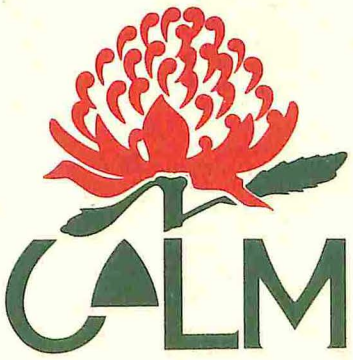
DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

Soil characteristics of the proposed Mossy Point subdivision



Soil characteristics of the proposed Mossy Point subdivision

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Introduction

This report and the accompanying plan detail the soil characteristics of land encompassed by the proposed subdivision at Mossy Point. The soils information has been collected to provide the subdivision with a sound base for sediment and erosion control strategies.

Methods

Twenty sites were excavated by backhoe to a depth of at least 2.0 m or refusal. A number of other sites were assessed from pre-existing exposures. The sites were broadly indicative of the range of soils on the proposed subdivision. Site locations are shown on the accompanying plan. Fourteen of the backhoe pits and one stream bank exposure were described on DLWC Soil Data System cards. This information is available via the Manager, Soil Data System, DLWC Parramatta. Samples were taken of selected soil materials and dispatched by courier to Scone DLWC Research Service Centre.

Laboratory analysis was conducted on the following samples:-

Profile	Layer	Depth (cm)
3	3	70-300
5	1 3 4	0-10 60-95 95-150
8	1 2 3 4	0-30 30-65 65-200 200-250
13	1 2	0-16 16-110

Results

The estate site has been subdivided into two soil landscapes each with three sub-landscape units:-

Map unit	Description	Profiles
Soil Landscape 1 (insitu materials)		
1	crests and sideslopes	12,13,15
2	lower slopes	7,10,11,16,18,22
3	insitu depressions	8,9,17

Soil Landscape 2 (transported materials)

4	sandy depressions	5
5	terraces	1,2,3,6,19,20,21
6	wetlands	4,14

Soil Landscape 1 (insitu materials) consists of undulating insitu terrain and includes the *crests and sideslopes, lower slopes* and *insitu depressions* sub-landscape units. Soils are generally duplex with loam topsoils over clayey subsoils.

Soil Landscape 2 (transported materials) consists of level to gently sloping transported materials and includes the *terraces*, *sandy depressions* and *wetlands* sub-landscape units. Soils tend to be deep unconsolidated sands in all but the lowest lying areas of the *wetlands* unit where various saturated materials may be found.

There is a marked difference between the soil materials of the two landscapes. Soil Landscape 1 (insitu materials) has significant amounts of medium to heavy clay. In contrast, Soil Landscape 2 (transported materials) consists mainly of light textured soils (sands).

Brief descriptions of soil profiles for each of the landscape units:

Soil Landscape 1 (insitu materials)

Sub-Landscape Unit 1.(*crests and sideslopes*), Soil profile 13.

0-16cm	dark greyish brown silty loam
16-110cm	light yellowish brown silty clay
110+cm	bedrock

Sub-Landscape Unit 2. (*lower slopes*), Soil profile 11.

0-22cm	very dark greyish brown silty loam
22-95cm	light yellowish brown silty clay
95+cm	partially kaolinised bedrock

Sub-Landscape Unit 3. (*insitu depressions*), Soil profile 8.

0-30cm	dark greyish brown clay loam
30-65cm	dark yellowish brown medium clay (perched water above layer 3)
65-200cm	mottled red heavy clay
200-250+cm	kaolinitic heavy clay

Soil Landscape Unit 2 (transported materials)

Sub-Landscape Unit 4. (*sandy depressions*), Soil profile 5.

0-10cm	very dark greyish brown loamy sand
10-60cm	dark greyish brown sand
60-95cm	light brownish grey sand
95-150+cm	grey sand (free water at 150cm)

Sub-Landscape Unit 5. (*terraces*), Soil profile 3.

0-10cm	very dark grey loamy sand
10-70cm	brownish yellow sand
70-300+cm	yellowish brown sand

Sub-Landscape Unit 6. (*wetlands*), Soil profile 4.

0-50cm	black organic loam
50-80cm	dark grey loamy sand
80-150+cm	saturated grey sand (free water at 80cm)

Profile Permeability and Depth to watertable

Permeability of the soil profile is based on the permeability of the least permeable soil layer. Permeabilities have been rated from 1 (rapid) to 6 (very slow). In general Soil Landscape 1 profiles are moderately permeable on the *crests and sideslope*, slow to moderate on *lower slopes* and very slow in the *insitu depressions*.

Soil Landscape 2 profiles generally have rapid drainage which reflects their sandy texture. The exception is in the *wetlands* and some low lying areas adjacent to the *wetlands* which may have heavier materials and slower permeabilities.

Free water was found in a number of the bachoe pits. The perched water table of Sub-Landscape Unit 3 (*insitu depressions*), Soil profile 8, is due to the very slow permeability of the subsoil materials. Conversely, the high water tables of Soil Landscape 2 (transported materials) are due to the inability of the water to escape the site. ie. the profile permeability maybe reasonably rapid but site drainage is very poor. Depth to free water at the site will vary according to seasonal factors and tides. The watertable at the time of sampling for each of the bachoe pits is as follows:-

Profile	Depth to watertable	Permeability Ranking
2	not reached	1
3	not reached	1
4	**80cm**	3
5	**150cm**	2
6	not reached	2
7	not reached	3
8	**65cm (perched)**	6
9	not reached	6
10	not reached	5
11	not reached	4
12	not reached	4
13	not reached	4
14	**130cm**	6
15	not reached	4

Topsoil materials

The definition of topsoil for the purpose of this report is restricted to the surface layer only.

Profile	Depth (cm)	Gravel Content	Texture
1	13	nil	sand
2	40	nil	sand
3	10	nil	loamy sand
4	50	nil	loam
5	10	nil	loamy sand
6	30	nil	loamy sand
7	6	20-50%	loam
8	30	<2%	clay loam
9	40	nil	clay loam
10	25	2-10%	sandy loam
11	22	2-10%	silty loam
12	35	<2%	loam
13	16	20-50%	silty loam
14	40	nil	loamy sand
15	25	10-20%	silty loam

Laboratory Results

Lab No.	Method	P7B/1 Particle Size analysis (%)					P8A/2	P9B/2	P5A/1	P13A/3	C2A/2	C1A/3	C6A/2
	Sample Id	clay	silt	f.sand	c.sand	gravel	D%	EAT	VE%	USCS	pH	EC(dS/m)	OC(%)
3	MP3/3	1	1	19	76	3	0	na	5	SP-SM	6.6	0.04	0.05
4	MP5/1	6	2	21	71	<1	33	8/5	3	SM	6.0	0.04	0.76
6	MP5/3	3	1	62	34	0	67	5	4	SM	5.8	0.04	0.16
7	MP5/4	2	0	32	66	0	50	5	2	SM	5.3	0.04	0.08
8	MP8/1	14	21	46	19	<1	32	8/3(1)	3	CL	5.3	0.14	1.33
9	MP8/2	38	19	31	12	<1	2	6	15	CL	4.5	0.32	0.50
10	MP8/3	43	17	26	14	<1	0	6	18	CL	3.9	0.45	0.10
11	MP8/4	49	31	15	5	0	0	6	4	CL-CH	4.3	0.85	0.08
12	MP13/1	7	11	22	20	40	56	8/3(1)	<1	SC	4.0	0.06	1.67
13	MP13/2	30	39	6	14	11	80	3(2)	nd	CL	4.0	0.04	0.33

nd = not detected, na = not applicable

Interpretations

Soil erodibility

The Unified Soil Loss Equation (USLE) includes a measure of soil erodibility known as K-factor (Wischmeier and Smith, 1978). The USLE K-factors are a derived index of a soil materials susceptibility to sheet and rill erosion. From the laboratory data for the site K-factors have been derived using the SOILOSS program (Rosewell and Edwards, 1988).

Sample	K-factor	Erodibility
MP3/3	0.015	low
MP5/1	0.015	low
MP5/3	0.050	high
MP5/4	0.026	moderate
MP8/1	0.057	high
MP8/2	0.042	high
MP8/3	0.037	moderate
MP8/4	0.039	moderate
MP13/1	0.046	high
MP13/2	0.041	high

Soil erodibilities as expressed by K-factors range from 'very low' (USLE K<0.011) to 'very high' (USLE K>0.061) (Chapman et al., unpubl.). The derived K-factors for the site fall within the 'moderate' to 'high' range for all the sampled Soil Landscape 1 (insitu) materials. The topsoil erodibility for the Soil Landscape 2 (transported) materials sample is 'low'. The subsoil values for Soil Landscape 2 (transported) were variable.

Dispersion Percentages are estimates of the proportion of clay sized particles that disperse in water after end over end shaking. The laboratory data indicates a very wide range of dispersion percentages over the site.

For Soil Landscape 1 (insitu) the clay subsoils of the *insitu depressions* contrast sharply with those of the *crests and sideslopes*. The deep kaolinitic materials of the *insitu depressions* have little or no dispersion potential. (eg. 0% dispersion for MP8/4).

On the *crests and sideslopes* MP13/2 has a dispersion percentage of 80% for a material with 30% clay. In addition, MP13/2 has a high silt content (39%). Silt tends to be more erodible than sand sized particles and non-dispersive clays. The dispersive nature of these materials has been reflected in the high K-factor values.

Soil Landscape 2 (transported) materials have high dispersion percentages. However, these values can in the main be disregarded as the percentage of clay in each material is negligible. For example MP5/3 has a dispersion percentage of 67% but a clay content of only 3% (ie. 67% of 3% disperses).

Salinity

Negligible levels of salinity were recorded for all tested samples. A number of small ($<10m^2$) scalded areas were observed in the vicinity of MP8 (*insitu depressions*). These scalds are most likely due to waterlogging (salinity may or may not be a factor).

Acidity

Potential problems such as aluminium toxicity occur in soils with a pH lower than 5.0. The only topsoil sample which falls into this category is from the *crest and sideslopes* unit (MP13/1 with pH4.0).

Laboratory data for MP8 and MP13 and field tests at a number of sites indicate that Soil Landscape 1 (insitu) subsoils are acidic.

Acid Sulfate Materials

Laboratory tests were not conducted for potential acid sulfate materials at the site. Extensive testing has occurred in the vicinity as part of the DLWC Acid Sulphate[1] Risk Management program (Tulau, 1995).

Problems associated with acid sulfate soils only manifest themselves when materials are exposed and allowed to oxidise. Potential acid sulfate soils are generally saturated estuarine sediments found below 1m ASL.

For much of the site Tulua (1995) has indicated that there is no acid sulfate risk. Only materials of the *wetlands* unit and some of the low lying (<1m ASL) margins of units bordering the *wetlands* have the right combination of factors for potential acid sulfate soils. The *wetlands* and their margins have been designated as low risk (Tulau, 1995).

Soil Engineering Properties

Volume expansion is a measure of a disturbed soils ability to swell upon wetting. Soils with a volume expansion greater than 20% indicate a larger potential for expansion on wetting and shrinking on drying. This places limitations on the use of the soil for accommodating foundations for small buildings and for earthworks.

Volume expansion tests (VE%) were conducted on the ten laboratory samples. All of the samples had a low volume expansions rating (ie. VE < 20%).

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[1] Since the completion of the Risk Mapping the spelling "sulfate" (not 'sulphate') has become the standard.

Topsoil materials

Topsoil materials between the two landscapes are markedly different. Soil Landscape 1 (insitu) topsoils tend to be loamy and gravelly. Depth varies from as little as 6cm up to 40cm. Topsoils on the *lower slopes* and *insitu depressions* tend to be deeper than for the *crests and sideslopes*. The stony *lower slopes* ridge in the vicinity of MP7 is an exception with a topsoil depth of only 6cm.

Soil Landscape 2 (transported) topsoils are sandy and stone free. They are highly permeable, neutral and are not saline. Depth varies from 10 to 50cm.

Recommendations

For Soil Landscape 1 (insitu) topsoil materials of the *insitu depressions* have localised scalding. This may indicate salinity, however preliminary tests gave negligible salinity readings. For revegetation purposes salt tolerant species should be selected for these areas. Saline and/or waterlogged soils often present a problem for foundations and concrete slabs. In selecting sites for houses or other dwellings it would be prudent to avoid these waterlogged and scalded patches.

Topsoils of the *crests and sideslopes* and *lower slopes* are acidic and for revegetation purposes would benefit from a light application of lime. These materials are highly erodible. Consequently, disturbance should be kept to a minimum and a sound soil erosion and sediment control strategy put in place during any construction.

During construction a range of topsoil stripping depths may be required. During the revegetation phase it is likely that topsoil stripped from lower areas in the landscape will need to be relocated to the upper slopes and crests.

The subsoil (light yellowish brown silty clay) of the *crests and sideslopes* and *lowerslope* units is in general not a good medium for revegetation. Similarly the *insitu depression* subsoil (dark yellowish brown medium clay) is inadequate for revegetation. These material occur immediately below the topsoils. They are hardsetting, gravelly (greater than 20% gravels) and highly erodible (K-factor 0.041 - 0.041).

For Soil Landscape 2 (transported) the only difference between the topsoil and the subsoil layer directly underneath is the accumulation of organic matter at the surface. In contrast to Soil Landscape 1 (insitu) subsoils of Soil Landscape 2 (transported) would be adequate for revegetation provided that the correct selection of species and/or nutrient applications is undertaken.

The presence of free water in lower parts of Soil Landscape 2 (transported) may cause problems for trenching.

If possible subsoil materials bordering the wetlands unit should not be disturbed. Should disturbance be necessary it is recommended that further testing be undertaken to identify any potential acid sulfate materials. If acid sulfate materials are identified an Acid Sulfate Soil Management Plan would need to be prepared in line with the Environmental Protection Agency Guidelines on Acid Sulfate Soils (EPA, 1995).

References

- Chapman, G.A., Eddie, M.W., Ross, J.D, Stone, M.J. and Craze, B. (unpubl.) *Soil Test Results and their Interpretations,* Soil Unit Miscellaneous Report, Department of Land and Water Conservation

- Environmental Protection Agency (1995) *Assessing and Managing Acid Sulfate Soils, Guidelines for Land Management in NSW Coastal Areas,* EPA, Chatswood, NSW.

- Rosewell, C.J. and Edwards, K. (1988) *SOILOSS - A program to Assist in the Selection of Management Practices to Reduce Erosion.* Technical Handbook No. 11, soil Conservation Service of NSW.

- Tulau, M.J. (1995) *Acid Sulphate Soil Risk of the Mogo, Nelligen and Durras 1:25 000 map sheets.* Soil Conservation Service of NSW.

- Wischmeier, W. H. and Smith, D.D. (1978) *Predicting Rainfall Erosion Losses - A guide to Conservation Planning.* Agriculture Handbook No.537, US Department of Agriculture, Washington DC.

(A)

Soil Landscape 1 (insitu materials)

1 crests and sideslopes
2 lower slopes
3 insitu depressions

Soil Landscape 2 (transported materials)

4 sandy depressions
5 terraces
6 wetlands

Soil Landscape boundary

Sub-landscape unit boundary

✕ **MP 13** site location

JOINS MAP (B)

JOINS MAP (C)

B

1

JOINS MAP (A)

2

MP12

MP20

MP21

MP13

MP17

3

MP16

MP18

MP15

MP14

6

JOINS MAP (C)

B

JOINS MAP A

MP21

MP19

MP5

DENSE TIMBER
CONTOURS APPROXIMATE ONLY

103·8

103·2

100·5

MP2

103·6

103·5

104

103

100·7

JOINS MAP B

MP3

104·1

104

103·5

103·7

103·7

4

100·9

101

6

DENSE TIMBE
CONTOURS APPROXIMI

100·4

100·6

DENSE TIMBER
CONTOURS APPROXIMATE ONLY

101·8

100·5

C

MOSSY POINT SURVEY Profile No. 1

MAP REFERENCES:
1:100 000 sheet no:8926 BATEMANS BAY Scale of Mapping:1:25 000
AMG Eastings:244980 AMG Zone:56
AMG Northings:6031520
SURVEY DETAILS:
Described by:B Jenkins Date:27/02/97
Site Location:TOMAGA RIVER STREAMBANK, 15M W BRIDGE
No of layers described: 4
Methods of exposure:gully
SOIL and MAP CODES:
Great Soil Group:P, Podzol
Factual Key:Uc2.33
AUST. SOIL CLASS.:
Fragic, Haplic, Semiaquic, Podosol;Medium, Non Gravelly, Sandy, Sandy, Very Deep.
Confidence level: 3
TOPOGRAPHY:
Slope:0%, estimated
Elevation (m):1
LANDFORM:
Site Process:alluvial Site Morphology:flat
Local Relief:extremely low(< 9m) Landform Element:tidal creek
VEGETATION:
Vegetation Community:littoral complex
Vegetation Form:tree, shrub, tussock grass
Eucalyptus maculata (spotted gum)
SITE CONDITION:
Ground Cover:20% Expected Dry Condition:loose
Current Condition:loose, water repellent
Site Disturbance:limited clearing
LITHOLOGY:
Rock Outcrop:nil
ID Method:both assessment & map
Upper Solum PM:sand
Substrate:not identified
LAND USE:
Site:Timber/scrub/unused
General Area:Timber/scrub/unused
HYDROLOGY:
Run Off:low Run On:moderate
Permeability:highly permeable Profile Drainage:well drained
Free Water Presence:none
EROSION:
evident stream bank
EROSION HAZARD: high
SALINITY: no salting evident
BASE OF OBSERVATION:layer continues
FIELD NOTES:
Tidal river bank

LAYER: 0 Surface
COARSE FRAGMENTS:
type:not evident

LAYER: 1 A1 Depth (m): .00 to .13
COLOUR: moist:10YR 3/1 (brownish black) value/chroma:1
TEXTURE: sand
CONSISTENCE:
disruptive test:loose

soil water status:dry
STRUCTURE:
grade:single grained
fabric:sandy
COARSE FRAGMENTS:
type:not evident
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: high
CHEMICAL TESTS:
pH: 5.0 (Raupach)
ERODIBILITY TESTS:
crumb:no change
SAMPLE(S) TAKEN: disturbed
BOUNDARY:
distinctiveness:abrupt (5-20 mm)

LAYER: 2 A2 Depth (m): .13 to .90
COLOUR: moist:10YR 5/2 (greyish yellow brown) value/chroma:2a
dry:10YR 7/2 (dull yellow orange)
TEXTURE: sand
CONSISTENCE:
disruptive test:loose
soil water status:dry
STRUCTURE:
grade:single grained
fabric:sandy
COARSE FRAGMENTS:
type:not evident
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: high
CHEMICAL TESTS:
pH: 6.0 (Raupach)
ERODIBILITY TESTS:
crumb:no change
SAMPLE(S) TAKEN: disturbed
BOUNDARY:
distinctiveness:clear (20-50 mm)

LAYER: 3 Bhs () Depth (m): .90 to 1.30
COLOUR: moist:10YR 3/2 (brownish black) value/chroma:1
TEXTURE: sand
CONSISTENCE:
disruptive test:moderately weak force shearing test:brittle
soil water status:moderately moist
STRUCTURE:
grade:massive
fabric:earthy
COARSE FRAGMENTS:
type:not evident
PANS:
type:organic pan
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate

CHEMICAL TESTS:
pH: 6.0 (Raupach)
ERODIBILITY TESTS:
crumb:no change
SAMPLE(S) TAKEN: disturbed
FIELD NOTES:
Coffee rock.
BOUNDARY:
distinctiveness:clear (20-50 mm)

LAYER: 4 Depth (m): 1.30 to 1.80
COLOUR: moist:10YR 4/6 (brown) value/chroma:5b
TEXTURE: sand
CONSISTENCE:
disruptive test:loose
soil water status:moderately moist
STRUCTURE:
grade:single grained
fabric:sandy
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: high
CHEMICAL TESTS:
pH: 7.5 (Raupach)
ERODIBILITY TESTS:
crumb:no change
SAMPLE(S) TAKEN: disturbed

MOSSY POINT SURVEY Profile No. 2

MAP REFERENCES:
1:100 000 sheet no:8926 BATEMANS BAY Scale of Mapping:1:25 000
AMG Eastings:244975 AMG Zone:56
AMG Northings:6031250
SURVEY DETAILS:
Described by:B Jenkins Date:27/02/97
Site Location:FORESTED AREA,100M W OF GEORGE BASS DR
No of layers described: 2
Methods of exposure:pit
SOIL and MAP CODES:
Great Soil Group:SS, Siliceous Sand
Factual Key:Uc2.12
AUST. SOIL CLASS.:
Humose, Regolithic, Bleached-Leptic, Tenosol;Thick, Non Gravelly, Sandy, Sandy, Very Deep.
Confidence level: 3
TOPOGRAPHY:
Slope:0%, measured
Elevation (m):3
LANDFORM:
Site Process:depositional Site Morphology:flat
Local Relief:extremely low(< 9m)
VEGETATION:
Vegetation Community:littoral complex
Vegetation Form:tree, shrub, fern/cycad
Eucalyptus maculata (spotted gum)
Pterideum esculentum (bracken fern)
Macrozamia communis (burrawang palm)
SITE CONDITION:
Ground Cover:100% Expected Dry Condition:loose
Current Condition:loose
Site Disturbance:no effect. disturbance
LITHOLOGY:
Rock Outcrop:nil
ID Method:both assessment & map
Upper Solum PM:sand
Substrate:not identified
LAND USE:
Site:Timber/scrub/unused
General Area:Timber/scrub/unused
HYDROLOGY:
Run Off:low Run On:low
Permeability:highly permeable Profile Drainage:rapidly drained
Free Water Presence:none
EROSION:
none
EROSION HAZARD: high
SALINITY: no salting evident
BASE OF OBSERVATION:layer continues

LAYER: 1 A1 Depth (m): .00 to .40
COLOUR: moist:10YR 3/1 (brownish black) value/chroma:1
TEXTURE: sand
CONSISTENCE:
stickiness:non-sticky
disruptive test:loose shearing test:no change
soil water status:moderately moist
STRUCTURE:

grade:single grained
fabric:sandy
COARSE FRAGMENTS:
type:not evident
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 5.0 (Raupach)
BOUNDARY:
distinctiveness:abrupt (5-20 mm) shape:wavy

LAYER: 2 A2 Depth (m): .40 to 2.00
COLOUR: moist:10YR 6/4 (dull yellow orange) value/chroma:2b
dry:10YR 7/4 (dull yellow orange)
TEXTURE: sand
CONSISTENCE:
stickiness:non-sticky
disruptive test:loose shearing test:no change
soil water status:moderately moist
STRUCTURE:
grade:single grained
fabric:sandy
COARSE FRAGMENTS:
type:not evident
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 6.0 (Raupach)

MAP REFERENCES:
1:100 000 sheet no:8926 BATEMANS BAY Scale of Mapping:1:25 000
AMG Eastings:244940 AMG Zone:56
AMG Northings:6031100
SURVEY DETAILS:
Described by:B Jenkins Date:27/02/97
Site Location:FORK IN THE TRACK
No of layers described: 3
Methods of exposure:pit
SOIL and MAP CODES:
Great Soil Group:SS, Siliceous Sand
Factual Key:Uc2.12
AUST. SOIL CLASS.:
Basic, Regolithic, Bleached-Leptic, Tenosol;Medium, Non Gravelly, Sandy, Sandy, Very Deep.
Confidence level: 3
TOPOGRAPHY:
Slope:0%, measured
Elevation (m):3
LANDFORM:
Site Process:depositional Site Morphology:flat
Local Relief:extremely low(< 9m)
VEGETATION:
Vegetation Community:littoral complex
Vegetation Form:tree, shrub, fern/cycad
Eucalyptus maculata (spotted gum)
Pterideum esculentum (bracken fern)
Macrozamia communis (burrawang palm)
SITE CONDITION:
Ground Cover:100% Expected Dry Condition:loose
Current Condition:loose
Site Disturbance:no effect. disturbance
LITHOLOGY:
Rock Outcrop:nil
ID Method:both assessment & map
Upper Solum PM:sand
Substrate:not identified
LAND USE:
Site:Timber/scrub/unused
General Area:Timber/scrub/unused
HYDROLOGY:
Run Off:low Run On:low
Permeability:highly permeable Profile Drainage:rapidly drained
Free Water Presence:none
EROSION:
none
EROSION HAZARD: high
SALINITY: no salting evident
BASE OF OBSERVATION:layer continues

LAYER: 0 Surface
COARSE FRAGMENTS:
type:not evident

LAYER: 1 A1 Depth (m): .00 to .10
COLOUR: moist:10YR 3/1 (brownish black) value/chroma:1
TEXTURE: loamy sand
CONSISTENCE:
stickiness:non-sticky

disruptive test:loose shearing test:no change
STRUCTURE:
grade:massive
fabric:sandy
COARSE FRAGMENTS:
type:not evident
PANS:
type:not evident
SEGREGATIONS:
type:not evident
CHEMICAL TESTS:
pH: 7.5 (Raupach)

LAYER: 2 A2 Depth (m): .10 to .70
COLOUR: moist:10YR 6/6 (bright yellowish brown) value/chroma:4
TEXTURE: sand
CONSISTENCE:
stickiness:non-sticky
disruptive test:loose shearing test:no change
STRUCTURE:
grade:massive
fabric:sandy
COARSE FRAGMENTS:
type:not evident
PANS:
type:not evident
SEGREGATIONS:
type:not evident
CHEMICAL TESTS:
pH: 7.0 (Raupach)

LAYER: 3 Depth (m): .70 to 3.00
COLOUR: moist:10YR 5/8 (yellowish brown) value/chroma:4
TEXTURE: sand
CONSISTENCE:
stickiness:non-sticky
disruptive test:loose shearing test:no change
STRUCTURE:
grade:massive
fabric:sandy
COARSE FRAGMENTS:
type:not evident
PANS:
type:not evident
SEGREGATIONS:
type:not evident
CHEMICAL TESTS:
pH: 7.5 (Raupach)

MAP REFERENCES:
1:100 000 sheet no:8926 BATEMANS BAY Scale of Mapping:1:25 000
AMG Eastings:245030 AMG Zone:56
AMG Northings:6030990
SURVEY DETAILS:
Described by:B Jenkins Date:27/02/97
Site Location:WETLAND BOUNDARY
No of layers described: 3
Methods of exposure:pit
SOIL and MAP CODES:
Great Soil Group:A, Alluvial Soil
AUST. SOIL CLASS.:
Sulphuric, Extratidal, Hydrosol;Thick, Non Gravelly, Loamy, Sandy, Very Deep.
Confidence level: 3
TOPOGRAPHY:
Slope:0%, measured
Elevation (m):1
LANDFORM:
Site Process:depositional Site Morphology:closed depression
Landform Element:swamp
VEGETATION:
Vegetation Community:swamp complex
Vegetation Form:tree, sedge, rush, fern/cycad
Casuarina glauca (swamp she oak)
SITE CONDITION:
Ground Cover:100% Expected Dry Condition:loose
Current Condition:soft
Site Disturbance:no effect. disturbance
LITHOLOGY:
Rock Outcrop:nil
ID Method:both assessment & map
Upper Solum PM:alluvium
Substrate:not identified
LAND USE:
Site:Timber/scrub/unused
General Area:Timber/scrub/unused
HYDROLOGY:
Run Off:low Run On:very high
Permeability:moderately permeable Profile Drainage:very poorly drained
Free Water Presence:below soil surface Free Water Depth(m): 0.80
EROSION:
none
EROSION HAZARD: high
SALINITY: no salting evident
BASE OF OBSERVATION:layer continues

LAYER: 1 () Depth (m): .00 to .50
COLOUR: moist:10YR 2/1 (black) value/chroma:1
TEXTURE: loam
CONSISTENCE:
disruptive test:very weak force shearing test:labile
soil water status:wet
STRUCTURE:
grade:massive
fabric:earthy
COARSE FRAGMENTS:
type:not evident
PANS:
type:not evident

SEGREGATIONS:
type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 6.0 (Raupach)
FIELD NOTES:
Very high organic matter content - almost peat.

LAYER: 2 Depth (m): .50 to .80
COLOUR: moist:10YR 4/1 (brownish gray) value/chroma:2a
MOTTLES: Dominant: type:unspecified
colour:yellow
contrast:distinct abundance:2% - 10%
TEXTURE: loamy coarse sand
CONSISTENCE:
disruptive test:very weak force shearing test:crumbly
soil water status:wet
STRUCTURE:
grade:massive
fabric:sandy
COARSE FRAGMENTS:
type:not evident
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 7.0 (Raupach)

LAYER: 3 Depth (m): .80 to 1.50
COLOUR: moist:10YR 6/1 (brownish gray) value/chroma:2a
TEXTURE: coarse sand
CONSISTENCE:
disruptive test:very weak force shearing test:crumbly
soil water status:wet
STRUCTURE:
grade:massive
fabric:sandy
COARSE FRAGMENTS:
type:not evident
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 9.0 (Raupach)

MAP REFERENCES:
1:100 000 sheet no:8926 BATEMANS BAY Scale of Mapping:1:25 000
AMG Eastings:244830 AMG Zone:56
AMG Northings:6031420
SURVEY DETAILS:
Described by:B Jenkins Date:27/02/97
Site Location:LOW LYING AREA 30M NW OF TRACK
No of layers described: 4
Methods of exposure:pit
SOIL and MAP CODES:
Great Soil Group:A, Alluvial Soil
Factual Key:Uc1.14
AUST. SOIL CLASS.:
Submelacic, Regolithic, Leptic, Tenosol;Medium, Non Gravelly, Sandy, Sandy, Very Deep.
Confidence level: 3
TOPOGRAPHY:
Slope:0%, measured
Elevation (m):4
LANDFORM:
Site Process:depositional Site Morphology:closed depression
Landform Element:swamp
VEGETATION:
Vegetation Community:swamp complex
Vegetation Form:shrub, rush
Melaleuca sp. ()
Acacia mearnsii (black wattle)
SITE CONDITION:
Ground Cover:100% Expected Dry Condition:loose
Current Condition:loose
Site Disturbance:limited clearing
LITHOLOGY:
Rock Outcrop:nil
ID Method:both assessment & map
Upper Solum PM:sand
Substrate:not identified
LAND USE:
Site:Volun./native pasture
General Area:Volun./native pasture
HYDROLOGY:
Run Off:low Run On:high
Permeability:highly permeable Profile Drainage:poorly drained
Free Water Presence:below soil surface Free Water Depth(m): 1.50
EROSION:
none
EROSION HAZARD: high
SALINITY: no salting evident
BASE OF OBSERVATION:layer continues

LAYER: 0 Surface
COARSE FRAGMENTS:
type:not evident

LAYER: 1 A1 Depth (m): .00 to .10
COLOUR: moist:10YR 3/2 (brownish black) value/chroma:1
TEXTURE: loamy sand
CONSISTENCE:
stickiness:non-sticky
disruptive test:loose shearing test:no change

soil water status:moderately moist
STRUCTURE:
grade:massive
fabric:sandy
COARSE FRAGMENTS:
type:not evident
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 6.0 (Raupach)
ERODIBILITY TESTS:
crumb:no change

LAYER: 2 Depth (m): .10 to .60
COLOUR: moist:10YR 4/2 (greyish yellow brown) value/chroma:2a
TEXTURE: sand
CONSISTENCE:
stickiness:non-sticky
disruptive test:loose shearing test:no change
soil water status:moderately moist
STRUCTURE:
grade:massive
fabric:sandy
COARSE FRAGMENTS:
type:not evident
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 6.0 (Raupach)
ERODIBILITY TESTS:
crumb:no change

LAYER: 3 Depth (m): .60 to .95
COLOUR: moist:10YR 6/2 (greyish yellow brown) value/chroma:2a
TEXTURE: sand
CONSISTENCE:
stickiness:non-sticky
disruptive test:loose shearing test:no change
soil water status:moist
STRUCTURE:
grade:massive
fabric:sandy
COARSE FRAGMENTS:
type:not evident
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 7.0 (Raupach)
ERODIBILITY TESTS:
crumb:no change

LAYER: 4 Depth (m): .95 to 1.50
COLOUR: moist:10YR 6/1 (brownish gray) value/chroma:2a
TEXTURE: sand
CONSISTENCE:
stickiness:non-sticky
disruptive test:loose shearing test:no change
soil water status:wet
STRUCTURE:
grade:massive
fabric:sandy
COARSE FRAGMENTS:
type:not evident
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 7.5 (Raupach)
ERODIBILITY TESTS:
crumb:no change

MAP REFERENCES:
1:100 000 sheet no:8926 BATEMANS BAY Scale of Mapping:1:25 000
AMG Eastings:244810 AMG Zone:56
AMG Northings:6031590
SURVEY DETAILS:
Described by:B Jenkins Date:27/02/97
Site Location:50M TO OLD HOUSE
No of layers described: 3
Methods of exposure:pit
SOIL and MAP CODES:
Great Soil Group:SS, Siliceous Sand
Factual Key:Uc2.21
AUST. SOIL CLASS.:
Melacic, Regolithic, Bleached-Leptic, Tenosol;Thick, Non Gravelly, Sandy, Sandy, Very Deep.
Confidence level: 3
TOPOGRAPHY:
Slope:1%, estimated Aspect:SE
Elevation (m):4
LANDFORM:
Site Process:depositional Site Morphology:lower slope
Local Relief:extremely low(< 9m)
VEGETATION:
Vegetation Form:shrub, tussock grass, fern/cycad
Pterideum esculentum (bracken fern)
SITE CONDITION:
Ground Cover:100% Expected Dry Condition:loose
Current Condition:loose
Site Disturbance:extensive clearing
LITHOLOGY:
Rock Outcrop:nil
ID Method:both assessment & map
Upper Solum PM:sand
Substrate:not identified
LAND USE:
Site:Volun./native pasture
General Area:Volun./native pasture
HYDROLOGY:
Run Off:moderate Run On:high
Permeability:highly permeable Profile Drainage:imperfectly drained
Free Water Presence:none
EROSION:
none
EROSION HAZARD: high
SALINITY: no salting evident
FIELD NOTES:
Much bracken and Acacia sp. regrowth.

LAYER: 1 A1 Depth (m): .00 to .30
COLOUR: moist:10YR 3/2 (brownish black) value/chroma:1
TEXTURE: loamy sand
CONSISTENCE:
stickiness:non-sticky
disruptive test:loose shearing test:no change
soil water status:moist
STRUCTURE:
grade:single grained
fabric:sandy
COARSE FRAGMENTS:

type:not evident
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 6.5 (Raupach)

LAYER: 2 A2 Depth (m): .30 to .80
COLOUR: moist:2.5Y 6/4 (dull yellow) value/chroma:2b
TEXTURE: sand
CONSISTENCE:
stickiness:non-sticky
disruptive test:loose shearing test:no change
soil water status:moist
STRUCTURE:
grade:single grained
fabric:sandy
COARSE FRAGMENTS:
type:not evident
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 6.5 (Raupach)

LAYER: 3 Depth (m): .80 to 1.70
COLOUR: moist:10YR 6/6 (bright yellowish brown) value/chroma:4
TEXTURE: coarse sand
CONSISTENCE:
stickiness:non-sticky
disruptive test:loose shearing test:no change
soil water status:wet
STRUCTURE:
grade:single grained
fabric:sandy
COARSE FRAGMENTS:
type:not evident
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 9.0 (Raupach)

MAP REFERENCES:
1:100 000 sheet no:8926 BATEMANS BAY Scale of Mapping:1:25 000
AMG Eastings:244800 AMG Zone:56
AMG Northings:6031660
SURVEY DETAILS:
Described by:B Jenkins Date:27/02/97
Site Location:SMALL RISE NEXT TO RIVER AND WETLAND
No of layers described: 2
Methods of exposure:pit
SOIL and MAP CODES:
Great Soil Group:L, Lithosol
AUST. SOIL CLASS.:
Acidic, Inceptic, Bleached-Orthic, Tenosol;Thin, Moderately Gravelly, Loamy, Clay Loamy, Very Shallow.
Confidence level: 3
TOPOGRAPHY:
Slope:5%, measured Aspect:S
Elevation (m):4
LANDFORM:
Site Process:residual Site Morphology:ridge
Landform Element:hillcrest
VEGETATION:
Vegetation Form:tree, shrub, tussock grass
SITE CONDITION:
Ground Cover:60% Expected Dry Condition:hardsetting
Current Condition:firm
Site Disturbance:limited clearing
LITHOLOGY:
Rock Outcrop:< 2%
ID Method:personal assessment
Substrate Strength:moderately strong
Weathering & Alter:highly weathered rock
Upper Solum PM:siltstone/mudstone
Substrate:siltstone/mudstone
LAND USE:
Site:Timber/scrub/unused
General Area:Timber/scrub/unused
HYDROLOGY:
Run Off:low Run On:low
Permeability:moderately permeable Profile Drainage:mod. well drained
Free Water Presence:none
EROSION:
minor, active sheet
EROSION HAZARD: high
SALINITY: no salting evident
BASE OF OBSERVATION:bedrock reached
FIELD NOTES:
Red tenic B horizon in rock fissures.

LAYER: 1 A1 Depth (m): .00 to .06
COLOUR: moist:10YR 3/2 (brownish black) value/chroma:1
TEXTURE: loam
CONSISTENCE:
stickiness:slightly sticky
disruptive test:moderately weak force shearing test:brittle
soil water status:moderately moist
STRUCTURE:
grade:massive
fabric:earthy

COARSE FRAGMENTS:
type:as parent material amount:many(20-50%)
shape:sub-angular, sub-angular platy
size:gravel(6-20 mm), coarse gravel(20-60 mm)
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 5.5 (Raupach)

LAYER: 2 A2 Depth (m): .06 to .20
COLOUR: moist:10YR 5/3 (dull yellowish brown) value/chroma:2b
dry:10YR 7/3 (dull yellow orange)
TEXTURE: silty clay loam
CONSISTENCE:
stickiness:slightly sticky
disruptive test:moderately weak force shearing test:brittle
soil water status:moderately moist
STRUCTURE:
grade:massive
fabric:earthy
COARSE FRAGMENTS:
type:as parent material amount:many(20-50%)
shape:sub-angular, sub-angular platy
size:gravel(6-20 mm), coarse gravel(20-60 mm)
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 5.5 (Raupach)

LAYER: 99 Substrate Depth (m): .20 to

MAP REFERENCES:
1:100 000 sheet no:8926 BATEMANS BAY Scale of Mapping:1:25 000
AMG Eastings:244340 AMG Zone:56
AMG Northings:6031850
SURVEY DETAILS:
Described by:B Jenkins Date:27/02/97
Site Location:LOWER SLOPE TO E OF WETLAND
No of layers described: 4
Methods of exposure:pit
SOIL and MAP CODES:
Great Soil Group:RP, Red Podzolic Soil
Factual Key:Dr3.11
AUST. SOIL CLASS.:
Mottled, Eutrophic, Red, Chromosol;Thick, Non Gravelly, Clay Loamy, Clayey, Very Deep.
Confidence level: 3
TOPOGRAPHY:
Slope:5%, estimated Aspect:SE
Elevation (m):6
LANDFORM:
Site Morphology:lower slope Slope Morphology:waning
Local Relief:low(30-90 m) Landform Element:footslope
VEGETATION:
Casuarina glauca (swamp she oak)
Leptospermum juniperinum (prickly tea-tree)
Leptospermum lanigerum (woolly tea-tree)
Acacia mearnsii (black wattle)
SITE CONDITION:
Ground Cover:98% Expected Dry Condition:hardsetting
Current Condition:soft
Site Disturbance:extensive clearing
LITHOLOGY:
Rock Outcrop:nil
ID Method:personal assessment
Substrate Strength:weak
Weathering & Alter:kaolinised
Upper Solum PM:siltstone/mudstone
Substrate:siltstone/mudstone
LAND USE:
Site:Volun./native pasture
General Area:Volun./native pasture
HYDROLOGY:
Run Off:moderate Run On:moderate
Permeability:very slowly permeable Profile Drainage:poorly drained
Free Water Presence:below soil surface Free Water Depth(m): 0.65
EROSION:
minor, partly stabilised scald
EROSION HAZARD: high
SALINITY: salting evident
BASE OF OBSERVATION:layer continues
FIELD NOTES:
Perched water table above layer 3. Minor scalds present due to logging or salt.

LAYER: 1 A1 Depth (m): .00 to .30
COLOUR: moist:10YR 4/2 (greyish yellow brown) value/chroma:2a
TEXTURE: clay loam
CONSISTENCE:
stickiness:slightly sticky

disruptive test:very weak force shearing test:crumbly
soil water status:moist
STRUCTURE:
grade:massive
fabric:earthy
COARSE FRAGMENTS:
type:as parent material amount:very few(< 2%)
size:fine gravel(2-6 mm)
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 6.0 (Raupach)

LAYER: 2 B1 Depth (m): .30 to .65
COLOUR: moist:10YR 4/6 (brown) value/chroma:5b
TEXTURE: medium clay
CONSISTENCE:
stickiness:slightly sticky
disruptive test:moderately weak force shearing test:plastic
soil water status:wet
STRUCTURE:
grade:strong pedality
dominant peds:5-10 mm, polyhedral
fabric:smooth-faced peds
COARSE FRAGMENTS:
type:as parent material amount:very few(< 2%)
size:fine gravel(2-6 mm)
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 6.0 (Raupach)

LAYER: 3 B2 Depth (m): .65 to 2.00
COLOUR: moist:10R 4/6 (red) value/chroma:5b
MOTTLES: Dominant: type:unspecified
colour:grey
contrast:prominent abundance:20% - 50%
TEXTURE: heavy clay
CONSISTENCE:
stickiness:slightly sticky
disruptive test:very firm force shearing test:plastic
soil water status:moist
STRUCTURE:
grade:strong pedality
dominant peds:prismatic
fabric:smooth-faced peds
COARSE FRAGMENTS:
type:as parent material amount:very few(< 2%)
size:fine gravel(2-6 mm)
PANS:
type:not evident
SEGREGATIONS:
type:ferromaganiferous amount:common(10% - 20%)
ERODIBILITY: moderate

CHEMICAL TESTS:
pH: 6.0 (Raupach)

LAYER: 4 B3 () Depth (m): 2.00 to 2.50
COLOUR: moist:10Y 7/1 (light grey) value/chroma:3a
MOTTLES: Dominant: type:unspecified
colour:red
contrast:prominent abundance:10% - 20%
TEXTURE: heavy clay
CONSISTENCE:
stickiness:slightly sticky
disruptive test:very firm force shearing test:plastic
soil water status:moist
STRUCTURE:
grade:moderate pedality
dominant peds:prismatic
fabric:smooth-faced peds
COARSE FRAGMENTS:
type:as parent material amount:very few(< 2%)
size:fine gravel(2-6 mm)
PANS:
type:not evident
SEGREGATIONS:
type:ferromanganiferous amount:common(10% - 20%)
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 6.0 (Raupach)
FIELD NOTES:
Kaolinised material.

MAP REFERENCES:
1:100 000 sheet no:8926 BATEMANS BAY Scale of Mapping:1:25 000
AMG Eastings:244600 AMG Zone:56
AMG Northings:6031650
SURVEY DETAILS:
Described by:B Jenkins Date:27/02/97
Site Location:10M TO WETLAND
No of layers described: 4
Methods of exposure:pit
SOIL and MAP CODES:
Great Soil Group:RP, Red Podzolic Soil
Factual Key:Dr3.11
AUST. SOIL CLASS.:
Mottled, Eutrophic, Red, Chromosol;Thick, Non Gravelly, Clay Loamy, Clayey, Very Deep.
Confidence level: 3
TOPOGRAPHY:
Slope:5%, estimated Aspect:SE
Elevation (m):6
LANDFORM:
Site Morphology:lower slope Slope Morphology:waning
Local Relief:low(30-90 m) Landform Element:footslope
VEGETATION:
SITE CONDITION:
Ground Cover:100% Expected Dry Condition:hardsetting
Current Condition:soft
Site Disturbance:extensive clearing
LITHOLOGY:
Rock Outcrop:nil
ID Method:personal assessment
Substrate Strength:weak
Weathering & Alter:kaolinised
Upper Solum PM:siltstone/mudstone
Substrate:siltstone/mudstone
LAND USE:
Site:Volun./native pasture
General Area:Volun./native pasture
HYDROLOGY:
Run Off:moderate Run On:high
Permeability:very slowly permeable Profile Drainage:poorly drained
Free Water Presence:none Free Water Depth(m): 0.65
EROSION:
none
EROSION HAZARD: high
SALINITY: no salting evident
BASE OF OBSERVATION:layer continues
FIELD NOTES:
No scalded areas evident.

LAYER: 1 A1 Depth (m): .00 to .40
COLOUR: moist:10YR 4/2 (greyish yellow brown) value/chroma:2a
TEXTURE: clay loam
CONSISTENCE:
disruptive test:very weak force
soil water status:moist
STRUCTURE:
grade:massive
fabric:earthy
COARSE FRAGMENTS:

type:not evident
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 6.0 (Raupach)

LAYER: 2 B1 Depth (m): .40 to .60
COLOUR: moist:10YR 4/6 (brown) value/chroma:5b
TEXTURE: medium clay
CONSISTENCE:
disruptive test:moderately weak force shearing test:plastic
soil water status:wet
STRUCTURE:
grade:strong pedality
dominant peds:polyhedral
fabric:smooth-faced peds
COARSE FRAGMENTS:
type:not evident
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 6.0 (Raupach)

LAYER: 3 B2 Depth (m): .60 to .90
COLOUR: moist:10R 4/6 (red) value/chroma:5b
MOTTLES: Dominant: type:unspecified
colour:grey
contrast:prominent abundance:20% - 50%
TEXTURE: heavy clay
CONSISTENCE:
disruptive test:very firm force shearing test:plastic
soil water status:moist
STRUCTURE:
grade:strong pedality
dominant peds:prismatic
fabric:smooth-faced peds
COARSE FRAGMENTS:
type:not evident
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 6.0 (Raupach)

LAYER: 4 B3 Depth (m): .90 to 2.20
COLOUR: moist:10YR 8/1 (light grey) value/chroma:3a
TEXTURE: heavy clay
CONSISTENCE:
disruptive test:very firm force shearing test:plastic
soil water status:moist
STRUCTURE:
grade:massive

PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 6.5 (Raupach)

MAP REFERENCES:
1:100 000 sheet no:8926 BATEMANS BAY Scale of Mapping:1:25 000
AMG Eastings:244500 AMG Zone:56
AMG Northings:6031600
SURVEY DETAILS:
Described by:B Jenkins Date:27/02/97
Site Location:MIDSLOPE TO SOUTH OF WETLANDS
No of layers described: 3
Methods of exposure:pit
SOIL and MAP CODES:
Great Soil Group:YP, Yellow Podzolic Soil
Factual Key:Dy3.11
AUST. SOIL CLASS.:
Mottled, Eutrophic, Yellow, Chromosol;Medium, Slightly Gravelly, Loamy, Clayey, Very Deep.
Confidence level: 3
TOPOGRAPHY:
Slope:10%, estimated Aspect:NE
Elevation (m):9
LANDFORM:
Site Process:transportational Site Morphology:mid-slope
Slope Morphology:maximal Local Relief:low(30-90 m)
Landform Element:hillslope
VEGETATION:
SITE CONDITION:
Ground Cover:100% Expected Dry Condition:hardsetting
Current Condition:soft
Site Disturbance:extensive clearing
LITHOLOGY:
Rock Outcrop:nil
ID Method:personal assessment
Substrate Strength:weak
Weathering & Alter:kaolinised
Upper Solum PM:siltstone/mudstone
Substrate:siltstone/mudstone
LAND USE:
Site:Volun./native pasture
General Area:Volun./native pasture
HYDROLOGY:
Run Off:moderate Run On:moderate
Permeability:slowly permeable Profile Drainage:imperfectly drained
Free Water Presence:none
EROSION:
none
EROSION HAZARD: high
SALINITY: no salting evident
BASE OF OBSERVATION:bedrock reached

LAYER: 1 A1 Depth (m): .00 to .25
COLOUR: moist:10YR 4/2 (greyish yellow brown) value/chroma:2a
TEXTURE: sandy loam
CONSISTENCE:
disruptive test:moderately weak force shearing test:crumbly
soil water status:moderately moist
STRUCTURE:
grade:massive
fabric:earthy
COARSE FRAGMENTS:
type:quartz amount:few(2-10 %)

weathering:non-weathered
shape:sub-rounded, sub-angular
size:fine gravel(2-6 mm)
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 6.0 (Raupach)
ERODIBILITY TESTS:
crumb:no change

LAYER: 2 B2 Depth (m): .25 to .85
COLOUR: moist:10YR 6/8 (bright yellowish brown) value/chroma:4
MOTTLES: Dominant: type:unspecified
colour:red
contrast:faint abundance:10% - 20%
TEXTURE: silty clay
CONSISTENCE:
disruptive test:moderately firm force shearing test:plastic
soil water status:moist
STRUCTURE:
grade:strong pedality
dominant peds:5-10 mm, polyhedral
fabric:smooth-faced peds
ped coatings:few (< 10%)
COARSE FRAGMENTS:
type:not evident
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 6.0 (Raupach)
ERODIBILITY TESTS:
crumb:aggregates slake

LAYER: 3 BC Depth (m): .85 to 1.60
COLOUR: moist:10YR 8/1 (light grey) value/chroma:3a
MOTTLES: Dominant: type:unspecified
colour:red
contrast:prominent abundance:20% - 50%
TEXTURE: silty clay
CONSISTENCE:
disruptive test:moderately firm force shearing test:plastic
soil water status:moist
STRUCTURE:
grade:strong pedality
dominant peds:20-50 mm, sub-ang. blocky
fabric:smooth-faced peds
ped coatings:few (< 10%)
COARSE FRAGMENTS:
type:not evident
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate

CHEMICAL TESTS:
pH: 6.0 (Raupach)
ERODIBILITY TESTS:
crumb:aggregates slake

LAYER: 99 Substrate Depth (m): 1.60 to

MAP REFERENCES:
1:100 000 sheet no:8926 BATEMANS BAY Scale of Mapping:1:25 000
AMG Eastings:244420 AMG Zone:56
AMG Northings:6031540
SURVEY DETAILS:
Described by:B Jenkins Date:27/02/97
Site Location:10M W OF GAP IN FENCE
No of layers described: 2
Methods of exposure:pit
SOIL and MAP CODES:
Great Soil Group:YP, Yellow Podzolic Soil
Factual Key:Dy2.11
AUST. SOIL CLASS.:
Haplic, Eutrophic, Yellow, Chromosol;Medium, Slightly Gravelly, Loamy, Clayey, Moderate.
Confidence level: 3
TOPOGRAPHY:
Slope:6%, estimated Aspect:NE
Elevation (m):12
LANDFORM:
Site Process:transportational Site Morphology:mid-slope
Slope Morphology:maximal Landform Element:hillslope
VEGETATION:
Vegetation Form:tree, shrub, tussock grass
Persoonia sp. ()
SITE CONDITION:
Ground Cover:98% Expected Dry Condition:hardsetting
Current Condition:soft
Site Disturbance:extensive clearing
LITHOLOGY:
Rock Outcrop:< 2%
ID Method:personal assessment
Substrate Strength:weak
Weathering & Alter:structured saprolite
Upper Solum PM:siltstone/mudstone
Substrate:siltstone/mudstone
LAND USE:
Site:Volun./native pasture
General Area:Volun./native pasture
HYDROLOGY:
Run Off:moderate Run On:moderate
Permeability:moderately permeable Profile Drainage:mod. well drained
Free Water Presence:none
EROSION:
none
EROSION HAZARD: high
SALINITY: no salting evident
BASE OF OBSERVATION:bedrock reached

LAYER: 1 A1 Depth (m): .00 to .22
COLOUR: moist:10YR 3/2 (brownish black) value/chroma:1
TEXTURE: silty loam
CONSISTENCE:
disruptive test:very weak force shearing test:crumbly
soil water status:moderately moist
STRUCTURE:
grade:massive
fabric:earthy
COARSE FRAGMENTS:

type:as parent material amount:few(2-10 %)
shape:sub-angular, sub-angular platy
size:fine gravel(2-6 mm), gravel(6-20 mm), coarse gravel(20-60 mm)

PANS:

type:not evident

SEGREGATIONS:

type:not evident

CHEMICAL TESTS:

pH: 6.0 (Raupach)

LAYER: 2 B2 Depth (m): .22 to .95
COLOUR: moist:10YR 6/4 (dull yellow orange) value/chroma:2b
TEXTURE: silty light-medium clay
CONSISTENCE:
disruptive test:moderately firm force shearing test:crumbly
soil water status:moist
STRUCTURE:
grade:strong pedality
dominant peds:10-20 mm, polyhedral
fabric:smooth-faced peds
COARSE FRAGMENTS:
type:as parent material amount:few(2-10 %)
shape:sub-angular, sub-angular platy
size:fine gravel(2-6 mm), gravel(6-20 mm), coarse gravel(20-60 mm)

PANS:

type:not evident

SEGREGATIONS:

type:not evident

CHEMICAL TESTS:

pH: 6.0 (Raupach)

LAYER: 99 Substrate Depth (m): .95 to

MAP REFERENCES:
1:100 000 sheet no:8926 BATEMANS BAY Scale of Mapping:1:25 000
AMG Eastings:244350 AMG Zone:56
AMG Northings:6031350
SURVEY DETAILS:
Described by:B Jenkins Date:27/02/97
Site Location:MINOR DEPRESSION ON HILLSL.,30M TO RD
No of layers described: 2
Methods of exposure:pit
SOIL and MAP CODES:
Great Soil Group:YP, Yellow Podzolic Soil
Factual Key:Dy2.11
AUST. SOIL CLASS.:
Haplic, Eutrophic, Yellow, Chromosol;Thick, Non Gravelly, Loamy, Clayey, Deep.
Confidence level: 3
TOPOGRAPHY:
Slope:14%, measured Aspect:E
Elevation (m):22
LANDFORM:
Site Process:transportational Site Morphology:mid-slope
Slope Morphology:maximal Local Relief:low(30-90 m)
Landform Element:hillslope
VEGETATION:
Vegetation Form:tree, shrub, tussock grass, fern/cycad
Acacia longissima (narrow-leaf wattle)
Acacia terminalis(botry.disco) (sunshine wattle)
Casuarina littoralis (black she-oak)
Macrozamia communis (burrawang palm)
Eucalyptus sieberi (silver-top ash)
Dodonaea triquetra (large-leaf hopbush)
SITE CONDITION:
Ground Cover:100% Expected Dry Condition:hardsetting
Current Condition:soft
Site Disturbance:limited clearing
LITHOLOGY:
Rock Outcrop:< 2%
ID Method:personal assessment
Substrate Strength:weak
Upper Solum PM:siltstone/mudstone
Substrate:siltstone/mudstone
HYDROLOGY:
Run Off:high Run On:high
Permeability:moderately permeable Profile Drainage:mod. well drained
Free Water Presence:none
EROSION:
none
EROSION HAZARD: high
SALINITY: no salting evident

LAYER: 1 A1 Depth (m): .00 to .35
COLOUR: moist:10YR 3/1 (brownish black) value/chroma:1
TEXTURE: loam
CONSISTENCE:
stickiness:slightly sticky
disruptive test:moderately weak force shearing test:crumbly
soil water status:moderately moist
STRUCTURE:
grade:massive
fabric:earthy

COARSE FRAGMENTS:
type:as parent material amount:very few(< 2%)
shape:sub-angular, sub-angular platy
size:fine gravel(2-6 mm), gravel(6-20 mm), coarse gravel(20-60 mm)
PANS:
type:not evident
CHEMICAL TESTS:
pH: 6.0 (Raupach)

LAYER: 2 Depth (m): .35 to 1.45
COLOUR: moist:10YR 6/6 (bright yellowish brown) value/chroma:4
TEXTURE: silty light-medium clay
CONSISTENCE:
stickiness:moderately sticky
disruptive test:moderately firm force shearing test:labile
soil water status:moist
STRUCTURE:
grade:strong pedality
dominant peds:10-20 mm, polyhedral
fabric:smooth-faced peds
COARSE FRAGMENTS:
type:as parent material amount:few(2-10 %)
shape:sub-angular, sub-angular platy
size:fine gravel(2-6 mm), gravel(6-20 mm), coarse gravel(20-60 mm)
PANS:
type:not evident
CHEMICAL TESTS:
pH: 6.0 (Raupach)

MAP REFERENCES:
1:100 000 sheet no:8926 BATEMANS BAY Scale of Mapping:1:25 000
AMG Eastings:244320 AMG Zone:56
AMG Northings:6031240
SURVEY DETAILS:
Described by:B Jenkins Date:27/02/97
Site Location:10M TO ROAD
No of layers described: 2
Methods of exposure:pit
SOIL and MAP CODES:
Great Soil Group:YP, Yellow Podzolic Soil
Factual Key:Dy2.11
AUST. SOIL CLASS.:
Haplic, Eutrophic, Yellow, Chromosol;Medium, Moderately Gravelly, Loamy, Clayey, Deep.
Confidence level: 3
TOPOGRAPHY:
Slope:12%, estimated Aspect:SW
Elevation (m):22
LANDFORM:
Site Morphology:mid-slope Slope Morphology:maximal
Landform Element:hillslope
VEGETATION:
Vegetation Form:tree, shrub, tussock grass, fern/cycad
SITE CONDITION:
Ground Cover:97% Expected Dry Condition:hardsetting
Current Condition:firm
Site Disturbance:limited clearing
LITHOLOGY:
Rock Outcrop:< 2%
ID Method:personal assessment
Weathering & Alter:structured saprolite
Upper Solum PM:siltstone/mudstone
Substrate:siltstone/mudstone
LAND USE:
Site:Timber/scrub/unused
General Area:Timber/scrub/unused
HYDROLOGY:
Run Off:moderate Run On:moderate
Permeability:moderately permeable Profile Drainage:mod. well drained
Free Water Presence:none
EROSION:
none
EROSION HAZARD: high
SALINITY: no salting evident
BASE OF OBSERVATION:bedrock reached

LAYER: 0 Surface
COARSE FRAGMENTS:
type:as parent material
type:quartz

LAYER: 1 Depth (m): .00 to .16
COLOUR: moist:10YR 4/2 (greyish yellow brown) value/chroma:2a
TEXTURE: silty loam
CONSISTENCE:
stickiness:non-sticky
disruptive test:moderately weak force shearing test:crumbly
soil water status:moderately moist

STRUCTURE:
grade:massive
fabric:earthy
COARSE FRAGMENTS:
type:as parent material amount:few(2-10 %)
weathering:weakly weathered
size:fine gravel(2-6 mm), gravel(6-20 mm), coarse gravel(20-60 mm)
type:quartz amount:many(20-50%)
weathering:non-weathered
size:gravel(6-20 mm), coarse gravel(20-60 mm)
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 6.0 (Raupach)
BOUNDARY:
distinctiveness:abrupt (5-20 mm) shape:wavy

LAYER: 2 Depth (m): .16 to 1.10
COLOUR: moist:10YR 6/4 (dull yellow orange) value/chroma:2b
TEXTURE: silty light clay
CONSISTENCE:
stickiness:moderately sticky
disruptive test:moderately weak force shearing test:labile
soil water status:moist
STRUCTURE:
grade:strong pedality
dominant peds:50-100 mm, sub-ang. blocky
subdominant peds:5-10 mm, polyhedral
fabric:smooth-faced peds
ped coatings:common (10-50%)
COARSE FRAGMENTS:
type:as parent material amount:common(10-20%)
weathering:strongly weathered
size:fine gravel(2-6 mm), gravel(6-20 mm), coarse gravel(20-60 mm)
type:quartz amount:common(10-20%)
weathering:non-weathered
size:gravel(6-20 mm), coarse gravel(20-60 mm)
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 6.0 (Raupach)
BOUNDARY:
distinctiveness:abrupt (5-20 mm) shape:wavy

LAYER: 99 Substrate Depth (m): 1.10 to

MAP REFERENCES:
1:100 000 sheet no:8926 BATEMANS BAY Scale of Mapping:1:25 000
AMG Eastings:244270 AMG Zone:56
AMG Northings:6030840
SURVEY DETAILS:
Described by:B Jenkins Date:27/02/97
Site Location:EDGE OF WETLAND, BASE OF HILLSLOPE
No of layers described: 3
Methods of exposure:pit
SOIL and MAP CODES:
Great Soil Group:A, Alluvial Soil
AUST. SOIL CLASS.:
Sulphuric, Extratidal, Hydrosol;Thick, Non Gravelly, Loamy, Sandy, Very Deep.
Confidence level: 3
TOPOGRAPHY:
Slope:0%, estimated
Elevation (m):1
LANDFORM:
Site Process:depositional Site Morphology:flat
Local Relief:low(30-90 m) Landform Element:swamp
VEGETATION:
Vegetation Form:tree, shrub, sedge, rush
Imperata cylindrica (blady grass)
Eucalyptus sieberi (silver-top ash)
Acacia terminalis(botry.disco) (sunshine wattle)
Acacia mearnsii (black wattle)
Acacia longissima (narrow-leaf wattle)
SITE CONDITION:
Ground Cover:100% Expected Dry Condition:hardsetting
Current Condition:soft
Site Disturbance:limited clearing
LITHOLOGY:
Rock Outcrop:nil
ID Method:personal assessment
Weathering & Alter:kaolinised
Upper Solum PM:alluvium
Substrate:not identified
LAND USE:
Site:Timber/scrub/unused
General Area:Timber/scrub/unused
HYDROLOGY:
Run Off:low Run On:high
Permeability:very slowly permeable Profile Drainage:very poorly drained
Free Water Presence:below soil surface Free Water Depth(m): 1.30
EROSION:
none
EROSION HAZARD: high
SALINITY: no salting evident
BASE OF OBSERVATION:bedrock reached
FIELD NOTES:
Highly weathered "green" bedrock.

LAYER: 1 A1 Depth (m): .00 to .40
COLOUR: moist:10YR 3/1 (brownish black) value/chroma:1
TEXTURE: loamy sand
CONSISTENCE:
stickiness:non-sticky
disruptive test:loose shearing test:no change
soil water status:moist

STRUCTURE:
grade:single grained
fabric:sandy
COARSE FRAGMENTS:
type:not evident
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 5.5 (Raupach)

LAYER: 2 Depth (m): .40 to 1.30
COLOUR: moist:10YR 7/1 (light grey) value/chroma:3a
TEXTURE: sand
CONSISTENCE:
stickiness:non-sticky
disruptive test:loose shearing test:no change
soil water status:wet
STRUCTURE:
grade:single grained
fabric:sandy
COARSE FRAGMENTS:
type:not evident
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 5.5 (Raupach)

LAYER: 3 () Depth (m): 1.30 to 1.80
COLOUR: moist:10YR 4/1 (brownish gray) value/chroma:2a
MOTTLES: Dominant: type:unspecified
colour:gley
abundance:2% - 10%
TEXTURE: sand
CONSISTENCE:
stickiness:non-sticky
disruptive test:loose shearing test:no change
soil water status:wet
STRUCTURE:
grade:single grained
fabric:sandy
COARSE FRAGMENTS:
type:not evident
PANS:
type:not evident
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 5.5 (Raupach)
FIELD NOTES:
Blue clay mottles/segregations throughout the layer.

LAYER: 99 Substrate **Depth (m):** 1.80 to

MAP REFERENCES:
1:100 000 sheet no:8926 BATEMANS BAY Scale of Mapping:1:25 000
AMG Eastings:244280 AMG Zone:56
AMG Northings:6031020
SURVEY DETAILS:
Described by:B Jenkins Date:27/02/97
Site Location:RIDGE LINE, 30M E OF ROAD
No of layers described: 2
Methods of exposure:pit
SOIL and MAP CODES:
Great Soil Group:YP, Yellow Podzolic Soil
Factual Key:Dy2.11
AUST. SOIL CLASS.:
Haplic, Eutrophic, Yellow, Chromosol;Medium, Gravelly, Loamy, Clayey, Deep.
Confidence level: 3
TOPOGRAPHY:
Slope:4%, estimated Aspect:E
Elevation (m):16
LANDFORM:
Site Morphology:upper slope Slope Morphology:waxing
Landform Element:hillslope
VEGETATION:
Vegetation Form:tree, shrub, tussock grass, fern/cycad
SITE CONDITION:
Ground Cover:100% Expected Dry Condition:hardsetting
Current Condition:soft
Site Disturbance:limited clearing
LITHOLOGY:
Rock Outcrop:< 2%
ID Method:personal assessment
Weathering & Alter:structured saprolite
Upper Solum PM:siltstone/mudstone
Substrate:siltstone/mudstone
LAND USE:
Site:Volun./native pasture
General Area:Volun./native pasture
HYDROLOGY:
Run Off:low Run On:low
Permeability:moderately permeable Profile Drainage:mod. well drained
Free Water Presence:none
EROSION:
none
EROSION HAZARD: high
SALINITY: no salting evident
BASE OF OBSERVATION:bedrock reached

LAYER: 1 Depth (m): .00 to .25
COLOUR: moist:10YR 4/2 (greyish yellow brown) value/chroma:2a
TEXTURE: silty loam
CONSISTENCE:
soil water status:moderately moist
STRUCTURE:
grade:massive
fabric:earthy
COARSE FRAGMENTS:
type:as parent material amount:common(10-20%)
shape:sub-angular, sub-angular platy
size:fine gravel(2-6 mm), gravel(6-20 mm), coarse gravel(20-60 mm)
SEGREGATIONS:

type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 6.0 (Raupach)

LAYER: 2 Depth (m): .25 to 1.20
COLOUR: moist:10YR 6/4 (dull yellow orange) value/chroma:2b
TEXTURE: silty light clay
CONSISTENCE:
soil water status:moderately moist
STRUCTURE:
grade:strong pedality
dominant peds:50-100 mm, sub-ang. blocky
subdominant peds:10-20 mm, polyhedral
fabric:smooth-faced peds
ped coatings:common (10-50%)
COARSE FRAGMENTS:
type:as parent material amount:common(10-20%)
shape:sub-angular, sub-angular platy
size:fine gravel(2-6 mm), gravel(6-20 mm), coarse gravel(20-60 mm)
SEGREGATIONS:
type:not evident
ERODIBILITY: moderate
CHEMICAL TESTS:
pH: 6.0 (Raupach)
ERODIBILITY TESTS:
crumb:aggregates slake