphological type:	Flat		Permeability: Slowly
Landform element:	Backplain		Drainage: Poorly drained
Landform pattern:	Alluvial plain		Geology: Qs
Relief modal class:	Gently undulating plain		Rock outcrop: No rock outcrop
ALC:	A1/B		SCL: Yes
Disturbance:	Limited clearing		
Surface condition:	Cracking, self-mulching, loose, surface crust, hard setting		
Surface fragments:	2-10%, 2-6 mm, subrounded, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); poplar box, wilga, <i>Acacia</i> sp.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-70	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, moderate, 10-20 mm, subangular blocky; dry, weak; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 5.5; clear boundary to -
B22e	70-120	Brown (7.5YR4/2 (moist)); light grey (10YR7/1 (dry)); no mottles; rough ped, weak, 5-10 mm, subangular blocky; dry, weak; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 5.0; diffuse boundary to -
B23	120-400	Dark grey (10YR4/1 (moist)); mottles 2-10%, 5-15 mm, prominent, yellow, diffuse; rough ped, strong, 20-50 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; very few <2%, ferromanganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.5; gradual boundary to -
B31	400-950	Light olive brown (2.5Y5/4 (moist)); mottles 2-10%, 5-15 mm, prominent, pale, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; common 10-20%, laminae, medium 2-6 mm, highly calcareous; common 10-20%, ferromanganiferous, concretions, medium 2-6 mm; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 9.0; diffuse boundary to -
B32	950-1,500	Greyish brown (2.5Y5/2 (moist)); mottles 2-10%, <5 mm, faint, yellow, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, very firm; light clay, fine sandy; no fragments; many 20-50%, concretions, coarse 6-20 mm, highly calcareous; few 2-10%, ferromanganiferous, concretions, fine <2 mm; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 9.5



Location 1



Location 2



Location 3



pH, slaking, dispersion



Profile



Surface 1



Surface 2

GENERAL									
Date:	26/08/2021	Describer:	A Kaur	Site:	310-03-AH3420	Type:	Partial		
MSU:	1.2.1.1a	ASC:	Black Vertosol						
PSC:	Millmerran			Chainage (m):		126878	Elevation (m):		414
Coordinates:	Easting:	328795	Northing:	6912831	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Limited clearing		
Surface condition:	Self-mulching, loose, surface crusting, hard setting		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor).		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); popular box, wilga, Moreton Bay ash		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1j	0-100	Black (10YR2/1 (moist)); mottles 2-10%, <5 mm, faint, dark, diffuse; rough ped, moderate, 10-20 mm, subangular blocky; dry, weak; clay loam, fine sandy; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 5.5; clear boundary to -
B21	100-300	Very dark grey (2.5Y3/1 (moist)); mottles 10-20%, 5-15 mm, prominent, yellow, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay, fine sandy; no fragments; very few <2%, concretions, medium 2-6 mm, highly calcareous; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 5.5; gradual boundary to -
B22	300-550	Dark greyish brown (2.5Y4/2 (moist)); mottles 20-50%, <5 mm, faint, yellow, diffuse; rough ped, strong, 20-50 mm, subangular blocky; moderately moist, very firm; light clay; no fragments; many 20-50%, ferromanganiferous, concretions, medium 2-6 mm; common 10-20%, concretions, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; diffuse boundary to -
B23	550-	Light olive brown (2.5Y5/4 (moist)); mottles 10-20%, <5 mm, faint, yellow, diffuse; rough ped, strong, 20-50 mm, subangular blocky; moderately moist, strong; light clay, fine sandy; no fragments; many 20-50%, ferromanganiferous, concretions, coarse 6-20 mm; many 20-50%, concretions, medium 2-6 mm, highly calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0



Location 1



Location 2



Surface 1



Surface 2



pH, slaking, dispersion



Profile

GENERAL									
Date:	26/08/2021	Describer:	C Traill	Site:	310-03-AH3422	Type:	Partial		
MSU:	1.1.1.1a	ASC:	Black Vertosol						
PSC:	Millmerran			Chainage (m):	127064		Elevation (m):		483
Coordinates:	Easting:	328995	Northing:	6912805		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Limited clearing		
Surface condition:	Cracking, self-mulching, loose, surface crust, surface flake		
Surface fragments:	<2%, 2-6 mm, subrounded, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); wilga, poplar box, cypress pine		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-70	Black (10YR2/1 (moist)); no mottles; rough ped, weak, 10-20 mm, polyhedral; moderately moist, weak; clay loam, fine sandy; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.0; clear boundary to -
A2e	70-12	Very dark grey (10YR3/1 (moist)); light grey (10YR7/1 (dry)); no mottles; rough ped, weak, 5-10 mm, subangular blocky; dry, weak; clay loam, fine sandy; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.0; clear boundary to -
B21	120-400	Very dark grey (10YR3/1 (moist)); mottles 2-10%, <5 mm, faint, yellow, diffuse; rough ped, strong, 20-50 mm, subangular blocky; moderately moist, firm; light medium clay, fine sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 7.5; diffuse boundary to -
B22	400-	Dark greyish brown (2.5Y4/2 (moist)); mottles 20-50%, 5-15 mm, prominent, yellow, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light clay, fine sandy; no fragments; common 10-20%, ferromanganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.0



Location 1



Location 2



Location 3



Surface 1



Surface 2



pH, slaking, dispersion



Profile

GENERAL										
Date:	23/08/2021	Describer:	C Traill	Site:	310-03-AH3423	Type:	Representative			
MSU:	1.1.1.1a		ASC:	Endocalcareous Epipedal Black Vertosol						
PSC:	Millmerran			Chainage (m):		127244		Elevation (m):		463
Coordinates:	Easting:	329187	Northing:	6912786		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Limited clearing		
Surface condition:	Cracking, surface crust, self-mulching		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); poplar box, wilga, Moreton Bay ash; rooting depth 700 mm.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 20-50 mm, subangular blocky; dry, firm; light clay, fine sandy; no fragments; no segregations; no pans; no slaking within 10 mins; no dispersion within 2 hrs; pH 6.0; clear boundary to -
B22e	100-200	Black (10YR2/1 (moist)); white (2.5Y8/1 (dry)); no mottles; rough ped, moderate, 20-50 mm, subangular blocky; dry, weak; light clay, fine sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 5.5; clear boundary to -
B23	200-700	Black (10YR2/1 (moist)); no mottles; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.5; gradual boundary to -
B24	700-1,500	Dark greyish brown (10YR4/2 (moist)); mottles 2-10%, <5 mm, faint, orange, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; few 2-10%, concretions, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Location 1



Surface 1



pH, slaking, dispersion



Profile

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.1	5.88	MAC	21.8	M	273	2.00	L	2,343	M	2.00	1.12	M1	1.08	68.4	109	2.44

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H2O)		EC (dS/m)	Salinity Rating^	Cl- (mg/kg)	Exchangeable cations (meq/100 g)						ESP (%)	Sodicity*	Emerson class	Ca:Mg ratio	
	Clay	Silt	Sand	Gravel	-	Rating#				H+	Al+	Ca+	Mg+	K+	Na+					CEC
0.0-0.1	33.60	17.55	48.75	0.3	5.88	MAC	0.040	VL	28.4	-	-	12.3	6.16	0.65	0.38	19.5	0.38	NS	3a	2.00
0.1-0.2	31.89	19.68	48.44	0.9	5.62	MAC	0.070	VL	77.3	-	-	8.74	5.15	0.13	1.38	15.4	1.38	NS	8	1.70
0.3-0.4	52.90	15.30	31.80	0.0	7.46	SLAL	0.500	M	439	-	-	10.1	6.33	0.07	2.49	19.0	2.49	NS	3b	1.59
0.5-0.6	49.85	12.92	37.23	1.7	8.53	STAL	0.590	H	606	-	-	13.6	9.03	0.10	3.72	26.4	3.72	NS	6	1.50
0.9-1.0	44.64	6.36	48.99	5.7	8.74	STAL	0.600	H	595	-	-	13.8	9.17	0.15	3.89	27.0	3.89	NS	4	1.51
1.1-1.2	55.91	13.33	30.66	0.2	8.74	STAL	0.640	H	598	-	-	13.0	9.01	0.18	4.01	26.2	4.01	NS	6	1.45
1.4-1.5	48.50	13.10	38.30	0.0	8.71	STAL	0.550	M	446	-	-	13.4	9.28	0.16	4.17	27.0	4.17	NS	5	1.44

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL										
Date:	23/08/2021	Describer:	M Mooney	Site:	310-03-AH3424	Type:	Partial			
MSU:	1.1.1.1a		ASC:	Brown Vertosol						
PSC:	Millmerran			Chainage (m):		127355		Elevation (m):		445
Coordinates:	Easting:	329339	Northing:	6912651		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Self-mulching, firm, hard setting, surface crust		
Surface fragments:	<2%, 2-6 mm, subangular, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%); poplar box		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-80	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 20-50 mm, subangular blocky; dry, very weak; light clay, fine sandy; coarse fragments 2-10%, 6-20 mm, angular, gravel; no fragments, no segregations, no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.5; clear boundary to -
B22	80-400	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay, fine sandy; coarse fragments <2%, 2-6 mm, angular, gravel; no segregations, no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 6.0; gradual boundary to -
B23	400-	Dark greyish brown (2.5Y4/2 (moist)); mottles 20-50%, <5 mm, faint, pale, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, very firm; coarse fragments <2%, 6-20 mm, subrounded, quartz; no segregations, no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0



Location 1



Location 2



Location 3



Location 4



Surface 1



Surface 2



pH, slaking, dispersion



Profile

GENERAL									
Date:	23/08/2021	Describer:	M Mooney	Site:	310-03-AH3425	Type:	Check site		
MSU:	1.1.1.1a	ASC:	Vertosol						
PSC:	Millmerran			Chainage (m):	127437		Elevation (m):		455
Coordinates:	Easting:	329361	Northing:	6912882	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, firm, surface crust, cryptogam surface		
Surface fragments:	<2%, 2-6 mm, subangular, quartz		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

	
Location 1	Location 1
	
Surface 1	Surface 2

GENERAL									
Date:	18/08/2021	Describer:	H Marvell	Site:	310-03-AH3426	Type:	Representative		
MSU:	1.1.1.1a	ASC:	Epihypersodic-Endocalcareous Crusty Black Vertosol						
PSC:	Millmerran			Chainage (m):		127659	Elevation (m):		412
Coordinates:	Easting:	329864	Northing:	6911879		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	No
Disturbance:	Limited clearing		
Surface condition:	Cracking, firm, hard setting, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); poplar box, <i>Eucalyptus Tereticornis</i> , wilga; rooting depth 950 mm.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-100	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, weak, 10-20 mm, subangular blocky; dry, very weak; silty clay loam; no fragments; no segregations; no pans; complete slake in 10 mins; slight dispersion within 10 mins; pH 4.5; clear boundary to -
B21e	100-200	Very dark grey (10YR3/1 (moist)); light grey (10YR7/1 (dry)); no mottles; rough ped, weak, 20-50 mm, subangular blocky; dry, weak; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 5.5; clear boundary to -
B22	200-300	Very dark greyish brown (10YR3/2 (moist)); mottles 10-20%, 5-15 mm, faint, dark, diffuse; rough ped, strong, 50-100 mm, angular blocky; moderately moist, firm; medium heavy clay; no fragments; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 7.0; gradual boundary to -
B23	300-800	Dark greyish brown (10YR4/2 (moist)); mottles 20-50%, 15-30 mm, faint, dark, diffuse; smooth ped, strong, 100-200 mm, polyhedral; moderately moist, firm; medium heavy clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.5; gradual boundary to -
B24	800-950	Very dark greyish brown (10YR3/2 (moist)); rough ped, strong, 50-100 mm, subangular blocky; moderately moist, strong; heavy clay; no fragments; common 10-20%, concretions, fine <2 mm, highly calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 7.5; gradual boundary to -
B31	950-1,500	Dark greyish brown (10YR4/2 (moist)); mottles 10-20%, 5-15 mm, prominent, yellow, clear; rough ped, moderate, 20-50 mm, angular blocky; moderately moist, strong; medium heavy clay; no fragments; very few <2%, concretions, medium 2-6 mm, highly calcareous; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 8.0



Location 1



Location 1



Location 1



Surface 1



pH, slaking, dispersion



Profile

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.1	5.93	MAC	10.2	L	158	6.7	M	1,275	L	2.70	1.52	M3	0.69	86.5	45.5	0.46

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H ₂ O)		EC (dS/m)	Salinity Rating [^]	Cl ⁻ (mg/kg)	Exchangeable cations (meq/100 g)							ESP (%)	Sodicity [*]	Emerson class	Ca:Mg ratio
	Clay	Silt	Sand	Gravel	-	Rating [#]				H+	Al+	Ca+	Mg+	K+	Na+	CEC				
0.0-0.1	30.7	21.2	48.1	<0.1	5.93	MAC	0.04	VL	19.4	-	0.01	7.00	3.44	0.48	0.54	11.5	4.7	NS	8	2.03
0.1-0.2	30.2	16.2	53.6	<0.1	6.6	NEU	0.04	VL	19.1	-	0.01	6.43	3.00	0.33	0.70	10.5	6.65	S	2	2.14
0.2-0.3	29.5	10.8	59.7	<0.1	6.97	NEU	0.17	L	132	-	0.01	11.6	7.55	0.37	5.73	25.2	22.7	SS	1	1.53
0.4-0.5	32.7	7.3	60.0	0.1	7.71	SLAL	0.26	M	296	-	-	7.6	4.15	0.22	1.5	13.5	11.1	S	2	1.83
0.8-0.9	33.3	4.8	61.9	0.2	8.81	STAL	0.41	M	401	-	-	11	3.22	0.25	1.21	15.7	7.75	S	2	3.41
1.1-1.2	39.7	12.7	47.6	0.2	8.8	STAL	0.37	M	312	-	-	12.1	3.63	0.27	1.43	17.4	8.23	S	5	3.34
1.4-1.5	35.5	8.6	55.9	<0.1	9.03	VSAL	0.35	M	314	-	-	11.2	5.66	0.33	2.22	19.4	11.4	S	2	1.98

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL									
Date:	09/11/2021	Describer:	H Marvell	Site:	310-03-AH3427	Type:	Detailed		
MSU:	1.1.1.1a	ASC:	Grey Vertosol						
PSC:	Millmerran			Chainage (m):	128409		Elevation (m):		409
Coordinates:	Easting:	330607	Northing:	6912063		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm, hard setting, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Scald (active, minor), sheet (active, minor)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-110	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; dry, firm; silty clay loam; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.5; gradual boundary to -
B22e	110-200	Dark grey (10YR4/1 (moist)); white (10YR8/1 (dry)); no mottles; rough ped, weak, 20-50 mm, subangular blocky; dry, weak; light medium clay; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 6.5; gradual boundary to -
B23	200-350	Dark yellowish brown (10YR4/4 (moist)); no mottles; rough ped, moderate, 20-50 mm, subangular blocky; dry, weak; medium heavy clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.0; gradual boundary to -
B24	350-700	Grey (10YR5/1 (moist)); mottles <2%, <5 mm, faint, dark, diffuse; mottles 2-10%, 5-15 mm, faint, orange, diffuse; rough ped, moderate, 20-50 mm, subangular blocky; dry, firm; medium heavy clay; no fragments; few 2-10%, concretions, fine <2 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B31	700-1,250	Dark yellowish brown (10YR4/4 (moist)); mottles <2%, <5 mm, faint, dark, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; dry, very firm; medium heavy clay; no fragments; common 10-20%, concretions, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 9.0; gradual boundary to -
B32	1250-1,500	Dark yellowish brown (10YR4/4 (moist)); mottles 2-10%, <5 mm, faint, orange, diffuse; moderate, 50-100 mm, subangular blocky; heavy clay; no fragments; very few <2%, fragments, fine <2 mm, highly calcareous; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 9.0



Location 1



Erosion 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL										
Date:	09/11/2021	Describer:	H Marvell	Site:	310-03-AH3428	Type:	Partial			
MSU:	1.1.1.1a		ASC:	Black Vertosol						
PSC:	Millmerran			Chainage (m):		128642		Elevation (m):		408
Coordinates:	Easting:	330822	Northing:	6912128		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Dark grey (10YR4/1 (moist)); no mottles; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, firm; light medium clay; coarse fragments 2-10%, 2-6 mm, subangular, gravel; few 2-10%, manganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.5; clear boundary to -
B22	100-300	Dark grey (10YR3/1 (moist)); no mottles; rough ped, weak, 20-50 mm, subangular blocky; moist, firm; medium clay; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 7.0; gradual boundary to -
B23	300-	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, strong; medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 7.0



Location 1



Location 2



Location 3



Surface 1



Surface 2



pH, slaking, dispersion



Profile

GENERAL									
Date:	18/08/2021	Describer:	T Beck	Site:	310-03-AH3429	Type:	Partial		
MSU:	5.2.3.2b	ASC:	Brown Sodosol						
PSC:	Downfall			Chainage (m):	129074		Elevation (m):		452
Coordinates:	Easting:	331208	Northing:	6912342		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Very slow
Morphological type:	Simple slope	Permeability:	Moderately
Landform element:	Residual rise	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Firm, hard setting, recently cultivated		
Surface fragments:	2-10%, 20-60 mm, subangular, metamorphic		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (stabilised, minor)		
Vegetation:	Emergent (<5% of total)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1p	0-50	Black (7.5YR2.5/1 (moist)); no mottles; sandy (grains prominent), single grain (no peds); dry, loose; sandy loam; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 4.5; gradual boundary to -
A21	50-200	Brown (7.5YR4/2 (moist)); no mottles; sandy (grains prominent), single grain (no peds); dry, loose; sandy loam; no fragments; no segregations; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 7.0; clear boundary to -
A22e	200-300	Dark greyish brown (10YR4/2 (moist)); light grey (10YR7/1 (dry)); no mottles; sandy (grains prominent), single grain (no peds); dry, weak; sandy clay loam; no fragments; no segregations; no pans; complete slake in 10 mins; slight dispersion within 10 mins; pH 7.0; abrupt boundary to -
B21	300-500	Strong brown (7.5YR4/6 (moist)); mottles 20-50%, 15-30 mm, prominent, grey, clear; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; medium clay, fine sandy; no fragments; common 10-20%, ferromanganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 7.5; gradual boundary to -
B22	500-	Dark greyish brown (2.5Y4/2 (moist)); mottles 20-50%, 15-30 mm, prominent, orange, clear; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay, sandy; no fragments; common 10-20%, ferromanganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5

No photos - lost

GENERAL										
Date:	09/11/2021	Describer:	H Marvell	Site:	310-03-AH3767	Type:	Check site			
MSU:	5.2.3.2a	ASC:	Sodosol							
PSC:	Downfall			Chainage (m):		129271		Elevation (m):		416
Coordinates:	Easting:	331431	Northing:	6912166		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)		Runoff: Mod.rapid
Morphological type:	Simple slope		Permeability: Slowly
Landform element:	Residual rise		Drainage: Poorly drained
Landform pattern:	Rises		Geology: Jw
Relief modal class:	Gently undulating rises		Rock outcrop: No rock outcrop
ALC:	A1/B		SCL: Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, soft, firm, surface flake (considered likely that clay subsoil has domed (columnar) structure and remaining A horizon washes (erodes) into the cracks between the domes on drying out)		
Surface fragments:	<2%, 6-20 mm, subangular, quartz		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, moderate) (considered likely that A horizon has been considerably eroded and ploughing incorporates a little of the B horizon into the A horizon each cropping cycle)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		



Location 1



Location 2



Surface 1



Surface 2

GENERAL									
Date:	18/08/2021	Describer:	T Beck	Site:	310-03-AH3430	Type:	Check site		
MSU:	5.2.3.2b	ASC:	Sodosol						
PSC:	Downfall			Chainage (m):	129321		Elevation (m):		452
Coordinates:	Easting:	331452	Northing:	6912545		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod.rapid
Morphological type:	Simple slope	Permeability:	Moderately
Landform element:	Residual rise	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Firm		
Surface fragments:	<2%, 20-60 mm, subangular tabular, sandstone; <2%, 60-200 mm, subrounded tabular, gravel; <2%, 2-6 mm, subangular, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, moderate), rill (active, minor)		
Vegetation:	Emergent (<5% of total)		



Location 1



Location 2



Erosion 1



Surface 1

GENERAL									
Date:	18/08/2021	Describer:	T Beck	Site:	310-03-AH3431	Type:	Partial		
MSU:	5.2.3.2b	ASC:	Grey Sodosol						
PSC:	Downfall			Chainage (m):	129386		Elevation (m):		448
Coordinates:	Easting:	331519	Northing:	6912994		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Moderately
Landform element:	Residual rise	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rise	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Loose, firm		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); poplar box, Moreton Bay ash		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-200	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, weak, 20-50 mm, polyhedral; dry, firm; clay loam, fine sandy, fine sandy; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.0; diffuse boundary to -
A21	200-400	Black (10YR2/1 (moist)); no mottles; rough ped, weak, 20-50 mm, polyhedral; moderately moist, weak; sandy clay loam, fine; no fragments; no segregations; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 6.5; gradual boundary to -
A22e	400-550	Dark greyish brown (10YR4/2 (moist)); light grey (10YR7/2 (dry)); no mottles; sandy (grains prominent), single grain (no peds); moist, weak; sandy loam; no fragments; no segregations; no pans; complete slake in 10 mins; slight dispersion within 10 mins; pH 7.0; abrupt boundary to -
B21	550-700	Greyish brown (10YR5/2 (moist)); mottles 20-50%, 15-30 mm, prominent, orange, clear; rough ped, strong, 20-50 mm, subangular blocky; moderately moist, firm; light clay, sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 7.3; diffuse boundary to -
B22	700-	Dark yellowish brown (10YR4/6 (moist)); mottles 20-50%, 15-30 mm, prominent, brown, clear; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay, fine sandy; no fragments; no segregations; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 7.5



Location 1



Location 2



Location 3



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	09/11/2021	Describer:	H Marvell	Site:	310-03-AH3766	Type:	Partial		
MSU:	5.6.1.2	ASC:	Grey Dermosol						
PSC:	Downfall			Chainage (m):	129575		Elevation (m):		417
Coordinates:	Easting:	3317334	Northing:	69122767		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Crest	Permeability:	Slowly
Landform element:	Residual crest	Drainage:	Poorly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, soft, firm, surface flake (considered likely that clay subsoil has domed (columnar) structure and remaining A horizon washes (erodes) into the cracks between the domes on drying out)		
Surface fragments:	2-10%, 6-20 mm, subrounded, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, moderate) (considered likely that A horizon has been considerably eroded and ploughing incorporates a little of the B horizon into the A horizon each cropping cycle)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A2p	0-100	Very dark greyish brown (10YR3/2 (moist)); no mottles; earthy, massive (no peds); moist, weak; clay loam, sandy; no fragments; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 6.0; clear boundary to -
B21	100-300	Dark greyish brown (10YR4/2 (moist)); mottles 10-20%, 15-30 mm, faint, brown, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moist, firm; medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 6.5; gradual boundary to -
B22	300-	Brown (10YR4/3 (moist)); mottles 10-20%, 15-30 mm, faint, brown, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moist, firm; light medium clay; no fragments; few 2-10%, manganiferous, concretions, medium 2-6 mm; common 10-20%, laminae, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Erosion 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	18/08/2021	Describer:	T Beck	Site:	310-03-AH3432	Type:	Partial		
MSU:	5.6.3.2a	ASC:	Grey Sodosol						
PSC:	Downfall			Chainage (m):	129731		Elevation (m):		452
Coordinates:	Easting:	331888	Northing:	6912522		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)		Runoff: Very slow
Morphological type:	Crest		Permeability: Slowly
Landform element:	Residual crest		Drainage: Imperfectly drained
Landform pattern:	Rises		Geology: Jw
Relief modal class:	Gently undulating rise		Rock outcrop: No rock outcrop
ALC:	A1/B		SCL: Yes
Disturbance:	Extensive clearing		
Surface condition:	Loose, firm		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); poplar box, Moreton Bay ash		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-70	Black (10YR2/1 (moist)); no mottles; earthy, massive (no peds); dry, loose; clay loam, fine sandy; no fragments; no segregations; no pans; no slaking within 10 mins; no dispersion within 2 hrs; pH 5.5; gradual boundary to -
A2e	70-130	Very dark grey (10YR3/1 (moist)); grey (10YR6/1 (dry)); earthy, massive (no peds); dry, loose; sandy clay loam; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 5.5; clear boundary to -
B21	130-	Dark greyish brown (10YR4/2 (moist)); mottles 20-50%, >30 mm, prominent, yellow, clear; rough ped, strong, 20-50 mm, subangular blocky; moderately moist, firm; medium clay, fine sandy; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5



Location 1



Location 2



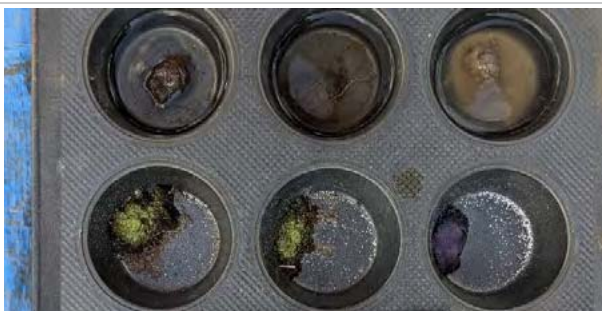
Location 3



Surface 1



Surface 2



pH, slaking, dispersion



Profile

GENERAL										
Date:	24/08/2021	Describer:	T Beck	Site:	310-03-AH3433	Type:	Partial			
MSU:	5.6.1.2	ASC:	Black Dermosol							
PSC:	Downfall			Chainage (m):		129880		Elevation (m):		452
Coordinates:	Easting:	332048	Northing:	6912952		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Very slow
Morphological type:	Crest	Permeability:	Slowly
Landform element:	Residual crest	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Firm, surface crust		
Surface fragments:	<2%, 20-60 mm, subrounded, quartz		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); poplar box		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-150	Very dark grey (10YR3/1 (moist)); mottles 10-20%, <5 mm, faint, pale, diffuse; rough ped, weak, 50-100 mm, subangular blocky; dry, weak; clay loam, fine sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 7.0; gradual boundary to -
B22	150-300	Dark grey (2.5Y4/1 (moist)); mottles 10-20%, <5 mm, distinct, dark, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, weak; light medium clay; partial slake in 10 mins; slight dispersion within 2 hrs; pH 7.5; gradual boundary to -
B23	300-600	Dark greyish brown (2.5Y4/2 (moist)); mottles 20-50%, 5-15 mm, prominent, pale, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay, fine sandy; coarse fragments <2%, 6-20 mm, subrounded, gravel; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.0; gradual boundary to -
B24	600-	Brown (7.5YR4/3 (moist)); mottles 10-20%, 5-15 mm, faint, dark, diffuse; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; common 10-20%, soft segregations, coarse 6-20 mm, very highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.0



Location 1



Location 2



Surface 1



Surface 2



pH, slaking, dispersion



Profile

GENERAL										
Date:	24/08/2021	Describer:	T Beck	Site:	310-03-AH3434	Type:	Representative			
MSU:	5.1.1.2		ASC:	Mottled-Sodic Hypocalcic Black Dermosol						
PSC:	Downfall			Chainage (m):		130376		Elevation (m):		449
Coordinates:	Easting:	332554	Northing:	6913341		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Residual rise	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rise	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Loose, firm		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); poplar box, cypress pine, wilga; rooting depth 1500 mm.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-100	Very dark brown (10YR2/2 (moist)); no mottles; earthy, massive (no peds); moderately moist, very weak; clay loam, sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 6.5; gradual boundary to -
B21	100-220	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, weak; light clay, sandy; no fragments; very few <2%, ferromanganiferous, concretions, fine <2 mm; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 5.5; clear boundary to -
B22	220-720	Black (10YR2/1 (moist)); mottles 10-20%, <5 mm, prominent, dark, clear; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; few 2-10%, soft segregations, medium 2-6 mm, slightly calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.0; gradual boundary to -
B23	720-1,050	Reddish brown (5YR4/4 (moist)); mottles 10-20%, <5 mm, prominent, dark, clear; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; common 10-20%, soft segregations, coarse 6-20 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B24	1050-1,500	Dark grey (5YR4/1 (moist)); mottles 20-50%, >30 mm, prominent, orange, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay, fine sandy; no fragments; common 10-20%, concretions, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0



Location 1



Location 2



Surface 1



pH, slaking, dispersion



Profile

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.1	5.86	MAC	10.2	L	158	6.7	M	1,275	L	2.70	1.52	M3	0.69	86.5	45.5	0.46

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H ₂ O)		EC (dS/m)	Salinity Rating^	Cl ⁻ (mg/kg)	Exchangeable cations (meq/100 g)							ESP (%)	Sodicity*	Emerson class	Ca:Mg ratio
	Clay	Silt	Sand	Gravel	-	Rating#				H+	Al+	Ca+	Mg+	K+	Na+	CEC				
0.0-0.1	18.8	10.3	70.9	0.7	5.86	MAC	0.07	L	31.9	-	-	6.97	3.09	0.33	0.39	10.8	3.59	NS	8	2.25
0.1-0.2	20.2	9.8	70.0	1.3	5.90	MAC	0.06	VL	31.0	-	-	5.21	4.23	0.10	1.16	10.7	10.8	S	3b	1.23
0.3-0.4	41.8	9.2	48.9	0.1	7.97	MAL	0.19	L	84.8	-	-	9.18	7.97	0.12	3.34	20.6	16.2	SS	1	1.15
0.8-0.9	42.6	8.5	47.9	0.1	8.85	STAL	0.92	H	776	-	-	6.88	7.59	0.08	3.80	18.4	20.7	SS	4	0.91
1.1-1.2	39.5	8.3	52.2	1.0	8.95	STAL	0.76	VH	7.04	-	-	7.12	8.11	0.10	3.53	18.9	18.7	SS	4	0.88
1.4-1.5	39.4	6.1	54.4	0.8	8.75	STAL	0.73	H	6.22	-	-	6.05	7.80	0.08	4.24	18.2	23.3	SS	5	0.78

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL										
Date:	24/08/2021	Describer:	T Beck	Site:	310-03-AH3435	Type:	Partial			
MSU:	5.1.1.2	ASC:	Dermosol							
PSC:	Downfall			Chainage (m):		130608		Elevation (m):		446
Coordinates:	Easting:	332791	Northing:	6913525		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rise	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Loose, firm, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); poplar box		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-100	Black (10YR2/1 (moist)); no mottles; earthy, massive (no peds); moderately moist, weak; clay loam, sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 6.5; clear boundary to -
B21e	100-250	Very dark grey (10YR3/1 (moist)); light grey (10YR7/1 (dry)); rough ped, weak, 10-20 mm, subangular blocky, dry, weak; light clay, sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 7.0; clear boundary to -
B22	300-450	Dark greyish brown (2.5Y4/2 (moist)); mottles 20-50%, >30 mm, prominent, yellow, clear; rough ped, moderate, 50-100 mm, subangular blocky, moderately moist, firm; light medium clay, sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 7.5; gradual boundary to -
B23	450-	Light olive brown (2.5Y5/4 (moist)); mottles 20-50%, >30 mm, prominent, gley, diffuse; rough ped, strong, 50-100 mm, subangular blocky, light medium clay; no fragments; common 10-20%, ferromanganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Erosion 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	08/12/2021	Describer:	H Marvell	Site:	310-03-AH3748	Type:	Partial		
MSU:	1.2.1.2	ASC:	Brown Dermosol						
PSC:	Downfall			Chainage (m):	132058		Elevation (m):		398
Coordinates:	Easting:	334464	Northing:	6912988		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Residual rise	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	No
Disturbance:	Cleared, pasture		
Surface condition:	Firm, hard setting, surface flake, cryptogam surface		
Surface fragments:	2-10%, 6-20 mm, subrounded, quartz		
Microrelief:	Zero or no microrelief		
Erosion:	Scald (active, minor); sheet (active, minor)		
Vegetation:	Very sparse, crowns well separated (0.25-20%); poplar box		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-50	Dark brown (7.5YR3/2 (moist)); no mottles; rough ped, weak, 10-20 mm, subangular blocky; dry, weak; sandy clay loam; coarse fragments <2%, 2-6 mm, subrounded, gravel; no segregations; no pans; no slaking within 10 mins; no dispersion within 2 hrs; pH 5.0; clear boundary to -
B21	50-180	Brown (7.5YR4/3 (moist)); mottles 10-20%, 5-15 mm, faint, orange, diffuse; mottles 2-10%, 5-15 mm, faint, grey, diffuse; mottles 2-10%, <5 mm, prominent, dark, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 7.0; gradual boundary to -
B22	180-400	Brown (7.5YR4/4 (moist)); mottles 10-20%, <5 mm, faint, brown, diffuse; rough ped, moderate, 100-200 mm, platy; moderately moist, very firm; light medium clay; coarse fragments <2%, 2-6 mm, subrounded tabular, quartz; few 2-10%, manganiferous, concretions, fine <2 mm; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.0; gradual boundary to -
B23	400-550	Brown (7.5YR4/4 (moist)); mottles 10-20%, <5 mm, faint, orange, diffuse; rough ped, moderate, 50-100 mm, platy; moderately moist, very firm; light medium clay; coarse fragments 2-10%, 2-6 mm, subangular tabular, quartz; few 2-10%, manganiferous, concretions, fine <2 mm; few 2-10%, soft segregations, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.5; gradual boundary to -
B/C	550-	Brown (7.5YR4/4 (moist)); mottles 10-20%, 5-15 mm, faint, brown, diffuse; rough ped, weak, 20-50 mm, platy; moderately moist, firm; light clay; coarse fragments 2-10%, 2-6 mm, subrounded, gravel; common 10-20%, soft segregations, coarse 6-20 mm, very highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Erosion 1



Surface 1



Surface 2



pH, slaking, dispersion



Profile

GENERAL									
Date:	08/12/2021	Describer:	H Marvell	Site:	310-03-AH3747	Type:	Partial		
MSU:	1.2.1.2	ASC:	Brown Dermosol						
PSC:	Downfall			Chainage (m):	132270		Elevation (m):		396
Coordinates:	Easting:	334650	Northing:	6913095		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod.rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Residual rise	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm, hard setting, surface flake, cryptogam surface		
Surface fragments:	2-10%, 2-6 mm, subrounded, quartz		
Microrelief:	Zero or no microrelief		
Erosion:	Scald (active, minor); sheet (active, minor)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-100	Dark brown (10YR3/3 (moist)); no mottles; rough ped, weak, 10-20 mm, polyhedral; wet, weak; silty clay loam; no fragments; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 5.0; clear boundary to -
A2e?	100-200	Greyish brown (10YR5/2 (moist)); no mottles; rough ped, weak, 10-20 mm, polyhedral; wet, weak; silty clay loam; coarse fragments <2%, 2-6 mm, subrounded, gravel; few 2-10%, manganiferous, concretions, fine <2 mm; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 5.5; clear boundary to -
B21	200-350	Brown (10YR4/3 (moist)); mottles 2-10%, <5 mm, prominent, dark, clear; mottles 2-10%, 5-15 mm, faint, brown, diffuse; rough ped, strong, 50-100 mm, subangular blocky; wet, firm; light medium clay; no fragments; few 2-10%, manganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 6.0; clear boundary to -
B22	350-470	Brown (10YR5/3 (moist)); mottles 2-10%, <5 mm, prominent, dark, sharp; mottles 2-10%, <5 mm, prominent, red, sharp; rough ped, moderate, 50-100 mm, platy; wet, firm; light medium clay; no fragments; few 2-10%, manganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5; clear boundary to -
B23	470-	Brown (7.5YR4/3 (moist)); mottles 2-10%, 5-15 mm, faint, red, diffuse; rough ped, weak, 50-100 mm, platy; moist, firm; light clay; no fragments; common 10-20%, manganiferous, concretions, fine <2 mm; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5



Location 1



Location 2



Location 3



Location 4



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	23/11/2021	Describer:	H Marvell	Site:	310-03-AH3746	Type:	Check site		
MSU:	5.2.1.2	ASC:	Brown Dermosol						
PSC:	Downfall			Chainage (m):	132470		Elevation (m):		395
Coordinates:	Easting:	334815	Northing:	6913211	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Rises	Geology:	Jw
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm, trampled		
Surface fragments:	2-10%, 6-20 mm, subangular, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		



Location 1



Location 2



Surface 1



Surface 2

GENERAL									
Date:	23/11/2021	Describer:	H Marvell	Site:	310-03-AH3745	Type:	Detailed		
MSU:	1.1.1.1a	ASC:	Grey Vertosol						
PSC:	Millmerran			Chainage (m):	132643		Elevation (m):		395
Coordinates:	Easting:	334965	Northing:	6913291		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Soft, firm, trampled		
Surface fragments:	2-10%, 20-60 mm, subrounded, quartz		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moist, firm; light clay, sandy; coarse fragments 2-10%, 2-6 mm, subrounded, gravel; few 2-10%, manganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 6.0; clear boundary to -
B22	50-220	Dark greyish brown (10YR4/2 (moist)); mottles 2-10%, <5 mm, faint, orange, diffuse; mottles 2-10%, <5 mm, prominent, dark, clear; rough ped, strong, 100-200 mm, subangular blocky; moist, very firm; medium clay; no fragments; few 2-10%, manganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 7.5; gradual boundary to -
B23	220-400	Greyish brown (10YR5/2 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, strong; light medium clay; coarse fragments 2-10%, 2-6 mm, subrounded, gravel; few 2-10%, manganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B24	400-800	Brown (10YR5/3 (moist)); mottles 2-10%, <5 mm, faint, brown, diffuse; rough ped, moderate, 100-200 mm, subangular blocky; moderately moist, strong; medium clay; no fragments; few 2-10%, concretions, coarse 6-20 mm, highly calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B31	800-1,500	Brown (10YR5/3 (moist)); mottles 10-20%, <5 mm, faint, brown, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, strong; light medium clay; coarse fragments 10-20%, 2-6 mm, subrounded, gravel; few 2-10%, concretions, coarse 6-20 mm, very highly calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Surface 1



pH, slaking, dispersion



Profile

GENERAL

Date:	08/12/2021	Describer:	H Marvell	Site:	310-03-AH3744	Type:	Partial	
MSU:	1.2.1.2		ASC:	Brown Dermosol				
PSC:	Downfall			Chainage (m):	132827		Elevation (m):	394
Coordinates:	Easting:	335133	Northing:	6913411	Zone:	56	Datum:	GDA94

SITE DESCRIPTION

Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Residual rise	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Qs
Relief modal class:	Undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	No
Disturbance:	Extensive clearing		
Surface condition:	Self-mulching, loose, soft		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); poplar box, ?Qld blue gum		

SOIL DESCRIPTION

Horizon	Depth (mm)	Description
A1	0-50	Very dark greyish brown (10YR3/2 (moist)); no mottles; earthy, massive (no peds); moist, very weak; silty clay loam; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 4.5; clear boundary to -
B21	50-300	Dark yellowish brown (10YR4/4 (moist)); mottles 2-10%, <5 mm, prominent, dark, clear; mottles 2-10%, <5 mm, faint, yellow, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moist, firm; medium clay; no fragments; few 2-10%, manganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 7.5; gradual boundary to -
B22	300-450	Dark yellowish brown (10YR4/4 (moist)); mottles 10-20%, <5 mm, faint, yellow, diffuse; rough ped, moderate, 20-50 mm, platy; moderately moist, very firm; light medium clay; coarse fragments 2-10%, 2-6 mm, subrounded, quartz; few 2-10%, manganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.0; gradual boundary to -
B23	450-	Yellowish brown (10YR5/4 (moist)); mottles 10-20%, 5-15 mm, faint, yellow, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moist, very firm; light medium clay; coarse fragments 2-10%, 2-6 mm, subrounded, quartz; few 2-10%, manganiferous, concretions, medium 2-6 mm; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Location 3



Location 4



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	25/11/2021	Describer:	P Hewavitharana	Site:	310-03-AH3732	Type:	Detailed		
MSU:	1.2.1.1a	ASC:	Brown Vertosol						
PSC:	Millmerran			Chainage (m):	134727		Elevation (m):		385
Coordinates:	Easting:	336793	Northing:	6914981		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Emergent (<5% of total)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Dark greyish brown (10YR4/2 (moist)); mottles 20-50%, <5 mm, faint, orange, diffuse; rough ped, weak, 10-20 mm, angular blocky; moist, weak; light clay; no fragments; few 2-10%, ferromanganiferous, nodules, fine <2 mm; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 6.0; clear boundary to -
B22	100-300	Brown (7.5YR4/3 (moist)); mottles 20-50%, 15-30 mm, prominent, orange, clear; mottles 10-20%, 5-15 mm, prominent, yellow, clear; rough ped, strong, 50-100 mm, angular blocky; moderately moist, firm; light medium clay; no fragments; common 10-20%, ferromanganiferous, nodules, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 6.0; gradual boundary to -
B23	300-500	Yellowish brown (10YR5/4 (moist)); mottles 20-50%, 5-15 mm, prominent, brown, clear; rough ped, strong, 50-100 mm, angular blocky; moderately moist, firm; medium heavy clay; no fragments; common 10-20%, ferromanganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.0; gradual boundary to -
B24	600-1,200	Strong brown (7.5YR4/6 (moist)); mottles 20-50%, 5-15 mm, prominent, brown, clear; mottles 2-10%, <5 mm, faint, red, diffuse; rough ped, strong, 50-100 mm, angular blocky; moderately moist, firm; medium clay; no fragments; common 10-20%, ferromanganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 9.0; gradual boundary to -
B3	1200-1,500	Dark greyish brown (10YR4/2 (moist)); mottles 20-50%, 5-15 mm, prominent, red, clear; mottles 2-10%, <5 mm, faint, orange, diffuse; rough ped, moderate, 50-100 mm, polyhedral; moderately moist, very firm; light medium clay; no fragments; common 10-20%, concretions, coarse 6-20 mm, highly calcareous; no pans; complete slake in 10 mins; slight dispersion within 10 mins; pH 8.5



Location 1



Location 2



Location 3



Location 4



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	10/11/2021	Describer:	H Marvell	Site:	310-03-AH3736	Type:	Detailed		
MSU:	1.1.1.1a	ASC:	Black Vertosol						
PSC:	Millmerran			Chainage (m):		134853	Elevation (m):		389
Coordinates:	Easting:	336419	Northing:	6914304	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Very slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	No
Disturbance:	Extensive clearing		
Surface condition:	Soft		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); poplar box, belah, Moreton Bay ash		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Very dark brown (10YR2/2 (moist)); no mottles; rough ped, weak, 10-20 mm, subangular blocky; moist, weak; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 5.5; gradual boundary to -
B22	100-200	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 10-20 mm, subangular blocky; moist, weak; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 6.0; gradual boundary to -
B23	200-400	Dark grey (10YR4/1 (moist)); mottles 10-20%, 15-30 mm, prominent, dark, sharp; mottles <2%, <5 mm, faint, orange, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moist, very firm; medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 6.5; gradual boundary to -
B24	400-800	Dark greyish brown (10YR4/2 (moist)); mottles 10-20%, 5-15 mm, prominent, dark, clear; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, strong; medium heavy clay; no fragments; few 2-10%, concretions, coarse 6-20 mm, moderately calcareous; few 2-10%, manganiferous, concretions, medium 2-6 mm; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B31	800-1,500	Brown (10YR4/3 (moist)); mottles 10-20%, 15-30 mm, prominent, dark, clear; mottles 20-50%, <5 mm, faint, orange, diffuse; rough ped, moderate, 200-500 mm, subangular blocky; moderately moist, very firm; medium clay; coarse fragments 10-20%, 2-6 mm, subrounded, gravel; few 2-10%, fragments, coarse 6-20 mm, slightly calcareous; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	25/11/2021	Describer:	P Hewavitharana	Site:	310-03-AH3731	Type:	Partial		
MSU:	1.1.1.1a	ASC:	Brown Vertosol						
PSC:	Millmerran			Chainage (m):	134905	Elevation (m):		426	
Coordinates:	Easting:	151	Northing:	-28	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Soft		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Emergent (<5% of total)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Dark grey (10YR4/1 (moist)); no mottles; rough ped, weak, 20-50 mm, polyhedral; wet, weak; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 6.0; clear boundary to -
B22	100-150	Brown (7.5YR4/2 (moist)); mottles 2-10%, <5 mm, faint, red, diffuse; rough ped, strong, 20-50 mm, subangular blocky; moist, weak; light medium clay, sandy; no fragments; few 2-10%, ferromanganiferous, nodules, medium 2-6 mm; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 6.0; clear boundary to -
B23	150-	Yellowish brown (10YR5/4 (moist)); mottles 20-50%, >30 mm, prominent, dark, clear; mottles <2%, <5 mm, faint, orange, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moist, firm; medium clay; no fragments; common 10-20%, ferromanganiferous, concretions, fine <2 mm; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 9.0



Location 1



Location 2



Location 3



Location 4



Surface 1



Surface 2



pH, slaking, dispersion



Profile

GENERAL									
Date:	25/11/2021	Describer:	C Traill	Site:	310-03-AH3730	Type:	Check site		
MSU:	1.1.1.1a	ASC:	Vertosol						
PSC:	Millmerran			Chainage (m):	135072		Elevation (m):		384
Coordinates:	Easting:	336860	Northing:	6915369		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Loose		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

	
Location 1	Location 2
	
Surface 1	Surface 2

GENERAL										
Date:	10/11/2021	Describer:	H Marvell	Site:	310-03-AH3735	Type:	Partial			
MSU:	1.1.1.1a	ASC:	Black Vertosol							
PSC:	Millmerran			Chainage (m):		135084		Elevation (m):		387
Coordinates:	Easting:	336559	Northing:	6914491		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, firm		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-70	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, weak, 20-50 mm, polyhedral; moist, weak; clay loam, ssandy; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 5.0; clear boundary to -
B21	70-300	Very dark greyish brown (10YR3/2 (moist)); mottles 10-20%, <5 mm, faint, brown, diffuse; mottles 2-10%, <5 mm, prominent, dark, clear; mottles 2-10%, <5 mm, faint, orange, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moist, firm; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 6.0; gradual boundary to -
B22	300-450	Dark greyish brown (10YR4/2 (moist)); mottles 2-10%, 5-15 mm, faint, dark, diffuse; mottles 2-10%, <5 mm, faint, orange, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moist, firm; medium clay; coarse fragments 2-10%, 2-6 mm, subrounded, gravel; few 2-10%, manganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 8.0; gradual boundary to -
B23	450-	Greyish brown (10YR5/2 (moist)); no mottles; rough ped, moderate, 50-100 mm, platy; moderately moist, very firm; light medium clay; no fragments; few 2-10%, manganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Location 3



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	10/11/2021	Describer:	H Marvell	Site:	310-03-AH3734	Type:	Check site		
MSU:	1.1.1.1a	ASC:	Vertosol						
PSC:	Millmerran			Chainage (m):	135280		Elevation (m):		386
Coordinates:	Easting:	336663	Northing:	6914657		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Soft, firm		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		



Location 1



Location 2



Surface 1



Surface 2

GENERAL									
Date:	10/11/2021	Describer:	H Marvell	Site:	310-03-AH3733	Type:	Partial		
MSU:	1.2.1.1a	ASC:	Grey Vertosol						
PSC:	Millmerran			Chainage (m):		135433	Elevation (m):		386
Coordinates:	Easting:	336728	Northing:	6914797	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Very slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Soft, firm		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-120	Dark greyish brown (10YR4/2 (moist)); no mottles; rough ped, weak, 10-20 mm, polyhedral; wet, very weak; clay loam; no fragments; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 6.0; clear boundary to -
B21	120-200	Dark greyish brown (10YR4/2 (moist)); mottles 2-10%, <5 mm, faint, dark, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moist, firm; light medium clay; no fragments; many 20-50%, manganiferous, concretions, coarse 6-20 mm; no pans; pH 6.0; clear boundary to -
B22	200-380	Dark greyish brown (10YR4/2 (moist)); mottles 20-50%, <5 mm, prominent, orange, clear; mottles 20-50%, <5 mm, prominent, dark, clear; rough ped, strong, 100-200 mm, subangular blocky; moist, firm; medium clay; no fragments; few 2-10%, manganiferous, concretions, medium 2-6 mm; no pans; pH 7.0; gradual boundary to -
B23	380-	Grey (10YR5/1 (moist)); mottles 2-10%, <5 mm, faint, brown, clear; rough ped, strong, 100-200 mm, subangular blocky; moist, firm; medium clay; no fragments; common 10-20%, manganiferous, concretions, fine <2 mm; no pans; pH 8.5



Location 1



Location 2



Location 3



Surface 1



pH, slaking, dispersion



Profile

GENERAL										
Date:	15/12/2021	Describer:	M Mooney	Site:	310-03-AH3728	Type:	Detailed			
MSU:	1.1.1.1a	ASC:	Vertosol							
PSC:	Millmerran			Chainage (m):		136456		Elevation (m):		385
Coordinates:	Easting:	336866	Northing:	6915802		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Soft, cryptogam surface		
Surface fragments:	<2%, 2-6 mm, rounded, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); poplar box		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Dark greyish brown (10R4/2 (moist)); no mottles; rough ped, moderate, 20-50 mm, subangular blocky; dry, weak; light clay; no fragments; no segregations; no pans; complete slake in 10 mins; slight dispersion within 10 mins; pH 5.0; clear boundary to -
B22	100-400	Brown (10R4/3 (moist)); mottles 20-50%, 5-15 mm, prominent, dark, clear; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; heavy clay; coarse fragments <2%, 2-6 mm, subrounded, gravel; very few <2%, ferruginous, nodules, medium 2-6 mm, non-calcareous; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 5.5; clear boundary to -
B23	400-	Brown (10R4/3 (moist)); mottles 20-50%, 5-15 mm, prominent, orange, clear; rough ped, moderate, 50-100 mm, subangular blocky; dry, very firm; heavy clay; coarse fragments <2%, 2-6 mm, subangular, gravel; common 10-20%, concretions, medium 2-6 mm, highly calcareous; no pans; complete slake in 10 mins; slight dispersion within 10 mins; pH 7.5; gradual boundary to -
B24	1150-1500	Dark greyish brown (2.5YR4/2 (moist)); mottles 20-50%, 5-15 mm, prominent, orange, clear; rough ped, moderate, 20-50 mm, subangular blocky; dry, very firm; heavy clay; coarse fragments 2-10%, 2-6 mm, subrounded, igneous; very few <2%, ferruginous, nodules, medium 2-6 mm, non-calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.0



Location 1



Location 2



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	15/12/2021	Describer:	H Marvell	Site:	310-03-AH3727	Type:	Partial		
MSU:	1.1.1.1a	ASC:	Grey Vertosol						
PSC:	Millmerran			Chainage (m):	136640		Elevation (m):		385
Coordinates:	Easting:	336850	Northing:	6915987		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm, cryptogam surface		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-100	Very dark greyish brown (10YR3/2 (moist)); mottles 2-10%, <5 mm, faint, brown, diffuse; rough ped, weak, 20-50 mm, subangular blocky; moderately moist, weak; silty clay loam; no fragments; few 2-10%, manganiferous, concretions, medium 2-6 mm; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 5.0; clear boundary to -
B21	100-170	Dar greyish brown (10YR4/2 (moist)); mottles 2-10%, <5 mm, faint, brown, clear; mottles 2-10%, <5 mm, faint, orange, clear; mottles 10-20%, 5-15 mm, prominent, dark, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light clay; no fragments; very few <2%, manganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 6.5; clear boundary to -
B22	170-400	Brown (10YR4/3 (moist)); mottles 10-20%, <5 mm, faint, brown, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, very firm; light medium clay; no fragments; few 2-10%, manganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.0; gradual boundary to -
B23	400-600	Dark yellowish brown (10YR4/4 (moist)); mottles 2-10%, <5 mm, prominent, dark, clear; mottles 10-20%, <5 mm, faint, yellow, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, very firm; light medium clay; coarse fragments <2%, 2-6 mm, subrounded, gravel; few 2-10%, manganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5; gradual boundary to -
B24	600-	Dark yellowish brown (10YR4/4 (moist)); mottles 10-20%, 5-15 mm, faint, brown, diffuse; mottles 2-10%, 5-15 mm, prominent, dark, clear; mottles 2-10%, <5 mm, prominent, pale, clear; rough ped, moderate, 50-100 mm, subangular blocky; dry, very firm; light clay; no fragments; common 10-20%, manganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5



Location 1



Location 2



Location 3



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	15/12/2021	Describer:	H Marvell	Site:	310-03-AH3726	Type:	Partial		
MSU:	1.1.1.1a	ASC:	Black Vertosol						
PSC:	Millmerran			Chainage (m):		136858	Elevation (m):		385
Coordinates:	Easting:	336859	Northing:	6916205	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm, cryptogam surface		
Surface fragments:	None		
Microrelief:	Incipient, other, elongate depress., equal mounds/depressions, no shelf present		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); poplar box		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-80	Very dark greyish brown (10YR3/2 (moist)); mottles 2-10%, <5 mm, faint, brown, diffuse; mottles 2-10%, <5 mm, faint, dark, diffuse; rough ped, weak, 10-20 mm, subangular blocky; moist, firm; light clay; no fragments; very few <2%, manganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 5.5; clear boundary to -
B21	80-250	Black (10YR2/1 (moist)); mottles 10-20%, 5-15 mm, faint, brown, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; coarse fragments <2%, 2-6 mm, subrounded, gravel; few 2-10%, manganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.0; clear boundary to -
B22	250-	Dark yellowish brown (10YR4/4 (moist)); mottles 10-20%, <5 mm, prominent, dark, clear; mottles 2-10%, 5-15 mm, faint, brown, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, very firm; medium clay; no fragments; common 10-20%, concretions, medium 2-6 mm, moderately calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.5



Location 1



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	15/12/2021	Describer:	M Mooney	Site:	310-03-AH3725	Type:	Check site		
MSU:	1.1.1.1a	ASC:	Vertosol						
PSC:	Millmerran			Chainage (m):	137030		Elevation (m):		385
Coordinates:	Easting:	336857	Northing:	6916377		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, firm, surface flake, cryptogam surface		
Surface fragments:	<2%, 6-20 mm, subrounded, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		



Location 1



Location 2



Location 3



Surface 1

GENERAL									
Date:	15/12/2021	Describer:	undefined	Site:	310-03-AH3724	Type:	Detailed		
MSU:	1.1.1.1a	ASC:	Brown Vertosol						
PSC:	Millmerran			Chainage (m):	137217		Elevation (m):		386
Coordinates:	Easting:	336854	Northing:	6916564		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial pPlain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, soft, firm, cryptogam surface		
Surface fragments:	<2%, 2-6 mm, subangular, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); poplar box		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Very dark greyish brown (10R3/2 (moist)); no mottles; rough ped, weak, 20-50 mm, subangular blocky; dry, firm; light clay, fine sandy; coarse fragments <2%, 2-6 mm, subangular, gravel; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.0; gradual boundary to -
B22	100-400	Dark brown (10YR3/3 (moist)); mottles 20-50%, >30 mm, prominent, dark, clear; rough ped, strong, 100-200 mm, subangular blocky; dry, very firm; medium clay, fine sandy; coarse fragments <2%, 2-6 mm, subangular, gravel; no segregations; no pans; pH 7.5; gradual boundary to -
B23	400-850	Dark yellowish brown (10YR3/6 (moist)); mottles 20-50%, 5-15 mm, faint, grey, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; dry, very firm; medium heavy clay, fine sandy; no fragments; common 10-20%, concretions, medium 2-6 mm, highly calcareous; very few <2%, manganiferous, concretions, 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.0; gradual boundary to -
B24	850-1,300	Brown (10R5/3 (moist)); mottles 20-50%, 5-15 mm, prominent, brown, clear; rough ped, moderate, 20-50 mm, subangular blocky; dry, strong; medium heavy clay, fine sandy; coarse fragments <2%, 2-6 mm, subangular, gravel; few 2-10%, concretions, medium 2-6 mm, moderately calcareous; no pans; complete slake in 10 mins; strong dispersion within 10 mins; pH 7.5; diffuse boundary to -
B3	1,300-1,500	Greyish brown (10YR5/2 (moist)); mottles 20-50%, 5-15 mm, prominent, brown, clear; rough ped, moderate, 20-50 mm, subangular blocky; dry, strong; medium heavy clay, fine sandy; coarse fragments <2%, 2-6 mm, subangular, igneous; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 7.5



Location 1



Location 2



Surface 1



pH, slaking, dispersion



Profile

GENERAL										
Date:	15/12/2021	Describer:	H Marvell	Site:	310-03-AH3723	Type:	Partial			
MSU:	1.2.1.1a	ASC:	Vertosol							
PSC:	Millmerran			Chainage (m):		137433		Elevation (m):		385
Coordinates:	Easting:	336867	Northing:	6916780		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)		Runoff: Very slow
Morphological type:	Flat		Permeability: Slowly
Landform element:	Backplain		Drainage: Poorly drained
Landform pattern:	Alluvial plain		Geology: Qs
Relief modal class:	Level plain		Rock outcrop: No rock outcrop
ALC:	A1/B		SCL: Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm, hard setting, cryptogam surface		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-80	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, weak, 20-50 mm, polyhedral; moderately moist, weak; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 6.0; clear boundary to -
B21	80-300	Very dark greyish brown (10YR3/2 (moist)); mottles 2-10%, <5 mm, distinct, orange, clear; mottles 2-10%, <5 mm, prominent, dark, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 6.0; clear boundary to -
B22	300-	Very dark greyish brown (10YR3/2 (moist)); mottles 2-10%, <5 mm, prominent, orange, clear; mottles 2-10%, 5-15 mm, faint, dark, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, strong; light clay; coarse fragments 2-10%, 2-6 mm, subrounded, quartz; few 2-10%, soft segregations, coarse 2-6 mm, moderately calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Location 3



Surface 1



pH, slaking, dispersion



Profile

GENERAL										
Date:	14/12/2021	Describer:	H Marvell	Site:	310-03-AH3722	Type:	Partial			
MSU:	1.1.1.1a	ASC:	Black Vertosol							
PSC:	Millmerran			Chainage (m):		137644		Elevation (m):		385
Coordinates:	Easting:	336852	Northing:	6916991		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, firm, hard setting		
Surface fragments:	<2%, 2-6 mm, subrounded, quartz		
Microrelief:	Incipient, other, elongate depress., equal mounds/depressions, no shelf present		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-30	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, weak, 20-50 mm, polyhedral; moderately moist, weak; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 6.0; clear boundary to -
B21	30-300	Very dark greyish brown (10YR3/2 (moist)); mottles 2-10%, <5 mm, distinct, orange, clear; mottles 2-10%, <5 mm, prominent, dark, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; coarse fragments 2-10%, 6-20 mm, subrounded, sandstone; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 6.0; clear boundary to -
B22	300-	Very dark greyish brown (10YR3/2 (moist)); mottles 2-10%, <5 mm, prominent, orange, clear; mottles 2-10%, 5-15 mm, faint, dark, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, strong; light clay; coarse fragments 2-10%, 2-6 mm, subrounded, quartz; few 2-10%, soft segregations, coarse 6-20 mm, moderately calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Location 3



Surface 1



pH, slaking, dispersion



Profile

GENERAL												
Date:	02/03/2021		Describer:	H Marvell		Site:	310-03-TP3141		Type:	Detailed		
MSU:	1.1.1.1a		ASC:	Grey Vertosol								
PSC:	Millmerran			Chainage (m):			137700		Elevation (m):		380	
Coordinates:	Easting:		337320		Northing:		6918337		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, firm, hard setting		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-300	Dark grey (7.5YR4/1 (moist)); no mottles; rough ped, moderate, 100-200 mm, subangular blocky?; dry, firm; light medium clay; 2-10%, 6-20 mm, subrounded gravel?; no segregations; no pans?; gradual boundary to -
B22	300-1,100	Very dark grey (7.5YR3/1 (moist)); mottles, 10-20%, >30 mm, prominent, brown, clear; rough ped, moderate, 100-200 mm, angular blocky?; moist, firm; medium clay; no fragments; no segregations; no pans?; gradual boundary to -
B23	1,100-1,500	Very dark greyish brown (10YR3/2 (moist)); dark mottles, 10-20%, 15-30 mm, faint, diffuse?; rough ped, strong, 100-200 mm, subangular blocky?; moist, very firm?; medium clay?; 2-10%, 6-20 mm, subrounded gravel; no segregations?; no pans?



Profile 1



Profile 2



Stockpile 1



Location 1

GENERAL									
Date:	14/12/2021	Describer:	H Marvell	Site:	310-03-AH3721	Type:	Check site		
MSU:	1.1.1.1a	ASC:	Vertosol						
PSC:	Millmerran			Chainage (m):	137901		Elevation (m):		385
Coordinates:	Easting:	336859	Northing:	6917247		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, firm, hard setting		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		



Location 1



Location 2



Location 3



Surface 1

GENERAL

Date:	10/01/2021	Describer:	H Marvell	Site:	310-03-BH3029	Type:	Detailed
MSU:	1.1.1.1a?	ASC:	Black Vertosol				
PSC:	Cecilvale?	Chainage (m):	138000	Elevation (m):	380		
Coordinates:	Easting:	337597	Northing:	6918433	Zone:	56	Datum: GDA94

SITE DESCRIPTION

Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Plain	Drainage:	Imperfectly drained
Landform pattern:	Flood plain (frequently active (<50 yrs))	Geology:	Qa\l
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking; surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor)?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); poplar box?		

SOIL DESCRIPTION

Horizon	Depth (mm)	Description
A1/B21p?	0-200	Black (10YR2/1 (moist))?; no mottles; rough ped, moderate, 50-100 mm, subangular?; moist, firm?; medium clay, fine sandy?; no fragments?; no segregations?; no pans?; gradual boundary to -
B22?	200-500	Black (10YR2/1 (moist))?; no mottles; rough ped, strong, 100-200 mm, subangular blocky?; moist, strong?; medium heavy clay, fine sandy?; no fragments?; no segregations?; no pans?; gradual boundary? to -
B23?	200-1,500	Very dark greyish brown (10YR3/2 (moist))?; mottles 10-20%, 5-15 mm, distinct, brown, clear; rough ped, strong, 100-200 mm, subangular blocky?; moist, strong; medium heavy clay, sandy?; no fragments?; no segregations?; no pans?



GENERAL										
Date:	08/07/2021	Describer:	H Marvell	Site:	310-03-AH3450	Type:	Representative			
MSU:	1.1.1.1a		ASC:	Mottled Epipedal Grey Vertosol						
PSC:	Millmerran			Chainage (m):		138036		Elevation (m):		386
Coordinates:	Easting:	335192	Northing:	6917675		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Very slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Soft		
Surface fragments:	None		
Microrelief:	Normal, other, mound, equal mounds/depressions, no shelf present		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); Qld blue gum, poplar box; rooting depth 1200 mm		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-120	Dark grey (10YR4/1 (moist)); mottles 10-20%, <5 mm, faint, brown, diffuse; rough ped, strong, 50-100 mm, subangular blocky; wet, very weak; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 6.0; gradual boundary to -
B22	120-350	Dark grey (10YR4/1 (moist)); mottles 10-20%, <5 mm, faint, brown, diffuse; rough ped, strong, 100-200 mm, subangular blocky; wet, firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 6.0; gradual boundary to -
B23	350-900	Grey (10YR5/1 (moist)); mottles 20-50%, <5 mm, prominent, orange, diffuse; rough ped, strong, 200-500 mm, subangular blocky; moist, firm; medium clay; no fragments; few 2-10%, ferromanganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 7.5; gradual boundary to -
B24	900-1,200	Greyish brown (2.5Y5/2 (moist)); mottles 10-20%, <5 mm, faint, grey, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moist, very strong; light clay; no fragments; very few <2%, concretions, medium 2-6 mm, highly calcareous; few 2-10%, ferromanganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Surface 1



pH, slaking, dispersion



Profile

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.1	6.76	NEU	37.6	M	339	3.02	L	2159	M	4.2	2.42	VH3	2	54.1	105	1.92

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H2O)		EC (dS/m)	Salinity Rating^	Cl- (mg/kg)	Exchangeable cations (meq/100 g)							ESP (%)	Sodicity^	Emerson class	Ca:Mg ratio
	Clay	Silt	Sand	Gravel	-	Rating#				H+	Al+	Ca+	Mg+	K+	Na+	CEC				
0.0-0.1	12.7	22.7	64.5	1.0	6.76	NEU	0.08	L	22.5	-	0.01	15.5	8.58	0.82	0.62	25.5	2.44	NS	7	1.80
0.2-0.3	36.7	18.9	44.4	<0.1	7.08	NEU	0.05	VL	9.38	-	0.01	9.98	5.45	0.34	0.80	16.6	4.80	NS	3b	1.83
0.5-0.6	36.6	3.0	60.4	0.8	7.49	SLAL	0.13	L	96.6	-	-	12.0	7.46	0.27	2.39	22.2	10.8	S	3b	1.61
0.8-0.9	33.3	5.3	61.4	<0.1	7.91	MAL	0.42	M	491	-	-	10.5	8.05	0.22	2.74	21.5	12.7	S	2	1.30
1.1-1.2	30.7	5.3	64.0	<0.1	8.38	MAL	0.43	M	466	-	-	10.5	8.86	0.23	3.09	22.7	13.6	S	3b	1.19

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL									
Date:	15/12/2021	Describer:	H Marvell	Site:	310-03-AH3720	Type:	Detailed		
MSU:	1.1.1.1a	ASC:	Brown Vertosol						
PSC:	Millmerran			Chainage (m):	138097		Elevation (m):		385
Coordinates:	Easting:	336880	Northing:	6917441		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, firm, cryptogam surface		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Very dark greyish brown (10YR3/2 (moist)); mottles 2-10%, <5 mm, faint, dark, diffuse; mottles 2-10%, <5 mm, faint, pale, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 6.0; clear boundary to -
B22	100-300	Brown (10YR4/3 (moist)); mottles 2-10%, <5 mm, faint, dark, clear; mottles 10-20%, 5-15 mm, faint, brown, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; light medium clay; coarse fragments 2-10%, 2-6 mm, subrounded, gravel; few 2-10%, manganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 6.5; gradual boundary to -
B23	300-700	Brown (10YR4/3 (moist)); mottles 20-50%, 15-30 mm, faint, dark, clear; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; common 10-20%, soft segregations, coarse 6-20 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B24	700-1,000	Brown (7.5YR4/3 (moist)); mottles 2-10%, 5-15 mm, prominent, dark, clear; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, very firm; light medium clay; no fragments; common 10-20%, concretions, coarse 6-20 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 9.0; gradual boundary to -
B31	1000-1,400	Brown (10YR4/3 (moist)); mottles 20-50%, 5-15 mm, faint, brown, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, very firm; light medium clay; coarse fragments 2-10%, 2-6 mm, subrounded, gravel; few 2-10%, veins, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.5; gradual boundary to -
B32	1400-1,500	Greyish brown (10YR5/2 (moist)); mottles 2-10%, <5 mm, prominent, brown, clear; mottles 2-10%, <5 mm, prominent, dark, clear; mottles 2-10%, <5 mm, prominent, orange, clear; rough ped, moderate, 50-100 mm, subangular blocky; dry, strong; light clay; coarse fragments 2-10%, 2-6 mm, subrounded, gravel; few 2-10%, manganiferous, concretions, medium 2-6 mm; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	31/08/2021	Describer:	P Hewavitharana	Site:	310-03-AH3460	Type:	Representative		
MSU:	1.1.1.1a	ASC:	Episodic Crusty Grey Vertosol						
PSC:	Millmerran			Chainage (m):	138300	Elevation (m):		383	
Coordinates:	Easting:	336146	Northing:	6917975	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, soft, surface crust?		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); rooting depth 900 mm.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-200	Dark grey (10YR4/1 (moist)); mottles 2-10%, <5 mm, faint, brown, diffuse; rough ped, moderate, 50-100 mm, angular blocky; moderately moist, firm; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion in 10 mins; pH 7.0; gradual boundary to -
B22	200-350	Greyish brown (10YR5/2 (moist)); mottles 20-50%, <5 mm, faint, brown, diffuse; rough ped, moderate, 100-200 mm, angular blocky; moderately moist, firm; light medium clay; no fragments; few 2-10%, manganiferous, concretions, fine <2 mm; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.0; gradual boundary to -
B23	350-700	Light olive brown (2.5Y5/3 (moist)); mottles 20-50%, 5-15 mm, faint, brown, diffuse; mottles 10-20%, <5 mm, prominent, dark, diffuse; rough ped, strong, 100-200 mm, angular blocky; moderately moist, firm; light medium clay; no fragments; common 10-20%, manganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5; gradual boundary to -
B24	700-900	Greyish brown (2.5Y5/2 (moist)); mottles 20-50%, 5-15 mm, faint, brown, diffuse; mottles 10-20%, <5 mm, faint, pale, diffuse; rough ped, moderate, 100-200 mm, angular blocky; moderately moist, firm; medium clay, FC; no fragments; few 2-10%, manganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.5; gradual boundary to -
B31	900-1,350	Greyish brown (2.5Y5/2 (moist)); mottles 20-50%, <5 mm, faint, yellow, diffuse; rough ped, strong, 100-200 mm, angular blocky; moderately moist, firm; medium heavy clay, fine sandy; coarse fragments 2-10%, 2-6 mm, subangular, gravel; common 10-20%, manganiferous, concretions, fine <2 mm; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B32	1350-1,500	Greyish brown (2.5Y5/2 (moist)); mottles 10-20%, <5 mm, faint, yellow, diffuse; mottles 10-20%, <5 mm, faint, grey, diffuse; rough ped, moderate, 100-200 mm, angular blocky; moderately moist, firm; medium clay; no fragments; common 10-20%, concretions, medium 2-6 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -



Location 1



Location 1



Surface 1



pH



Slaking, dispersion



Profile

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.1	7.30	NEU	33.7	M	262	4.99	L	1291	L	2.6	1.5	M3	1.48	76.8	24.4	0.9

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H2O)		EC (dS/m)	Salinity Rating^	Cl^- (mg/kg)	Exchangeable cations (meq/100 g)							ESP (%)	Sodicity^	Emerson class	Ca:Mg ratio
	Clay	Silt	Sand	Gravel	-	Rating#				H+	Al+	Ca+	Mg+	K+	Na+	CEC				
0.0-0.1	28.4	5.6	66.0	0.4	7.30	NEU	0.09	L	69.1	-	0.01	17.8	12.3	0.81	5.04	35.9	14.0	S	1	1.44
0.2-0.3	26.0	5.1	68.9	0.1	7.84	MAL	0.10	L	36.3	-	-	7.36	4.39	0.31	1.30	13.4	9.75	S	1	1.67
0.5-0.6	20.5	2.7	76.8	0.1	8.16	MAL	0.13	L	51.0	-	-	8.30	5.55	0.28	1.93	16.1	12.0	S	1	1.50
0.8-0.9	33.1	2.6	64.3	0.1	8.90	STAL	0.30	M	192	-	-	8.46	6.54	0.25	3.07	18.3	16.7	SS	1	1.29
1.1-1.2	30.0	4.7	65.3	0.1	8.77	STAL	0.46	H	400	-	-	6.90	5.73	0.26	3.50	16.4	21.3	SS	1	1.20
1.4-1.5	34.5	6.8	58.7	1.9	9.24	VSAL	0.63	H	470	-	-	7.50	6.05	0.25	3.71	17.5	21.2	SS	2	1.24

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL									
Date:	15/12/2021	Describer:	H Marvell	Site:	310-03-AH3471	Type:	Partial		
MSU:	1.1.1.1a	ASC:	Grey Vertosol						
PSC:	Millmerran			Chainage (m):	138537		Elevation (m):		383
Coordinates:	Easting:	336992	Northing:	6917890		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, firm, surface crust, cryptogam surface		
Surface fragments:	<2%, 2-6 mm, subangular, igneous		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); poplar box		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-50	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 20-50 mm, subangular blocky; dry, weak; light medium clay; no fragments; no segregations; no pans; complete slake in 10 mins; slight dispersion within 10 mins; pH 6.5; clear boundary to -
B21	50-300	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, weak; medium heavy clay; no fragments; very few <2%, ferruginous, nodules, fine <2 mm; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 7.5; gradual boundary to -
B22	300-550	Dark grey (10YR4/1 (moist)); mottles 10-20%, 15-30 mm, prominent, brown, clear; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; heavy clay; no fragments; very few <2%, concretions, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.5; gradual boundary to -
B23	550-	Dark greyish brown (10YR4/2 (moist)); mottles 20-50%, >30 mm, prominent, brown, clear; moderate, 20-50 mm, subangular blocky; dry, very firm; heavy clay; no fragments; few 2-10%, concretions, medium 2-6 mm, highly calcareous; no pans; complete slake in 10 mins; slight dispersion within 10 mins; pH 9.0



Location 1



Location 2



Location 3



Surface 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	30/08/2021	Describer:	H Marvell	Site:	310-03-AH3470	Type:	Partial		
MSU:	1.1.1.1a	ASC:	Black Vertosol						
PSC:	Millmerran			Chainage (m):		138686	Elevation (m):		383
Coordinates:	Easting:	336879	Northing:	6918207	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, firm, surface crust, cryptogram surface		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%); poplar box		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Very dark grey (7.5YR3/1 (moist)); mottles 2-10%, <5 mm, faint, brown, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 5.5; gradual boundary to -
B22	100-400	Dark brown (7.5YR3/2 (moist)); mottles 10-20%, 15-30 mm, faint, brown, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moist, very firm; medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5; gradual boundary to -
B23	400-	Dark brown (7.5YR3/3 (moist)); mottles 2-10%, 5-15 mm, prominent, grey, clear; rough ped, strong, 100-200 mm, subangular blocky; moist, very firm; light medium clay; no fragments; few 2-10%, soft segregations, coarse 6-20 mm, moderately calcareous; few 2-10%, manganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5



Location 1



Location 2



Location 3



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	14/12/2021	Describer:	H Marvell	Site:	310-03-AH3474	Type:	Check site		
MSU:	1.1.1.1a	ASC:	Vertosol						
PSC:	Millmerran			Chainage (m):	138748		Elevation (m):		382
Coordinates:	Easting:	337147	Northing:	6918051		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, soft, surface flake, cryptogam surface		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); poplar box		

	
Location 1	Location 2
	
Surface 1	Surface 2

GENERAL										
Date:	30/08/2021	Describer:	P Hewavitharana	Site:	310-03-AH3472	Type:	Partial			
MSU:	1.1.1.1a	ASC:	Grey Vertosol							
PSC:	Millmerran			Chainage (m):		138829		Elevation (m):		382
Coordinates:	Easting:	337073	Northing:	6918260		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, firm, hard setting		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-200	Dark grey (7.5YR4/1 (moist)); 2-10%, <5 mm, faint, brown, diffuse; rough ped, moderate, 20-50 mm, angular blocky; moderately moist, firm; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 6.0; gradual boundary to -
B22	200-400	Very dark grey (7.5YR3/1 (moist)); 20-50%, <5 mm, prominent, brown, clear; rough ped, moderate, 50-100 mm, angular blocky; moderately moist, firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.0; gradual boundary to -
B23	400-	Brown (7.5YR4/2 (moist)); mottles 20-50%, <5 mm, faint, dark, diffuse; strong, 100-200 mm, angular blocky; moderately moist, firm; light medium clay, coarse sandy; no fragments; common 10-20%, soft segregations, very coarse 20-60 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Location 3



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	15/12/2021	Describer:	H Marvell	Site:	310-03-AH3719	Type:	Partial		
MSU:	1.1.1.1a	ASC:	Grey Vertosol						
PSC:	Millmerran			Chainage (m):	139046		Elevation (m):		380
Coordinates:	Easting:	337464	Northing:	6918130		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, firm, cryptogam surface		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor); scald (active, minor)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); poplar box		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, moderate, 20-50 mm, subangular blocky; dry, weak; medium clay; no fragments; no segregations; no pans; complete slake in 10 mins; slight dispersion within 10 mins; pH 6.0; clear boundary to -
B22	50-400	Very dark greyish brown (10YR3/2 (moist)); mottles 10-20%, 5-15 mm, faint, brown, diffuse; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, firm; heavy clay; coarse fragments <2%, 2-6 mm, subangular, igneous; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 7.0; diffuse boundary to -
B23	400-	Very dark grey (10YR3/1 (moist)); mottles 20-50%, 15-30 mm, prominent, brown, clear; rough ped, moderate, 20-50 mm, subangular blocky; dry, firm; medium heavy clay; no fragments; segregations very few <2%, calcareous, concretions, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.0



Location 1



Location 2



Location 3



Surface 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	14/12/2021	Describer:	H Marvell	Site:	310-03-AH3718	Type:	Detailed		
MSU:	1.1.1.1a	ASC:	Grey Vertosol						
PSC:	Cecilvale			Chainage (m):	139352	Elevation (m):		379	
Coordinates:	Easting:	337843	Northing:	6918051	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qa1b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-50	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moist, weak; medium clay; no fragments; no segregations; no pans; no slaking within 10 mins; no dispersion within 2 hrs; pH 6.5; clear boundary to -
B21	50-900	Dark grey (Gley 1 4/N (moist)); mottles 2-10%, <5 mm, faint, brown, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, weak; medium heavy clay; no fragments; no segregations; no pans; no slaking within 10 mins; no dispersion within 2 hrs; pH 9.0; gradual boundary to -
B22	900-1,500	Dark grey (Gley 1 4/N (moist)); mottles 2-10%, <5 mm, faint, brown, diffuse; strong, 50-100 mm, subangular blocky; moderately moist, strong; heavy clay; no fragments; few 2-10%, concretions, medium 2-6 mm, highly calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 9.0



Location 1



Location 2



Surface 1



pH, slaking, dispersion



Profile

GENERAL

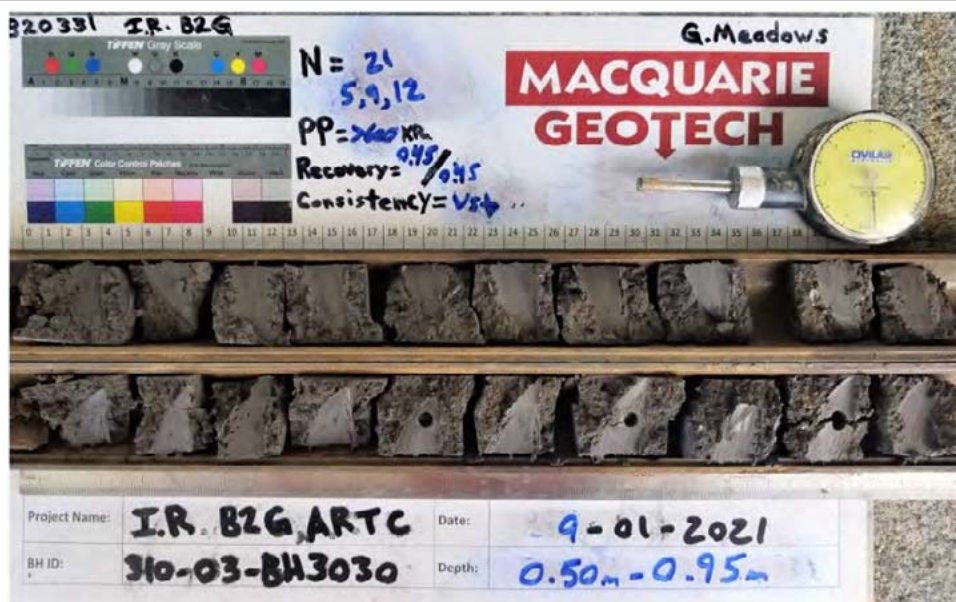
Date:	22/02/2021	Describer:	H Marvell	Site:	310-03-BH3030	Type:	Detailed
MSU:	1.1.1.1a	ASC:	Black Vertosol				
PSC:	Cecilvale?	Chainage (m):	139491	Elevation (m):	379		
Coordinates:	Easting:	337780	Northing:	6918490	Zone:	56	Datum: GDA94

SITE DESCRIPTION

Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qa/b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1/B	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor)?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION

Horizon	Depth (mm)	Description
A1/B21?	0-500?	Very dark grey (10YR3/1 (moist))?; no mottles?; rough ped, moderate, 100-200 mm, subangular blocky?; moist, firm?; medium clay, fine sandy?; coarse fragments 10-20%, 2-6 mm, subangular to subrounded gravel; no segregations?; no pans?; gradual boundary to -
B22?	500-1,500?	Dark grey (10YR4/1 (moist))?; mottles 10-20%, 15-30 mm, prominent, brown, diffuse?; rough ped, strong, 100-200 mm, subangular blocky?; moist, firm?; medium heavy clay, fine sandy?; coarse fragments 10-20%, 2-6 mm, subangular to subrounded gravel; segregations few (2-10%), medium (2-6 mm), calcareous, nodules?; no pans?



Core 1

GENERAL									
Date:	14/12/2021	Describer:	H Marvell	Site:	310-03-AH3716	Type:	Check site		
MSU:	1.1.1.1a	ASC:	Vertosol						
PSC:	Cecilvale			Chainage (m):	139499		Elevation (m):		379
Coordinates:	Easting:	337834	Northing:	6918390		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Very slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qalb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Soft, cryptogam surface		
Surface fragments:	<2%, 6-20 mm, subrounded, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%); poplar box, river red gum		



Location 1



Location 2



Surface 1



Surface 2

GENERAL									
Date:	29/08/2021	Describer:	H Marvell	Site:	310-03-AH3476	Type:	Partial		
MSU:	1.1.1.1a	ASC:	Black Vertosol						
PSC:	Cecilvale			Chainage (m):	139589		Elevation (m):		373
Coordinates:	Easting:	337966	Northing:	6918329		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, firm, surface crust		
Surface fragments:	None		
Microrelief:	Normal, other, elongate mound, equal mounds/depressions, no shelf present		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); poplar box		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-200	Black (7.5YR2.5/1 (moist)); no mottles; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 5.0; gradual boundary to -
B22	200-	Black (7.5YR2.5/1 (moist)); mottles 2-10%, <5 mm, faint, red, clear; rough ped, strong, 50-100 mm, subangular blocky; moist, firm; light medium clay; no fragments; no segregations; no pans; no slaking within 10 mins; no dispersion within 2 hrs; pH 6.0



Location 1



Location 2



Location 3



Surface 1



pH, slaking, dispersion



Profile

GENERAL												
Date:	09/07/2021		Describer:	H Marvell		Site:	310-03-AH3475		Type:	Check site		
MSU:	1.1.1.1a		ASC:	Vertosol								
PSC:	Cecilvale			Chainage (m):			139717		Elevation (m):		379	
Coordinates:	Easting:		337842		Northing:		6918847		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qa\ b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, soft, very coarsely self-mulching		
Surface fragments:	<2%, 2-6 mm, subangular, gravel		
Microrelief:	zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); poplar box, Qld blue gum, <i>Acacia</i> sp.		



Location 1



Location 2



Surface 1



Surface 2

GENERAL										
Date:	29/08/2021	Describer:	T Beck	Site:	310-03-AH3477	Type:	Representative			
MSU:	1.1.1.1a		ASC:	Episodic-Endocalcareous Epipedal Black Vertosol						
PSC:	Cecilvale			Chainage (m):		139733		Elevation (m):		379
Coordinates:	Easting:	337933	Northing:	6918706		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Alluvial plain	Geology:	Qalb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, very coarsely self-mulching		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); poplar box; rooting depth 850 mm.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-300	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, weak; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.5; gradual boundary to -
B22	300-850	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.5; diffuse boundary to -
B23	850-1,200	Dark grey (10YR4/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; coarse fragments 10-20%, 6-20 mm, subrounded, gravel; few 2-10%, soft segregations, coarse 6-20 mm, highly calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0; diffuse boundary to -
B24	1200-1,550	Very dark grey (10YR3/1 (moist)); mottles 10-20%, 15-30 mm, prominent, red, clear; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, very firm; light medium clay; no fragments; common 10-20%, soft segregations, coarse 6-20 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5



Location 1



Location 2



Surface 1



pH, slaking, dispersion



Profile

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.1	7.02	NEU	70.9	H	483	18.3	H	2247	M	4.5	2.57	VH3	1.52	55.6	41.5	1.27

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H2O)		EC (dS/m)	Salinity Rating^	Cl- (mg/kg)	Exchangeable cations (meq/100 g)						ESP (%)	Sodicity*	Emerson class	Ca:Mg ratio	
	Clay	Silt	Sand	Gravel	-	Rating#				H+	Al+	Ca+	Mg+	K+	Na+					CEC
0.0-0.1	27.8	10.3	61.9	<0.1	7.02	NEU	0.14	L	48.3	-	0.01	11.9	13.7	1.17	2.15	29.0	7.42	S	7	0.87
0.2-0.3	17.4	2.9	79.7	1.8	7.65	SLAL	0.26	M	191	-	-	10.5	9.13	0.26	2.59	22.5	11.5	S	3b	1.15
0.5-0.6	13.3	5.5	81.2	1.8	6.96	NEU	0.77	VH	904	-	-	16.2	18.4	0.39	5.32	40.3	13.2	S	3b	0.88
0.8-0.9	47.0	7.1	45.9	0.4	8.24	MAL	0.76	H	948	-	-	8.54	11.1	0.33	3.57	23.6	15.2	SS	2	0.77
1.1-1.2	32.0	4.9	63.0	12.9	8.86	STAL	0.84	VH	849	-	-	8.59	8.67	0.29	3.91	21.5	18.2	SS	2	0.99

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL									
Date:	31/08/2021	Describer:	H Marvell	Site:	310-03-AH3478	Type:	Check site		
MSU:	1.1.1.1a	ASC:	Vertosol						
PSC:	Condamine			Chainage (m):	139882		Elevation (m):		380
Coordinates:	Easting:	338155	Northing:	6918600		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Bank (stream)	Drainage:	Mod. well-drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qalb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, loose, firm		
Surface fragments:	<2%, 6-20 mm, subangular, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor). Rill (active, minor).		
Vegetation:	Very sparse, crowns well separated (0.25-20%); river red gum		



Location 1



Erosion 1



Surface 1



Surface 2

GENERAL											
Date:	22/02/2021		Describer:	H Marvell		Site:	310-03-BH3031		Type:	Detailed	
MSU:	1.1.1.1a		ASC:	Black Vertosol							
PSC:	Condamine?			Chainage (m):			139991		Elevation (m):		379
Coordinates:	Easting:	337780		Northing:	6918490		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Plain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qa/b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching?		
Surface fragments:	2-10%, 2-6 mm, subangular, gravel?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor)?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-100?	Black (10YR2/1 (moist))?.; no mottles?.; rough ped, strong, 50-100 mm, subangular blocky?.; moist, firm?.; medium clay?.; coarse fragments 10-20%, 2-6 mm, subangular to subrounded gravel; no segregations?.; no pans?
B22?	100-1,500?	Black (10YR2/1 (moist))?.; no mottles?.; rough ped, strong, 100-200 mm, subangular blocky?.; moist, firm?.; medium heavy clay?.; no fragments; no segregations?.; no pans?

	
Core 1	

GENERAL										
Date:	29/08/2021	Describer:	T Beck	Site:	310-03-AH3488	Type:	Detailed			
MSU:	1.1.1.1a		ASC:	Black Vertosol						
PSC:	Condamine			Chainage (m):		140101		Elevation (m):		421
Coordinates:	Easting:	339835	Northing:	6919127		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa\ b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, loose, surface crust		
Surface fragments:	10-20%, 6-20 mm, angular, gravel (likely road base)		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	N/A		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-150	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, very firm; light medium clay; coarse fragments 2-10%, 2-6 mm, subrounded, gravel; few 2-10%, calcareous, concretions, medium 2-6 mm, slightly calcareous; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 8.5; diffuse boundary to -
B22	150-900	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 100-200 mm, subangular blocky; moist, very firm; light medium clay; no fragments; common 10-20%, calcareous, concretions, medium 2-6 mm, moderately calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5; diffuse boundary to -
B23	900-1,500	Very dark greyish brown (10YR3/2 (moist)); mottles 2-10%, <5 mm, faint, dark, diffuse; moderate, 50-100 mm, medium clay; no fragments; common 10-20%, calcareous, concretions, medium 2-6 mm, moderately calcareous; no pans; partial slake in 10 mins; complete dispersion within 10 mins; pH 9.0.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	09/07/2021	Describer:	H Marvell	Site:	310-03-AH3487	Type:	Check site		
MSU:	1.1.1.1a	ASC:	Vertosol						
PSC:	Condamine			Chainage (m):	140109		Elevation (m):		381
Coordinates:	Easting:	339642	Northing:	6919289		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Open depression (vale)	Permeability:	Slowly
Landform element:	Swale	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Soft		
Surface fragments:	<2%, 20-60 mm, subrounded, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, moderate). Rill (active, minor).		
Vegetation:	N/A		

	
Location 1	Location 2
	
Surface 1	Surface 2

GENERAL									
Date:	29/08/2021	Describer:	T Beck	Site:	310-03-AH3485	Type:	Partial		
MSU:	1.1.1.1a	ASC:	Black Vertosol						
PSC:	Condamine			Chainage (m):	140127		Elevation (m):		421
Coordinates:	Easting:	339462	Northing:	6919452		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Very slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa1b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Firm, surface flake		
Surface fragments:	2-10%, 6-20 mm, subrounded, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-200	Dark greyish brown (10YR4/2 (moist)); rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, weak; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 6.5; clear boundary to -
B22	200-700	Black (10YR2/1 (moist)); mottles 2-10%, <5 mm, faint, pale, diffuse; rough ped, moderate, 50-100 mm, angular blocky; moderately moist, firm; light medium clay; no fragments; common 10-20%, calcareous, soft segregations, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 9.0.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	29/08/2021	Describer:	H Marvell	Site:	310-03-AH3483	Type:	Partial		
MSU:	1.1.1.1a	ASC:	Black Vertosol						
PSC:	Condamine			Chainage (m):	140155		Elevation (m):		375
Coordinates:	Easting:	339049	Northing:	6919811		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Very slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa\b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, firm, surface crust		
Surface fragments:	2-10%, 20-60 mm, subangular, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	N/A		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21p	0-250	Black (7.5YR2.5/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light clay; coarse fragments 2-10%, 2-6 mm, subrounded, gravel; no segregations; no pans; no slaking within 10 mins; no dispersion within 2 hrs; pH 6.0; gradual boundary to -
B22	250-	Black (7.5YR2.5/1 (moist)); no mottles; rough ped, strong, 50-100 mm, subangular blocky; moist, firm; light medium clay; no fragments; no segregations; no pans; no slaking within 10 mins; no dispersion within 2 hrs; pH 8.5.



Location 1



Surface 1



Surface 2



pH, slaking, dispersion



Profile

GENERAL										
Date:	31/08/2021	Describer:	H Marvell	Site:	310-03-AH3479	Type:	Detailed			
MSU:	1.1.1.1a		ASC:	Black Vertosol						
PSC:	Condamine			Chainage (m):		140162		Elevation (m):		381
Coordinates:	Easting:	338419	Northing:	6918700		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa1b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, surface crust, recently cultivated		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet, active, minor		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); river red gum		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21p	0-100	Black (7.5YR2.5/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moist, firm; medium clay; coarse fragments <2%, 2-6 mm, subangular tabular, gravel; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; clear boundary to -
B22	100-950	Black (7.5YR2.5/1 (moist)); no mottles; rough ped, strong, 100-200 mm, subangular blocky; moist, firm; medium heavy clay; no fragments; few 2-10%, calcareous, concretions, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B23	950-1,300	Black (7.5YR2.5/1 (moist)); no mottles; rough ped, strong, 100-200 mm, subangular blocky; moist, very firm; medium heavy clay; no fragments; few 2-10%, calcareous, concretions, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5; gradual boundary to -
B24	1300-1,500	Black (7.5YR2.5/1 (moist)); mottles 2-10%, <5 mm, distinct, orange, sharp; rough ped, strong, 100-200 mm, subangular blocky; moist, very firm; medium heavy clay; no fragments; few 2-10%, calcareous, concretions, coarse 6-20 mm, highly calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.5.



Location 1



Location 2



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	29/08/2021	Describer:	H Marvell	Site:	310-03-AH3480	Type:	Detailed		
MSU:	1.1.1.1a	ASC:	Black Vertosol						
PSC:	Anchorfield			Chainage (m):	140202		Elevation (m):		376
Coordinates:	Easting:	338739	Northing:	6920114		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa\lb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, loose, firm		
Surface fragments:	<2%, 6-20 mm, subangular, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-200	Very dark grey (7.5YR3/1 (moist)); mottles 2-10%, 5-15 mm, faint, pale, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B22	200-400	Very dark grey (7.5YR3/1 (moist)); mottles 2-10%, 5-15 mm, faint, pale, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; common 10-20%, calcareous, soft segregations, very coarse 20-60 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B23	400-600	Dark brown (7.5YR3/2 (moist)); mottles 2-10%, 5-15 mm, faint, dark, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; common 10-20%, calcareous, concretions, very coarse 20-60 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B24	600-	Dark brown (7.5YR3/3 (moist)); mottles 2-10%, <5 mm, prominent, dark, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; many 20-50%, calcareous, concretions, very coarse 20-60 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 9.0.



Location 1



Surface 1



Surface 2



pH, slaking, dispersion



Profile

GENERAL									
Date:	09/07/2021	Describer:	H Marvell	Site:	310-03-AH3481	Type:	Check site		
MSU:	1.1.1.1a	ASC:	Vertosol						
PSC:	Anchorfield			Chainage (m):	140203		Elevation (m):		381
Coordinates:	Easting:	338929	Northing:	6919966		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qalb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, soft, surface crust		
Surface fragments:	<2%, 60-200 mm, subangular, quartz		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor).		
Vegetation:	N/A		



Location 1



Location 2



Surface 1



Surface 2

GENERAL									
Date:	22/02/2021	Describer:	B Rose	Site:	310-03-BH3032	Type:	Detailed		
MSU:	1.1.1.1a	ASC:	Black Vertosol						
PSC:	Condamine?		Chainage (m):		140308		Elevation (m):		380
Coordinates:	Easting:	338547	Northing:	6918772		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Plain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qa/b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching?		
Surface fragments:	<2%, 6-20 mm, subangular, gravel?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor)?		
Vegetation:	None		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-450?	Black (10YR2/1 (moist)); no mottles?; rough ped, moderate, 50-100 mm, subangular blocky?; moist, firm?; medium clay, fine sandy?; coarse fragments 10-20%, 2-6 mm, subangular to subrounded gravel?; no segregations?; no pans?; gradual boundary? to -
B21?	450-1,500?	Very dark greyish brown (10YR3/2 (moist)); no mottles?; rough ped, strong, 100-200 mm, subangular blocky?; moist, firm?; medium heavy clay, fine sandy?; coarse fragments 2-10%, 2-6 mm, subangular to subrounded gravel; segregations <2%, 6-20 mm, calcareous, nodules?; no pans?



GENERAL												
Date:	15/11/2020		Describer:	H Marvell		Site:	310-03-BH3033		Type:	Detailed		
MSU:	1.1.1.1a		ASC:	Black Vertosol								
PSC:	Condamine?			Chainage (m):			140475		Elevation (m):		380	
Coordinates:	Easting:		338681		Northing:		6918869		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Moderately well- drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa\lb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, surface crust, recently cultivated		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor)?		
Vegetation:	None?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-450?	Black (10YR2/1 (moist))?. no mottles?. rough ped, moderate, 50-100 mm, subangular blocky?. moist, very firm?. medium clay, fine sandy?. coarse fragments 2-10%, 6-20 mm, subrounded gravel?. no segregations?. no pans?. gradual boundary? to -
B22?	450-1,000?	Very dark grey (10YR3/1 (moist))?. no mottles?. rough ped, strong, 100-200 mm, subangular blocky?. moist, very firm?. medium heavy clay, fine sandy?. coarse fragments 2-10%, 6-20 mm, subrounded gravel?. segregations 10-20%, 6-20 mm, calcareous, concretions?. no pans?. gradual boundary? to -
B23?	1,000-1,500?	Dark grey (10YR4/1 (moist))?. no mottles?. rough ped, strong 100-200 mm, subangular blocky?. moist, strong?. medium heavy clay, fine sandy?. coarse fragments 2-10%, 6-20 mm, subrounded gravel?. segregations 2-10%, 6-20 mm, calcareous, concretions; no pans?



GENERAL											
Date:	15/11/2020		Describer:	H Marvell		Site:	310-03-BH3034		Type:	Detailed	
MSU:	1.1.1.1a		ASC:	Black Vertosol							
PSC:	Condamine?			Chainage (m):			140628		Elevation (m):		380
Coordinates:	Easting:	338799		Northing:	6918983		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa\l
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, surface crust, recently cultivated?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor)?		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%); no adjacent species		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-300	Black (7.5YR2.5/1 (moist))?.; no mottles?.; rough ped, moderate, 100-200 mm, subangular blocky?.; moist, strong?.; light medium clay?.; coarse fragments 2-10%, 6-20 mm, subangular gravel?.; no segregations?.; no pans?.; gradual boundary? to -
B22	300-1,500	Black (7.5YR2.5/1 (moist))?.; no mottles; rough ped, strong, 100-200 mm, subangular blocky?.; moist, strong; medium clay?.; 2-10%, 6-20 mm, subrounded gravel?.; common (10-20%), calcareous, concretions, coarse (6-20 mm)?.; no pans?



Core 1

GENERAL										
Date:	08/07/2021	Describer:	H Marvell	Site:	310-03-AH3486	Type:	Check site			
MSU:	1.1.1.1a	ASC:	Vertosol							
PSC:	Condamine			Chainage (m):		140650		Elevation (m):		381
Coordinates:	Easting:	339563	Northing:	6920035		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa/b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, surface crust		
Surface fragments:	2-10%, 2-6 mm, subrounded, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	N/A		



Location 1



Erosion 1



Surface 1



Surface 2

GENERAL									
Date:	30/08/2021	Describer:	H Marvell	Site:	310-03-AH3489	Type:	Detailed		
MSU:	1.1.1.1a	ASC:	Black Vertosol						
PSC:	Condamine			Chainage (m):	141289		Elevation (m):		381
Coordinates:	Easting:	339844	Northing:	6920610		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa1b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor). Rill (active, minor).		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21p	0-100	Dark brown (7.5YR3/2 (moist)); no mottles; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; coarse fragments 10-20%, 6-20 mm, subangular, gravel; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.5; gradual boundary to -
B22	100-450	Dark brown (7.5YR3/2 (moist)); mottles 2-10%, 5-15 mm, prominent, dark, clear; rough ped, moderate, 50-100 mm, subangular blocky; moist, firm; light medium clay; no fragments; few 2-10%, calcareous, concretions, medium 2-6 mm, non-calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.5; gradual boundary to -
B23	450-850	Very dark grey (7.5YR3/1 (moist)); no mottles; rough ped, strong, 50-100 mm, subangular blocky; moist, firm; light medium clay; no fragments; few 2-10%, calcareous, concretions, coarse 6-20 mm, moderately calcareous; no pans; pH 8.0; gradual boundary to -
B24	850-1,500	Dark grey (7.5YR4/1 (moist)); no mottles; rough ped, strong, 50-100 mm, subangular blocky; moist, very firm; medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5.



Location 1



Erosion 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL												
Date:	22/06/2021		Describer:	H Marvell		Site:	310-03-TP3142		Type:	Detailed		
MSU:	1.1.1.1a		ASC:	Black Vertosol								
PSC:	Condamine			Chainage (m):		141415		Elevation (m):		379		
Coordinates:	Easting:		339266		Northing:		6919609		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Very slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa\l
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Firm, surface flake		
Surface fragments:	2-10%, 6-20 mm, subrounded, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%); no adjacent species		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Dark brown (10YR3/2 (moist)); no mottles; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, firm?; light medium clay?; no fragments?; no segregations?; no pans?; gradual boundary to -
B22	100-700	Dark grey (10YR3/1 (moist)); no mottles; rough ped, strong, 50-100 mm, subangular blocky; moist, very firm?; medium clay?; no fragments?; no segregations?; no pans?; gradual boundary to -
B23	700-1,500	Brown (10YR4/3 (moist)); no mottles?; rough ped, strong, 100-200 mm, subangular blocky?; moist, strong?; medium clay?; no fragments; common (10-20%), calcareous, concretions, medium (2-6 mm); no pans?

	
Profile 1	Location 1

GENERAL									
Date:	22/06/2021	Describer:	H Marvell	Site:	310-03-TP3300	Type:	Detailed		
MSU:	1.1.1.1a	ASC:	Black Vertosol						
PSC:	Condamine		Chainage (m):		141737		Elevation (m):		379
Coordinates:	Easting:	339469	Northing:	6919859		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa\lb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, surface crust		
Surface fragments:	2-10%, 2-6 mm, subrounded, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	N/A		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Dark brown (7.5YR3/2 (moist)); no mottles?; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; no segregations; no pans; gradual boundary to -
B22	100-1,200	Dark grey (7.5YR3/1 (moist)); no mottles?; rough ped, strong, 50-100 mm; moist, very firm; medium clay; no fragments; common 10-20%, calcareous, soft segregations, medium 2-6 mm?; no pans?; gradual boundary to -
B23	1,200-1,500	Brown (7.5YR4/2 (moist)); no mottles?; rough ped, strong, 100-200 mm?; moist, strong?; medium clay?; no fragments; few 2-10%, calcareous, soft segregations, medium 2-6 mm?; no pans?

	
Surface 1	Stockpile 1

GENERAL												
Date:	18/11/2021		Describer:	H Marvell		Site:	310-03-BH3038		Type:	Detailed		
MSU:	1.1.1.1a		ASC:	Black Vertosol								
PSC:	Condamine?			Chainage (m):			143298		Elevation (m):		380	
Coordinates:	Easting:		340163		Northing:		6921257		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa/b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, loose, firm, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-300?	Very dark grey (7.5YR3/1 (moist)); no mottles?; rough ped, strong, 100-200 mm?, subangular blocky; moderately moist, firm?; medium clay; 2-10%, 6-20 mm, sub-angular gravel?; no segregations?; no pans?; gradual boundary to -
B22?	300-1,500?	Black (7.5YR2.5/1 (moist)); no mottles; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, very firm?; medium heavy clay; 2-10%, 6-20 mm, sub-rounded/sub-angular gravel?; no segregations?; no pans?

MACQUARIE GEOTECH

B20331

ARTC Inland Rail

Project Name: B2G Geotechnical Investigation

Date: 18 / 11 / 2020

BH ID: 310-03-BH3 038

Depth: 0.50 To 0.95 m

SPT N = 6

2,3,3

P.P= 190

kPa

Core 1

GENERAL											
Date:	22/06/2021		Describer:	B Rose		Site:	310-03-TP3304		Type:	Detailed	
MSU:	1.1.1.1a		ASC:	Grey Vertosol							
PSC:	Condamine?			Chainage (m):		142045		Elevation (m):		384	
Coordinates:	Easting:	3421990		Northing:	6923729		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa\l
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, loose, firm, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-150	Dark grey (7.5YR4/1 (moist)); no mottles?; rough ped, moderate, 50-100 mm?, subangular blocky; dry, firm; light medium clay?; no fragments?; no segregations?; no pans; gradual boundary to -
B22	150-300	Black (7.5YR2.5/1 (moist)); no mottles?; rough ped, strong, 100-200 mm?, subangular blocky; moist, very firm; medium clay?; no fragments?; no segregations?; no pans?; gradual boundary to -
B23	300-1,500	Dark grey (7.5YR4/1 (moist)); no mottles?; rough ped, strong, 50-100 mm?, subangular blocky?; moist, strong; medium clay?; 2-10%, 6-20 mm, sub-rounded, gravel?; 2-10%, 6-20 mm, sub-angular, gravel?; no segregations?; no pans



Core

GENERAL									
Date:	22/06/2021	Describer:	B Rose	Site:	310-03-TP3301	Type:	Detailed		
MSU:	1.1.1.1a	ASC:	Grey Vertosol?						
PSC:	Condamine?		Chainage (m):		142		Elevation (m):		379
Coordinates:	Easting:	339650	Northing:	6920217		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Plain	Geology:	Qa/b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Firm, cracking?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Emergent (<5% of total); <i>Eucalyptus</i> sp.?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-100?	Dark grey (10YR4/1 (moist))?.; no mottles?.; rough ped, strong, 20-50 mm?, subangular blocky?.; moderately moist, firm?.; light medium clay?.; no fragments?.; no segregations?.; no pans?.; gradual boundary to -
B22?	100-400?	Dark grey (10YR4/1 (moist))?.; no mottles?.; rough ped, strong, 50-100 mm?, subangular blocky?.; moist, firm?.; medium clay?.; no fragments?.; no segregations?.; no pans?
B23?	400-1,500?	Very dark grey (10YR3/1 (moist))?.; no mottles?.; rough ped, strong, 100-200 mm?, subangular blocky?.; moist, firm?.; medium clay?.; no fragments?.; no segregations?.; no pans?



Profile 1



Location 1



Stockpile 1

GENERAL											
Date:	30/08/2021		Describer:	H Marvell		Site:	310-03-AH3490		Type:	Partial	
MSU:	1.1.1.1a			ASC:	Black Vertosol						
PSC:	Condamine				Chainage (m):		142242		Elevation (m):		381
Coordinates:		Easting:	340265		Northing:	6921465		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa\lb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:		SCL:	
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, loose, firm, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21p	0-100	Very dark grey (7.5R3/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.0; gradual boundary to -
B22	100-300	Black (7.5R2.5/1 (moist)); mottles 2-10%, 5-15 mm, faint, pale, diffuse; rough ped, moderate, 100-200 mm, angular blocky; moderately moist, firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.0; gradual boundary to -
B23	300-550	Black (7.5R2.5/1 (moist)); no mottles; rough ped, strong, 100-200 mm, angular blocky; moist, firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B24	550-	Very dark grey (7.5R3/1 (moist)); no mottles; rough ped, strong, 100-200 mm, angular blocky; moist, firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.5.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	22/06/2021	Describer:	H Marvell	Site:	310-03-TP3302	Type:	Detailed		
MSU:	1.1.1.1a	ASC:	Black Vertosol						
PSC:	Condamine?		Chainage (m):		142421		Elevation (m):		379
Coordinates:	Easting:	339776	Northing:	6920472		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa\l
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor). Rill (active, minor).		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%)		

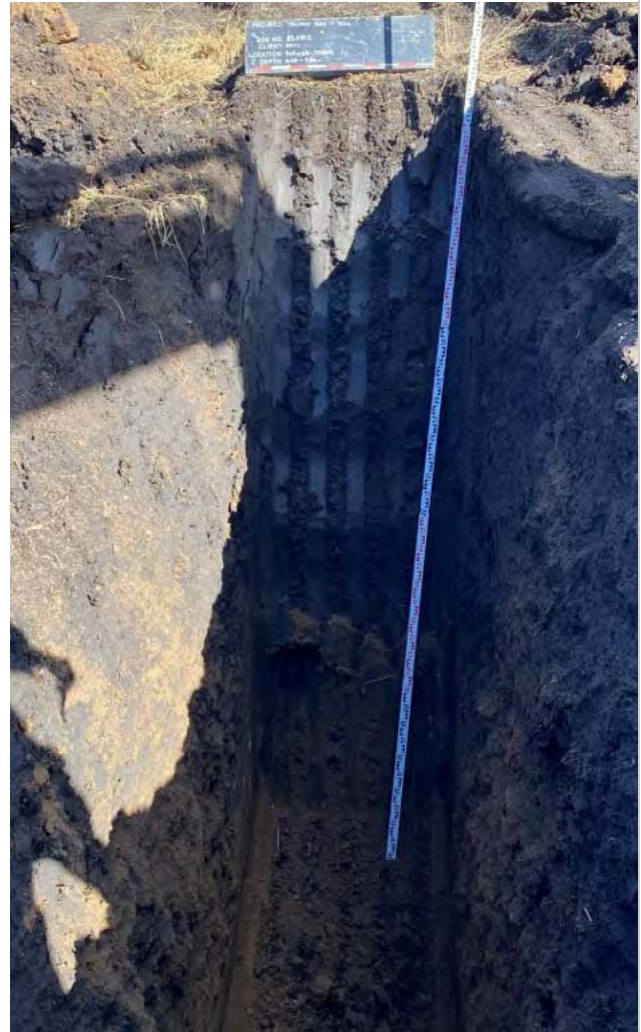
SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Dark brown (7.5YR3/2 (moist)); no mottles?; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments?; no segregations?; no pans; gradual boundary to -
B22	100-1,100	Very dark grey (7.5YR3/1 (moist)); no mottles?; rough ped, strong, 100-200 mm, subangular blocky; moist, very firm; medium clay; no fragments?; few (2-10%), calcareous, concretions, medium (2-6 mm)?; no pans; gradual boundary to -
B23	1,100-1,500	Very dark grey (7.5YR3/1 (moist)); no mottles?; rough ped, strong?; moist, strong?; medium clay?; no fragments?; no segregations?; no pans



Profile 1



Location 1



Profile 2

GENERAL											
Date:	30/08/2021		Describer:	H Marvell		Site:	310-03-AH3491		Type:	Check site	
MSU:	1.1.1.1a		ASC:	Vertosol							
PSC:	Condamine			Chainage (m):		142853		Elevation (m):		380	
Coordinates:	Easting:	340533		Northing:	6922013		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qalb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, loose, firm, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor). Rill (active, minor).		
Vegetation:	Sparse, crowns clearly separated (20-50%)		



Location 1



Erosion 1



Surface 1



Surface 2

GENERAL												
Date:	25/11/2020		Describer:	H Marvell		Site:	310-03-BH3037		Type:	Detailed		
MSU:	1.1.1.1a		ASC:	Black Vertosol								
PSC:	Condamine?			Chainage (m):			143075		Elevation (m):		380	
Coordinates:	Easting:		340064		Northing:		6921058		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa\lb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust?		
Surface fragments:	None		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor); rill (active, minor)?		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-350	Black (10YR2/1 (moist))?. no mottles?. rough ped, strong, 50-100 mm, subangular blocky?. moist, weak?. medium clay, fine sandy?. coarse fragments few (2-10%), medium (6-20 mm), subrounded gravel?. no segregations?. no pans?. diffuse boundary to -
B22	350-1,500	Black (10YR2/1 (moist))?. no mottles?. rough ped, strong, 100-200 mm, subangular blocky?. moderately moist, firm; medium heavy clay?. coarse fragments few (2-10%), medium (6-20 mm), subrounded gravel?. segregations very few (<2%), fine (<2%), calcareous, nodules?. no pans?



Core 1

GENERAL									
Date:	30/08/2021	Describer:	H Marvell	Site:	310-03-AH3492	Type:	Check site		
MSU:	1.1.1.1a	ASC:	Vertosol						
PSC:	Condamine			Chainage (m):	143214		Elevation (m):		380
Coordinates:	Easting:	340691	Northing:	6922338		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qalb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust		
Surface fragments:	2-10%, 2-6 mm, subangular, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor). Rill (active, minor).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		



Location 1



Location 2



Erosion 1



Surface 1

GENERAL

Date:	06/02/2021	Describer:	S Kenway	Site:	310-03-BH3041	Type:	Detailed
MSU:	1.1.1.1a	ASC:	Black Vertosol				
PSC:	Condamine?	Chainage (m):	143415	Elevation (m):	379		
Coordinates:	Easting:	340814	Northing:	6922510	Zone:	56	Datum: GDA94

SITE DESCRIPTION

Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa\l
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust?		
Surface fragments:	2-10%, 2-6 mm, subangular, gravel?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor); rill (active, minor)?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)?		

SOIL DESCRIPTION

Horizon	Depth (mm)	Description
A1/B21	0-500	Black (10YR2/1 (moist))?. no mottles?. rough ped, strong, 100-200 mm, subangular blocky?. moist, weak?. medium clay?. coarse fragments few (2-10%), medium (6-20 mm), subrounded to subangular gravel?. no segregations?. no pans?. diffuse boundary to -
B22	500-1,500	Very dark brown (10YR2/2 (moist))?. no mottles?. rough ped, strong, 100-200 mm, subangular blocky?. moderately moist, firm?. medium heavy clay?. coarse fragments few (2-10%), medium (6-20 mm), subrounded to subangular gravel?. few (2-10%), calcareous, concretions, medium (2-6 mm)?. no pans?

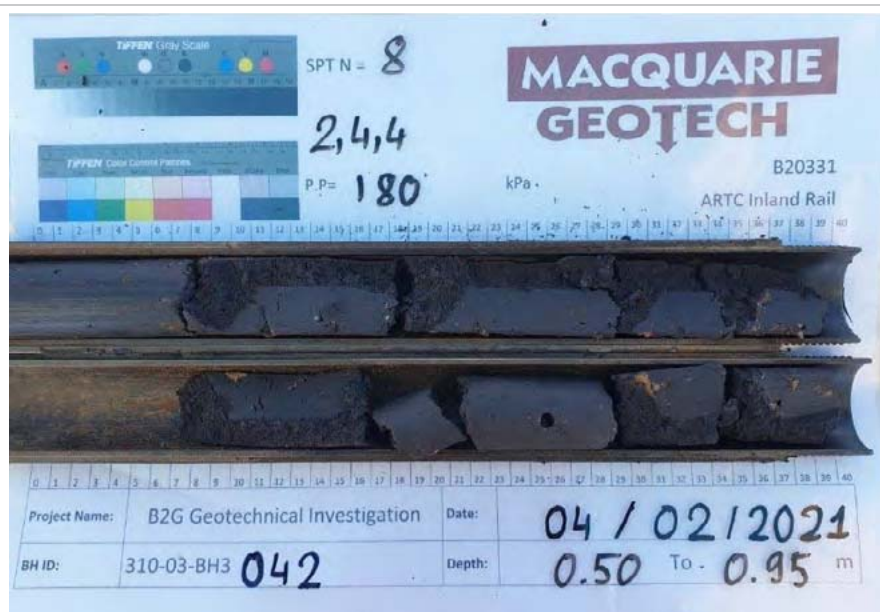


Core 1

GENERAL												
Date:	04/02/2021		Describer:	S Kenway		Site:	310-03-BH3042		Type:	Detailed		
MSU:	1.1.1.1a		ASC:	Black Vertosol								
PSC:	Condamine?			Chainage (m):			143620		Elevation (m):		380	
Coordinates:	Easting:		340955		Northing:		692267		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa\l
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-1,000?	Black (10YR2/1 (moist))?. no mottles?. rough ped, strong, 100-200 mm, subangular blocky?. moist, weak; medium clay?. no fragments?. no segregations?. no pans?. gradual boundary to -
B22	1,000-1,500?	Black (10YR2/1 (moist))?. no mottles?. rough ped, strong, 100-200 mm, subangular blocky?. moderately moist, firm?. medium heavy clay?. 2-10%, 6-20 mm, subrounded, gravel?. few (2-10%), calcareous, concretions, medium (2-6 mm)?. no pans?



Core 1

GENERAL											
Date:	04/02/2021		Describer:	H Marvell		Site:	310-03-BH3043		Type:	Detailed	
MSU:	1.1.1.1a		ASC:	Black Vertosol?							
PSC:	Condamine?			Chainage (m):			143825		Elevation (m):		380
Coordinates:	Easting:	341095		Northing:	6922792		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain – frequently active (≤ 50yr)	Geology:	Qa/b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Firm; Cracking?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor)?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); no adjacent species?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-200?	Black 10YR2/1 (moist)?; no mottles?; rough ped, strong, 50-100 mm, subangular blocky?; moist, weak?; medium clay?; 2-10% fragments, 6-20 mm, sub-rounded gravel?; no segregations?; no pans?; gradual boundary to -
B22?	200-1,500?	Black (10YR2/1 (moist)?; no mottles?; rough ped, strong, 100-200 mm, subangular blocky?; moderately moist, very firm?; medium heavy clay?; 2-10% fragments, 6-20 mm, sub-rounded gravel?; no segregations?; no pans?



Core 1

GENERAL

Date:	02/09/2021	Describer:	H Marvell	Site:	310-03-BH3039	Type:	Detailed
MSU:	1.1.1.1a	ASC:	Grey Vertosol?				
PSC:	Condamine?	Chainage (m):	142585	Elevation (m):	380		
Coordinates:	Easting:	340419	Northing:	6921781	Zone:	56	Datum: GDA94

SITE DESCRIPTION

Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa/b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, loose, firm, surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor)?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)?; rooting depth 15 mm?		

SOIL DESCRIPTION

Horizon	Depth (mm)	Description
A1/B21	0-500?	Very dark grey (10YR3/1 (moist))?; no mottles?; rough peds, strong, 100-200 mm, subangular blocky?; moist, weak; medium clay?; few 2-10%, 2-6 mm, subrounded to rounded gravel?; few (2-10%), calcareous, concretions, medium (2-6 mm)?; no pans?; gradual boundary to -
B22	500-1,500?	Very dark grey (10YR3/1 (moist))?; no mottles?; rough peds, strong, 100-200 mm, subangular blocky?; moderately moist, firm?; medium heavy clay?; few 2-10%, 2-6 mm, no fragments?; few (2-10%), calcareous, concretions, medium (2-6 mm)?; no pans?



Core 1

GENERAL							
Date:	24/01/2021	Describer:	S Kenway	Site:	310-03-BH3044	Type:	Detailed
MSU:	1.1.1.1a	ASC:	Black Vertosol				
PSC:	Condamine?	Chainage (m):	144025	Elevation (m):	380		
Coordinates:	Easting:	341251	Northing:	6922928	Zone:	56	Datum: GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa/b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-500?	Black (10YR2/1 (moist))?. no mottles?. rough ped, strong, 100-200 mm, subangular blocky?. moist, weak?. medium clay?. no fragments?. no segregations?. no pans?. diffuse boundary to -
B22	500-1,500?	Very dark greyish brown (10YR3/2 (moist))?. no mottles?. rough ped, strong, 100-200 mm subangular blocky?. moist, firm?. medium heavy clay?. coarse fragments very few (<2%), medium (6-20 mm), subangular to subrounded, gravel?. segregations very few (<2%), fine (<2 mm), calcareous, nodules?. no pans?



Core 1

GENERAL									
Date:	13/01/2021	Describer:	S Kenway	Site:	310-03-BH3045	Type:	Detailed		
MSU:	1.1.1.1a	ASC:	Black Vertosol						
PSC:	Condamine?		Chainage (m):		144250		Elevation (m):		380
Coordinates:	Easting:	341425	Northing:	6923074		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa\l
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-500?	Black (10YR2/1 (moist))?. no mottles?. rough ped, strong, 100-200 mm, subangular blocky?. moderately moist, weak?. medium clay?. no fragments?. no segregations?. no pans?. gradual boundary to -
B22	500-1,500?	Black (10YR2/1 (moist))?. no mottles?. rough ped, strong, 100-200 mm, subangular blocky?. moist, firm?. medium heavy clay?. coarse fragments very few (<2%), medium (6-20 mm), subangular to subrounded, gravel?. few (2-10%), calcareous, concretions, medium (2-6 mm)?. no pans?



Core 1

GENERAL									
Date:	06/02/2021	Describer:	S Kenway	Site:	310-03-BH3040	Type:	Detailed		
MSU:	1.1.1.1a	ASC:	Black Vertosol						
PSC:	Condamine?		Chainage (m):		144332		Elevation (m):		379
Coordinates:	Easting:	340599	Northing:	6922195		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa/b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust?		
Surface fragments:	2-10%, 2-6 mm, subangular, gravel?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor); rill (active, minor)?		
Vegetation:	Sparse, crowns clearly separated (20-50%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-1,300?	Very dark brown (10YR2/2 (moist))?. no mottles?. rough ped, strong, 100-200 mm, subangular blocky?. moist, strong?. medium clay?. 2-10%, 6-20 mm, subrounded gravel?. no segregations?. no pans?. diffuse boundary to -
B22	1,300-1,500?	Very dark brown (10YR2/2 (moist))?. yellow mottles, 2-10%, 20-50 mm, diffuse?. rough ped, strong, 100-200 mm, subangular blocky?. moist, strong?. medium clay?. 2-10%, 6-20 mm, subrounded gravel?. segregations 2-10%, 2-6 mm, calcareous, nodules?. no pans?



SPT N=714/18
 N=32
 P.P. > 600 KPa

Project Name: B24
 Date: 07/02/2021
 BH ID: 310-03-BH3040
 Depth: 0.50 - 0.95 m

Core 1

GENERAL									
Date:	29/08/2021	Describer:	T Beck	Site:	310-03-AH3497	Type:	Check site		
MSU:	1.1.1.1a	ASC:	Vertosol						
PSC:	Condamine			Chainage (m):	144524		Elevation (m):		424
Coordinates:	Easting:	341805	Northing:	6923032		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qalb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, firm, surface crust		
Surface fragments:	2-10%, 6-20 mm, subrounded, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		



Location 1



Location 2



Surface 1



Surface 2

GENERAL

Date:	13/01/2021	Describer:	S Kenway	Site:	310-03-BH3046	Type:	Detailed	
MSU:	1.1.1.1a	ASC:	Grey Vertosol					
PSC:	Condamine?		Chainage (m):		144525	Elevation (m):		380
Coordinates:	Easting:	341647	Northing:	6923264	Zone:	56	Datum:	GDA94

SITE DESCRIPTION

Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa/b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust?		
Surface fragments:	2-10%, 2-6 mm, subangular, gravel?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor); rill (active, minor)?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)?		

SOIL DESCRIPTION

Horizon	Depth (mm)	Description
A1/B21?	0-1,500?	Dark grey (10YR4/1 (moist))?: no mottles?: rough ped, strong, 100-200 mm, subangular blocky?: moderately moist, weak?: medium clay?: coarse fragments very few (<2%), medium (2-6 mm), subrounded-rounded, gravel?: segregations few (2-10%), coarse (6-20 mm), calcareous, nodules?: no pans?



Core 1

GENERAL									
Date:	29/08/2021	Describer:	T Beck	Site:	310-03-AH3494	Type:	Check site		
MSU:	1.1.1.1a	ASC:	Vertosol						
PSC:	Condamine			Chainage (m):	144538		Elevation (m):		423
Coordinates:	Easting:	341477	Northing:	6923440		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qalb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Self-mulching, loose, firm, surface crust		
Surface fragments:	2-10%, 20-60 mm, subrounded, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		



Location 1



Location 2



Surface 1



Surface 2

GENERAL									
Date:	29/08/2021	Describer:	T Beck	Site:	310-03-AH3493	Type:	Representative		
MSU:	1.1.1.1a	ASC:	Epicalcareous Self-mulching Black Vertosol						
PSC:	Condamine			Chainage (m):	144552		Elevation (m):		424
Coordinates:	Easting:	341350	Northing:	6923612		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa1b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); rooting depth 160 mm		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21p	0-160	Dark grey (10YR4/1 (moist)); no mottles; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, weak; medium clay; coarse fragments <2%, 2-6 mm, subrounded, gravel; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; clear boundary to -
B22	160-1,000	Black (10YR2/1 (moist)); no mottles; rough ped, strong, 50-100 mm, subangular blocky; moist, very firm; medium clay; coarse fragments <2%, 2-6 mm, subrounded, gravel; few 2-10%, calcareous, concretions, fine <2 mm, slightly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; diffuse boundary to -
B23	1000-1,300	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, strong, 50-100 mm, subangular blocky; moist, very firm; medium heavy clay; no fragments; common 10-20%, calcareous, concretions, medium 2-6 mm, moderately calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 9.0; diffuse boundary to -
B24	1300-1,500	Very dark grey (10YR3/1 (moist)); mottles 10-20%, 5-15 mm, faint, brown, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moist, very firm; light medium clay; no fragments; common 10-20%, calcareous, soft segregations, medium 2-6 mm, slightly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 9.0.



Location 1



Surface 1



pH, slaking, dispersion



Profile

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.1	8.41	STAL	68.8	H	977	20.7	H	750	L	2.8	1.58	M3	1.14	40.2	18.6	0.54

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H2O)		EC (dS/m)	Salinity Rating^	Cl ⁻ (mg/kg)	Exchangeable cations (meq/100 g)						ESP (%)	Sodicity [*]	Emerson class	Ca:Mg ratio	
	Clay	Silt	Sand	Gravel	-	Rating [#]				H+	Al+	Ca+	Mg+	K+	Na+					CEC
0.0-0.1	52.2	7.2	40.6	16.8	8.41	STAL	0.19	L	33.8	-	-	19.3	13.5	0.76	0.85	34.4	2.47	NS	2	1.43
0.2-0.3	27.1	6.4	66.5	0.7	7.96	MAL	0.18	L	59.7	-	-	17.4	13.4	0.74	0.79	32.3	2.43	NS	2	1.30
0.5-0.6	18.0	0.6	81.4	1.2	8.06	MAL	0.16	M	62.1	-	-	15.6	13.6	0.53	0.55	30.3	1.81	NS	2	1.15
0.8-0.9	4.41	10.6	85.0	2.4	8.11	MAL	0.20	VL	72.6	-	-	17.6	12.6	0.51	0.79	31.5	2.50	NS	2	1.40
1.1-1.2	14.4	3.3	82.3	14.5	8.37	MAL	0.22	M	69.6	-	-	17.0	14.1	0.57	0.56	32.2	1.74	NS	2	1.21
1.4-1.5	51.6	5.9	42.5	1.8	8.43	STAL	0.22	L	72.2	-	-	18.0	13.7	0.47	0.47	32.6	1.46	NS	4	1.32

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL									
Date:	23/01/2021	Describer:	S Kenway	Site:	310-03-BH3047	Type:	Partial		
MSU:	1.1.1.1a	ASC:	Black Vertosol						
PSC:	Condamine?	Chainage (m):	144765	Elevation (m):	380				
Coordinates:	Easting:	341816	Northing:	6923405	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa\l
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust?		
Surface fragments:	2-10%, 2-6 mm, subangular, gravel?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor)?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-1,500?	Black (10YR2/1 (moist))?; no mottles?; rough ped, strong, 50-100 mm, subangular blocky?; moist, firm?; medium clay?; coarse fragments few (2-10%), fine (2-6 mm), subangular gravel?; no segregations?; no pans?

GENERAL									
Date:	15/11/2021	Describer:	H Marvell	Site:	310-03-AH3495	Type:	Partial		
MSU:	1.1.1.1a	ASC:	Black Vertosol						
PSC:	Condamine			Chainage (m):	144869		Elevation (m):		382
Coordinates:	Easting:	341778	Northing:	6923598		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Plain	Drainage:	Poorly drained
Landform pattern:	Plain	Geology:	Qa/b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Self-mulching, loose, soft, surface crust		
Surface fragments:	2-10%, 6-20 mm, subangular, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, moderate).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21p	0-80	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 20-50 mm, subangular blocky; moist, firm; light medium clay; no fragments; few 2-10%, calcareous, concretions, coarse 6-20 mm, moderately calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0; clear boundary to -
B22	80-220	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, strong, 50-100 mm, subangular blocky; moist, very firm; medium clay; coarse fragments 10-20%, 2-6 mm, subrounded, gravel; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B23	220-	Very dark grey (10YR3/1 (moist)); mottles 2-10%, <5 mm, prominent, dark, clear; rough ped, strong, 100-200 mm, subangular blocky; moist, very firm; medium clay; no fragments; common 10-20%, calcareous, concretions, coarse 6-20 mm, slightly calcareous; no pans; pH 8.5.



Location 1



Surface 1



Surface 2



pH, slaking, dispersion



Profile

GENERAL									
Date:	15/11/2021	Describer:	H Marvell	Site:	310-03-AH3496	Type:	Detailed		
MSU:	1.1.1.1a	ASC:	Black Vertosol						
PSC:	Condamine			Chainage (m):	144880		Elevation (m):		383
Coordinates:	Easting:	341626	Northing:	6923794	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Alluvial plain	Geology:	Qa1b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Self-mulching, loose, soft, surface crust		
Surface fragments:	2-10%, 6-20 mm, subangular, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, moderate)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21p	0-80	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 20-50 mm, subangular blocky; moist, firm; light clay; no fragments; few 2-10%, calcareous, concretions, coarse 6-20 mm, moderately calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.0; clear boundary to -
B22	80-200	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, strong, 50-100 mm, subangular blocky; moist, very firm; medium clay; coarse fragments 10-20%, 2-6 mm, subrounded, gravel; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B23	200-650	Very dark grey (10YR3/1 (moist)); mottles 10-20%, <5 mm, faint, brown, clear; rough ped, strong, 100-200 mm, subangular blocky; moist, very firm; medium clay; no fragments; common 10-20%, calcareous, concretions, coarse 6-20 mm, slightly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 9.0; diffuse boundary to -
B24	650-1,000	Very dark greyish brown (10YR3/2 (moist)); mottles 20-50%, 15-30 mm, faint, brown, clear; rough ped, strong, 100-200 mm, subangular blocky; moist, very firm; medium clay; no fragments; few 2-10%, manganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 9.0; gradual boundary to -
B31	1000-1,500	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moist, very firm; light medium clay; no fragments; common 10-20%, calcareous, concretions, coarse 6-20 mm, moderately calcareous; few 2-10%, manganiferous, concretions, medium 2-6 mm, no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 9.0.



Location 1



Surface 1



Surface 2



pH, slaking, dispersion



Profile

GENERAL									
Date:	25/01/2021	Describer:	S Kenway	Site:	310-03-BH3048	Type:	Partial		
MSU:	1.1.1.1a	ASC:	Black Vertosol						
PSC:	Condamine?	Chainage (m):	144980	Elevation (m):	381				
Coordinates:	Easting:	341981	Northing:	6923544	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Plain	Drainage:	Poorly drained
Landform pattern:	Plain	Geology:	Qa/b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Self-mulching, loose, soft, surface crust?		
Surface fragments:	2-10%, 6-20 mm, subangular, gravel?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, moderate)?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-1,500?	Black (10YR2/1 (moist))?; no mottles?; rough ped, strong, 50-100 mm, subangular blocky?; moderately moist, firm; medium clay?; coarse fragments few (2-10%), medium (6-20 mm), subangular gravel?; no segregations?; no pans?

GENERAL												
Date:	02/02/2021		Describer:	S Kenway		Site:	310-03-BH3049		Type:	Detailed		
MSU:	1.1.1.1a		ASC:	Black Vertosol								
PSC:	Condamine?			Chainage (m):			145145		Elevation (m):		381	
Coordinates:	Easting:		342107		Northing:		6923651		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Plain	Drainage:	Poorly drained
Landform pattern:	Plain	Geology:	Qa/b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Self-mulching, loose, soft, surface crust?		
Surface fragments:	2-10%, 6-20 mm, subangular, gravel?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor)?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-300	Black (10YR2/1 (moist))?.; no mottles?.; rough ped, strong, 50-100 mm, subangular blocky?.; moist, weak?.; medium clay?.; no fragments?.; no segregations?.; no pans?.; diffuse boundary to -
B22	300-1,500	Very dark brown (10YR2/2 (moist))?.; no mottles?.; rough ped, strong, 100-200 mm, subangular blocky?.; moist, firm?.; medium heavy clay?.; coarse fragments many (20-50%), medium (6-20 mm), subangular to subrounded, sandstone?.; no segregations?.; no pans?

Project Name:	B2G Geotechnical Investigation	Date:	02/02/2021
BH ID:	310-03-BH3049	Depth:	0.50 To 0.95 m

Core 1

GENERAL

Date:	30/08/2021	Describer:	H Marvell	Site:	310-03-AH3498	Type:	Representative
MSU:	1.1.1.1a	ASC:	Haplic Self-mulching Black Vertosol				
PSC:	Anchorfield	Chainage (m):	145454	Elevation (m):	382		
Coordinates:	Easting:	342335	Northing:	6923845	Zone:	56	Datum: GDA94

SITE DESCRIPTION

Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qalb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Loose, firm, surface crust		
Surface fragments:	2-10%, 6-20 mm, subangular, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); rooting depth 100 mm		

SOIL DESCRIPTION

Horizon	Depth (mm)	Description
A1/B21	0-100	Very dark grey (7.5YR3/1 (moist)); mottles 2-10%, <5 mm, faint, pale, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B22	100-350	Dark brown (7.5YR3/2 (moist)); no mottles; rough ped, strong, 50-100 mm, subangular blocky; moist, firm; medium clay; no fragments; no segregations; no pans; no slaking within 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B23	350-900	Very dark grey (7.5YR3/1 (moist)); mottles 2-10%, <5 mm, faint, brown, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, very firm; medium heavy clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; diffuse boundary to -
B24	800-1,500	Dark brown (7.5YR3/3 (moist)); mottles 2-10%, <5 mm, prominent, dark, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; no segregations; no pans; complete slake in 10 mins; slight dispersion within 10 mins; pH 8.5.



Location 1



Surface 1



pH, slaking, dispersion



Profile

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.1	8.32	MAL	50.2	H	222	40.0	H	1176	L	2.8	1.6	H1	1.24	16.1	11.2	0.54

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H ₂ O)		EC (dS/m)	Salinity Rating^	Cl ⁻ (mg/kg)	Exchangeable cations (meq/100 g)						ESP (%)	Sodicity [*]	Emerson class	Ca:Mg ratio	
	Clay	Silt	Sand	Gravel	-	Rating [#]				H+	Al+	Ca+	Mg+	K+	Na+					CEC
0.0-0.1	44.8	22.7	32.5	0.3	8.32	MAL	0.23	L	69.4	-	-	15.9	13.5	0.59	1.69	31.7	5.32	NS	2	1.18
0.2-0.3	41.3	16.7	42.0	0.6	8.22	MAL	0.28	M	100	-	-	17.7	16.7	0.53	2.72	37.7	7.23	S	2	1.06
0.5-0.6	24.5	16.4	59.1	1.6	8.79	STAL	0.35	M	178	-	-	14.2	14.4	0.38	2.84	31.8	8.92	S	2	0.98
0.8-0.9	47.4	22.5	30.1	0.2	8.88	STAL	0.34	M	157	-	-	15.1	6.25	0.27	2.26	23.9	9.45	S	2	2.41
1.1-1.2	47.5	22.6	29.9	0.6	9.06	VSAL	0.38	M	225	-	-	11.1	10.1	0.29	2.70	24.2	11.1	S	2	1.1
1.4-1.5	47.9	25.3	26.7	0.1	8.85	STAL	0.35	M	257	-	-	11.3	9.88	0.27	2.87	24.4	11.8	S	2	1.15

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL										
Date:	30/08/2021	Describer:	H Marvell	Site:	310-03-AH3499	Type:	Check site			
MSU:	1.1.1.1a	ASC:	Vertosol							
PSC:	Anchorfield			Chainage (m):		145868		Elevation (m):		382
Coordinates:	Easting:	342650	Northing:	6924113		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qalb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, loose, firm, surface crust		
Surface fragments:	2-10%, 20-60 mm, subangular, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		



Location 1



Location 2



Surface 1



Surface 2

GENERAL									
Date:	30/08/2021	Describer:	H Marvell	Site:	310-03-AH3501	Type:	Check site		
MSU:	1.1.1.1a	ASC:	Vertosol						
PSC:	Anchorfield			Chainage (m):	146370		Elevation (m):		382
Coordinates:	Easting:	343032	Northing:	6924439		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qalb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, loose, firm, surface crust		
Surface fragments:	2-10%, 6-20 mm, subangular, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		



Location 1



Location 2



Surface 1



Surface 2

GENERAL										
Date:	29/08/2021	Describer:	H Marvell	Site:	310-03-AH3500	Type:	Detailed			
MSU:	1.1.1.1a	ASC:	Black Vertosol							
PSC:	Anchorfield			Chainage (m):		146532		Elevation (m):		382
Coordinates:	Easting:	342939	Northing:	6924801		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa1b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, firm, surface crust		
Surface fragments:	10-20%, 20-60 mm, subangular, gravel		
Microrelief:	Normal, other, elongate depress., equal mounds/depressions, no shelf present		
Erosion:	Sheet (active, minor).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Very dark brown (7.5YR2.5/2 (moist)); no mottles; rough ped, weak, 50-100 mm, polyhedral; moderately moist, firm; light medium clay; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.5; clear boundary to -
B22	100-500	Very dark brown (7.5YR2.5/2 (moist)); no mottles; rough ped, strong, 100-200 mm, subangular blocky; moist, firm; light medium clay; no fragments; few 2-10%, calcareous, soft segregations, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.5; gradual boundary to -
B23	500-750	Dark brown (7.5YR3/2 (moist)); mottles 10-20%, <5 mm, faint, dark, clear; rough ped, strong, 100-200 mm, subangular blocky; moist, firm; light medium clay; no fragments; few 2-10%, calcareous, concretions, coarse 6-20 mm, moderately calcareous; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 8.5; gradual boundary to -
B24	750-1,500	Dark brown (7.5YR3/3 (moist)); mottles 10-20%, <5 mm, faint, dark, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; common 10-20%, calcareous, concretions, coarse 6-20 mm, highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.5.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL											
Date:	09/02/2021		Describer:	B Rose		Site:	310-03-TP3303		Type:	Detailed	
MSU:	1.1.1.1a		ASC:	Black Vertosol							
PSC:	Condamine?			Chainage (m):		146556		Elevation (m):		384	
Coordinates:		Easting:	3421990		Northing:	6923729		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa\l
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, loose, firm, surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor)?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-100?	Very dark greyish brown (10YR3/2 (moist))?; no mottles?; rough ped, moderate, 50-100 mm, subangular blocky?; dry, firm?; light medium clay?; coarse fragments very few (<2%), coarse (20-60 mm), subangular to angular gravel (likely scattered ballast)?; no segregations?; no pans?; gradual boundary to -
B22?	150-1,200?	Dark grey (10YR3/1 (moist))?; no mottles?; rough ped, strong, 100–200 mm, subangular blocky?; moist, very firm?; medium clay?; no fragments?; no segregations?; no pans?; gradual boundary to -
B23?	1,200-1,500?	Brown (10YR5/3 (moist))?; no mottles?; rough ped, strong, 100–200 mm, subangular blocky?; moist, strong?; medium clay?; no fragments?; no segregations?; no pans?



Location and Surface 1



Pit 1



Pit 2

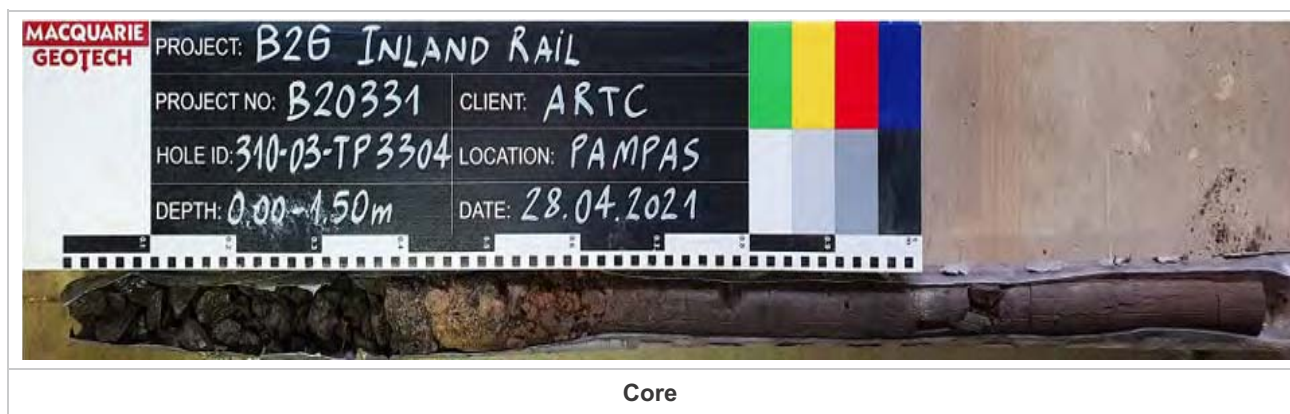


Excavated soil 1

GENERAL											
Date:	22/06/2021		Describer:	B Rose		Site:	310-03-TP3304		Type:	Detailed	
MSU:	1.1.1.1a		ASC:	Grey Vertosol							
PSC:	Anchorfield			Chainage (m):			146556		Elevation (m):		384
Coordinates:		Easting:	3421990		Northing:	6923729		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa\lb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, loose, firm, surface crust?		
Surface fragments:	2-10%, 6-20 mm, subangular, gravel?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor)?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
Fill	-650-0	Gravel and sand primarily as ballast, foul ballast, capping, and sub-basecourse
A1/B21?	0-350?	Black 10YR2/1 (moist)); no mottles?; rough ped, strong, 20-50 mm, subangular blocky?; moderately moist, firm?; medium clay?; no fragments?; no segregations?; no pans?; gradual boundary to -
B22?	350-1,500?	Very dark brown (10YR2/2 (moist)); no mottles?; rough ped, strong, 100-200 mm, subangular blocky?; moist, very firm?; medium heavy clay, fine sandy?; coarse fragments very few (<2%), medium (6-20 mm), subrounded to subangular gravel?; no segregations?; no pans?



Core

GENERAL										
Date:	29/08/2021	Describer:	H Marvell	Site:	310-03-AH3502	Type:	Partial			
MSU:	1.1.1.1a	ASC:	Black Vertosol							
PSC:	Anchorfield			Chainage (m):		146745		Elevation (m):		383
Coordinates:	Easting:	343161	Northing:	6924867		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa1b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Firm, surface crust		
Surface fragments:	None		
Microrelief:	Normal, other, elongate mound, equal mounds/depressions, no shelf present		
Erosion:	Sheet (active, minor).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-80	Very dark brown (10YR2/2 (moist)); no mottles; earthy, massive (no peds), granular; moderately moist, loose; light clay, gravelly; coarse fragments 20-50%, 6-20 mm, subangular, gravel; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.0; clear boundary to -
B22	80-250	Black (10YR2/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; medium clay; coarse fragments 10-20%, 6-20 mm, subrounded, gravel; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; clear boundary to -
B23	250-500	Black (10YR2/1 (moist)); no mottles; rough ped, strong, 100-200 mm, subangular blocky; moist, firm; medium heavy clay; coarse fragments 2-10%, 6-20 mm, angular platy, gravel; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B24	500-	Black (10YR2/1 (moist)); mottles 2-10%, <5 mm, faint, brown, diffuse; rough ped, moderate, 100-200 mm, subangular blocky; moderately moist, very firm; medium clay; coarse fragments 10-20%, 6-20 mm, subangular platy, gravel; common 10-20%, calcareous, soft segregations, very coarse 20-60 mm, moderately calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	08/07/2021	Describer:	H Marvell	Site:	310-03-AH3503	Type:	Representative		
MSU:	1.1.1.1a	ASC:	Epicalcareous Self-mulching Black Vertosol						
PSC:	Anchorfield			Chainage (m):	146794		Elevation (m):		384
Coordinates:	Easting:	343358	Northing:	6924711		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa1b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	No
Disturbance:	Extensive clearing		
Surface condition:	Cracking, self-mulching, surface crust		
Surface fragments:	None, 20-60 mm, subrounded, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); belah; rooting depth 1200 mm		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-120	Very dark brown (10YR2/2 (moist)); no mottles; rough ped, moderate, 10-20 mm, polyhedral; moderately moist, weak; light clay, sandy; coarse fragments 10-20%, 6-20 mm, angular platy, igneous; minor charcoal inclusions; few 2-10%, calcareous, concretions, fine <2 mm, moderately calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 7.0; clear boundary to -
B22	120-240	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, strong, 50-100 mm, subangular blocky; moist, very weak; light clay; coarse fragments 10-20%, 6-20 mm, subrounded, gravel; many 20-50%, organic, fragments, medium 2-6 mm; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.0; clear boundary to -
B23	240-850	Very dark brown (10YR2/2 (moist)); mottles 2-10%, <5 mm, faint, dark, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; medium clay, fine sandy; coarse fragments <2%, 6-20 mm, subangular, coal; minor charcoal inclusions; common 10-20%, calcareous, soft segregations, medium 2-6 mm, moderately calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0; diffuse boundary to -
B24	850-1,200	Dark brown (10YR3/3 (moist)); mottles 2-10%, <5 mm, faint, dark, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, very firm; light medium clay; coarse fragments 2-10%, 6-20 mm, subangular, coal; ballast rock fragments, 20-60 mm; common 10-20%, calcareous, soft segregations, coarse 6-20 mm, moderately calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0.



Location 1



Surface 1



pH, slaking, dispersion



Profile

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.1	7.51	SLAL	91.5	H	1018	7.7	M	2235	M	7.1	4.07	EH	2.46	31.6	22.5	2.38

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H2O)		EC (dS/m)	Salinity Rating^	Cl⁻ (mg/kg)	Exchangeable cations (meq/100 g)							ESP (%)	Sodicity⁺	Emerson class	Ca:Mg ratio
	Clay	Silt	Sand	Gravel	-	Rating#				H+	Al+	Ca+	Mg+	K+	Na+	CEC				
0.0-0.1	19.8	14.9	65.3	13.2	7.51	SLAL	0.15	M	9.83	-	-	23.1	16.5	1.56	0.56	41.6	1.34	NS	5	1.4
0.12-0.22	19.6	8.0	72.4	22.4	7.49	SLAL	0.13	L	18.6	-	-	13.2	9.26	0.77	0.93	24.1	3.86	NS	5	1.42
0.4-0.5	44.5	17.2	38.3	9.3	8.63	STAL	0.3	M	73.8	-	-	16.2	17.3	0.51	2.47	36.5	6.76	S	5	0.94
0.7-0.8	50.9	17.8	31.4	0.5	8.77	STAL	0.42	M	161	-	-	12.0	19.2	0.49	3.46	35.2	9.83	S	4	0.63
1.1-1.2	50.7	12.5	36.8	4.9	8.95	STAL	0.51	M	289	-	-	11.8	22.4	0.45	4.46	39.1	11.4	S	4	0.53

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL											
Date:	22/06/2021		Describer:	B Rose		Site:	310-03-TP3305		Type:	Detailed	
MSU:	1.1.1.1a		ASC:	Grey Vertosol							
PSC:	Anchorfield			Chainage (m):			146917		Elevation (m):		383
Coordinates:		Easting:	342468		Northing:	6923965		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa\l
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, loose, firm, surface crust?		
Surface fragments:	2-10%, 6-20 mm, subangular, gravel?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor)?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
Fill	-750-0	Gravel and sand primarily as ballast, foul ballast, capping, and sub-basecourse
A1/B21?	0-250?	Black 10YR2/1 (moist)?; no mottles?; rough ped, strong, 20-50 mm, subangular blocky?; moderately moist, firm?; medium clay?; no fragments?; no segregations?; no pans?; gradual boundary to -
B22?	250-1,500?	Very dark brown (10YR2/2 (moist)); no mottles?; rough ped, strong, 100-200 mm, subangular blocky?; moist, very firm?; medium heavy clay, fine sandy?; coarse fragments very few (<2%), medium (6-20 mm), subrounded to subangular gravel?; no segregations?; no pans?



GENERAL										
Date:	29/08/2021	Describer:	H Marvell	Site:	310-03-AH3504	Type:	Partial			
MSU:	1.1.1.1a	ASC:	Black Vertosol							
PSC:	Anchorfield			Chainage (m):		146937		Elevation (m):		384
Coordinates:	Easting:	343379	Northing:	6924907		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa1b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	No
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, firm		
Surface fragments:	2-10%, 6-20 mm, subangular, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; coarse fragments 2-10%, 6-20 mm, subrounded, gravel; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 5.0; gradual boundary to -
B22	50-550	Very dark brown (10YR2/2 (moist)); no mottles; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; medium heavy clay; no fragments; few 2-10%, calcareous, concretions, medium 2-6 mm, moderately calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B23	550-	Black (10YR2/1 (moist)); no mottles; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.5.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL											
Date:	09/07/2021		Describer:	H Marvell		Site:	310-03-AH3505		Type:	Check site	
MSU:	1.1.1.1a			ASC:	Vertosol						
PSC:	Anchrofield				Chainage (m):		147230		Elevation (m):		383
Coordinates:	Easting:	343558		Northing:	6925149		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qalb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Soft, surface crust		
Surface fragments:	<2%, 2-6 mm, subrounded, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		



Location 1



Location 2



Surface 1



Surface 2

GENERAL											
Date:	09/07/2021		Describer:	H Marvell		Site:	310-03-AH3506		Type:	Check site	
MSU:	1.1.1.1a			ASC:	Vertosol						
PSC:	Anchorfield				Chainage (m):		147268		Elevation (m):		384
Coordinates:	Easting:	343834		Northing:	6924882		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qalb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	No
Disturbance:	Cropping (rain fed)		
Surface condition:	Soft (altered by road base)		
Surface fragments:	2-10%, 6-20 mm, subrounded, gravel (likely road base)		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		



Location 1



Location 2



Surface 1



Surface 2

GENERAL

Date:	09/02/2021	Describer:	B Rose	Site:	310-03-TP3306	Type:	Detailed
MSU:	1.1.1.1a	ASC:	Black Vertosol				
PSC:	Anchorfield	Chainage (m):	147390	Elevation (m):	383		
Coordinates:	Easting:	342825	Northing:	6924268	Zone:	56	Datum: GDA94

SITE DESCRIPTION

Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa\l
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, loose, firm, surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor)?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)?		

SOIL DESCRIPTION

Horizon	Depth (mm)	Description
Fill	-500-0	Gravel and sand primarily as ballast, foul ballast, capping, and sub-basecourse
A1/B21?	0-500?	Black 10YR2/1 (moist)?; no mottles?; rough ped, strong, 20-50 mm, subangular blocky?; moderately moist, firm?; medium clay?; no fragments?; no segregations?; no pans?; gradual boundary to -
B22?	500-1,500?	Very dark brown (10YR2/2 (moist)); no mottles?; rough ped, strong, 100-200 mm, subangular blocky?; moist, very firm?; medium heavy clay, fine sandy?; coarse fragments very few (<2%), medium (6-20 mm), subrounded to subangular gravel?; no segregations?; no pans?

**Core 1**

GENERAL										
Date:	08/07/2021	Describer:	H Marvell	Site:	310-03-AH3507	Type:	Partial			
MSU:	1.1.1.1a		ASC:	Black Vertosol						
PSC:	Anchorfield			Chainage (m):		147502		Elevation (m):		383
Coordinates:	Easting:	343898	Northing:	6925168		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa1b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, firm		
Surface fragments:	<2%, 2-6 mm, subangular, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Black (10YR2/1 (moist)); no mottles; rough ped, strong, 50-100 mm, subangular blocky; moist, weak; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 7.0; gradual boundary to -
B22	100-	Reddish black (2.5Y2.5/1 (moist)); mottles 10-20%, 5-15 mm, faint, pale, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moist, very firm; medium clay; coarse fragments <2%, 2-6 mm, rounded, gravel; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	10/02/2021	Describer:	S Kenway	Site:	310-03-BH3050	Type:	Detailed		
MSU:	1.1.1.1a	ASC:	Black Vertosol						
PSC:	Anchorfield?		Chainage (m):		147755		Elevation (m):		382
Coordinates:	Easting:	344095	Northing:	6925337		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa\lb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, loose, firm, surface crust		
Surface fragments:	<2%, 2-6 mm, subangular, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (stabilised, minor).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-300	Black (10YR2/1 (moist)); no mottles?; rough ped, strong, 20-50 mm, subangular blocky?; moderately moist, firm?; medium clay?; coarse fragments few (2-10%), fine (2-6 mm), rounded gravel?; no segregations?; no pans?; diffuse boundary to -
B22	300-1,500	Very dark grey (10YR3/1 (moist)); no mottles?; rough ped, strong, 100-200 mm, subangular blocky?; moderately moist, very firm?; medium clay; coarse fragments few (2-10%), medium (6-20 mm), subangular gravel?; segregations many (20-50%), medium (6-20 mm), calcareous, soft segregations?; no pans



Core 1

GENERAL												
Date:	09/02/2021		Describer:	B Rose		Site:	310-03-TP3307		Type:	Detailed		
MSU:	1.1.1.1a		ASC:	Black Vertosol								
PSC:	Anchorfield			Chainage (m):			147890		Elevation (m):		383	
Coordinates:	Easting:		343207		Northing:		6924592		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa/b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor); rill (active, minor)?		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
Fill	-500-0	Gravel and sand primarily as ballast, foul ballast, capping, and sub-basecourse
A1/B21?	0-400?	Black 10YR2/1 (moist)?; no mottles?; rough ped, strong, 20-50 mm, subangular blocky?; moderately moist, firm?; medium clay?; no fragments?; no segregations?; no pans?; gradual boundary to -
B22?	400-1,500?	Very dark brown (10YR2/2 (moist)); no mottles?; rough ped, strong, 100-200 mm, subangular blocky?; moist, very firm?; medium heavy clay, fine sandy?; coarse fragments very few (<2%), medium (6-20 mm), subrounded to subangular gravel?; no segregations?; no pans?



Core

GENERAL							
Date:	10/02/2021	147	Describer:	S Kenway	Site:	310-03-BH3051	Type: Detailed
MSU:	1.1.1.1a	ASC:	Black Vertosol				
PSC:	Condamine?	Chainage (m):	147965	Elevation (m):	382		
Coordinates:	Easting:	344248	Northing:	6925486	Zone:	56	Datum: GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (<50yr)	Geology:	Qa/b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, loose, firm, surface crust?		
Surface fragments:	<2%, 2-6 mm, subangular, gravel?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (stabilised, minor)?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-300?	Black (10YR2/1 (moist))?. no mottles?. rough ped, strong, 20-50 mm, subangular blocky?. moderately moist, firm?. medium clay, sandy?. no fragments?. no segregations?. no pans?. gradual boundary to -
B22?	300-1,500?	Black (10YR2/1 (moist))?. no mottles?. rough ped, strong, 100-200 mm, angular blocky?. moderately moist, very firm?. medium heavy clay?. coarse fragments few (2-10%), fine (2-6 mm), subangular gravel?. segregations few (2-10%), medium (2-6 mm), calcareous, concretions?. no pans?



Core 1

GENERAL										
Date:	31/08/2021	Describer:	H Marvell	Site:	310-03-AH3508	Type:	Partial			
MSU:	1.1.1.1a		ASC:	Black Vertosol						
PSC:	Condamine			Chainage (m):		148077		Elevation (m):		383
Coordinates:	Easting:	344320	Northing:	6925558		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Poorly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa\lb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, loose, firm, surface crust		
Surface fragments:	<2%, 2-6 mm, subangular, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (stabilised, minor).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Black (7.5YR2.5/1 (moist)); no mottles; rough ped, weak, 10-20 mm, angular blocky; moderately moist, very firm; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.5; gradual boundary to -
B22	100-300	Black (7.5YR2.5/1 (moist)); no mottles; rough ped, moderate, 20-50 mm, angular blocky; moderately moist, firm; medium clay; no fragments; very few <2%, manganiferous, concretions, fine <2 mm; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B23	300-	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 100-200 mm, angular blocky; moderately moist, firm; medium clay; no fragments; many 20-50%, calcareous, concretions, coarse 6-20 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL											
Date:	06/02/2021		Describer:	S Kenway		Site:	310-03-BH3052		Type:	Detailed	
MSU:	1.1.1.1a		ASC:	Black Vertosol							
PSC:	Condamine?			Chainage (m):			148175		Elevation (m):		381
Coordinates:		Easting:	344391		Northing:	6925642		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa\lb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, loose, firm, surface crust?		
Surface fragments:	<2%, 2-6 mm, subangular, gravel?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (stabilised, minor)?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-300?	Black (10YR2/1 (moist)); no mottles?; rough ped, strong, 20-50 mm, subangular blocky?; moderately moist, firm?; medium clay, sandy?; no fragments?; no segregations?; no pans?; gradual boundary to -
B22?	200-1,500?	Black (10YR2/1 (moist)); no mottles?; rough ped, strong, 100-200 mm, subangular blocky?; moist, firm?; medium heavy clay, sandy?; coarse fragments few (2-10%), medium (6-20 mm), subangular to subrounded gravel?; segregations few (2-10%), medium (2-6 mm), calcareous, concretions; no pans



Core 1

GENERAL									
Date:	03/02/2021	Describer:	S Kenway	Site:	310-03-BH3053	Type:	Detailed		
MSU:	1.1.1.1a	ASC:	Black Vertosol						
PSC:	Condamine?		Chainage (m):		148385		Elevation (m):		382
Coordinates:	Easting:	344517	Northing:	6925801		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa\lb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, loose?		
Surface fragments:	<2%, 2-6 mm, subrounded, gravel?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, moderate); rill (active, minor)?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-300?	Black (10YR2/1 (moist))?. no mottles?. rough ped, strong, 20-50 mm, subangular blocky?. moderately moist, firm?. medium clay, sandy?. no fragments?. no segregations?. no pans?. gradual boundary to -
B22?	300-750?	Very dark grey (10YR3/1 (moist))?. no mottles?. rough ped, strong, 100-200 mm, subangular blocky?. moist, very firm?. medium heavy clay; coarse fragments few (2-10%), fine (2-6 mm), subangular to subrounded gravel?. no segregations?. no pans?. gradual boundary to -
B23?	750-1,500?	Very dark greyish brown (10YR3/2 (moist))?. no mottles?. rough ped, strong, 100-200 mm, subangular blocky?. moist, very firm?. medium heavy clay; coarse fragments few (2-10%), fine (2-6 mm), subangular to subrounded gravel?. segregations few (2-10%), medium (2-6 mm), calcareous, concretions?. no pans?



Core 1

GENERAL									
Date:	22/06/2021	Describer:	B Rose	Site:	310-03-TP3308	Type:	Partial		
MSU:	1.1.1.1a	ASC:	Black Vertosol						
PSC:	Condamine?		Chainage (m):		141130		Elevation (m):		382
Coordinates:	Easting:	343592	Northing:	6924917		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained?
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa\lb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor); rill (active, minor)?		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-1,500	Dark grey (10YR4/1 (moist))?; no mottles?; rough ped, strong, 100-200 mm, subangular blocky?; moist, firm?; medium clay?; no fragments?; no segregations?; no pans?

GENERAL									
Date:	09/07/2021	Describer:	H Marvell	Site:	310-03-AH3509	Type:	Check site		
MSU:	1.1.1.1a	ASC:	Vertosol						
PSC:	Condamine			Chainage (m):	148443		Elevation (m):		383
Coordinates:	Easting:	344550	Northing:	6925842	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qalb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, soft		
Surface fragments:	<2%, 2-6 mm, subrounded, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, moderate). Rill (active, minor).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		



Location 1



Erosion 1



Surface 1

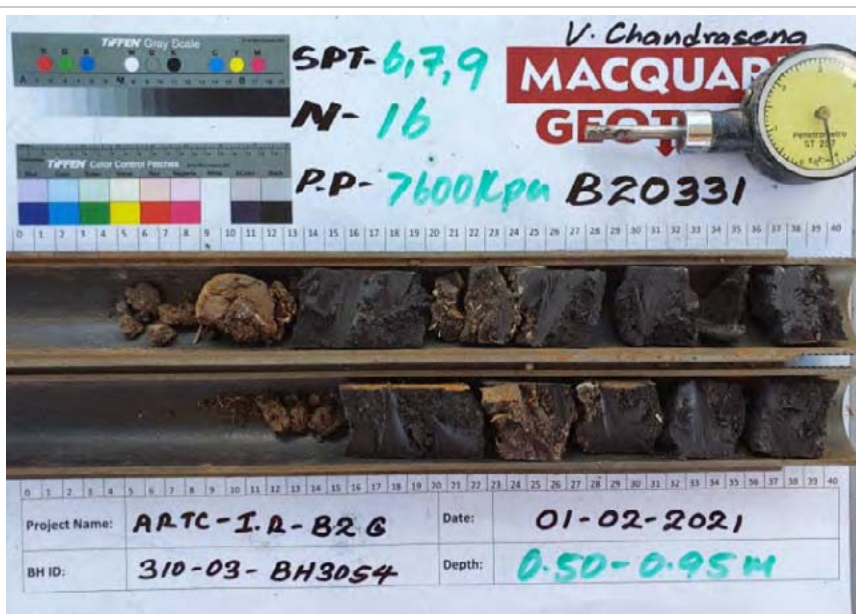


Surface 2

GENERAL							
Date:	01/02/2021	Describer:	S Kenway	Site:	310-03-BH3054	Type:	Detailed
MSU:	1.1.1.1a	ASC:	Black Vertosol				
PSC:	Condamine?	Chainage (m):	148565	Elevation (m):	382		
Coordinates:	Easting:	344624	Northing:	6925845	Zone:	56	Datum: GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa/b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, loose, firm, surface crust?		
Surface fragments:	<2%, 2-6 mm, subangular, gravel?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (stabilised, minor)?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-300?	Black (10YR2/1 (moist))?. no mottles?. rough ped, strong, 20-50 mm, subangular blocky?. moderately moist, firm?. medium clay, sandy?. no fragments?. no segregations?. no pans?. gradual boundary to -
B22?	300-1,500?	Black (10YR2/1 (moist))?. no mottles?. rough ped, strong, 100-200 mm, subangular blocky?. moist, very firm?. medium heavy clay?. no fragments?. segregations few (2-10%), medium (2-6 mm), calcareous, soft segregations?. no pans?



Core 1

GENERAL									
Date:	08/07/2021	Describer:	H Marvell	Site:	310-03-AH3510	Type:	Check site		
MSU:	1.1.1.1a	ASC:	Vertosol						
PSC:	No suitable PSC (Condamine nearby)			Chainage (m):	148729		Elevation (m):		384
Coordinates:	Easting:	344716	Northing:	6926074		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Mod. rapid
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qalb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Soft		
Surface fragments:	<2%, 2-6 mm, subrounded, quartz		
Microrelief:	Normal		
Erosion:	Gully (active, minor, <1.5 m).		
Vegetation:	Very sparse, crowns well separated (0.25-20%); river red gum, Queensland blue gum		



Location 1



Erosion 1



Surface 1



Surface 2

GENERAL										
Date:	08/07/2021	Describer:	H Marvell	Site:	310-03-AH3511	Type:	Partial			
MSU:	1.1.1.1a		ASC:	Black Vertosol						
PSC:	Mywybilla			Chainage (m):		149294		Elevation (m):		383
Coordinates:	Easting:	345040	Northing:	6926536		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa1b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Self-mulching, firm, surface flake		
Surface fragments:	<2%, 6-20 mm, subangular, quartz		
Microrelief:	Zero or no microrelief		
Erosion:	Rill (active, moderate).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); <i>Eucalyptus tereticornis</i>		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Black (10YR2/1 (moist)); no mottles; rough ped, strong, 50-100 mm, subangular blocky; moist, firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 7.5; gradual boundary to -
B22	100-	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, strong, 100-200 mm, subangular blocky; moist, firm; medium clay; no fragments; few 2-10%, ferromanganiferous, concretions, fine <2 mm; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0.



Location 1



Erosion 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL										
Date:	08/07/2021	Describer:	H Marvell	Site:	310-03-AH3512	Type:	Partial			
MSU:	1.1.1.1a		ASC:	Black Vertosol						
PSC:	Mywybilla			Chainage (m):		149856		Elevation (m):		383
Coordinates:	Easting:	345360	Northing:	6926998		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa1b
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Self-mulching, soft, surface flake		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Rill (active, minor). Sheet (active, minor)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); <i>Eucalyptus tereticornis</i>		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Black (10YR2/1 (moist)); no mottles; rough ped, moderate, 20-50 mm, subangular blocky; moist, weak; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.0; clear boundary to -
B22	100-	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, strong, 100-200 mm, subangular blocky; moist, firm; medium clay; no fragments; no segregations; no pans; no slaking within 10 mins; no dispersion within 2 hrs; pH 7.0.



Location 1



Erosion 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL												
Date:	24/08/2021		Describer:	B Rose		Site:	310-03-BH3055		Type:	Detailed		
MSU:	1.1.1.1a		ASC:	Black Vertosol								
PSC:	Condamine?			Chainage (m):			150156		Elevation (m):		382	
Coordinates:	Easting:		344788		Northing:		6926189		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa\l
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Self-mulching, firm, surface flake?		
Surface fragments:	<2%, 6-20 mm, subangular, quartz?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor); rill (active, moderate)?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); <i>Eucalyptus tereticornis</i> ?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-800?	Black (10YR2/1 (moist))?. no mottles?. rough ped, strong 50-100 mm, subangular blocky?. moderately moist, firm?. medium clay, fine sandy?. coarse fragments few (2-10%), fine (2-6 mm), subangular to subrounded gravel?. few (2-10%), medium (2-6 mm), calcareous, concretions?. no pans?. diffuse change to -
B22?	800-1,500?	Black (10YR2/1 (moist))?. no mottles?. rough ped, strong 50-100 mm, subangular blocky?. moderately moist, firm?. medium heavy clay?. coarse fragments few (2-10%), fine (2-6 mm), subangular to subrounded gravel?. few (2-10%), medium (2-6 mm), calcareous, concretions?. no pans?



Core 1

GENERAL										
Date:	08/07/2021	Describer:	H Marvell	Site:	310-03-AH3513	Type:	Check site			
MSU:	2.1.1.1a		ASC:	Vertosol						
PSC:	Mywybilla			Chainage (m):		150339		Elevation (m):		386
Coordinates:	Easting:	345640	Northing:	6927391		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Plain	Drainage:	Imperfectly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, surface crust		
Surface fragments:	<2%, 6-20 mm, subangular, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, moderate). Rill (active, moderate).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

	
Location 1	Erosion 1
	
Surface 1	Surface 2

GENERAL									
Date:	24/08/2021	Describer:	B Rose	Site:	310-03-BH3056	Type:	Detailed		
MSU:	1.1.1.1a	ASC:	Black Vertosol						
PSC:	Mywybilla?		Chainage (m):		150419		Elevation (m):		382
Coordinates:	Easting:	344947	Northing:	6926406		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa\lb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Self-mulching, firm, surface flake?		
Surface fragments:	<2%, 6-20 mm, subangular, quartz?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor); rill (active, moderate)?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); <i>Eucalyptus tereticornis</i> ?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-300?	Black (10YR2/1 (moist))?. no mottles?. rough ped, strong, 50-100 mm, subangular blocky?. moist, firm?. medium clay, sandy?. coarse fragments very few (<2%), fine (2-6 mm), subrounded gravel?. no segregations?. no pans?. gradual boundary to -
B22?	300-800?	Dark yellowish brown 10YR4/6 (moist); no mottles?. rough ped, strong, 50-100 mm, subangular blocky?. moderately moist, firm?. medium clay?. coarse fragments many (20-50%), large (20-60 mm), subangular to subrounded gravel; segregations few (2-10%), medium (2-6 mm), calcareous, soft segregations?. no pans?
B23?	800-1,500?	Black (10YR2/1 (moist))?. no mottles?. rough ped, strong, 100-200 mm, subangular blocky?. moderately moist, very firm?. medium heavy clay?. no fragments?. segregations few (2-10%), fine (<2 mm), calcareous, soft segregations?. no pans?



Core 1

GENERAL												
Date:	24/08/2021		Describer:	B Rose		Site:	310-03-BH3057		Type:	Detailed		
MSU:	1.1.1.1a		ASC:	Black Vertosol								
PSC:	Mywybilla?			Chainage (m):			150620		Elevation (m):		382	
Coordinates:	Easting:		344947		Northing:		6926406		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa\lb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Self-mulching, firm, surface flake?		
Surface fragments:	<2%, 6-20 mm, subangular, quartz?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor); rill (active, moderate)?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); <i>Eucalyptus tereticornis</i> ?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-800?	Very dark brown (10YR2/2 (moist))?; no mottles?; rough ped, strong, 50-100 mm, subangular blocky?; moderately moist, firm?; medium clay, fine sandy?; coarse fragments few (2-10%), medium (6-20 mm), subrounded to subangular gravel?; segregations few (2-10%), coarse (6-20 mm), calcareous, concretions?; no pans?; gradual boundary to -
B22?	800-1,500?	Very dark brown (10YR2/2 (moist))?; no mottles?; rough ped, strong, 50-100 mm, subangular blocky?; moist, firm?; medium clay; coarse fragments few (2-10%), medium (6-20 mm), subrounded gravel?; segregations common (10-20%), coarse (6-20 mm), concretions?; no pans?



Core 1

GENERAL										
Date:	01/09/2021	Describer:	T Beck	Site:	310-03-AH3514	Type:	Partial			
MSU:	2.1.1.1a		ASC:	Black Vertosol						
PSC:	Mywybilla			Chainage (m):		150681		Elevation (m):		423
Coordinates:	Easting:	345681	Northing:	6927806		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Plain	Drainage:	Imperfectly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Self-mulching, surface flake		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-200	Dark grey (10YR4/1 (moist)); rough ped, moderate, 20-50 mm, subangular blocky; dry, very weak; light medium clay; common 10-20%, calcareous, concretions, medium 2-6 mm, highly calcareous; complete slake in 10 mins; no dispersion within 2 hrs; pH 5.0; gradual boundary to -
B22	200-	Very dark grey (10YR3/1 (moist)); rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; medium clay; common 10-20%, calcareous, concretions, medium 2-6 mm, moderately calcareous; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	31/08/2021	Describer:	P Hewavitharana	Site:	310-03-AH3516	Type:	Partial		
MSU:	2.1.1.1a	ASC:	Black Vertosol						
PSC:	Mywybilla			Chainage (m):	150798		Elevation (m):		427
Coordinates:	Easting:	345911	Northing:	6927769		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Plain	Drainage:	Poorly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, loose, firm, surface crust		
Surface fragments:	2-10%, 20-60 mm, subangular, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Reddish black (2.5YR2.5/1 (moist)); mottles 2-10%, <5 mm, faint, brown, diffuse; rough ped, weak, 5-10 mm, angular blocky; moderately moist, weak; light medium clay; no fragments; common 10-20%, calcareous, concretions, coarse 6-20 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.0; gradual boundary to -
B22	100-230	Reddish black (2.5Y2.5/1 (moist)); mottles <2%, <5 mm, faint, brown, diffuse; moderate, 20-50 mm, angular blocky; moderately moist, firm; light medium clay; no fragments; common 10-20%, calcareous, concretions, very coarse 20-60 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 5.5; gradual boundary to -
B23	230-500	Reddish black (2.5Y2.5/1 (moist)); mottles 2-10%, <5 mm, faint, brown, diffuse; rough ped, strong, 100-200 mm, angular blocky; moderately moist, firm; medium clay; no fragments; common 10-20%, calcareous, concretions, coarse 6-20 mm, highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 5.0; gradual boundary to -
B24	500-600	Reddish black (2.5Y2.5/1 (moist)); mottles <2%, <5 mm, faint, brown, diffuse; rough ped, strong, 100-200 mm, angular blocky; moderately moist, firm; medium heavy clay; no fragments; many 20-50%, calcareous, concretions, fine <2 mm, moderately calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 5.5.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	22/06/2021	Describer:	B Rose	Site:	310-03-TP3311	Type:	Detailed		
MSU:	1.1.1.1a	ASC:	Black Vertosol						
PSC:	Mywybilla?		Chainage (m):		150836		Elevation (m):		383
Coordinates:	Easting:	345186	Northing:	6926744		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Backplain	Drainage:	Imperfectly drained
Landform pattern:	Floodplain -frequently active (≤50yr)	Geology:	Qa\lb
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor); rill (active, minor)?		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-300?	Black (10YR2/1 (moist))?.; no mottles?.; rough ped, strong, 20-50 mm, subangular blocky?.; moderately moist, firm?.; medium clay?.; no fragments?.; no segregations?.; gradual boundary to -
B22?	300-1,050?	Very dark greyish brown (10YR3/2 (moist))?.; no mottles?.; rough ped, strong, 50-100 mm, subangular blocky?.; moderately moist, firm?.; medium heavy clay?.; no fragments?.; no segregations?.; no pans?.; diffuse boundary to -
B23?	1,050-1,500?	Dark brown (10YR3/3 (moist))?.; no mottles?.; rough ped, strong, 100-200 mm, subangular blocky?.; moist, very firm?.; medium heavy clay?.; no fragments?.,, no segregations?.,, no pans?



Test pit – Photo 1



Test pit – Photo 2



Stockpile



Testpit – Backfilled, Landscape

GENERAL										
Date:	01/09/2021	Describer:	T Beck	Site:	310-03-AH3515	Type:	Representative			
MSU:	2.2.1.1a		ASC:	Epicalcareous Self-mulching Black Vertosol						
PSC:	Mywybilla			Chainage (m):		150899		Elevation (m):		431
Coordinates:	Easting:	345721	Northing:	6928125		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod. rapid
Morphological type:	Simple slope	Permeability:	Moderately
Landform element:	Plain	Drainage:	Poorly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, surface flake, recently cultivated		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); poplar box; rooting depth 700 mm		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21p	0-100	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 20-50 mm, subangular blocky; dry, firm; light medium clay; coarse fragments <2%, 2-6 mm, subrounded, gravel; few 2-10%, calcareous, concretions, fine <2 mm, non-calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 6.0; gradual boundary to -
B22	100-800	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.5; gradual boundary to -
B23	800-1,200	Grey (10YR5/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, weak; light medium clay; no fragments; few 2-10%, calcareous, concretions, fine <2 mm, moderately calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B24	1200-	Dark grey (10YR4/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; dry, firm; light clay; no fragments; common 10-20%, calcareous, concretions, coarse 6-20 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0.



Location 1



Location 2



Surface 1



pH, slaking, dispersion



Profile

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.1	7.06	NEU	45.0	H	383	8.6	M	807	L	1.4	0.77	L1	1.46	24.6	32.2	0.8

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H2O)		EC (dS/m)	Salinity Rating^	Cl^- (mg/kg)	Exchangeable cations (meq/100 g)							ESP (%)	Sodicity^	Emerson class	Ca:Mg ratio
	Clay	Silt	Sand	Gravel	-	Rating#				H+	Al+	Ca+	Mg+	K+	Na+	CEC				
0.0-0.1	39.4	16.7	43.8	0.1	7.06	NEU	0.07	VL	26.1	-	0.01	15.6	11.8	0.56	0.67	28.6	2.34	NS	2	1.33
0.2-0.3	43.2	10.6	46.2	0.2	7.65	SLAL	0.31	M	112	-	-	10.5	7.74	0.24	1.08	19.6	5.52	NS	5	1.36
0.5-0.6	27.3	9.4	63.3	1.8	7.79	SLAL	0.55	H	377	-	-	13.0	10.5	0.26	1.43	25.2	5.68	NS	5	1.25
0.8-0.9	29.5	6.6	63.9	0.3	8.57	STAL	0.48	H	316	-	-	12.2	10.3	0.25	1.34	24.0	5.59	NS	4	1.19
1.1-1.2	33.2	4.8	62.0	8.6	8.30	MAL	0.50	H	349	-	-	11.2	9.51	0.25	1.25	22.2	5.62	NS	4	1.18
1.4-1.5	42.4	6.7	50.9	19.1	8.70	STAL	0.46	M	345	-	-	16.0	15.7	0.39	2.03	34.1	5.95	NS	4	1.02

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL										
Date:	01/09/2021	Describer:	T Beck	Site:	310-03-AH3517	Type:	Partial			
MSU:	2.1.1.1a		ASC:	Black Vertosol						
PSC:	Mywybilla			Chainage (m):		151060		Elevation (m):		430
Coordinates:		Easting:	346002	Northing:	6928084		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Plain	Drainage:	Imperfectly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Self-mulching, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-150	Dark grey (10YR4/1 (moist)); rough ped, moderate, 20-50 mm, subangular blocky; dry, very weak; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 6.0; gradual boundary to -
B22	150-	Dark grey (10YR4/1 (moist)); rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 6.5.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL										
Date:	31/08/2021	Describer:	H Marvell	Site:	310-03-AH3518	Type:	Partial			
MSU:	2.1.1.1a		ASC:	Black Vertosol						
PSC:	Mywybilla			Chainage (m):		151298		Elevation (m):		390
Coordinates:	Easting:	346314	Northing:	6928081		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Plain	Drainage:	Poorly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, Firm		
Surface fragments:	2-10%, 6-20 mm, subangular, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%); poplar box		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, very firm; light clay; coarse fragments 2-10%, 6-20 mm, subangular, gravel (possibly track ballast); no segregations; no pans; pH 6.0; clear boundary to -
B22	50-150	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, very firm; light clay, coarse sandy; coarse fragments 20-50%, 20-60 mm, subangular, gravel (possibly track ballast); no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.0; clear boundary to -
B23	150-350	Very dark grey (10YR3/1 (moist)); mottles <2%, <5 mm, prominent, brown, clear; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, very firm; light clay, fine sandy; coarse fragments 2-10%, 6-20 mm, subangular tabular, gravel; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.0; gradual boundary to -
B24	350-	Reddish black (2.5Y3/1 (moist)); mottles 2-10%, <5 mm, faint, dark, clear; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, very firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	22/06/2021	Describer:	B Rose	Site:	310-03-TP3312	Type:	Detailed		
MSU:	2.1.1.1a	ASC:	Black Vertosol						
PSC:	Mywybilla?		Chainage (m):		151427		Elevation (m):		382
Coordinates:	Easting:	345545	Northing:	6927217		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Terrace plain	Drainage:	Imperfectly drained
Landform pattern:	Terrace	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor); rill (active, minor)?		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-200?	Black (10YR2/1 (moist))?. no mottles?. rough ped, strong, 20-50 mm, subangular blocky?. moderately moist, firm?. medium clay?. coarse fragments few (2-10%), fine (2-6 mm), subangular gravel?. no segregations?. gradual boundary to -
B22?	200-1,300?	Very dark greyish brown (10YR3/2 (moist))?. no mottles?. rough ped, strong, 20-50 mm, subangular blocky?. moist, firm?. medium heavy clay?. no fragments?. no segregations?. no pans?. gradual boundary to -
B23?	1,300-1,500?	Dark brown (10YR3/3 (moist))?. no mottles?. rough ped, strong, 20-50 mm, subangular blocky?. moist, firm?. medium heavy clay?. no fragments?. segregations very few (<2%), fine (<2 mm), calcareous, concretions?. no pans?



Landscape Photo



Test pit – Photo 1



Excavated soil



Test pit – Photo 2

GENERAL									
Date:	25/11/2021	Describer:	P Hewavitharana	Site:	310-03-AH3831	Type:	Detailed		
MSU:	2.1.1.1a	ASC:	Black Vertosol						
PSC:	Mywybilla			Chainage (m):	151519		Elevation (m):		428
Coordinates:	Easting:	346532	Northing:	6928178		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Plain	Drainage:	Imperfectly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Gently undulating plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, loose, soft		
Surface fragments:	2-10%, 2-6 mm, subrounded, quartz		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21p	0-200	Very dark grey (10YR3/1 (moist)); mottles 10-20%, <5 mm, faint, dark, diffuse; rough ped, strong, 50-100 mm, angular blocky; moderately moist, firm; medium clay; coarse fragments 2-10%, 2-6 mm, subrounded, igneous; very few <2%, calcareous, concretions, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 7.0; gradual boundary to -
B22	200-500	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, strong, 50-100 mm, angular blocky; moderately moist, firm; medium heavy clay; coarse fragments <2%, 2-6 mm, subrounded, igneous; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 6.5; gradual boundary to -
B23	500-1,000	Black (10YR2/1 (moist)); no mottles; rough ped, strong, 10-20 mm, angular blocky; moderately moist, firm; heavy clay; coarse fragments <2%, 2-6 mm, subrounded, igneous; few 2-10%, calcareous, soft segregations, fine <2 mm, non-calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 7.0; gradual boundary to -
B23	1000-1,250	Black (10YR2/1 (moist)); mottles 20-50%, <5 mm, faint, pale, diffuse; rough ped, strong, 50-100 mm, polyhedral; moderately moist, firm; medium clay; no fragments; few 2-10%, calcareous, soft segregations, fine <2 mm, non-calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 7.5; gradual boundary to -
B3	1250-1,500	Dark grey (10YR4/1 (moist)); mottles 20-50%, 5-15 mm, faint, pale, diffuse; rough ped, moderate, 20-50 mm, angular blocky; moderately moist, firm; light medium clay; no fragments; few 2-10%, calcareous, soft segregations, fine <2 mm, non-calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.5.



Location 1



Location 2



Surface 1



pH, slaking, dispersion



Profile

GENERAL											
Date:	09/07/2021		Describer:	H Marvell		Site:	310-03-AH3519		Type:	Check site	
MSU:	2.1.1.1a			ASC:	Vertosol						
PSC:	Mywybilla				Chainage (m):		151700		Elevation (m):		390
Coordinates:	Easting:	346671		Northing:	6928275		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Plain	Drainage:	Imperfectly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	No
Disturbance:	Extensive clearing		
Surface condition:	Soft		
Surface fragments:	<2%, 6-20 mm, subrounded, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); gum-topped box		



Location 1



Location 2



Surface 1



Surface 2

GENERAL									
Date:	22/06/2021	Describer:	B Rose	Site:	310-03-TP3313	Type:	Detailed		
MSU:	2.1.1.1a	ASC:	Grey Vertosol						
PSC:	Mywybilla?		Chainage (m):		151834		Elevation (m):		386
Coordinates:	Easting:	345771	Northing:	6927556		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Terrace plain	Drainage:	Imperfectly drained
Landform pattern:	Terrace	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor); rill (active, minor)?		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-100?	Very dark greyish brown (10YR3/2 (moist)); no mottles?; rough ped, strong, 20-50 mm, subangular blocky?; moderately moist, firm?; medium clay?; no fragments?; no segregations?; no pans?; gradual boundary to -
B22?	100-1,500?	Dark greyish brown (10YR4/2 (moist)); no mottles?; rough ped, strong, 50-100 mm, subangular blocky?; moist, firm?; medium heavy clay?; no fragments?; no segregations?; no pans?



Surface Photo



Test pit – Photo 1

GENERAL									
Date:	02/09/2021	Describer:	H Marvell	Site:	310-03-AH3520	Type:	Partial		
MSU:	2.1.1.1a	ASC:	Grey Vertosol						
PSC:	Mywybilla			Chainage (m):	151926		Elevation (m):		390
Coordinates:	Easting:	346887	Northing:	6928347		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Plain	Drainage:	Poorly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	No
Disturbance:	Extensive clearing		
Surface condition:	Cracking, loose, firm, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Black (7.5YR2.5/1 (moist)); no mottles; rough ped, moderate, 10-20 mm, angular blocky; moderately moist, firm; light medium clay; no fragments; no segregations; no pans; no slaking within 10 mins; no dispersion within 2 hrs; pH 7.0; gradual boundary to -
B22	100-200	Black (5YR2.5/1 (moist)); mottles <2%, <5 mm, faint, brown, diffuse; rough ped, strong, 100-200 mm, angular blocky; moderately moist, firm; medium clay; coarse fragments 2-10%, 2-6 mm, subrounded, gravel; no segregations; no pans; no slaking within 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B23	200-400	Very dark grey (7.5YR3/1 (moist)); jarosite 2-10%, <5 mm, faint, brown, diffuse; rough ped, strong, 100-200 mm, angular blocky; moderately moist, firm; medium clay; coarse fragments 2-10%, 2-6 mm, subrounded, gravel; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B24	400-	Very dark grey (7.5YR3/1 (moist)); mottles 2-10%, <5 mm, faint, brown, diffuse; rough ped, strong, 100-200 mm, angular blocky; moderately moist, firm; medium heavy clay; coarse fragments 2-10%, 2-6 mm, subrounded, gravel; no segregations; no pans; no slaking within 10 mins; no dispersion within 2 hrs; pH 9.0.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL										
Date:	01/09/2021	Describer:	A Kaur	Site:	310-03-AH3521	Type:	Partial			
MSU:	2.1.1.1a		ASC:	Black Vertosol						
PSC:	Mywybilla			Chainage (m):		152354		Elevation (m):		394
Coordinates:		Easting:	347264	Northing:	6928546		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Plain	Drainage:	Imperfectly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, surface crust, surface flake		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor).		
Vegetation:	Very sparse, crowns well separated (0.25-20%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Black (10YR2/1 (moist)); mottles 2-10%, <5 mm, prominent, brown, diffuse; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 6.5; gradual boundary to -
B22	100-400	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; no segregations; no pans; pH 7.0; gradual boundary to -
B23	400-	Very dark grey (10YR3/1 (moist)); mottles 2-10%, <5 mm, prominent, brown, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, very strong; medium heavy clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.5.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	22/06/2021	Describer:	B Rose	Site:	310-03-TP3314	Type:	Detailed		
MSU:	2.1.1.1a	ASC:	Black Vertosol						
PSC:	Mywybilla?		Chainage (m):		141130		Elevation (m):		387
Coordinates:	Easting:	346146	Northing:	6927943		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Terrace plain	Drainage:	Imperfectly drained
Landform pattern:	Terrace	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor), rill (active, minor)?		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-100?	Very dark greyish brown (10YR3/2 (moist)); no mottles?; rough ped, strong, 20-50 mm, subangular blocky?; moderately moist, firm?; medium clay?; no fragments?; no segregations?; clear boundary to -
B22?	100-1,500?	Very dark grey (10YR3/1 (moist)); no mottles?; rough ped, strong, 50-100 mm, subangular blocky?; moist, firm?; medium heavy clay?; no fragments?; segregations common (10-20%), very coarse (20-60 mm), calcareous, soft segregations?; no pans?



Test pit – Photo 1



Surface Photo

GENERAL										
Date:	28/08/2021	Describer:	H Marvell	Site:	310-03-AH3522	Type:	Partial			
MSU:	2.1.1.1a		ASC:	Black Vertosol						
PSC:	Mywybilla			Chainage (m):		152615		Elevation (m):		393
Coordinates:		Easting:	347329	Northing:	6928988		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Plain	Drainage:	Poorly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Loose, firm		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); belah		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Black (7.5YR2.5/1 (moist)); mottles 2-10%, <5 mm, prominent, brown, clear; rough ped, weak, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 5.5; clear boundary to -
B22	50-500	Very dark grey (7.5YR3/1 (moist)); no mottles; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, very firm; light medium clay; no fragments; few 2-10%, calcareous, concretions, coarse 6-20 mm, ; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.0; gradual boundary to -
B23	500-800	Very dark grey (7.5YR3/1 (moist)); no mottles; rough ped, strong, 100-200 mm, subangular blocky; dry, very firm; medium clay; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL												
Date:	09/07/2021		Describer:	H Marvell		Site:	310-03-AH3523		Type:	Check site		
MSU:	2.1.1.1a			ASC:	Vertosol							
PSC:	Mywybilla				Chainage (m):		152833		Elevation (m):		391	
Coordinates:	Easting:		347594		Northing:		6928951		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Plain	Drainage:	Imperfectly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Soft		
Surface fragments:	2-10%, 6-20 mm, subrounded, gravel		
Microrelief:	Incipient, other, mound, mound/shelf/depressions, shelf prominent		
Erosion:	Sheet (active, minor).		
Vegetation:	Very sparse, crowns well separated (0.25-20%); belah		



Location 1



Location 2



Surface 1



Surface 2

GENERAL									
Date:	09/07/2021	Describer:	H Marvell	Site:	310-03-AH3524	Type:	Check site		
MSU:	2.1.1.1a	ASC:	Vertosol						
PSC:	Mywybilla			Chainage (m):	152885		Elevation (m):		392
Coordinates:	Easting:	347742	Northing:	6928778		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Plain	Drainage:	Imperfectly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Self-mulching, soft		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor). Rill (active, minor).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		



Location 1



Erosion 1



Surface 1



Surface 2

Project SWRES Site 365 Observation 1

SALI2079

Project description	
Project name:	South-west region research sites
Project status:	Data is from an active project and may be subject to change through additions/updates or further quality assessment processes
Location:	South-west region

Site characteristics			
Date described:	29/09/2010	Observation type:	Relatively undisturbed soil core
Site Type:	Free survey site	Observation class:	Class I (detailed soil profile description)
Slope (%):	Not recorded	Morphological type:	
Slope type	Not recorded	Landform element:	Plain
Geology:	Not recorded	Landform pattern:	Not recorded
Soil Name:	Not recorded	Substrate lithology:	Not recorded
Runoff:	Not recorded	Depth to free water:	Not recorded
Permeability:	Slowly permeable (5-50 mm/day)	Erosion:	Not recorded
Drainage:	Imperfectly drained	Microrelief type:	Not recorded
Disturbance:	Cultivation - rainfed	Proportion gilgai:	N/A
Rock outcrop:	Not recorded	Vertical interval (m):	N/A
Surface condition:	Not recorded	Horizontal interval (m):	N/A
Surface coarse fragments:	Not recorded	Microrelief component sampled:	N/A

Site location							
Datum	Latitude (dd)	Longitude (dd)	Zone	Easting (m)	Northing (m)	Location accuracy (m)	Location measurement method
GDA 94	-27.74352	151.44794	56	347027	6930244	Not recorded	Averaging GPS
GDA 2020	-27.74351	151.44795	56	347028	6930245		

Soil classification					
Australian Soil Classification (ASC)	Confidence	ASC Technical Reference	Buried	GSG	PPF
Grey Vertosol		Isbell (1996) The Australian Soil Classification (First Edition)	N/A	Grey clay	Gc

Profile morphology											
No	Name	Upper depth (m)	Lower depth (m)	Colour	Mottles	Textures	Structures	Coarse fragments	Segregations	Strengths	Bounds
1	A1	0	0.05	Dark grey (10YR 4/1) moist [redacted]		Medium heavy clay	Strong 5-10 mm Subangular blocky structure;				
2	B21	0.05	0.2	Dark grey (10YR 4/1) moist [redacted]		Heavy clay	Moderate 5-10 mm Lenticular structure; Moderate 2-5 mm Lenticular structure;				
3	B22	0.2	0.7	Dark grey (10YR 4/1) moist [redacted]		Heavy clay	Moderate 5-10 mm Lenticular structure; Strong 2-5 mm Lenticular structure;				
4	B23	0.7	1.4	Dark grey (10YR 4/1) moist [redacted]		Heavy clay	Moderate 5-10 mm Lenticular structure; Strong 2-5 mm Lenticular structure;				
5	B24k	1.4	1.6	Grey (10YR 5/1) moist [redacted]		Heavy clay	Strong 5-10 mm Lenticular structure; Strong 2-5 mm Lenticular structure;		Few (2-10%) Medium (2-6 mm) Calcareous Nodules;		

Notes			
Note level	Horizon name	Horizon no	Note
Site			Soil Carbon Project LC ID49 (Brookstead) Ram Dalal.

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GENERAL										
Date:	28/08/2021	Describer:	H Marvell	Site:	310-03-AH3525	Type:	Partial			
MSU:	2.1.1.1a		ASC:	Black Vertosol						
PSC:	Mywybilla			Chainage (m):		153049		Elevation (m):		392
Coordinates:	Easting:	347838	Northing:	6928949		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Plain	Drainage:	Poorly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, firm, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor).		
Vegetation:	Very sparse, crowns well separated (0.25-20%); belah		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.0; gradual boundary to -
B22	100-300	Black (10YR2/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, very firm; light medium clay; no fragments; few 2-10%, calcareous, concretions, very coarse 20-60 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.0; gradual boundary to -
B23	300-550	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, very firm; medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.0; clear boundary to -
B24	550-700	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, strong; light medium clay; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL										
Date:	28/08/2021	Describer:	M Mooney	Site:	310-03-AH3526	Type:	Partial			
MSU:	2.1.1.1a		ASC:	Black Vertosol						
PSC:	Mywybilla			Chainage (m):		153347		Elevation (m):		434
Coordinates:		Easting:	348217	Northing:	6928865		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Plain	Drainage:	Imperfectly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, loose, firm, surface crust		
Surface fragments:	<2%, 6-20 mm, subangular, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Very dark grey (10YR3/1 (moist)); rough ped, weak, 20-50 mm, subangular blocky; dry, weak; light medium clay; coarse fragments <2%, 6-20 mm, subangular, mudstone; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 5.5; clear boundary to -
B22	100-400	Very dark grey (10YR3/1 (moist)); rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; very few <2%, calcareous, concretions, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B23	400-	Very dark grey (10YR3/1 (moist)); rough ped, strong, 50-100 mm, subangular blocky; dry, very firm; medium heavy clay; no fragments; no segregations; no pans; no slaking within 10 mins; no dispersion within 2 hrs; pH 7.5.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL										
Date:	01/09/2021	Describer:	H Marvell	Site:	310-03-AH3527	Type:	Partial			
MSU:	2.1.1.1a		ASC:	Black Vertosol						
PSC:	Mywybilla			Chainage (m):		153453		Elevation (m):		393
Coordinates:		Easting:	348252	Northing:	6929029		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Plain	Drainage:	Poorly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, loose, firm		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); poplar box		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Very dark grey (7.5YR3/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, very firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 5.0; gradual boundary to -
B22	50-200	Very dark grey (7.5YR3/1 (moist)); mottles 2-10%, <5 mm, prominent, brown, sharp; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, strong; medium clay; no fragments; segregations few 2-10%, manganiferous, concretions, fine <2 mm; no pans; no slaking within 2 hrs; no dispersion within 2 hrs; pH 6.0; gradual boundary to -
B23	200-	Black (7.5YR2.5/1 (moist)); no mottles; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, strong; medium clay; no fragments; segregations many 20-50%, calcareous, concretions, coarse 6-20 mm, highly calcareous; no pans; no slaking within 2 hrs; no dispersion within 2 hrs; pH 8.5.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	09/07/2021	Describer:	H Marvell	Site:	310-03-AH3528	Type:	Check site		
MSU:	2.1.1.1a	ASC:	Vertosol						
PSC:	Mywybilla			Chainage (m):	153539		Elevation (m):		393
Coordinates:	Easting:	348455	Northing:	6928823		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Plain	Drainage:	Imperfectly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Soft		
Surface fragments:	<2%, 2-6 mm, subrounded, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		



Location 1



Location 2



Surface 1



Surface 2

GENERAL										
Date:	28/08/2021	Describer:	H Marvell	Site:	310-03-AH3529	Type:	Detailed			
MSU:	2.1.1.1a	ASC:	Grey Vertosol							
PSC:	Mywybilla			Chainage (m):		153720		Elevation (m):		393
Coordinates:	Easting:	348691	Northing:	6928762		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Plain	Drainage:	Poorly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, firm, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21p	0-100	Vary dark grey (10YR3/1 (moist)); no mottles; rough ped, weak, 20-50 mm, polyhedral; moderately moist, firm; light medium clay, gravelly (road surface material); coarse fragments 20-50%, 20-60 mm, subangular, gravel; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 4.5; clear boundary to -
B22	100-550	Dark grey (10YR4/1 (moist)); mottles 2-10%, <5 mm, prominent, brown, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, very firm; medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 4.5; gradual boundary to -
B23	550-1,300	Black (10YR2/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; dry, very firm; medium clay; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 4.5; clear boundary to -
B24	1300-1,500	Grey (10YR5/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; many 20-50%, calcareous, concretions, very coarse 20-60 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL										
Date:	01/09/2021	Describer:	H Marvell	Site:	310-03-AH3530	Type:	Check site			
MSU:	2.1.1.1a	ASC:	Vertosol							
PSC:	Mywybilla			Chainage (m):		153954		Elevation (m):		393
Coordinates:	Easting:	348707	Northing:	6929241		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Plain	Drainage:	Poorly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, loose, firm, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		



Location 1



Location 2



Surface 1



Surface 2

GENERAL									
Date:	01/09/2021	Describer:	H Marvell	Site:	310-03-AH3531	Type:	Detailed		
MSU:	2.1.1.1a	ASC:	Grey Vertosol						
PSC:	Mywybilla			Chainage (m):	154459		Elevation (m):		395
Coordinates:	Easting:	349163	Northing:	6929457		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Plain	Drainage:	Poorly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, loose, firm, hard setting		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Very dark grey (7.5YR3/1 (moist)); no mottles; rough ped, weak, 5-10 mm, angular blocky; moderately moist, weak; light clay, FS; no fragments; no segregations; no pans; pH 5.0; gradual boundary to -
B22	50-400	Dark grey (7.5YR4/1 (moist)); mottles 10-20%, <5 mm, prominent, brown, clear; mottles 10-20%, <5 mm, prominent, pale, diffuse; rough ped, strong, 20-50 mm, angular blocky; moderately moist, firm; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.0; gradual boundary to -
B23	400-700	Dark grey (7.5YR4/1 (moist)); mottles 20-50%, <5 mm, faint, brown, diffuse; rough ped, strong, 100-200 mm, angular blocky; moderately moist, firm; medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 6.0; gradual boundary to -
B24	700-900	Dark grey (7.5YR4/1 (moist)); no mottles; rough ped, strong, 100-200 mm, platy; moderately moist, very firm; medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.5; gradual boundary to -
B31	900-1,500	Dark grey (7.5YR4/1 (moist)); no mottles; rough ped, moderate, 100-200 mm, platy; moderately moist, firm; medium clay; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL										
Date:	22/06/2021	Describer:	B Rose	Site:	310-03-TP3318	Type:	Detailed			
MSU:	2.1.1.1a		ASC:	Black Vertosol						
PSC:	Mywybilla?			Chainage (m):		154472		Elevation (m):		391
Coordinates:		Easting:	348023	Northing:	6928891		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Terrace plain	Drainage:	Imperfectly drained
Landform pattern:	Terrace	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, self-mulching, soft?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor); rill (active, minor)?		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-200?	Very dark grey (10YR3/1 (moist)); no mottles?; rough ped, moderate, 20-50 mm, subangular blocky?; dry, weak?; light medium clay?; no fragments?; no segregations?; no pans?; gradual boundary to -
B22?	200-1,000?	Very dark grey (10YR3/1 (moist)); no mottles?; rough ped, strong, 50-100 mm, subangular blocky?; moderately moist, firm?; medium clay?; no fragments?; no segregations?; no pans?; diffuse boundary to -
B23?	1,000-1,500?	Dark brown (10YR3/3 (moist)); no mottles?; rough ped, strong, 50-100 mm, subangular blocky?; dry, very firm?; medium heavy clay?; no fragments?; segregations common (10-20%), coarse (6-20 mm), calcareous, soft segregations?; no pans?



Location 1



Pit 1



Excavated soil



Pit 2

GENERAL										
Date:	01/09/2021	Describer:	H Marvell	Site:	310-03-AH3532	Type:	Partial			
MSU:	2.1.1.1a		ASC:	Black Vertosol						
PSC:	Mywybilla			Chainage (m):		154944		Elevation (m):		397
Coordinates:	Easting:	349599	Northing:	6929668		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Plain	Drainage:	Poorly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, loose, firm, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%); poplar box		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Dark grey (7.5YR4/1 (moist)); mottles 2-10%, <5 mm, prominent, brown, clear; rough ped, moderate, 50-100 mm, subangular blocky; dry, strong; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 5.5; gradual boundary to -
B22	50-350	Black (7.5YR2.5/1 (moist)); mottles 2-10%, <5 mm, prominent, brown, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, strong; light clay; no fragments; common 10-20%, manganiferous, concretions, medium 2-6 mm, ; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 5.5; gradual boundary to -
B23	350-550	Very dark brown (7.5YR2.5/2 (moist)); mottles 2-10%, <5 mm, faint, dark, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, strong; light clay; no fragments; common 10-20%, calcareous, soft segregations, medium 2-6 mm, ; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 6.0; gradual boundary to -
B24	550-	Very dark grey (7.5YR3/1 (moist)); mottles 2-10%, <5 mm, prominent, brown, clear; rough ped, moderate, 100-200 mm, subangular blocky; moderately moist, strong; medium clay; no fragments; few 2-10%, manganiferous, concretions, medium 2-6 mm, ; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 7.5.



Location 1



Surface 1



pH, slaking, dispersion



Profile

faGENERAL											
Date:	22/06/2021		Describer:	B Rose		Site:	310-03-TP3319		Type:	Detailed	
MSU:	2.1.1.1a?		ASC:	Black Vertosol?							
PSC:	Mywybilla?			Chainage (m):			154984		Elevation (m):		391
Coordinates:	Easting:	348474		Northing:	6929133		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)?	Runoff:	Slow?
Morphological type:	Flat?	Permeability:	Slowly?
Landform element:	Backplain?	Drainage:	Poorly drained?
Landform pattern:	Floodplain -frequently active (<50yr)?	Geology:	TQs
Relief modal class:	Level plain?	Rock outcrop:	No rock outcrop?
ALC:	A1?	SCL:	Yes?
Disturbance:	Cropping (rain fed)?		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor). Rill (active, minor). ?		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-100?	Dark greyish brown (10YR4/2 (moist)); no mottles; rough ped, moderate, 100-200 mm?, subangular blocky?; moist, weak; light medium clay?; no fragments?; no segregations?; no pans?; unknown boundary to -
B22?	100-1,200?	Dark grey (10YR4/1 (moist)); no mottles?; rough ped, moderate, 100-200 mm?, subangular blocky?; moderately moist, weak; medium clay?; no fragments?; no segregations?; no pans?; unknown boundary to -
B23?	1,200-1,500?	Grey (5YR5/1 (moist)); pale mottles, 2-10%, 5-15 mm, prominent, clear; rough ped, moderate, 100-200 mm?, subangular blocky?; moderately moist, weak?; medium clay, trace gravel?; <2% fragments, 2-6 mm sub-rounded, gravel; no segregations?; no pans?



Surface Photo / Test Pit Photo

GENERAL									
Date:	01/09/2021	Describer:	P Hewavitharana	Site:	310-03-AH3533	Type:	Partial		
MSU:	2.1.1.1a	ASC:	Black Vertosol						
PSC:	Mywybilla			Chainage (m):	155447		Elevation (m):		439
Coordinates:	Easting:	350054	Northing:	6929883		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Plain	Drainage:	Poorly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, loose, firm, hard setting		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Very dark grey (7.5YR3/1 (moist)); mottles 10-20%, <5 mm, faint, brown, diffuse; rough ped, weak, 5-10 mm, angular blocky; moderately moist, weak; light clay; no fragments; segregations very few <2%, calcareous, concretions, fine <2 mm, ; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 4.5; gradual boundary to -
B22	50-200	Very dark grey (7.5YR3/1 (moist)); mottles 20-50%, <5 mm, faint, brown, diffuse; rough ped, moderate, 20-50 mm, angular blocky; moderately moist, firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 5.5; gradual boundary to -
B23	200-500	Very dark grey (7.5YR3/1 (moist)); mottles 20-50%, <5 mm, faint, brown, diffuse; mottles 10-20%, <5 mm, prominent, pale, diffuse; rough ped, strong, 100-200 mm, angular blocky; moderately moist, firm; medium clay; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B24	500-	Very dark grey (7.5YR3/1 (moist)); mottles 2-10%, <5 mm, faint, brown, diffuse; rough ped, strong, 100-200 mm, angular blocky; moderately moist, firm; medium heavy clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL											
Date:	22/06/2021		Describer:	B Rose		Site:	310-03-TP3320		Type:	Detailed	
MSU:	2.1.1.1a?		ASC:	Black Vertosol?							
PSC:	Mywybilla?			Chainage (m):			155488		Elevation (m):		393
Coordinates:	Easting:	348926		Northing:	6929360		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)?	Runoff:	Slow?
Morphological type:	Flat?	Permeability:	Slowly?
Landform element:	Backplain?	Drainage:	Poorly drained?
Landform pattern:	Floodplain -frequently active (<50yr)?	Geology:	TQs
Relief modal class:	Level plain?	Rock outcrop:	No rock outcrop?
ALC:	A1?	SCL:	Yes?
Disturbance:	Cropping (rain fed)?		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor). Rill (active, minor).		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-600?	Black (5YR2.5/1 (moist)); no mottles?; rough ped, strong, 100-200 mm?, subangular blocky?; moderately moist, firm; medium heavy clay?; no coarse fragments?; no segregations?; no pans?; gradual boundary to -
B22?	600-1,500?	Black (5YR2.5/1 (moist)); no mottles?; rough ped, strong, 100-200 mm?, subangular blocky?; moderately moist, firm; medium heavy clay?; 2-10% coarse fragments, 2-6 mm, subrounded to subangular gravel; few (2-10%), calcareous, nodules, medium (2-6 mm)?; no pans?



Core

GENERAL										
Date:	01/09/2021	Describer:	H Marvell	Site:	310-03-AH3534	Type:	Partial			
MSU:	2.1.1.1a		ASC:	Black Vertosol						
PSC:	Mywybilla			Chainage (m):		155957		Elevation (m):		398
Coordinates:	Easting:	350516	Northing:	6930098		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Plain	Drainage:	Imperfectly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, loose, firm, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Very dark grey (7.5YR3/1 (moist)); no mottles; rough ped, weak, 20-50 mm, subangular blocky; dry, firm; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 6.5; gradual boundary to -
B22	50-250	Dark brown (7.5YR3/2 (moist)); mottles 2-10%, 5-15 mm, prominent, brown, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, strong; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 7.0; gradual boundary to -
B23	250-500	Very dark grey (7.5YR3/1 (moist)); mottles 10-20%, 5-15 mm, faint, brown, diffuse; mottles 10-20%, 5-15 mm, faint, grey, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, strong; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 8.0; gradual boundary to -
B24	500-	Very dark grey (7.5YR3/1 (moist)); mottles 10-20%, 5-15 mm, prominent, grey, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, strong; light clay; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.5.



Location 1



Surface 1



pH, slaking, dispersion

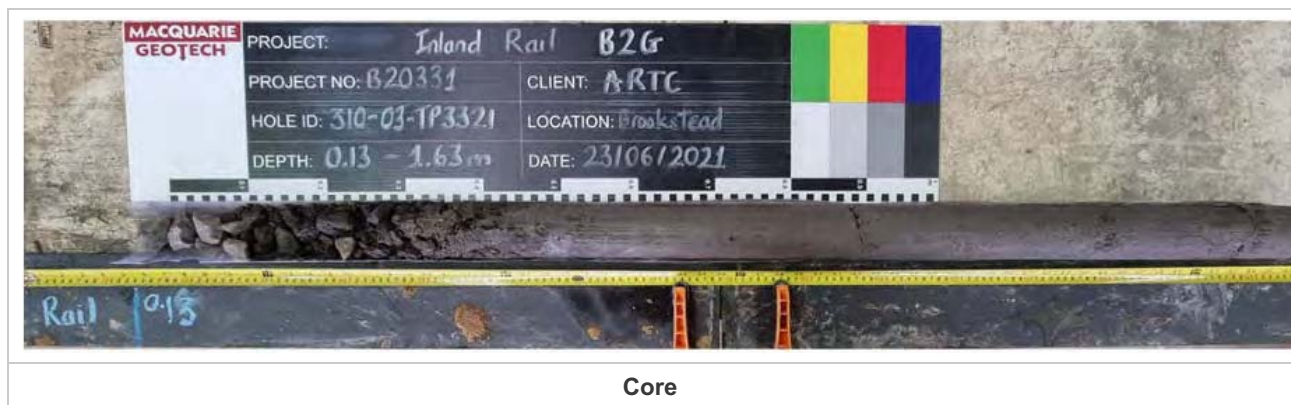


Profile

GENERAL												
Date:	22/06/2021		Describer:	B Rose		Site:	310-03-TP3321		Type:	Detailed		
MSU:	2.1.1.1a?		ASC:	Black Vertosol?								
PSC:	Mywybilla?			Chainage (m):			155988		Elevation (m):		395	
Coordinates:	Easting:		349383		Northing:		6929576		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)?	Runoff:	Slow?
Morphological type:	Flat?	Permeability:	Slowly?
Landform element:	Backplain?	Drainage:	Poorly drained?
Landform pattern:	Floodplain -frequently active (<50yr)?	Geology:	TQs
Relief modal class:	Level plain?	Rock outcrop:	No rock outcrop?
ALC:	A1?	SCL:	Yes?
Disturbance:	Cropping (rain fed)?		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor). Rill (active, minor).		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-560?	Very dark greyish brown (10YR3/2 (moist)); no mottles?; rough ped, strong, 100-200 mm?, subangular blocky?; moderately moist, firm; medium clay; 2-10% coarse fragments, 2-6 mm, subrounded to subangular gravel; no segregations?; no pans?; unknown boundary to -
B22?	560-900?	Very dark greyish brown (10YR3/2 (moist)); no mottles?; rough ped, strong, 100-200 mm?, subangular blocky?; moderately moist, firm; medium clay; 2-10% coarse fragments, 2-6 mm, subrounded to subangular gravel; few (2-10%) calcareous nodules, 2-6 mm?; no pans?
B23?	900-1,500?	Very dark greyish brown (10YR3/2 (moist)); no mottles?; rough ped, strong, 100-200 mm?, subangular blocky?; moderately moist, firm; medium heavy clay; 2-10% coarse fragments, 2-6 mm, subrounded to subangular gravel; few (2-10%) calcareous nodules, 2-6 mm?; no pans?



GENERAL										
Date:	01/09/2021	Describer:	H Marvell	Site:	310-03-AH3535	Type:	Partial			
MSU:	2.1.1.1a		ASC:	Black Vertosol						
PSC:	Mywybilla			Chainage (m):		156448		Elevation (m):		400
Coordinates:		Easting:	350961	Northing:	6930305		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Plain	Drainage:	Poorly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, loose, firm, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	Gully (active, minor, <1.5 m).		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%); poplar box		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Dark brown (7.5YR3/2 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; dry, very firm; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 5.5; gradual boundary to -
B22	100-300	Black (7.5YR2.5/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; dry, firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 5.5; gradual boundary to -
B23	300-450	Very dark grey (7.5YR3/1 (moist)); mottles 2-10%, <5 mm, prominent, brown, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, strong; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 6.0; gradual boundary to -
B24	450-	Very dark grey (7.5YR3/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, strong; medium clay; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0.



Location 1



Surface 1



pH, slaking, dispersion

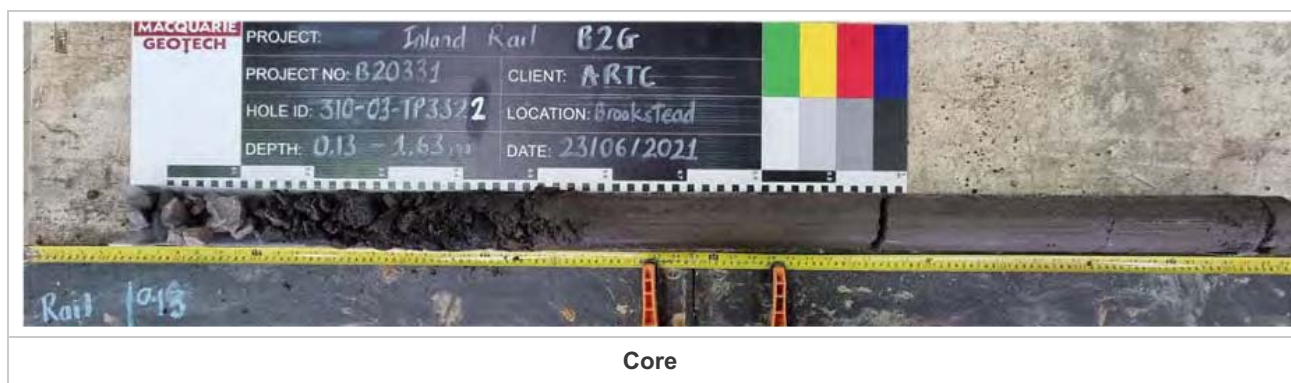


Profile

GENERAL												
Date:	22/06/2021		Describer:	B Rose		Site:	310-03-TP3322		Type:	Detailed		
MSU:	2.1.1.1a?		ASC:	Black Vertosol?								
PSC:	Mywybilla?			Chainage (m):			156486		Elevation (m):		396	
Coordinates:	Easting:		349382		Northing:		6929788		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)?	Runoff:	Slow?
Morphological type:	Flat?	Permeability:	Slowly?
Landform element:	Backplain?	Drainage:	Poorly drained?
Landform pattern:	Floodplain -frequently active (<50yr)?	Geology:	TQs
Relief modal class:	Level plain?	Rock outcrop:	No rock outcrop?
ALC:	A1?	SCL:	Yes?
Disturbance:	Cropping (rain fed)?		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor). Rill (active, minor)?		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-700?	Black (7.5YR2.5/1 (moist)); no mottles?; rough ped, strong, 100-200 mm?, subangular blocky?; moderately moist, firm; medium clay?, silty; no coarse fragments; no segregations?; no pans?; gradual boundary to -
B22?	700-1,500?	Very dark greyish brown (10YR3/2 (moist)); no mottles?; rough ped, strong, 100-200 mm?, subangular blocky?; moderately moist, strong; medium heavy clay?; 2-10% coarse fragments, 6-20 mm, subrounded to subangular gravel?; few (2-10%), calcareous, nodules, 2-6 mm?; no pans?



GENERAL										
Date:	01/09/2021	Describer:	P Hewavitharana	Site:	310-03-AH3536	Type:	Detailed			
MSU:	2.1.1.1a	ASC:	Grey Vertosol							
PSC:	Mywybilla			Chainage (m):		156949		Elevation (m):		442
Coordinates:	Easting:	351412	Northing:	6930526		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Plain	Drainage:	Poorly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, loose, firm, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Dark grey (7.5YR4/1 (moist)); mottles 2-10%, <5 mm, faint, brown, diffuse; rough ped, moderate, 20-50 mm, angular blocky; moderately moist, firm; light clay; no fragments; no segregations; no pans; no slaking within 10 mins; no dispersion within 2 hrs; pH 6.5; gradual boundary to -
B22	50-350	Dark grey (7.5YR4/1 (moist)); mottles <2%, <5 mm, faint, pale, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; coarse fragments <2%, 2-6 mm, subrounded, gravel; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B23	350-600	Dark grey (7.5YR4/1 (moist)); mottles 10-20%, <5 mm, faint, pale, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; few 2-10%, calcareous, concretions, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.5; gradual boundary to -
B24	600-800	Dark grey (7.5YR4/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, platy; moderately moist, firm; light clay; common 10-20%, calcareous, soft segregations, medium 2-6 mm, highly calcareous; no pans; few 2-10%, calcareous, concretions, medium 2-6 mm, highly calcareous; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.0; gradual boundary to -
B31	800-1,200	Very dark grey (7.5YR3/1 (moist)); no mottles; rough ped, moderate, 100-200 mm, platy; moderately moist, firm; light clay; no fragments; common 10-20%, calcareous, soft segregations, medium 2-6 mm, highly calcareous; common 10-20%, calcareous, concretions, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.0; gradual boundary to -
B32	1200-1,500	Dark grey (7.5YR4/1 (moist)); mottles 20-50%, <5 mm, faint, brown, diffuse; rough ped, moderate, 100-200 mm, platy; moderately moist, firm; light clay; no fragments; very many >50%, calcareous, soft segregations, coarse 6-20 mm, highly calcareous; many 20-50%, calcareous, concretions, coarse 6-20 mm, highly calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 6.5.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	22/06/2021	Describer:	B Rose	Site:	310-03-TP3323	Type:	Detailed		
MSU:	2.1.1.1a?	ASC:	Black Vertosol?						
PSC:	Mywybilla?		Chainage (m):		154987		Elevation (m):		398
Coordinates:	Easting:	350286	Northing:	6930003		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)?	Runoff:	Slow?
Morphological type:	Flat?	Permeability:	Slowly?
Landform element:	Backplain?	Drainage:	Poorly drained?
Landform pattern:	Floodplain -frequently active (<50yr)?	Geology:	TQs
Relief modal class:	Level plain?	Rock outcrop:	No rock outcrop?
ALC:	A1?	SCL:	Yes?
Disturbance:	Cropping (rain fed)?		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor). Rill (active, minor).		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-680?	Black (7.5YR2.5/1 (moist)); no mottles?; rough ped?, strong, 100-200 mm?, subangular blocky?; moderately moist, firm?; medium clay, silty; no coarse fragments?; no segregations?; no pans?; gradual boundary to -
B22?	680-1,500?	Very dark greyish brown (10YR3/2 (moist)); no mottles?; rough ped?, strong, 100-200 mm?, subangular blocky?; moderately moist, firm; medium clay?; 2-10% coarse fragments, 6-20 mm, subangular; no segregations?; no pans?



GENERAL										
Date:	01/09/2021	Describer:	H Marvell	Site:	310-03-AH3537	Type:	Partial			
MSU:	2.1.1.1a		ASC:	Black Vertosol						
PSC:	Mywybilla			Chainage (m):		157451		Elevation (m):		402
Coordinates:	Easting:	351866	Northing:	6930738		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Plain	Drainage:	Poorly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); poplar box		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Black (7.5YR2.5/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, very firm; light clay; coarse fragments 2-10%, 20-60 mm, subangular, gravel; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 5.5; gradual boundary to -
B22	50-300	Black (7.5YR3/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, very firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.0; gradual boundary to -
B23	300-	Black (7.5YR3/1 (moist)); rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, very firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	22/06/2021	Describer:	B Rose	Site:	310-03-TP3324	Type:	Detailed		
MSU:	2.1.1.1a?	ASC:	Black Vertosol?						
PSC:	Mywybilla?		Chainage (m):		157487		Elevation (m):		398
Coordinates:	Easting:	350732	Northing:	6930213		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)?	Runoff:	Slow?
Morphological type:	Flat?	Permeability:	Slowly?
Landform element:	Backplain?	Drainage:	Poorly drained?
Landform pattern:	Floodplain -frequently active (≤50yr)?	Geology:	TQs
Relief modal class:	Level plain?	Rock outcrop:	No rock outcrop?
ALC:	A1?	SCL:	Yes?
Disturbance:	Cropping (rain fed)?		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor). Rill (active, minor).		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-950?	Very dark greyish brown (10YR3/2 (moist)); no mottles?; rough ped?, strong, 100-200 mm?, subangular blocky?; moderately moist, firm?; medium clay?; no coarse fragments?; no segregations?; no pans?; gradual boundary to -
B22?	950-1,050?	Greyish brown (10YR5/2 (moist)); mottles, 2-10%, 5-15 mm, prominent, orange, clear?; mottles, 2-10%, 5-15 mm, prominent, brown, clear?; rough ped?, strong, 100-200 mm?, subangular blocky?; moderately moist, firm?; medium clay?; no coarse fragments?; no segregations?; no pans?; gradual boundary to -
B23?	1,050-1,250?	Greyish brown (10YR5/2 (moist)); mottles, 2-10%, 5-15 mm, prominent, orange, clear?; mottles, 2-10%, 5-15 mm, prominent, brown, clear?; rough ped?, strong, 100-200 mm?, subangular blocky?; moderately moist, firm?; medium clay?; no coarse fragments?; very few (<2%) segregations, calcareous, nodules, 2-6 mm; no pans?; gradual boundary to -
B24?	1,250-1,500?	Greyish brown (10YR5/2 (moist)); mottles, 2-10%, 5-15 mm, prominent, orange, clear?; mottles, 2-10%, 5-15 mm, prominent, brown, clear?; rough ped?, strong, 100-200 mm?, subangular blocky?; moderately moist, firm?; medium clay?; no coarse fragments?; no segregations?; no pans?

	
Location 1	Location 2

GENERAL									
Date:	28/08/2021	Describer:	H Marvell	Site:	310-03-AH3538	Type:	Detailed		
MSU:	2.1.1.1a	ASC:	Black Vertosol						
PSC:	Mywybilla			Chainage (m):	157786		Elevation (m):		403
Coordinates:	Easting:	352256	Northing:	6930698		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Plain	Drainage:	Poorly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust		
Surface fragments:	None		
Microrelief:	Incipient, other, equal mounds/depressions, no shelf present		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); poplar box		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Black (7.5YR2.5/1 (moist)); no mottles; rough ped, weak, 20-50 mm, subangular blocky; dry, very firm; medium clay; no fragments; no segregations; no pans; no slaking within 10 mins; no dispersion within 2 hrs; pH 5.5; clear boundary to -
B22	50-600	Black (7.5YR2.5/1 (moist)); no mottles; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, very firm; medium clay; no fragments; no segregations; no pans; no slaking within 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B23	600-1,000	Black (7.5YR2.5/1 (moist)); no mottles; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, very firm; medium clay; coarse fragments 2-10%, 2-6 mm, subrounded, gravel; few 2-10%, calcareous, concretions, medium 2-6 mm, moderately calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B24	1000-1,350	Black (7.5YR2.5/1 (moist)); no mottles; rough ped, strong, 100-200 mm, subangular blocky; dry, strong; light medium clay; no fragments; common 10-20%, calcareous, concretions, coarse 6-20 mm, highly calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B31	1350-1,550	Black (7.5YR2.5/1 (moist)); no mottles; rough ped, strong, 100-200 mm, subangular blocky; dry, strong; medium clay; no fragments; many 20-50%, calcareous, concretions, very coarse 20-60 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B/C	1550-	Not described



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	01/09/2021	Describer:	H Marvell	Site:	310-03-AH3539	Type:	Check site		
MSU:	2.1.1.1a	ASC:	Vertosol						
PSC:	Mywybilla			Chainage (m):	157944		Elevation (m):		403
Coordinates:	Easting:	352312	Northing:	6930949		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Plain	Drainage:	Poorly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); poplar box		



Location 1



Location 2



Surface 1



Surface 2

GENERAL									
Date:	22/06/2021	Describer:	B Rose	Site:	310-03-TP3325	Type:	Detailed		
MSU:	2.1.1.1a?	ASC:	Black Vertosol?						
PSC:	Mywybilla?		Chainage (m):		141130?		Elevation (m):		401
Coordinates:	Easting:	351639	Northing:	6930643		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)?	Runoff:	Slow?
Morphological type:	Flat?	Permeability:	Slowly?
Landform element:	Backplain?	Drainage:	Poorly drained?
Landform pattern:	Floodplain -frequently active (≤50yr)?	Geology:	TQs
Relief modal class:	Level plain?	Rock outcrop:	No rock outcrop?
ALC:	A1?	SCL:	Yes?
Disturbance:	Cropping (rain fed)?		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor). Rill (active, minor).		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-600?	Dark brown (10YR3/3 (moist)); no mottles?; rough ped?; strong, 100-200 mm, subangular blocky?; moderately moist, firm?; medium clay?; no coarse fragments?; no segregations?; no pans?; gradual boundary to -
B22?	600-1,000?	Dark brown (10YR3/3 (moist)); no mottles?; rough ped?; strong, 100-200 mm, subangular blocky?; moderately moist, very firm?; medium heavy clay?; no coarse fragments?; no segregations?; no pans?; gradual boundary to -
B23?	1,000-1,500?	Dark brown (10YR3/3 (moist)); mottles, 2-10%, 5-15 mm, prominent, orange, clear?; mottles, 2-10%, 5-15 mm, prominent, brown, clear?; rough ped?; strong, 100-200 mm, subangular blocky?; moderately moist, very firm?; medium heavy clay?; no coarse fragments?; no segregations?; no pans?



Location 1

GENERAL									
Date:	29/08/2021	Describer:	T Beck	Site:	310-03-AH3540	Type:	Detailed		
MSU:	2.1.1.1a	ASC:	Black Vertosol						
PSC:	Mywybilla			Chainage (m):	158052		Elevation (m):		445
Coordinates:	Easting:	352329	Northing:	6931164		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Slowly
Landform element:	Plain	Drainage:	Poorly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, firm		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); poplar box		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-150	Black (10YR2/1 (moist)); no mottles; rough ped, weak, 20-50 mm, subangular blocky; moderately moist, weak; light clay, fine sandy; no fragments; no segregations; no pans; partial slake in 10 mins; strong dispersion within 10 mins; pH 5.5; gradual boundary to -
B22	150-500	Black (10YR2/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.0; gradual boundary to -
B23	500-800	Very dark grey (10YR3/1 (moist)); mottles 2-10%, <5 mm, faint, pale, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, very firm; medium clay; no fragments; few 2-10%, calcareous, nodules, medium 2-6 mm, slightly calcareous; no pans; pH 9.0; gradual boundary to -
B24	800-1,200	Dark grey (10YR4/1 (moist)); mottles 10-20%, <5 mm, faint, pale, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, strong; light medium clay; no fragments; common 10-20%, calcareous, concretions, medium 2-6 mm, moderately calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B32	1200-1,500	Grey (10YR5/1 (moist)); mottles 10-20%, <5 mm, faint, orange, diffuse; moderate, 50-100 mm, light clay; no fragments; many 20-50%, calcareous, concretions, coarse 6-20 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 9.0

No photos - lost

GENERAL										
Date:	01/09/2021	Describer:	P Hewavitharana	Site:	310-03-AH3541	Type:	Partial			
MSU:	2.1.1.1a	ASC:	Black Vertosol							
PSC:	Mywybilla			Chainage (m):		158455		Elevation (m):		445
Coordinates:	Easting:	352773	Northing:	6931168		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Plain	Drainage:	Poorly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, loose, firm, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Black (7.5YR2.5/1 (moist)); no mottles; rough ped, moderate, 10-20 mm, angular blocky; moderately moist, firm; light clay; coarse fragments <2%, 2-6 mm, subrounded, gravel; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 5.0; gradual boundary to -
B22	50-150	Black (7.5YR2.5/1 (moist)); mottles 2-10%, <5 mm, faint, brown, diffuse; rough ped, strong, 20-50 mm, angular blocky; moderately moist, firm; medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 5.5; gradual boundary to -
B23	150-350	Very dark grey (7.5YR3/1 (moist)); no mottles; rough ped, strong, 50-100 mm, angular blocky; moderately moist, firm; medium heavy clay; coarse fragments <2%, 2-6 mm, subrounded, gravel; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 7.5; gradual boundary to -
B24	350-	Very dark grey (7.5YR3/1 (moist)); no mottles; rough ped, moderate, 100-200 mm, angular blocky; moderately moist, firm; medium heavy clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.5.



Location 1



Surface 1



pH, slaking, dispersion

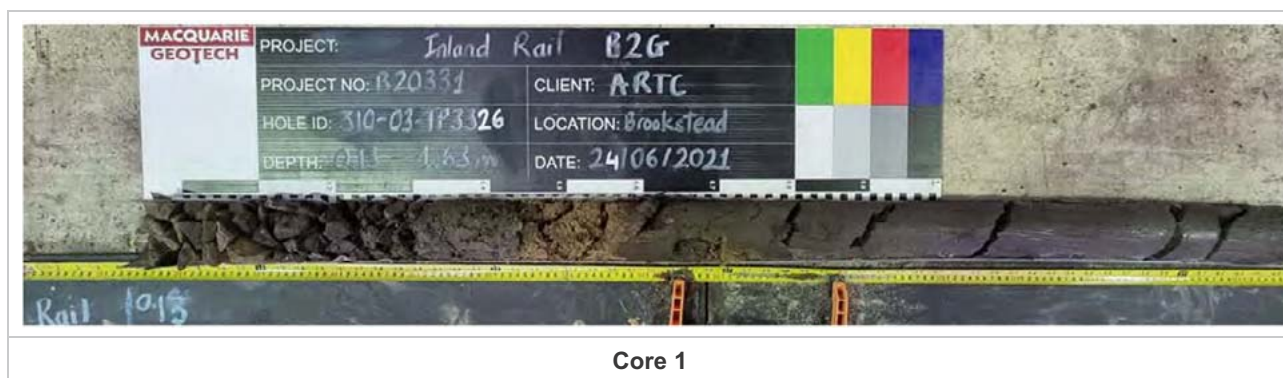


Profile

GENERAL									
Date:	22/06/2021	Describer:	B Rose	Site:	310-03-TP3326	Type:	Detailed		
MSU:	2.1.1.1a?	ASC:	Black Vertosol?						
PSC:	Mywybilla?		Chainage (m):		158487		Elevation (m):		401
Coordinates:	Easting:	351639	Northing:	6930643		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)?	Runoff:	Slow?
Morphological type:	Flat?	Permeability:	Slowly?
Landform element:	Backplain?	Drainage:	Poorly drained?
Landform pattern:	Floodplain -frequently active (<50yr)?	Geology:	TQs
Relief modal class:	Level plain?	Rock outcrop:	No rock outcrop?
ALC:	A1?	SCL:	Yes?
Disturbance:	Cropping (rain fed)?		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor). Rill (active, minor). ?		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-500?	Black (10YR2/1 (moist)); no mottles?; rough ped?, strong, 100-200 mm, subangular blocky?; moderately moist, firm?; medium clay?; no coarse fragments?; very few (<2%) calcareous, nodules, medium (2-6 mm)?; no pans?; gradual boundary to -
B22?	500-700?	Very dark grey (10YR3/1 (moist)); no mottles?; rough ped?, strong, 100-200 mm, subangular blocky?; moderately moist, firm?; medium clay?; no coarse fragments?; very few (<2%) calcareous, nodules, medium (2-6 mm)?; no pans?; gradual boundary to -
B23?	700-1,500?	Dark greyish brown (10YR4/2 (moist)); mottles, 2-10%, 5-15 mm, prominent, orange, clear?; mottles, 2-10%, 5-15 mm, prominent, brown, clear?; rough ped?, strong, 100-200 mm, subangular blocky?; moderately moist, firm?; medium heavy clay?; no coarse fragments?; no segregations?; no pans?



Core 1

GENERAL										
Date:	01/09/2021	Describer:	H Marvell	Site:	310-03-AH3542	Type:	Partial			
MSU:	2.1.1.1a		ASC:	Grey Vertosol						
PSC:	Mywybilla			Chainage (m):		158694		Elevation (m):		405
Coordinates:	Easting:	352988	Northing:	6931273		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Plain	Drainage:	Poorly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking, loose, firm, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Very dark grey (7.5YR3/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; dry, very firm; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.5; gradual boundary to -
B22	50-300	Dark grey (7.5YR4/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, very firm; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.0; gradual boundary to -
B23	300-	Black (7.5YR2.5/1 (moist)); mottles 2-10%, <5 mm, faint, dark, clear; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, very firm; light medium clay; no fragments; common 10-20%, calcareous, soft segregations, very coarse 20-60 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.6



Location 1

Not Observable

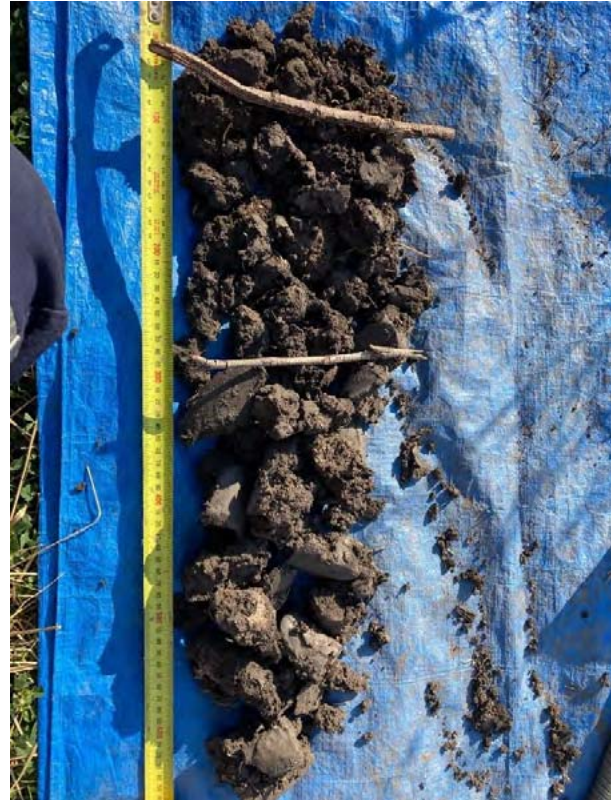
Erosion 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL										
Date:	02/09/2021	Describer:	H Marvell	Site:	310-03-AH3543	Type:	Detailed			
MSU:	2.1.1.1a		ASC:	Black Vertosol						
PSC:	Mywybilla			Chainage (m):		158947		Elevation (m):		406
Coordinates:		Easting:	353219	Northing:	6931376		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Plain	Drainage:	Poorly drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, self-mulching, firm		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); poplar box, wilga		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Black (10YR2/1 (moist)); no mottles; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, very firm; medium clay; no fragments; no segregations; no pans; pH 6.0; gradual boundary to -
B22	100-600	Black (10YR2/1 (moist)); no mottles; rough ped, strong, 200-500 mm, subangular blocky; moderately moist, very firm; medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 8.5; gradual boundary to -
B23	600-1,200	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, strong, 200-500 mm, subangular blocky; moderately moist, very firm; medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; diffuse boundary to -
B24	1200-1,500	Grey (10YR5/1 (moist)); mottles 10-20%, 5-15 mm, faint, brown, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, very strong; light medium clay; no fragments; many 20-50%, calcareous, laminae, coarse 6-20 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 9.0.



Location 1



Surface 1



pH, slaking, dispersion

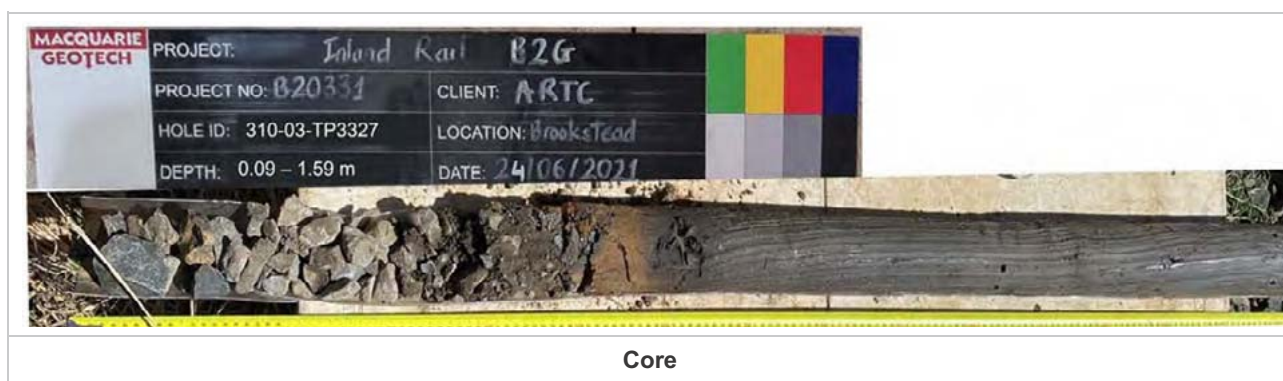


Profile

GENERAL									
Date:	22/06/2021	Describer:	B Rose	Site:	310-03-TP3327	Type:	Detailed		
MSU:	2.1.1.1a?	ASC:	Black Vertosol?						
PSC:	Mywybilla?		Chainage (m):		158987		Elevation (m):		401
Coordinates:	Easting:	351639	Northing:	6930643		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)?	Runoff:	Slow?
Morphological type:	Flat?	Permeability:	Slowly?
Landform element:	Backplain?	Drainage:	Poorly drained?
Landform pattern:	Floodplain -frequently active (<50yr)?	Geology:	TQs
Relief modal class:	Level plain?	Rock outcrop:	No rock outcrop?
ALC:	A1?	SCL:	Yes?
Disturbance:	Cropping (rain fed)?		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor). Rill (active, minor).		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-400?	Dark brown (10YR3/3 (moist))?. no mottles?. rough ped, strong, 100-200 mm, subangular blocky?. moderately moist, firm?. medium clay?. no fragments?. no segregations?. no pans?. gradual boundary to -
B22?	400-900?	Very dark greyish brown (10YR3/2 (moist))?. no mottles?. rough ped, strong, 100-200 mm, subangular blocky?. moderately moist, very firm?. medium clay?. no fragments?. no segregations?. no pans?. gradual boundary to -
B23?	900-1,400	Dark grey (10YR4/1 (moist))?. orange mottles, 10-20%, 5-15 mm, prominent, clear?. brown mottles, 10-20%, 5-15 mm, prominent, clear?. rough ped, strong, 100-200 mm, subangular blocky?. moderately moist, very firm?. medium clay?. no fragments?. no segregations?. no pans?. gradual boundary to -
B24?	1,400-1,500?	Dark grey (10YR4/1 (moist))?. orange mottles, 10-20%, 5-15 mm, prominent, clear?. brown mottles, 10-20%, 5-15 mm, prominent, clear?. rough ped, strong, 100-200 mm, subangular blocky?. moderately moist, very firm?. medium clay?. no fragments?. few (2-10%), calcareous, nodules, medium (2-6 mm)?. no pans?



Core

GENERAL										
Date:	02/09/2021	Describer:	H Marvell	Site:	310-03-AH3544	Type:	Partial			
MSU:	2.1.1.1a		ASC:	Black Vertosol						
PSC:	Mywybilla			Chainage (m):		159453		Elevation (m):		409
Coordinates:	Easting:	353668	Northing:	6931611		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Very slow
Morphological type:	Flat	Permeability:	Moderately
Landform element:	Plain	Drainage:	Mod. well-drained
Landform pattern:	Plain	Geology:	TQs
Relief modal class:	Level plain	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Natural		
Surface condition:	Cracking, firm		
Surface fragments:	2-10%, 20-60 mm, subangular, igneous		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-70	Very dark grey (10YR3/1 (moist)); rough ped, moderate, 10-20 mm, subangular blocky; moderately moist, very firm; medium clay; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.5; clear boundary to -
B22	70-400	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, very firm; medium clay; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; abrupt boundary to -
B23	400-	Dark grey (10YR4/1 (moist)); no mottles; rough ped, moderate, 20-50 mm, subangular blocky; moist, very firm; medium clay; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	22/06/2021	Describer:	B Rose	Site:	310-03-TP3328	Type:	Detailed		
MSU:	2.1.1.1a?	ASC:	Black Vertosol?						
PSC:	Mywybilla?		Chainage (m):		159483		Elevation (m):		401
Coordinates:	Easting:	351639	Northing:	6930643		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)?	Runoff:	Slow?
Morphological type:	Flat?	Permeability:	Slowly?
Landform element:	Backplain?	Drainage:	Poorly drained?
Landform pattern:	Floodplain -frequently active (<50yr)?	Geology:	TQs
Relief modal class:	Level plain?	Rock outcrop:	No rock outcrop?
ALC:	A1?	SCL:	Yes?
Disturbance:	Cropping (rain fed)?		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor). Rill (active, minor).		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-900?	Black (10YR2/1 (moist)); no mottles?; rough ped?, strong, 100-200 mm, subangular blocky?; moderately moist, firm?; medium clay?; no fragments?; no segregations?; no pans?; gradual boundary to -
B22?	900-1500?	Very dark grey (10YR3/1 (moist)); brown mottles, 2-10%, 5-15 mm, faint, clear?; orange mottles, 2-10%, 5-15 mm, faint, clear?; rough ped?, strong, 100-200 mm, subangular blocky?; moderately moist, firm?; medium clay?; no fragments?; no segregations?; no pans?



Core

GENERAL									
Date:	01/09/2021	Describer:	H Marvell	Site:	310-03-AH3545	Type:	Check site		
MSU:	2.2.1.1a	ASC:	Vertosol						
PSC:	Craigmores			Chainage (m):	159954		Elevation (m):		413
Coordinates:	Easting:	354128	Northing:	6931812		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Lower slope	Permeability:	Moderately
Landform element:	Footslope	Drainage:	Poorly drained
Landform pattern:	Low hills	Geology:	TQs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	N/A		



Location 1



Location 2



Surface 1



Surface 2

GENERAL									
Date:	02/09/2021	Describer:	H Marvell	Site:	310-03-AH3546	Type:	Partial		
MSU:	2.2.1.1a	ASC:	Grey Vertosol						
PSC:	Yargullen			Chainage (m):	160451		Elevation (m):		420
Coordinates:	Easting:	354568	Northing:	6932044		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)		Runoff: Slow
Morphological type:	Lower slope		Permeability: Moderately
Landform element:	Residual rise		Drainage: Poorly drained
Landform pattern:	Low hills		Geology: TQs
Relief modal class:	Undulating low hills		Rock outcrop: No rock outcrop
ALC:	A1		SCL: Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, loose, firm, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Very dark grey (7.5YR3/1 (moist)); no mottles; rough ped, weak, 20-50 mm, subangular blocky; moderately moist, firm; light clay, fine sandy; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; clear boundary to -
B22	50-250	Very dark grey (7.5YR3/1 (moist)); mottles 20-50%, 5-15 mm, faint, dark, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light clay, fine sandy; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B23	250-350	Very dark greyish brown (10YR3/2 (moist)); mottles 10-20%, 5-15 mm, prominent, dark, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, very firm; light clay, fine sandy; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B24	350-	Brown (10YR4/3 (moist)); mottles 20-50%, 5-15 mm, prominent, dark, clear; mottles 10-20%, 5-15 mm, prominent, dark, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light clay, coarse sandy; coarse fragments 10-20%, 6-20 mm, subrounded, gravel; very many >50%, calcareous, laminae, extremely coarse >60 mm, very highly calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	22/06/2021	Describer:	B Rose	Site:	310-03-TP3329	Type:	Detailed		
MSU:	2.1.1.1a?	ASC:	Black Vertosol?						
PSC:	Mywybilla?		Chainage (m):		160486		Elevation (m):		401
Coordinates:	Easting:	351639	Northing:	6930643		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Level (<1%)?	Runoff:	Slow?
Morphological type:	Flat?	Permeability:	Slowly?
Landform element:	Backplain?	Drainage:	Poorly drained?
Landform pattern:	Floodplain -frequently active (<50yr)?	Geology:	TQs
Relief modal class:	Level plain?	Rock outcrop:	No rock outcrop?
ALC:	A1?	SCL:	Yes?
Disturbance:	Cropping (rain fed)?		
Surface condition:	Cracking, self-mulching, loose, firm, surface crust?		
Surface fragments:	None?		
Microrelief:	Zero or no microrelief?		
Erosion:	Sheet (active, minor). Rill (active, minor).		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%)?		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21?	0-200?	Black (10YR2/1 (moist)); no mottles?; rough ped, strong, 100-200 mm, subangular blocky?; dry, firm?; medium clay?; no fragments?; no segregations?; no pans?; gradual boundary to -
B22?	200-400?	Black (10YR2/1 (moist)); no mottles?; rough ped, strong, 100-200 mm, subangular blocky?; dry, very firm?; medium clay?; no fragments?; no segregations?; no pans?; gradual boundary to -
B23?	400-900?	Black (10YR2/1 (moist)); no mottles?; rough ped, strong, 100-200 mm, subangular blocky?; dry, strong?; medium clay?; no fragments?; no segregations?; no pans?; gradual boundary to -
B24?	900-1,200?	Black (10YR2/1 (moist)); no mottles?; rough ped, strong, 100-200 mm, subangular blocky?; dry, strong?; medium heavy clay?; no fragments?; no segregations?; no pans?; gradual boundary to -
B31?	1,200-1,500?	Black (10YR2/1 (moist)); no mottles?; rough ped, strong, 100-200 mm, subangular blocky?; dry, very firm?; medium heavy clay?; no fragments?; no segregations?; no pans?



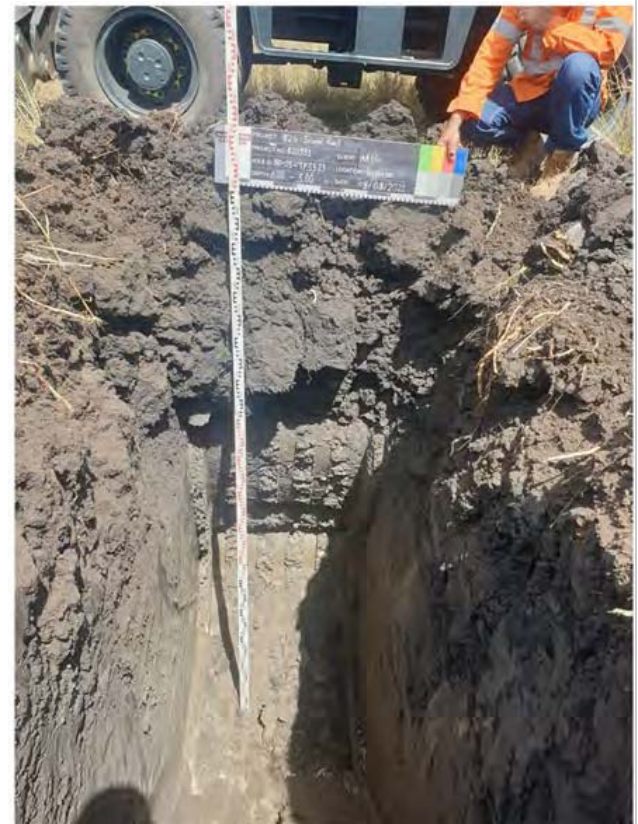
Location 1



Location 2



Test Pit 1



Test Pit 2



Stockpile

GENERAL									
Date:	28/08/2021	Describer:	A Kaur	Site:	310-03-AH3547	Type:	Partial		
MSU:	2.1.1.1a	ASC:	Black Vertosol						
PSC:	Craigmore			Chainage (m):	161131		Elevation (m):		429
Coordinates:	Easting:	355261	Northing:	6932284	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Level (<1%)	Runoff:	Slow
Morphological type:	Lower slope	Permeability:	Slowly
Landform element:	Footslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	TQs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, surface crust		
Surface fragments:	<2%, 2-6 mm, subangular, quartz		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-200	Black (10YR2/1 (moist)); mottles 2-10%, 5-15 mm, faint, dark, diffuse; smooth ped, moderate, 20-50 mm, subangular blocky; moderately moist, firm; light medium clay, fine sandy; coarse fragments 2-10%, 6-20 mm, subrounded, quartz; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.0; diffuse boundary to -
B22	200-	Black (10YR2/1 (moist)); mottles <2%, <5 mm, faint, pale, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, strong; light medium clay, fine sandy; coarse fragments <2%, 2-6 mm, subangular, quartz; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	02/09/2021	Describer:	C Traill	Site:	310-03-AH3714	Type:	Check site		
MSU:	2.1.1.1a		ASC:	Vertosol					
PSC:	Yargullen			Chainage (m):	161312		Elevation (m):		470
Coordinates:	Easting:	355186	Northing:	6932598		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod. rapid
Morphological type:	Open depression (vale)	Permeability:	Slowly
Landform element:	Swale	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	TQs
Relief modal class:	Undulating low hills	Rock outcrop:	Very slightly rocky (<2%), metamorphic
ALC:	A1	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, self-mulching		
Surface fragments:	<2%, 6-20 mm, subrounded, quartz		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, moderate). Rill (active, moderate).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

	
Location 1	Location 2
	
Surface 1	Surface 2

GENERAL									
Date:	28/08/2021	Describer:	A Kaur	Site:	310-03-AH3549	Type:	Check site		
MSU:	2.2.1.1a	ASC:	Vertosol						
PSC:	Craigmore			Chainage (m):	161454		Elevation (m):		432
Coordinates:	Easting:	355494	Northing:	6932469		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Lower slope	Permeability:	Slowly
Landform element:	Footslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	TQs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Highly (roads, mines)		
Surface condition:	Cracking, surface crust		
Surface fragments:	<2%, 6-20 mm, subangular, igneous		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		



Location 1



Location 2



Surface 1



Surface 2

GENERAL									
Date:	02/09/2021	Describer:	H Marvell	Site:	310-03-AH3548	Type:	Representative		
MSU:	2.2.1.1a	ASC:	Epicalcareous Self-mulching Black Vertosol						
PSC:	Craigmore			Chainage (m):	161472	Elevation (m):		429	
Coordinates:	Easting:	355341	Northing:	6932679	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Lower slope	Permeability:	Moderately
Landform element:	Footslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	TQs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cropping (rain fed)		
Surface condition:	Cracking, self-mulching, firm, surface crust		
Surface fragments:	None		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%); rooting depth 1200 mm.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Dark grey (7.5YR4/1 (moist)); no mottles; rough ped, weak, 20-50 mm, subangular blocky; moderately moist, firm; light clay, fine sandy; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0; clear boundary to -
B22	50-300	Black (7.5YR2.5/1 (moist)); mottles 10-20%, <5 mm, prominent, orange, clear; 10-20%, mottles 5-15 mm, prominent, pale, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; coarse fragments 2-10%, 20-60 mm, subrounded, gravel; common 10-20%, calcareous, soft segregations, very coarse 20-60 mm, moderately calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B23	300-1,200	Black (7.5YR2.5/1 (moist)); mottles 2-10%, 5-15 mm, prominent, pale, clear; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, very firm; light medium clay; no fragments; common 10-20%, calcareous, soft segregations, coarse 6-20 mm, very highly calcareous; few 2-10%, calcareous, concretions, medium 2-6 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; boundary to -
B24	1200-1,500	Brown (10YR4/3 (moist)); mottles 20-50%, 15-30 mm, faint, dark, clear; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, very firm; light clay; no fragments; few 2-10%, calcareous, concretions, coarse 6-20 mm, highly calcareous; common 2-10%, calcareous, soft segregations, coarse 6-20 mm, highly calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.5.



Location 1



Surface 1



pH, slaking, dispersion



Profile

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.1	8.13	MAL	24.0	M	292	15.9	H	1877	M	3.5	2.02	VH1	0.94	5	5.32	0.72

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H2O)		EC (dS/m)	Salinity Rating^	Cl ⁻ (mg/kg)	Exchangeable cations (meq/100 g)							ESP (%)	Sodicity [*]	Emerson class	Ca:Mg ratio
	Clay	Silt	Sand	Gravel	-	Rating [#]				H+	Al+	Ca+	Mg+	K+	Na+	CEC				
0.0-0.1	33.1	9.1	57.8	<0.1	8.13	MAL	0.15	L	57	-	-	21.8	7.98	0.95	0.26	31.0	0.85	NS	4	2.73
0.2-0.3	30.9	2.8	66.3	0.5	8.68	STAL	0.14	L	31	-	-	22.0	5.93	0.29	0.38	28.6	1.34	NS	4	3.71
0.5-0.6	15.4	2.6	82.0	0.6	8.81	STAL	0.41	H	158	-	-	17.7	13.6	0.35	4.44	36.0	12.3	S	4	1.30
0.8-0.9	11.7	2.6	85.7	1.0	8.96	STAL	0.67	VH	389	-	-	16.0	14.2	0.26	4.06	34.5	11.8	S	4	1.13
1.1-1.2	9.5	2.2	88.2	1.3	8.72	STAL	0.86	VL	477	-	-	14.3	12.6	0.35	4.68	32.0	14.6	S	4	1.14
1.4-1.5	16.7	2.8	80.5	2.5	8.77	STAL	1.22	E	678	-	-	14.5	13.3	0.24	4.21	32.3	13.1	S	4	1.09

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL									
Date:	02/09/2021	Describer:	C Traill	Site:	310-03-AH3713	Type:	Check site		
MSU:	2.1.1.1a		ASC:	Vertosol					
PSC:	No suitable PSC			Chainage (m):	161498		Elevation (m):		475
Coordinates:	Easting:	355368	Northing:	6932689		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod. rapid
Morphological type:	Open depression (vale)	Permeability:	Slowly
Landform element:	Swale	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	TQs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, self-mulching		
Surface fragments:	10-20%, 20-60 mm, angular, igneous		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

	
Location 1	Location 2
	
Surface 1	Surface 2

GENERAL									
Date:	02/09/2021	Describer:	C Traill	Site:	310-03-AH3712	Type:	Check site		
MSU:	2.1.1.1a	ASC:	Vertosol						
PSC:	No suitable PSC			Chainage (m):	161561		Elevation (m):		473
Coordinates:	Easting:	355428	Northing:	6932717		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod. rapid
Morphological type:	Open depression (vale)	Permeability:	Moderately
Landform element:	Swale	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	TQs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, self-mulching		
Surface fragments:	2-10%, 60-200 mm, subangular, sandstone		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, moderate). Rill (active, moderate). Gully (active, severe, 1.5-3.0 m). Tunnel (active, present).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

	
Location 1	Location 2
	
Surface 1	Surface 2

GENERAL									
Date:	02/09/2021	Describer:	H Marvell	Site:	310-03-AH3550	Type:	Partial		
MSU:	2.2.1.1a	ASC:	Grey Vertosol						
PSC:	Yargullen			Chainage (m):	161939		Elevation (m):		435
Coordinates:	Easting:	355766	Northing:	6932894		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)		Runoff: Mod. rapid
Morphological type:	Lower slope		Permeability: Moderately
Landform element:	Footslope		Drainage: Imperfectly drained
Landform pattern:	Low hills		Geology: TQs
Relief modal class:	Undulating low hills		Rock outcrop: No rock outcrop
ALC:	A1		SCL: Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, firm, surface crust		
Surface fragments:	2-10%, 6-20 mm, subangular, mudstone		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Black (10YR2/1 (moist)); rough ped, weak, 20-50 mm, subangular blocky; moderately moist, weak; light medium clay; no fragments; few 2-10%, calcareous, soft segregations, fine <2 mm, highly calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.5; clear boundary to -
B22	50-200	Very dark grey (10YR3/1 (moist)); mottles <2%, <5 mm, faint, orange, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light clay; no fragments; common 10-20%, calcareous, soft segregations, medium 2-6 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; clear boundary to -
B23	200-550	Light grey (10YR7/1 (moist)); mottles 2-10%, 5-15 mm, faint, orange, diffuse; rough ped, moderate, 100-200 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; very many >50%, calcareous, soft segregations, coarse 6-20 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; clear boundary to -
B23	550-	Light brownish grey (10YR6/2 (moist)); mottles 10-20%, 5-15 mm, prominent, orange, diffuse; rough ped, weak, 5-10 mm, subangular blocky; dry, very weak; light clay; common 10-20%, calcareous, soft segregations, medium 2-6 mm, very highly calcareous; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	02/09/2021	Describer:	H Marvell	Site:	310-03-AH3551	Type:	Check site		
MSU:	2.2.1.1a	ASC:	Vertosol						
PSC:	Craigmore			Chainage (m):	162389		Elevation (m):		439
Coordinates:	Easting:	356169	Northing:	6933093		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod. rapid
Morphological type:	Lower slope	Permeability:	Moderately
Landform element:	Footslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	TQs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Surface crust		
Surface fragments:	2-10%, 20-60 mm, subangular platy, igneous		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

	
Location 1	Location 2
	
Surface 1	

GENERAL									
Date:	23/11/2021	Describer:	L Arnold	Site:	310-03-AH3552	Type:	Detailed		
MSU:	2.1.1.1a	ASC:	Grey Vertosol						
PSC:	Yargullen			Chainage (m):	162883		Elevation (m):		433
Coordinates:	Easting:	356638	Northing:	6933217		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Slow
Morphological type:	Open depression	Permeability:	Slowly
Landform element:	Drain depression	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	TQs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cleared, pasture, previously cultivated		
Surface condition:	Soft		
Surface fragments:	<2%, 2-6 mm, subangular, metamorphic		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor). Gully (active, minor, <1.5m).		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%); belah		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, weak, 5-10 mm, subangular blocky; moderately moist, weak; light medium clay; coarse fragments <2%, 2-6 mm, subangular, gravel; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 9.0; clear boundary to -
B22	50-200	Very dark grey (10YR3/1 (moist)); mottles <2%, 15-30 mm, prominent, brown, diffuse; rough ped, moderate, 10-20 mm, subangular blocky; moderately moist, firm; light medium clay; no fragments; few 2-10%, calcareous, concretions, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.5; gradual boundary to -
B23	200-650	Dark greyish brown (10YR4/2 (moist)); mottles <2%, 5-15 mm, prominent, dark, clear; rough ped, strong, 20-50 mm, subangular blocky; moderately moist, strong; medium clay; no fragments; few 2-10%, calcareous, concretions, medium 2-6 mm, highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 9.0; clear boundary to -
B24	650-950	Greyish brown (10YR5/2 (moist)); mottles <2%, 5-15 mm, faint, dark, diffuse; rough ped, strong, 20-50 mm, subangular blocky; moderately moist, very firm; medium heavy clay; coarse fragments <2%, 6-20 mm, subangular, metamorphic; common 10-20%, calcareous, concretions, coarse 6-20 mm, highly calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0; clear boundary to -
B3	950-1,200	Light yellowish brown (2.5Y6/4 (moist)); mottles 2-10%, 5-15 mm, prominent, orange, clear; moderate, 20-50 mm, subangular blocky; dry, firm; medium clay; coarse fragments <2%, 2-6 mm, subangular, gravel; few 2-10%, calcareous, concretions, medium 2-6 mm, highly calcareous; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 8.0; gradual boundary to -
B/C	1200-1,400	Light olive brown (2.5Y5/3 (moist)); mottles <2%, 5-15 mm, faint, orange, clear; rough ped, moderate, 10-20 mm, subangular blocky; dry, weak; light medium clay; coarse fragments 2-10%, 2-6 mm, subangular, gravel; no segregations; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 8.5.



Location 1



Erosion 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	22/11/2021	Describer:	H Marvell	Site:	310-03-AH3837	Type:	Check site		
MSU:	2.2.1.1a	ASC:	Vertosol						
PSC:	Craigmore			Chainage (m):	163206		Elevation (m):		442
Coordinates:	Easting:	356998	Northing:	6933095		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Lower slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	TQs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Self-mulching, soft		
Surface fragments:	<2%, 200-600 mm, subangular, igneous		
Microrelief:	Incipient		
Erosion:	Sheet (active, minor).		
Vegetation:	Very sparse, crowns well separated (0.25-20%); brigalow, belah, wilga		



Location 1



Location 2



Surface 1



Surface 2

GENERAL									
Date:	09/11/2021	Describer:	H Marvell	Site:	310-03-AH3830	Type:	Partial		
MSU:	2.2.1.1a	ASC:	Black Vertosol						
PSC:	Craigmore			Chainage (m):	163211		Elevation (m):		438
Coordinates:	Easting:	356974	Northing:	6933249		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod. rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Residual rise	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	TQs
Relief modal class:	Undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm, surface flake		
Surface fragments:	2-10%, 60-200 mm, subrounded, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%)		

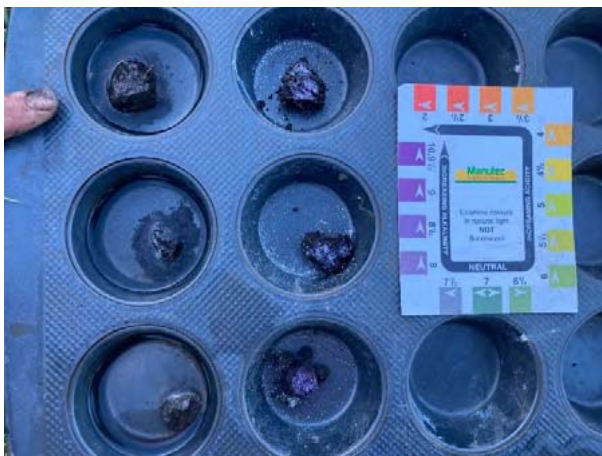
SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Very dark greyish brown (10YR3/2 (moist)); no mottles; rough ped, moderate, 20-50 mm, subangular blocky; moist, firm; light medium clay; coarse fragments 2-10%, 20-60 mm, subrounded, gravel; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; clear boundary to -
B22	100-250	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moist, firm; medium clay; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B23	250-	Very dark grey (10YR3/1 (moist)); mottles 2-10%, <5 mm, faint, brown, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; moist, firm; medium heavy clay; coarse fragments 2-10%, 6-20 mm, subangular, gravel; segregations very few <2%, calcareous, concretions, fine <2 mm, moderately calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL										
Date:	22/11/2021	Describer:	H Marvell	Site:	310-03-AH3835	Type:	Representative			
MSU:	2.3.1.1a		ASC:	Epicalcareous Crusty Black Vertosol						
PSC:	Craigmore (depression)			Chainage (m):		163316		Elevation (m):		444
Coordinates:	Easting:	357046	Northing:	6933441		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Slow
Morphological type:	Lower slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	TQs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Loose, soft, surface crusting		
Surface fragments:	2-10%, 6-20 mm, subrounded, gravel		
Microrelief:	Linear, other, depression, equal mounds/depressions, no shelf present, VI:0.15m, HI:10m		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); black tea tree, belah, brigalow; rooting depth 1100 mm.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-200	Very dark brown (10YR2/2 (moist)); no mottles; rough ped, strong, 50-100 mm, subangular blocky; moist, firm; light medium clay; no fragments; few 2-10%, calcareous, concretions, medium 2-6 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B22	200-500	Black (10YR2/1 (moist)); no mottles; rough ped, strong, 50-100 mm, subangular blocky; moist, firm; medium clay; coarse fragments 2-10%, 2-6 mm, subrounded, gravel; few 2-10%, calcareous, concretions, medium 2-6 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; gradual boundary to -
B23	500-1,100	Black (10YR2/1 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; medium clay; coarse fragments 2-10%, 6-20 mm, subrounded, gravel; common 10-20%, calcareous, concretions, coarse 6-20 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 9.0; gradual boundary to -
B24	1100-1,500	Brown (10YR5/3 (moist)); mottles 2-10%, <5 mm, faint, dark, clear; rough ped, moderate, 50-100 mm, platy; dry, strong; light medium clay; no fragments; common 10-20%, calcareous, soft segregations, coarse 6-20 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5.



Location 1



Surface 1



pH, slaking, dispersion



Profile

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.1	8.23	MAL	33.3	M	247	<0.50	VL	2641	H	2.9	1.65	H1	3.69	97.6	110	2.42

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H ₂ O)		EC (dS/m)	Salinity Rating [^]	Cl ⁻ (mg/kg)	Exchangeable cations (meq/100 g)							ESP (%)	Sodicity [*]	Emerson class	Ca:Mg ratio
	Clay	Silt	Sand	Gravel	-	Rating [#]				H+	Al+	Ca+	Mg+	K+	Na+	CEC				
0.0-0.1	41.90	5.40	52.70	<0.1	8.23	MAL	0.15	L	17.7	-	-	24.8	4.62	0.37	0.36	30.2	1.19	NS	4	5.38
0.25-0.35	41.85	2.92	55.23	0.6	8.79	STAL	0.15	L	22.5	-	-	21.2	10.8	0.15	1.10	33.3	3.32	NS	4	1.96
0.55-0.65	43.88	2.70	53.42	3.6	9.03	VSAL	0.2	L	50.2	-	-	15.5	13.9	0.15	1.97	31.5	6.23	S	4	1.12
0.85-0.95	43.61	2.64	53.85	1.4	9.02	VSAL	0.3	M	128	-	-	14.0	15.8	0.16	2.54	32.4	7.83	S	4	0.89
1.15-1.25	43.47	4.72	51.71	0.4	8.86	STAL	0.47	M	194	-	-	12.3	16.6	0.19	2.74	31.8	8.60	S	4	0.74
1.4-1.5	46.07	4.56	49.26	5.8	8.87	STAL	0.53	M	193	-	-	13.6	19.4	0.2	3.34	36.5	9.15	S	4	0.70

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Ratings: EL – Extremely Low, VL – Very Low, L1 – Low 1, L2 – Low 2, M1 – Moderate 1, M2 – Moderate 2, M3 – Moderate 3, H1 – High 1, H2 – High 2, VH1 – Very High 1, VH2 – Very High 2, VH3 – Very High 3, VH4 – Very High 4, EH – Extremely High, OSM – Organic Soil Material

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL										
Date:	22/11/2021	Describer:	L Arnold	Site:	310-03-AH3836	Type:	Representative			
MSU:	2.3.1.1a		ASC:	Epicalcareous Crusty Black Vertosol						
PSC:	Craigmore (mound)			Chainage (m):		163320		Elevation (m):		440
Coordinates:	Easting:	357051	Northing:	6933430		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Slow
Morphological type:	Lower slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	TQs
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Soft, surface crusting		
Surface fragments:	<2%, 2-6 mm, subangular, gravel		
Microrelief:	Linear, other, mound, equal mounds/depressions, no shelf present, VI:0.15 m, HI:10 m		
Erosion:	Sheet (active, minor)		
Vegetation:	Very sparse, crowns well separated (0.25-20%); belah, brigalow, black tea tree; rooting depth 700 mm.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-300	Very dark brown (10YR2/2 (moist)); mottles <2%, 5-15 mm, prominent, orange, clear; rough ped, weak, 20-50 mm, subangular blocky; moderately moist, weak; light medium clay, fine sandy; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B22	300-700	Black (10YR2/1 (moist)); mottles <2%, <5 mm, distinct, brown, sharp; rough ped, moderate, 20-50 mm, subangular blocky; dry, firm; light medium clay; coarse fragments <2%, 2-6 mm, subangular, quartz; very few <2%, calcareous, concretions, fine <2 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; diffuse boundary to -
B23	700-1,100	Very dark grey (10YR3/1 (moist)); mottles <2%, 5-15 mm, prominent, orange, clear; rough ped, strong, 20-50 mm, subangular blocky; dry, firm; light medium clay; coarse fragments <2%, 6-20 mm, subangular, metamorphic; few 2-10%, calcareous, concretions, fine <2 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 9.0; diffuse boundary to -
B24	1100-1,400	Very dark grey (10YR3/1 (moist)); 2-10%, , faint, brown, ; rough ped, strong, 20-50 mm, subangular blocky; dry, very firm; medium clay; coarse fragments <2%, 2-6 mm, subrounded, metamorphic; few 2-10%, calcareous, concretions, fine <2 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; gradual boundary to -
B3	1400-1,500	Dark greyish brown (10YR4/2 (moist)); mottles 10-20%, 5-15 mm, prominent, orange, clear; mottles 10-20%, 5-15 mm, prominent, dark, clear; rough ped, moderate, 20-50 mm, subangular blocky; dry, very firm; medium clay; coarse fragments <2%, 2-6 mm, subangular, metamorphic; common 10-20%, calcareous, concretions, fine <2 mm, very highly calcareous; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5.



Location 1



Location 2



Surface 1



pH, slaking, dispersion



Profile

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.1	7.93	MAL	31.1	M	327	72.6	VH	2717	H	2.5	4.4	EH	0.41	2.16	1.04	1.74

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H ₂ O)		EC (dS/m)	Salinity Rating [^]	Cl ⁻ (mg/kg)	Exchangeable cations (meq/100 g)							ESP (%)	Sodicity [*]	Emerson class	Ca:Mg ratio
	Clay	Silt	Sand	Gravel	-	Rating [#]				H ⁺	Al ⁺	Ca ⁺	Mg ⁺	K ⁺	Na ⁺	CEC				
0.0-0.1	29.28	5.33	65.29	0.6	7.93	MAL	0.25	M	31.5	-	-	22.6	3.12	0.51	0.38	26.6	1.43	NS	4	7.26
0.2-0.3	32.76	2.43	64.81	1.1	8.25	MAL	0.14	L	18.6	-	-	18.2	2.97	0.15	0.15	21.5	0.72	NS	4	6.15
0.5-0.6	39.27	4.55	56.17	1.2	8.74	STAL	0.14	L	53.4	-	-	20.4	7.85	0.13	1.10	29.5	3.74	NS	4	2.60
0.8-0.9	40.82	2.61	56.67	0.3	8.75	STAL	0.28	M	161	-	-	20.6	13.0	0.15	1.95	35.7	5.45	NS	4	1.59
1.1-1.2	44.14	2.53	53.43	1	8.84	STAL	0.32	M	217	-	-	17.2	14.3	0.16	2.19	33.9	6.45	S	4	1.20
1.4-1.5	45.40	2.53	52.07	1.1	8.67	STAL	0.58	H	202	-	-	15.9	15.7	0.13	2.36	34.1	6.92	S	4	1.02

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

^{^^} Ratings: EL – Extremely Low, VL – Very Low, L1 – Low 1, L2 – Low 2, M1 – Moderate 1, M2 – Moderate 2, M3 – Moderate 3, H1 – High 1, H2 – High 2, VH1 – Very High 1, VH2 – Very High 2, VH3 – Very High 3, VH4 – Very High 4, EH – Extremely High, OSM – Organic Soil Material

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL									
Date:	23/08/2021	Describer:	H Marvell	Site:	310-03-AH3553	Type:	Partial		
MSU:	3.6.1.3	ASC:	Red Ferrosol						
PSC:	Southbrook			Chainage (m):	163518		Elevation (m):		454
Coordinates:	Easting:	348558	Northing:	6933505		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Mod. rapid
Morphological type:	Crest	Permeability:	Moderately
Landform element:	Hillcrest	Drainage:	Mod. well-drained
Landform pattern:	Low hills	Geology:	Tm
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Firm		
Surface fragments:	20-50%, 60-200 mm, subrounded, igneous		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); narrow-leaved ironbark		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A11	0-100	Black (5YR2.5/1 (moist)); rough ped, weak, 5-10 mm, polyhedral; light clay; coarse fragments 10-20%, 60-200 mm, subangular, igneous; partial slake in 10 mins; no dispersion within 2 hrs; pH 5.5; abrupt boundary to -
A12	100-200	Black (7.5YR2.5/1 (moist)); rough ped, weak, 20-50 mm, polyhedral; dry, weak; light clay; coarse fragments 20-50%, 200-600 mm, subangular, igneous; pH 5.0; gradual boundary to -
B21	200-400	Dark reddish brown (5YR3/3 (moist)); mottles 20-50%, 5-15 mm, faint, red, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; dry, firm; light medium clay; coarse fragments 2-10%, 20-60 mm, angular, igneous; complete slake in 10 mins; slight dispersion within 10 mins; pH 5.5; gradual boundary to -
B22	400-550	Dark brown (7.5YR3/3 (moist)); mottles 20-50%, 5-15 mm, prominent, dark, clear; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, very firm; light medium clay; complete slake in 10 mins; no dispersion within 2 hrs; pH 6.0; clear boundary to -
B23	550-650	Dark brown (7.5YR3/3 (moist)); mottles 20-50%, 15-30 mm, faint, red, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, very firm; light medium clay; complete slake in 10 mins; no dispersion within 2 hrs; pH 7.5; clear boundary to -
B24	650-	Brownish yellow (10YR6/8 (moist)); mottles 20-50%, 15-30 mm, distinct, grey, clear; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, very firm; light clay; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.5.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	23/08/2021	Describer:	H Marvell	Site:	310-03-AH3554	Type:	Check site		
MSU:	3.2.1.3	ASC:	Ferralsol						
PSC:	Kenmuir			Chainage (m):	164014		Elevation (m):		462
Coordinates:	Easting:	357756	Northing:	6933433		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Mod. rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Mod. well-drained
Landform pattern:	Low hills	Geology:	Tm
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm		
Surface fragments:	10-20%, 60-200 mm, subrounded, igneous		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		



Location 1



Location 2



Surface 1



Surface 2

GENERAL									
Date:	23/08/2021	Describer:	H Marvell	Site:	310-03-AH3555	Type:	Representative		
MSU:	3.6.1.2	ASC:	Haplic Eutrophic Black Dermosol						
PSC:	Kenmuir			Chainage (m):	164482	Elevation (m):		513	
Coordinates:	Easting:	358162	Northing:	6933812	Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Mod. rapid
Morphological type:	Crest	Permeability:	Moderately
Landform element:	Hillcrest	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Tm
Relief modal class:	Undulating low hills	Rock outcrop:	Rockland (>50%), igneous
ALC:	A1	SCL:	No
Disturbance:	Natural		
Surface condition:	Firm, hard setting		
Surface fragments:	10-20%, 60-200 mm, subrounded, igneous		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor).		
Vegetation:	Sparse, crowns clearly separated (20-50%); mountain coolabah, cypress pine; rooting depth 200 mm		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-200	Black (10YR2/1 (moist)); no mottles; rough ped, weak, 10-20 mm, subangular blocky; dry, weak; loam; coarse fragments 50-90% (segs/RO >50%), 600 mm-2 m, subrounded, igneous; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 7.0; abrupt boundary to - Basaltic outcrop with residual soils, refusal at 200 mm.



Location 1



Location 2



Surface 1



Surface 2



pH, slaking, dispersion



Profile

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.1	7.26	NEU	129.0	VH	1734	13.4	H	3,353	H	7.2	4.08	EH	0.85	54.4	24.6	1.02

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H2O)		EC (dS/m)	Salinity Rating^	Cl^- (mg/kg)	Exchangeable cations (meq/100 g)						ESP (%)	Sodicity^	Emerson class	Ca:Mg ratio	
	Clay	Silt	Sand	Gravel	-	Rating#				H+	Al+	Ca+	Mg+	K+	Na+					CEC
0.0-0.1	36.2	20.2	43.7	22.6	7.26	NEU	0.090	L	23			24.70	6.18	2.47	0.09	33.4	0.26	NS	5	3.99

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL										
Date:	23/08/2021	Describer:	H Marvell	Site:	310-03-AH3556	Type:	Partial			
MSU:	3.3.1.1a		ASC:	Black Vertosol						
PSC:	Charlton			Chainage (m):		164847		Elevation (m):		487
Coordinates:	Easting:	358560	Northing:	6933721		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Mod. rapid
Morphological type:	Simple slope	Permeability:	Moderately
Landform element:	Hillslope	Drainage:	Mod. well-drained
Landform pattern:	Low hills	Geology:	Tm
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Loose, firm		
Surface fragments:	10-20%, 60-200 mm, subangular, igneous		
Microrelief:	Zero or no microrelief		
Erosion:	Gully (active, moderate, 1.5-3.0 m).		
Vegetation:	Very sparse, crowns well separated (0.25-20%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-50	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, weak, 2-5 mm, polyhedral; moderately moist, weak; light clay; no fragments; no segregations; pH 9.0; abrupt boundary to -
B21	50-400	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; medium clay; coarse fragments 2-10%, 20-60 mm, subangular, igneous; segregations common 10-20%, calcareous, soft segregations, coarse 6-20 mm, slightly calcareous; no pans; pH 8.0; gradual boundary to -
B22	400-	Reddish yellow (10YR6/6 (moist)); mottles 20-50%, 15-30 mm, faint, orange, diffuse; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; segregations common 10-20%, calcareous, soft segregations, very coarse 20-60 mm, very highly calcareous; no pans; pH 8.5.



Location 1



Erosion 1



Surface 1



Profile



pH, slaking, dispersion

GENERAL									
Date:	23/08/2021	Describer:	H Marvell	Site:	310-03-AH3557	Type:	Check site		
MSU:	3.6.1.2	ASC:	Dermosol						
PSC:	Kenmuir			Chainage (m):	165077		Elevation (m):		507
Coordinates:	Easting:	358802	Northing:	6933687		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Moderately inclined (10-32%)	Runoff:	Rapid
Morphological type:	Crest	Permeability:	Slowly
Landform element:	Hillcrest	Drainage:	Well-drained
Landform pattern:	Low hills	Geology:	Tm
Relief modal class:	Undulating low hills	Rock outcrop:	Rockland (>50%), igneous
ALC:	A1	SCL:	No
Disturbance:	Natural		
Surface condition:	Loose, firm		
Surface fragments:	>90% (not Segs or RO), 600 mm-2 m, subangular, igneous		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Sparse/open, crowns clearly separated (20-50%); mountain coolibah, cypress pine		



Location 1



Location 2



Surface 1



Surface 2

GENERAL									
Date:	23/08/2021	Describer:	H Marvell	Site:	310-03-AH3558	Type:	Partial		
MSU:	3.2.1.1a	ASC:	Black Vertosol						
PSC:	Charlton			Chainage (m):	165573		Elevation (m):		491
Coordinates:	Easting:	359302	Northing:	6933626		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Moderately
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Tm
Relief modal class:	Undulating low hills	Rock outcrop:	Very slightly rocky (<2%), igneous
ALC:	A1	SCL:	Yes
Disturbance:	Cleared, pasture, previously cultivated		
Surface condition:	Cracking, loose, firm		
Surface fragments:	10-20%, 20-60 mm, subrounded, igneous		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Black (10YR2/1 (moist)); rough ped, weak, 5-10 mm, polyhedral; dry, firm; light clay; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.0; clear boundary to -
B21	50-250	Black (10YR2/1 (moist)); rough ped, moderate, 10-20 mm, angular blocky; dry, very firm; light medium clay; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.0; diffuse boundary to -
B22	250-450	Black (7.5YR2/1 (moist)); mottles 10-20%, 5-15 mm, distinct, brown, clear; rough ped, moderate, 10-20 mm, polyhedral; dry, firm; light medium clay; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.0; gradual boundary to -
B23	450-650	Very dark brown (7.5YR2.5/2 (moist)); mottles 10-20%, 5-15 mm, prominent, brown, diffuse; rough ped, moderate, 50-100 mm, subangular blocky; dry, very firm; light medium clay; coarse fragments 2-10%, 6-20 mm, subangular, igneous; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.0; gradual boundary to -
C	650-	Dark brown (7.5YR3/4 (moist)); rough ped, strong, 20-50 mm, subangular blocky; dry, strong; coarse fragments <2%, 2-6 mm, subrounded, igneous; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL										
Date:	02/09/2021	Describer:	H Marvell	Site:	310-03-AH3559	Type:	Partial			
MSU:	3.2.1.1a		ASC:	Black Vertosol						
PSC:	Charlton			Chainage (m):		166103		Elevation (m):		494
Coordinates:	Easting:	359823	Northing:	6933249		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod. rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Tm
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/C2	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, self-mulching, surface crust		
Surface fragments:	<2%, 6-20 mm, subangular, chert		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); mountain coolibah		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-60	Very dark brown (10YR2/2 (moist)); no mottles; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, firm; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.5; clear boundary to -
B21	60-350	Black (10YR2/1 (moist)); no mottles; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; light medium clay; coarse fragments <2%, 2-6 mm, angular, chert; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.0; gradual boundary to -
B22	350-500	Very dark brown (10YR2/2 (moist)); mottles 2-10%, 5-15 mm, prominent, brown, clear; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; coarse fragments <2%, 6-20 mm, subangular, chert; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0; clear boundary to -
C	500-	Brown (10YR4/3 (moist)); mottles 20-50%, <5 mm, prominent, red, diffuse; rough ped, weak, 20-50 mm, subangular blocky; dry, firm; coarse fragments 50-90% (segs/RO >50%), 6-20 mm, subangular, gravel; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5.



Location 1



Surface 1



Surface 2



pH, slaking, dispersion



Profile

GENERAL									
Date:	23/08/2021	Describer:	H Marvell	Site:	310-03-AH3560	Type:	Check site		
MSU:	3.2.1.3		ASC:	Ferrosol					
PSC:	Kenmuir			Chainage (m):	166286		Elevation (m):		499
Coordinates:	Easting:	360014	Northing:	6933644		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod. rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Mod. well-drained
Landform pattern:	Low hills	Geology:	Tm
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/C2	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm, hard setting		
Surface fragments:	2-10%, 200-600 mm, subangular, igneous		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%)		



Location 1



Location 2



Surface 1



Surface 2

GENERAL										
Date:	23/08/2021	Describer:	A Kaur	Site:	310-03-AH3563	Type:	Partial			
MSU:	3.2.1.3		ASC:	Black Ferrosol						
PSC:	Kenmuir			Chainage (m):		167743		Elevation (m):		510
Coordinates:	Easting:	361463	Northing:	6933596		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Tm
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/C2	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Cracking		
Surface fragments:	20-50%, 60-200 mm, subangular, sandstone		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-50	Very dark brown (10YR2/2 (moist)); mottles 10-20%, 5-15 mm, prominent, yellow, clear; earthy, massive (no peds), dry, loose; light clay, sandy; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 5.5; clear boundary to -
B/C	50-100	Dark yellowish brown (10YR3/4 (moist)); mottles 20-50%, 5-15 mm, prominent, pale, diffuse; rough ped, weak, 10-20 mm, subangular blocky; dry, loose; clay loam, sandy; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.0; abrupt boundary to -
C	100-	Dark brown (10YR3/3 (moist)); mottles 20-50%, 5-15 mm, distinct, dark, clear; sandy (grains prominent), single grain (no peds), dry, loose; sand, with fragments; no fragments; no segregations; no pans; no slaking within 10 mins; slight dispersion within 2 hrs; pH 6.0; gradual boundary to -



Location 1



Surface 1



pH, slaking, dispersion

Profile

GENERAL										
Date:	23/08/2021	Describer:	M Mooney	Site:	310-03-AH3564	Type:	Partial			
MSU:	3.2.1.1a		ASC:	Black Ferrosol						
PSC:	Kenmuir			Chainage (m):		167846		Elevation (m):		545
Coordinates:	Easting:	361575	Northing:	6933801		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)		Runoff: Mod. rapid
Morphological type:	Simple slope		Permeability: Slowly
Landform element:	Hillslope		Drainage: Imperfectly drained
Landform pattern:	Low hills		Geology: Tm
Relief modal class:	Undulating low hills		Rock outcrop: No rock outcrop
ALC:	A1/C2		SCL: Yes
Disturbance:	Extensive clearing		
Surface condition:	Cracking, firm, surface crust		
Surface fragments:	2-10%, 60-200 mm, subangular, igneous		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor).		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-150	Very dark greyish brown (10YR3/2 (moist)); rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, weak; light medium clay; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.0; clear boundary to -
B22	150-450	Dark brown (7.5YR3/2 (moist)); mottles 20-50%, 15-30 mm, distinct, brown, clear; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, weak; light clay, fine sandy; coarse fragments 2-10%, 6-20 mm, angular, igneous; no slaking within 10 mins; no dispersion within 2 hrs; pH 7.5; clear boundary to -
BC	450-600	Dark reddish brown (5YR3/3 (moist)); mottles 20-50%, <5 mm, prominent, red, diffuse; earthy, weak, 2-5 mm, subangular blocky; moderately moist, very weak; light clay, sandy; coarse fragments 50-90% (segs/RO >50%), 20-60 mm, angular, igneous; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0.



Location 1



Location 2



Surface 1

pH, slaking, dispersion



Profile

GENERAL									
Date:	23/08/2021	Describer:	T Beck	Site:	310-03-AH3565	Type:	Representative		
MSU:	3.3.1.3		ASC:	Mottled Eutrophic Black Ferrosol					
PSC:	Southbrook			Chainage (m):	167870		Elevation (m):		551
Coordinates:	Easting:	361586	Northing:	6933675		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Mod. rapid
Morphological type:	Simple slope	Permeability:	Moderately
Landform element:	Hillslope	Drainage:	Poorly drained
Landform pattern:	Low hills	Geology:	Tm
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/C2	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Loose, firm, hard setting, poached		
Surface fragments:	10-20%, 200-600 mm, subrounded, sandstone		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%); wilga; rooting depth 700 mm.		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-50	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 10-20 mm, subangular blocky; dry, very weak; light clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 6.5; clear boundary to -
B21	50-200	Very dark grey (10YR3/1 (moist)); no mottles; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, weak; light medium clay; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 6.0; gradual boundary to -
B22	200-400	Very dark grey (10YR3/1 (moist)); mottles 2-10%, <5 mm, prominent, orange, clear; rough ped, weak, 50-100 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; no segregations; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 6.5; clear boundary to -
B23e	400-500	Very dark greyish brown (10YR3/2 (moist)); 10YR5/3 (dry); mottles 2-10%, <5 mm, prominent, orange, diffuse; rough ped, moderate, 20-50 mm, subangular blocky; dry, weak; light medium clay, sandy; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 6.5; clear boundary to -
B24	500-700	Dark brown (7.5YR3/3 (moist)); no mottles; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light clay, gravelly; coarse fragments 10-20%, 6-20 mm, angular, sandstone; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; clear boundary to -
B/C	700-920	Dark brown (7.5YR3/3 (moist)); no mottles; rough ped, weak, 20-50 mm, subangular blocky; dry, loose; light clay, gravelly; coarse fragments 20-50%, 6-20 mm, subangular, other; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5.



Location 1



Surface 1



pH, slaking, dispersion



Profile

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.1	6.43	SLAC	160.0	VH	1950	5.5	M	1,578	M	3.2	1.84	H2	1.43	51.1	29.6	1.48

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H ₂ O)		EC (dS/m)	Salinity Rating^	Cl ⁻ (mg/kg)	Exchangeable cations (meq/100 g)							ESP (%)	Sodicity [*]	Emerson class	Ca:Mg ratio
	Clay	Silt	Sand	Gravel	-	Rating [#]				H+	Al+	Ca+	Mg+	K+	Na+	CEC				
0.0-0.1	39.2	18.3	42.5	1.3	6.43	SLAC	0.05	VL	29.2	-	-	17.7	10.4	1.82	0.05	30.0	0.16	NS	3a	1.71
0.1-0.2	40.9	22.4	36.7	1.9	6.46	SLAC	0.04	VL	16.9	-	-	21.1	9.87	0.60	0.12	31.7	0.39	NS	5	2.14
0.25-0.35	44.6	23.2	32.2	0.9	6.88	NEU	0.03	VL	24.8	-	-	24.0	9.00	0.42	0.13	33.6	0.39	NS	3b	2.67
0.4-0.5	33.0	18.6	48.3	24.3	7.11	NEU	0.03	VL	17	-	-	29.0	11.1	0.17	0.27	40.5	0.66	NS	5	2.60
0.65-0.75	62.8	8.4	28.8	1.2	7.15	NEU	0.05	VL	16.1	-	-	33.6	14.2	0.42	0.24	48.4	0.49	NS	5	2.37
0.8-0.9	22.6	12.8	64.6	42.1	7.47	SLAL	0.04	VL	23	-	0.03	72.8	26.2	0.25	0.74	34.9	0.74	NS	5	2.78

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL										
Date:	23/08/2021	Describer:	M Mooney	Site:	310-03-AH3566	Type:	Partial			
MSU:	3.2.1.3		ASC:	Brown Ferrosol						
PSC:	Kenmuir			Chainage (m):		168168		Elevation (m):		555
Coordinates:	Easting:	361883	Northing:	6933660		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod. rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Tm
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/C2	SCL:	Yes
Disturbance:	Cleared, pasture, previously cultivated		
Surface condition:	Cracking, surface flake		
Surface fragments:	2-10%, 60-200 mm, subrounded, igneous		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor).		
Vegetation:	Very sparse, crowns well separated (0.25-20%)		

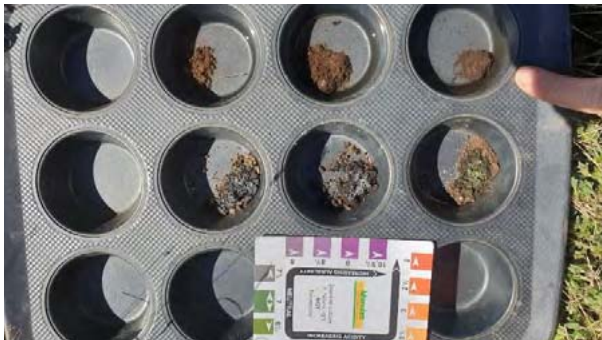
SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Black (7.5YR2.5/1 (moist)); no mottles; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, weak; light medium clay, fine sandy; coarse fragments <2%, 6-20 mm, subangular, igneous; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.5.0; clear boundary to -
B22	100-330	Dark brown (10YR3/3 (moist)); mottles 20-50%, 15-30 mm, prominent, orange, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, weak; medium clay; coarse fragments 2-10%, 6-20 mm, subangular, igneous; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0; clear boundary to -
B/C	330-400	Dark brown (10YR3/3 (moist)); mottles 20-50%, 5-15 mm, prominent, yellow, diffuse; rough ped, moderate, 10-20 mm, subangular blocky; moderately moist, weak; light medium clay; coarse fragments 20-50%, 20-60 mm, angular, igneous; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 7.5.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	11/11/2021	Describer:	H Marvell	Site:	310-03-AH3567	Type:	Partial		
MSU:	3.3.1.3	ASC:	Brown Ferrosol						
PSC:	Kenmuir			Chainage (m):	168400		Elevation (m):		502
Coordinates:	Easting:	362127	Northing:	6933720		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Mod. rapid
Morphological type:	Crest	Permeability:	Slowly
Landform element:	Risidual rise	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Tm
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/C2	SCL:	Yes
Disturbance:	Grazing (not cleared)		
Surface condition:	Self-mulching, firm, hard setting		
Surface fragments:	20-50%, 60-200 mm, subangular, igneous		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Dark brown (7.5R3/3 (moist)); no mottles; rough ped, weak, <2 mm, subangular blocky; moist, very weak; light clay; coarse fragments <2%, 2-6 mm, angular, gradual; no segregations; partial slake in 10 mins; slight dispersion within 2 hrs; pH 7.0; gradual boundary to -
B22	100-200	Dark brown (7.5R3/4 (moist)); no mottles; rough ped, weak, 20-50 mm, subangular blocky; moist, weak; light medium clay; coarse fragments 10-20%, 6-20 mm, subangular, igneous; no segregations; partial slake in 10 mins; slight dispersion within 2 hrs; pH 7.5; gradual boundary to -
BC	200-300	Dark grey 10YR4/1 (moist); no mottles; rough ped, strong, 20-50 mm, subangular blocky; moist, strong; coarse fragments >90% (not segs or RO), 20-60 mm, subangular, gradual; no segregations; partial slake in 10 mins; slight dispersion within 10 mins; pH 7.5; refusal at 300mm.



Location 1



Location 2



Surface 1



Surface 2

GENERAL														
Date:	11/11/2021		Describer:	H Marvell		Site:	310-03-AH3568		Type:	Partial				
MSU:	3.3.1.1a			ASC:	Black Vertosol									
PSC:	Irving				Chainage (m):		168619		Elevation (m):		499			
Coordinates:		Easting:		362326		Northing:		6933563		Zone:	56	Datum:	GDA94	

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Mod. rapid
Morphological type:	Mid-slope	Permeability:	Moderately
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Tm
Relief modal class:	Undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/C2	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Soft, Firm		
Surface fragments:	<2%, 60-200 mm, subrounded, igneous		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Very dark brown (10YR2/2 (moist)); no mottles; earthy, moderate, 50-100 mm, subangular blocky; wet, weak; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 9.0; clear boundary to -
B22	100-350	Very dark grey (10YR3/1 (moist)); mottles 2-10%, <5 mm, faint, brown, clear; rough ped, strong, 50-100 mm, subangular blocky; moist, firm; medium clay; coarse fragments 2-10%, 2-6 mm, subangular, gravel; segregations few 2-10%, calcareous, concretions, coarse 6-20 mm, moderately calcareous; no pans; pH 8.5; gradual boundary to -
B23	350-	Very dark grey (10YR3/1 (moist)); mottles 2-10%, <5 mm, faint, yellow, clear; rough ped, strong, 100-200 mm, subangular blocky; moist, firm; medium clay; coarse fragments 2-10%, 2-6 mm, subangular, gravel; segregations few 2-10%, calcareous, concretions, medium 2-6 mm, moderately calcareous; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 8.5.



Location 1



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	11/11/2021	Describer:	H Marvell	Site:	310-03-AH3569	Type:	Check site		
MSU:	3.3.1.3	ASC:	Ferralsol						
PSC:	Southbrook			Chainage (m):	168823		Elevation (m):		508
Coordinates:	Easting:	362546	Northing:	6933694		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Mod. rapid
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Tm
Relief modal class:	Undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/C2	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Loose, soft, firm		
Surface fragments:	2-10%, 200-600 mm, subrounded, igneous		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); mountain coolibah		



Location 1



Location 2



Surface 1



Surface 2

GENERAL									
Date:	11/11/2021	Describer:	H Marvell	Site:	310-03-AH3797	Type:	Detailed		
MSU:	3.6.1.3	ASC:	Black Ferrosol						
PSC:	Southbrook			Chainage (m):	168958		Elevation (m):		512
Coordinates:	Easting:	362669	Northing:	6933576		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod. rapid
Morphological type:	Crest	Permeability:	Slowly
Landform element:	Hillcrest	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Tm
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	Yes	SCL:	
Disturbance:	Cleared, pasture		
Surface condition:	Loose, soft, firm		
Surface fragments:	2-10%, 60-200 mm, subrounded, granite		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Very sparse, crowns well separated (0.25-20%); mountain coolibah		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A2	0-50	Dark brown (7.5R3/2 (moist)); no mottles; earthy, massive (no peds), 10-20 mm, polyhedral; moist, very weak; clay loam; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 10 mins; pH 7.0; clear boundary to -
B21	50-200	Dark brown (7.5R3/2 (moist)); mottles 2-10%, <5 mm, faint, brown, clear; rough ped, weak, 20-50 mm, subangular blocky; moist, very weak; light medium clay; coarse fragments 2-10%, 6-20 mm, subangular, granite; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 7.0; gradual boundary to - Coarse fragment granite, shouldn't it be basalt?
B22	200-300	Dark brown (7.5R3/3 (moist)); mottles 2-10%, 5-15 mm, faint, brown, clear; rough ped, strong, 100-200 mm, subangular blocky; moderately moist, firm; medium clay; no fragments; segregations few 2-10%, manganiferous, concretions, fine <2 mm, ; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.5; gradual boundary to -
B23	300-450	Brown (7.5R4/3 (moist)); mottles 20-50%, 5-15 mm, faint, dark, diffuse; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, firm; light medium clay; coarse fragments 2-10%, 6-20 mm, subangular, granite; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 7.5; gradual boundary to -
C	450-600	Complete slake in 10 mins; no dispersion within 2 hrs; pH 8.0.



Location 1



Location 2



Surface 1



pH, slaking, dispersion



Profile

GENERAL									
Date:	23/08/2021	Describer:	A Kaur	Site:	310-03-AH3570	Type:	Partial		
MSU:	3.2.2.2	ASC:	Black Tenosol						
PSC:	Kenmuir			Chainage (m):	169081		Elevation (m):		511
Coordinates:	Easting:	362821	Northing:	6933311		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod. rapid
Morphological type:	Upper slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Poorly drained
Landform pattern:	Low hills	Geology:	Tm
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/C2	SCL:	Yes
Disturbance:	Highly (roads, mines)		
Surface condition:	Self-mulching, loose		
Surface fragments:	<2%, 2-6 mm, subrounded, silcrete		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor).		
Vegetation:	Isolated plants, trees ~100m apart (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A/C	0-140	Very dark brown (7.5YR2.5/2 (moist)); no mottles; earthy, massive (no peds), dry, loose; sandy loam, gravelly ; coarse fragments 20-50%, 20-60 mm, subangular, same as parent mat.; no segregations; no pans; pH 8.0; refusal at 150 mm.



Location 1



Location 2



Surface 1



pH, slaking, dispersion

Profile

GENERAL									
Date:	24/08/2021	Describer:	H Marvell	Site:	310-03-AH3571	Type:	Representative		
MSU:	3.2.1.2	ASC:	Manganic Eutrophic Brown Dermosol						
PSC:	Purrawunda			Chainage (m):	169264		Elevation (m):		496
Coordinates:	Easting:	362911	Northing:	6933835		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Mod. rapid
Morphological type:	Lower slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Tm
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/C2	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Loose, firm		
Surface fragments:	10-20%, 60-200 mm, subangular, igneous		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor).		
Vegetation:	Very sparse, crowns well separated (0.25-20%); mountain coolabah; rooting depth 650 mm		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-100	Very dark brown (10YR2/2 (moist)); no mottles; rough ped, weak, 50-100 mm, subangular blocky; moist, firm; light medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; slight dispersion within 2 hrs; pH 7.0; clear boundary to -
B22	100-200	Very dark brown (7.5YR2.5/3 (moist)); no mottles; rough ped, moderate, 50-100 mm, subangular blocky; moist, firm; medium heavy clay; coarse fragments 2-10%, 6-20 mm, subangular, gravel; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.0; clear boundary to -
B23	200-350	Dark brown (7.5YR3/3 (moist)); mottles 10-20%, 5-15 mm, faint, dark, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moist, firm; medium clay; no fragments; no segregations; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.0; clear boundary to -
B24	350-650	Brown (7.5YR4/4 (moist)); mottles 10-20%, 5-15 mm, distinct, dark, sharp; rough ped, moderate, 50-100 mm, subangular blocky; moderately moist, firm; light clay; no fragments; many 20-50%, manganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 7.5; gradual boundary to -
B/C	650-	Reddish brown (2.5Y5/4 (moist)); mottles 2-10%, <5 mm, faint, orange, clear; rough ped, weak, 20-50 mm, angular blocky; moderately moist, firm; light clay, gravelly; coarse fragments 20-50%, 20-60 mm, angular, gravel; many 20-50%, ferromanganiferous, concretions, medium 2-6 mm; no pans; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.0.



Location 1



Surface 1



pH, slaking, dispersion



Profile

SURFACE CHEMISTRY DATA

Depth (m)	pH		Avail. P		Total P (mg/kg)	Nitrate		Total nitrogen		Organic matter (%)	Total organic carbon		Micronutrients (mg/kg)			
	(1:5 H ₂ O)	Rating [#]	(mg/kg)	Rating [^]		(mg/kg)	Rating [^]	(mg/kg)	Rating [^]		(%)	Rating ^{**}	Cu	Fe	Mn	Zn
0.0-0.1	6.72	NEU	225.0	VH	2651	20.9	H	3,215	H	6.80	3.88	EH	1.01	49.6	25.4	2.02

SOIL PROFILE CHEMISTRY DATA

Depth (m)	Particle size excluding gravel (%)				pH (1:5 H ₂ O)		EC (dS/m)	Salinity Rating [^]	Cl ⁻ (mg/kg)	Exchangeable cations (meq/100 g)							ESP (%)	Sodicity [*]	Emerson class	Ca:Mg ratio
	Clay	Silt	Sand	Gravel	-	Rating [#]				H+	Al+	Ca+	Mg+	K+	Na+	CEC				
0.0-0.1	6.9	16.2	77.0	2.8	6.72	NEU	0.13	VL	30.6	-	-	20.8	9.43	3.56	0.09	33.9	0.28	NS	3b	2.21
0.1-0.2	28.9	13.6	57.5	4.5	6.58	NEU	0.06	VL	19.6	-	-	26.0	10.9	1.58	0.16	38.6	0.43	NS	5	2.39
0.25-0.35	42.3	20.4	37.3	0.3	6.80	NEU	0.03	VL	17.3	-	-	28.3	12.1	0.42	0.37	41.2	0.91	NS	5	2.33
0.7-0.8	22.5	17.0	60.5	17.8	7.58	SLAL	0.06	VL	27.5	-	-	23.9	7.03	0.21	0.34	31.5	1.07	NS	5	3.40

Notes:

[#] pH ratings: VSAC – Very Strongly Acid, SAC – Strongly Acid, MAC – Moderately Acid, SLAC – Slightly Acid, NEU – Neutral, SLAL – Slightly Alkaline, MAL – Moderately Alkaline, STAL – Strongly Alkaline, VSAL – Very Strongly Alkaline

[^] Salinity ratings: VL- Very Low, L – Low, M – Moderate, H – High, VH – Very High

^{*} Sodicity: NS – Non-sodic, S – Sodic, SS – Strongly Sodic

GENERAL									
Date:	04/11/2021	Describer:	M Mooney	Site:	310-03-AH3572	Type:	Partial		
MSU:	3.3.1.3	ASC:	Black Ferrosol						
PSC:	Southbrook			Chainage (m):	169339		Elevation (m):		547
Coordinates:	Easting:	363058	Northing:	6933597		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Gently inclined (3-10%)	Runoff:	Slow
Morphological type:	Lower slope	Permeability:	Moderately
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Tm
Relief modal class:	Undulating low hills	Rock outcrop:	Slightly rocky (2-10%), igneous
ALC:	A1/C2	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Loose, firm, hard setting		
Surface fragments:	10-20%, 200-600 mm, subangular, igneous		
Microrelief:	Zero or no microrelief		
Erosion:	Sheet (active, minor)		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1	0-200	Very dark brown (10YR2/2 (moist)); no mottles; earthy, massive (no peds), dry, loose; silty clay loam; coarse fragments 2-10%, 2-6 mm, subangular, igneous; no segregations; no pans; pH 4.5; gradual boundary to -
B1	200-400	Dark brown (7.5YR3/3 (moist)); no mottles; rough ped, weak, 10-20 mm, subangular blocky; dry, weak; light clay, silty; no fragments; no segregations; no pans; complete slake in 10 mins; no dispersion within 2 hrs; pH 4.5; clear boundary to -
C	400-580	Dark yellowish brown (10YR3/4 (moist)); no mottles; rough ped, weak, 10-20 mm, subangular blocky; dry, weak; sandy clay loam; no fragments; no segregations; no pans; complete slake in 10 mins; slight dispersion within 2 hrs; pH 4.5; gradual boundary to - Refusal 580mm



Location 1



Location 2



Surface 1



pH, slaking, dispersion



Profile

GENERAL

Date:	02/09/2021	Describer:	H Marvell	Site:	310-03-TP3143	Type:	Detailed
MSU:	3.2.1.1a?	ASC:	Brown Vertosol?				
PSC:	Aberdeen?	Chainage (m):	169539	Elevation (m):	504		
Coordinates:	Easting:	361968	Northing:	6933647	Zone:	56	Datum: GDA94

SITE DESCRIPTION

Slope:	Very gently inclined (1-3%)	Runoff:	Slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Riseslope	Drainage:	Imperfectly drained
Landform pattern:	Rises	Geology:	Tm
Relief modal class:	Gently undulating rises	Rock outcrop:	No rock outcrop
ALC:	A1/B?	SCL:	Yes
Disturbance:	Cleared, pasture		
Surface condition:	Firm, cracking?		
Surface fragments:	<2%, 6-20 mm, subangular mudstone?		
Microrelief:	Zero or no microrelief?		
Erosion:	No erosion observed?		
Vegetation:	Very sparse, crowns well separated (<0.25-20%); <i>Acacia harpophylla</i> , <i>Casuarina cristata</i> ?		

SOIL DESCRIPTION

Horizon	Depth (mm)	Description
A1?	0-300?	Brown (7.5YR4/3 (moist))?.; no mottles?.; rough ped; moderate, 20-50 mm, subangular blocky?.; moderately moist, weak?.; silty loam?.; 10-20%, 60-200 mm, subangular cobbles?.; no segregations?.; no pans; gradual boundary to -
B2?	300-1,000?	Strong brown (7.5YR4/6 (moist))?.; no mottles?.; rough ped; moderate, 50-100 mm? subangular blocky; moderately moist, firm?.; silty clay loam?.; no coarse fragments?.; no segregations?.; no pans; gradual boundary to -
C?	1,000-1,500?	Light yellowish brown (10YR6/4 (moist))?.; no mottles?.; sandy?.; massive?, <2 mm?, granular?.; moderately moist, weak?.; sand?.; 20-50%, 6-20 mm, subangular, basalt gravel, 10-20% 20-60 mm, subrounded, basalt cobbles, 10-20%, 200-600 mm, subangular, basalt boulders?.; no segregations?.; no pans?



Profile 1



Location 1



Profile 2



Stockpile 1



Surface 1

GENERAL									
Date:	23/08/2021	Describer:	T Beck	Site:	310-03-AH3573	Type:	Partial		
MSU:	3.2.1.1a	ASC:	Black Vertosol						
PSC:	Purrawunda			Chainage (m):	169766		Elevation (m):		545
Coordinates:	Easting:	363463	Northing:	6933766		Zone:	56	Datum:	GDA94

SITE DESCRIPTION			
Slope:	Very gently inclined (1-3%)	Runoff:	Very slow
Morphological type:	Simple slope	Permeability:	Slowly
Landform element:	Hillslope	Drainage:	Imperfectly drained
Landform pattern:	Low hills	Geology:	Tm
Relief modal class:	Undulating low hills	Rock outcrop:	No rock outcrop
ALC:	A1/C2	SCL:	Yes
Disturbance:	Extensive clearing		
Surface condition:	Loose, firm		
Surface fragments:	<2%, 6-20 mm, subangular, gravel		
Microrelief:	Zero or no microrelief		
Erosion:	No erosion observed		
Vegetation:	Isolated clumps of 2 to many plants (<0.25%)		

SOIL DESCRIPTION		
Horizon	Depth (mm)	Description
A1/B21	0-120	Very dark brown (7.5YR2.5/2 (moist)); earthy, massive (no peds), dry, loose; light clay; coarse fragments 2-10%, 6-20 mm, subangular, gravel; no segregations; partial slake in 10 mins; slight dispersion within 2 hrs; pH 6.0; gradual boundary to -
B22	120-250	Very dark greyish brown (10YR3/2 (moist)); mottles <2%, <5 mm, prominent, yellow, clear; rough ped, moderate, 20-50 mm, subangular blocky; moderately moist, firm; light medium clay; coarse fragments 2-10%, 6-20 mm, subangular, conglomerate; partial slake in 10 mins; no dispersion within 2 hrs; pH 6.0; clear boundary to -
B23	250-400	Very dark brown (10YR2/2 (moist)); mottles 10-20%, 5-15 mm, faint, brown, diffuse; rough ped, strong, 50-100 mm, subangular blocky; moderately moist, firm; light medium clay; partial slake in 10 mins; slight dispersion within 2 hrs; pH 8.0; gradual boundary to -
B24	400-450	Very dark brown (10YR2/2 (moist)); mottles 2-10%, 5-15 mm, prominent, yellow, diffuse; rough ped, weak, 20-50 mm, subangular blocky; moderately moist, weak; light medium clay, gravelly; partial slake in 10 mins; no dispersion within 2 hrs; pH 8.5; refusal at 450 mm.



Location 1



Surface 1



pH, slaking, dispersion



Profile