SOIL DESCRIPTIONS FOR SURVEY SITES

FROM THE

LAKE BRYDE VEGETATION SURVEY

Prepared for

ECOSCAPE PTY LTD

as part of a project for

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

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Report No. 0006

June 2000

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1.0 INTRODUCTION

This report describes the results of soil investigations by Land Assessment Pty Ltd conducted in association with the vegetation survey of reserves in the Lake Bryde Recovery Catchment, a project conducted by Ecoscape Pty Ltd.

Lake Bryde is part of a chain of lakes situated approximately 320 km south east of Perth and 35 kms south west of Newdegate. The Lake Bryde wetlands system has been declared a recovery catchment due to its regional ecological significance. The catchment to this wetlands system covers approximately 165 000 ha (CALM Study Brief).

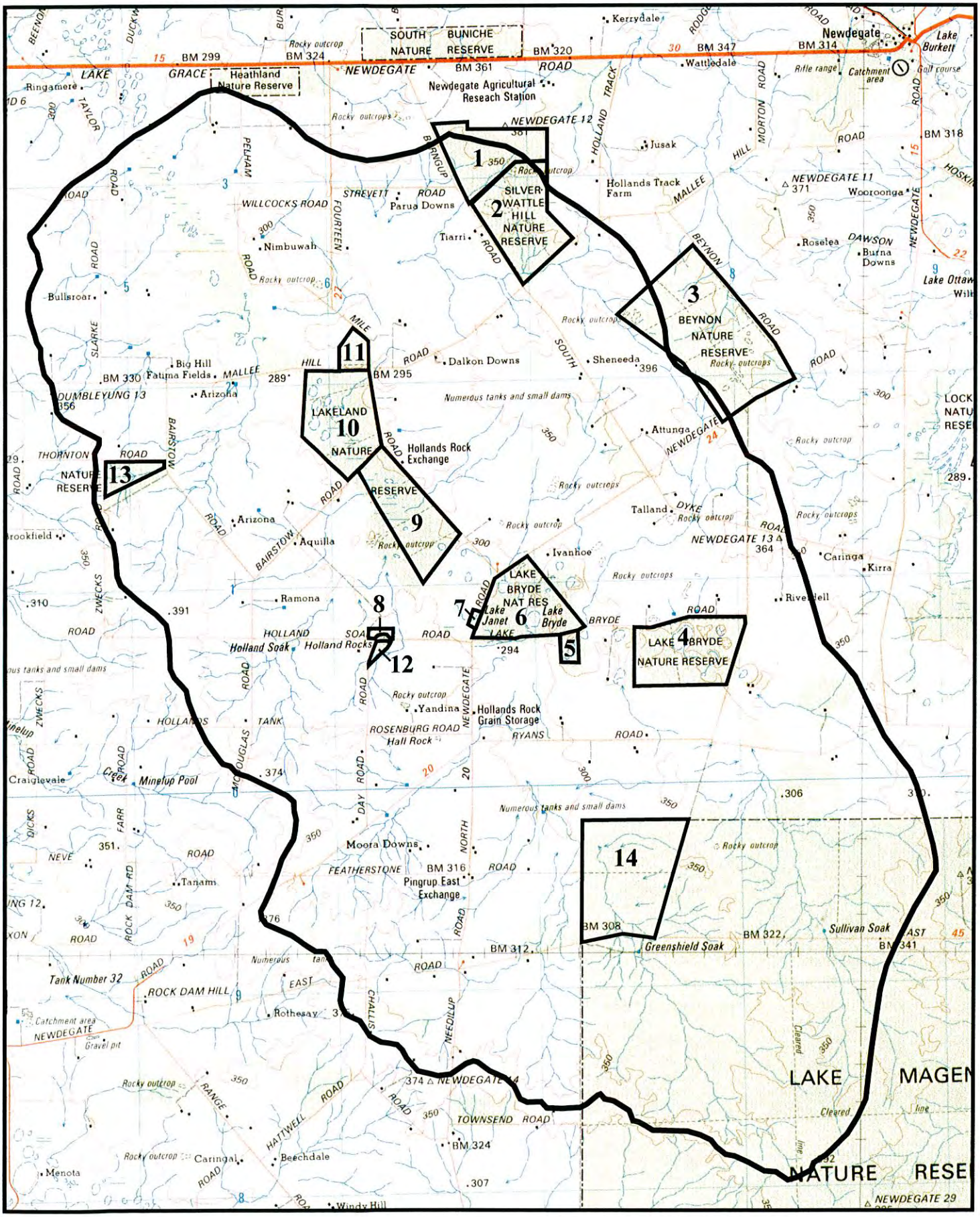
The report presents a description of soils at each of the fifty quadrats located by Ecoscape Pty Ltd for the purposes of the vegetation survey. All vegetation quadrats were located within areas of crown reserves. The main reserves within the catchment are shown in Figure 1 and Table 1 lists the vegetation quadrats located in each.

TABLE 1. MAIN RESERVES OF THE LAKE BRYDE CATCHMENT

Study Area Reference No.	Reserve No.	Name/Reservation	Area (ha)	Vegetation Quadrats
1	24920	Agriculture WA Experimental Farm (Location 2566 only)	1 265	LB 8, 9, 10
2	29018	Silver Wattle Nature Reserve	1 660	LB 7, 11
3	29019	Breakaway Ridge (Beynon) Nature Reserve	3 323	LB 12, 13, 14, 15, 16, 17
4	29020	Lake Bryde Nature Reserve	1 528	LB 18, 19, 20, 21, 22
5	29021	Lake Bryde Nature Reserve	107	LB 42
6	28667	Lake Bryde Nature Reserve (Water, Picnic Ground, Cons. Flora & Fauna)	1 315	LG 11; LB 23, 24, 25, 26, 27
7	29026	Lake Janet Nature Reserve	32	LB 35, 36; LG 10; Peg 3
8	29022	Hollands Rocks Nature Reserve	50	-
9	29023	Lakeland Nature Reserve	1 529	LG 1, 2, 3; Peg 2; LB 30, 31
10	29024	Lakeland Nature Reserve	1 579	LB 37, 38, 39, 41; LG 4, 6
11	29025	Lakeland Nature Reserve	207	-
12	15296	Water Reserve	62	LB 5, 6
13	28173	Conservation of Flora & Fauna	331	LB 28, 29
14	25113	Part Lake Magenta Nature Reserve	2 650	LB 1, 2, 3, 4, 32, 33, 34
		Total Area (approx)	**15 638 ha**	

The collection of soils data, in association with the mapping of vegetation within the reserves, is required to assist the Department of Conservation and Land Management build up an understanding of the ecological relationships within the catchment. However as well as providing data to determine edaphic/botanic relationships, this aspect of vegetation survey is expected to contribute towards suitably detailed soils mapping of the whole catchment. This in turn is required to assist land management initiatives aimed at protecting the catchment's land and water resources from further salinisation.

FIGURE 1. LAKE BRYDE CATCHMENT AND MAIN RESERVES



Reference No. 1 - 14 Refer to Table 1 for identification of reserves.

NORTH ↑

Scale 1:250 000

Background Source. AUSLIG SI 50-8 Newdegate 1:250 000 topographic map

2.0 CATCHMENT OVERVIEW

2.1 Physiography and Geology

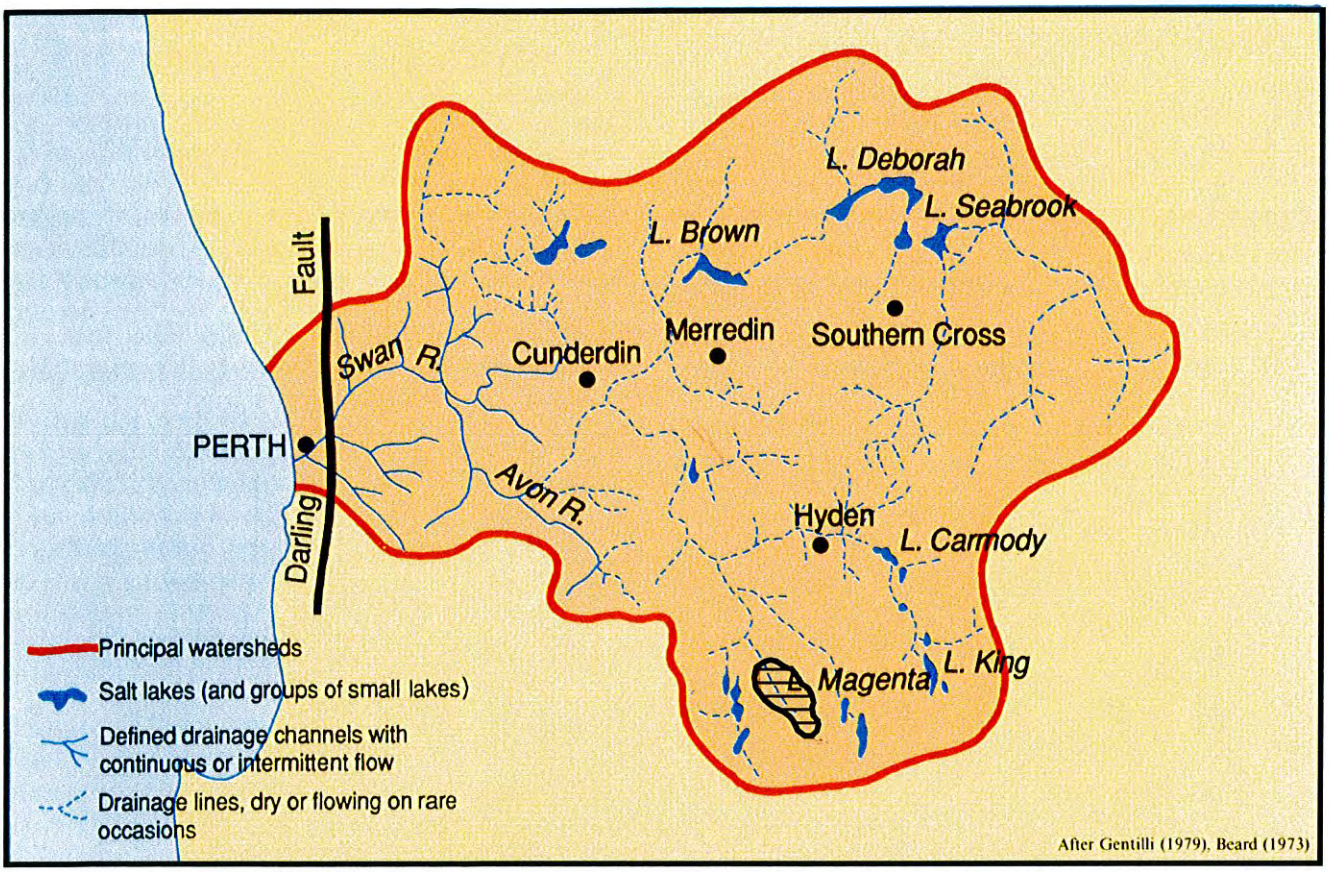
In physiographic terms the Lake Bryde catchment area is generally typical of the Zone of Ancient Drainage within the south-western interior of Western Australia. It is comprised of gently undulating terrain with long gentle slopes developed on the mainly granitic Archaean basement rocks of the Yilgan Block, and broad paleodrainage channels which trend generally north to north westerly. Drainage is sluggish in this portion of the ancient weathered plateau surface which forms part of the inland head waters of the Swan-Avon river system (Figure 2).

Figure 3 shows the catchment geology. It depicts and area predominantly mantled by reworked lateritic sandplain with an undulating surface and paleodrainage channels. The latter are comprised of either gypsiferous sand and silt in dunes adjacent to playa lakes, or ancient drainage flats with soils commonly containing calcrete nodules. Areas of quaternary alluvium and colluvium are also associated with tributary valleys leading to the ancient drainage flats.

In outer upland catchment positions, there are areas of outcropping granitic basement rocks (adamalite and granodiorite) which are commonly mantled by laterite. Lateritic ridges and crests are also scattered throughout the catchment.

It can be seen from Figure 3 that the catchment's nature reserves, although primarily focussed on the central lake systems, also cover representative areas of the upland lateritic terrain near the catchment margins. The undulating reworked sandplain terrain, which is most common throughout the catchment, is represented by part of the Lake Magenta Nature Reserve in the southern part of the catchment.

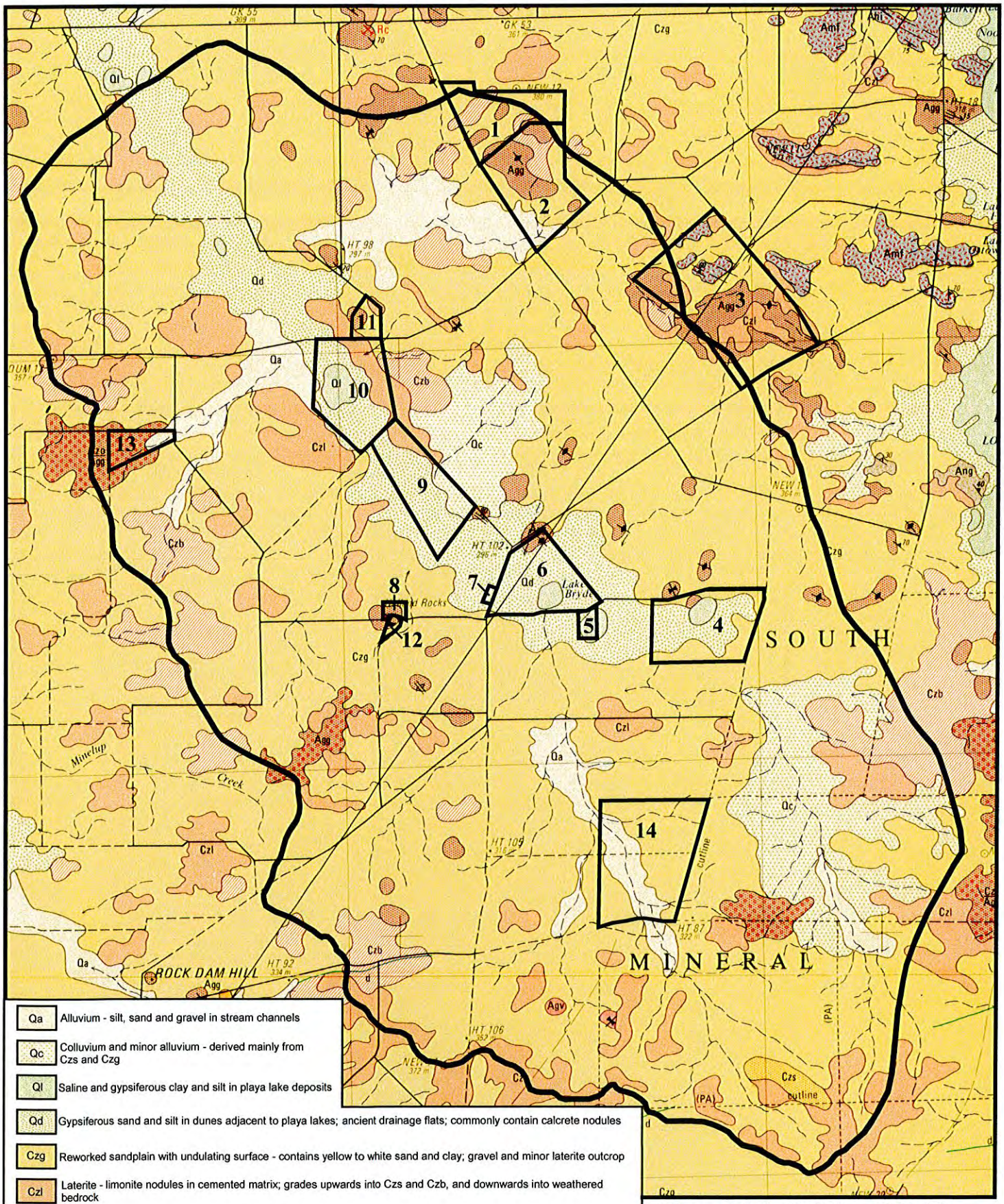
FIGURE 2. CATCHMENT AREA IN RELATION TO THE SWAN-AVON RIVER SYSTEM



Source. Adapted from Ministry of Education (1988)

Lake Bryde Catchment

FIGURE 3. GEOLOGY OF THE LAKE BRYDE CATCHMENT



Qa	Alluvium - silt, sand and gravel in stream channels
Qc	Colluvium and minor alluvium - derived mainly from Czs and Czg
Ql	Saline and gypsiferous clay and silt in playa lake deposits
Qd	Gypsiferous sand and silt in dunes adjacent to playa lakes; ancient drainage flats; commonly contain calcrete nodules
Czg	Reworked sandplain with undulating surface - contains yellow to white sand and clay; gravel and minor laterite outcrop
Czl	Laterite - limonite nodules in cemented matrix; grades upwards into Czs and Czb, and downwards into weathered bedrock
Czb	Silcrete - subvitreous siliceous rock with angular quartz grains
Czo	Deeply weathered rock - kaolinised, subsequently ferruginised and silicified
Agg	Adamellite and granodiorite - granoblastic texture, strongly foliated; foliation defined by entrainment and alignment of biotite (rarely hornblende)
Amf	Metamorphosed agmatite - granoblastic or gneissic palaeosome consisting of Agg, minor paragneiss and/or amphibolite, enclosed by granoblastic leucocratic granite and adamellite Anf

Reference No. 1 - 14 Refer to Table 1 for identification of reserves

NORTH ↑

Scale 1:250 000

Source. Thom et al (1984)

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2.2 Previous Soil Studies

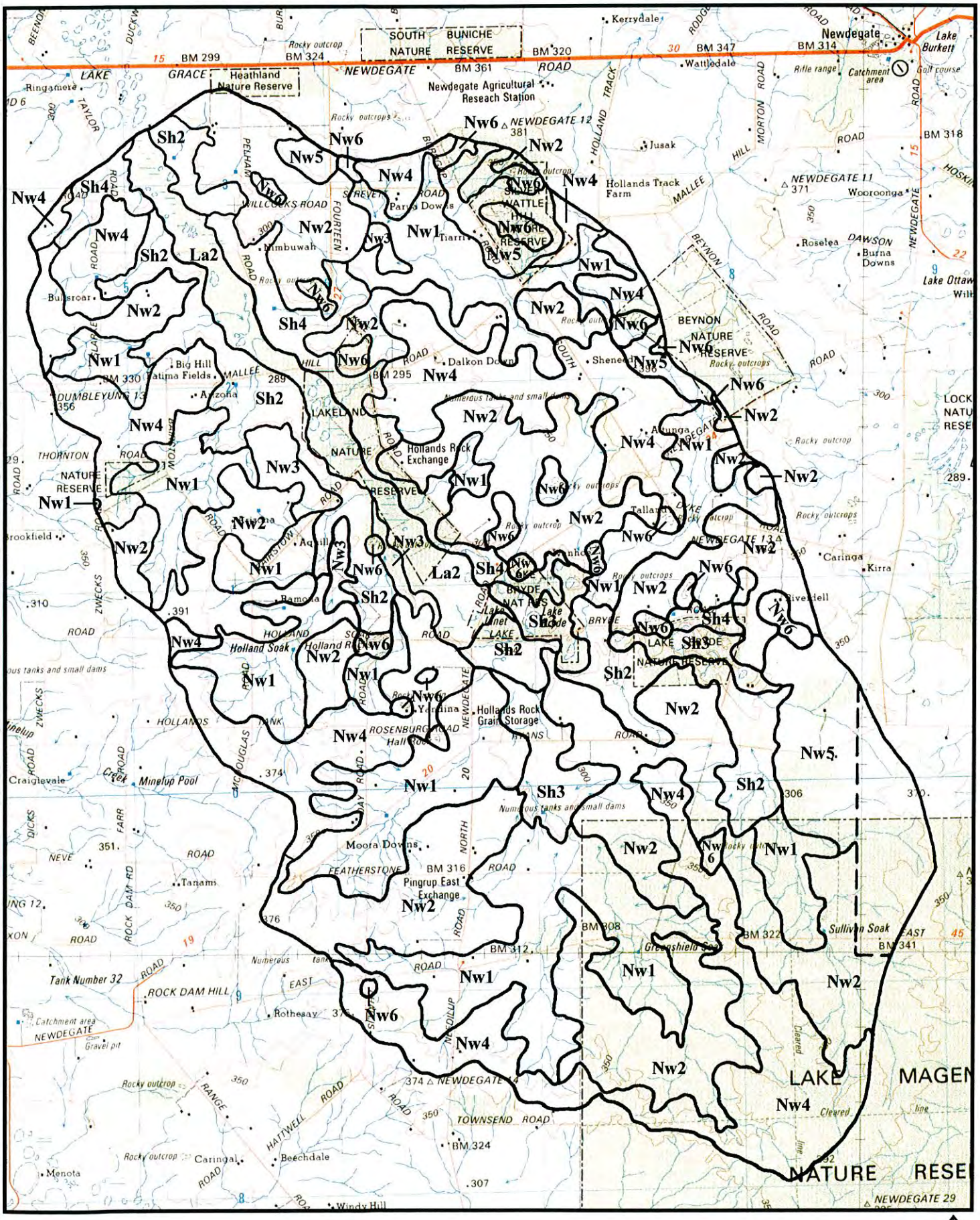
Existing published soils studies covering the Lake Bryde catchment area are limited, either by their scale or the extent of the coverage. They include;

- *Atlas of Australian Soils* (Northcote et al 1967) at a scale of 1:2 000 000.
- Burvill (1945) - descriptions only, no mapping, and only for the area south of East Road (or Halls Track) through the Lake Magenta Reserve.
- Stoneman (1990) - descriptions of individual soil profiles only and based on mapping from the *Atlas of Australian Soils*.
- McArthur (1991) - descriptions of individual soil profiles only and based on mapping from the *Atlas of Australian Soils*.

More recently, Agriculture Western Australia (Overheu in progress) have commenced soil-landscape mapping for the Jerramungup area which extends over the catchment. The relevant portion of the draft mapping is shown in Figure 4 with rudimentary descriptions of the mapping units in Table 2. While this mapping is associated with a number of sites located within the catchment since 1995, a considerable amount of work remains to be done to insure mapping integrity, and to adequately describe the range of soil and landform conditions within the mapping units. This work includes updating the classifications of many of the soil profile descriptions, correlating them with other available data, and undertaking sufficient additional sites to ensure appropriate site density relative to the scale of mapping.

To contribute towards this further work for the Lake Bryde catchment, all soils described as part of the vegetation survey have been classified according to the current Agriculture WA system (*WA Soil Groups* Schoknecht 1999). They have also been related to the preliminary map units of Overheu (in preparation).

FIGURE 4. BROADSCALE SOIL-LANDSCAPE MAPPING



Limit of mapping

NORTH ↑

Scale 1:250 000

Source. Adapted from Agriculture WA (Overheu in progress)

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TABLE 2. AGRICULTURE WA SOIL LANDSCAPE MAPPING UNITS*

Map Unit	Description
Newdegate. Undulating rises, in the south-eastern Zone of Ancient Drainage, with grey sandy duplex soils (shallow and deep), alkaline grey shallow duplex (sandy and loamy soils), pale deep sands and shallow gravels. Mallee-heath.	
Nw1	Rock outcrops within Newdegate System?
Nw2	Gently undulating to very gently inclined gravel plain. Hard setting soils such as 'moort type' soils are frequent.
Nw3	Similar landscape to Nw2 dominantly sandy soils.
Nw4	Gently undulating to undulating dissected plain to gently undulating rises, and distinct lateritic breakaway areas.
Nw5	As in landscape Nw4. Long slopes and no lateritic breakaways.
Nw6	Areas of significant rock outcrop including monadnocks, and sheet rock benches.
Sharpe. Valley floor of salt lakes and surrounding plains. Alkaline grey shallow loamy duplexes, alkaline grey shallow sandy duplexes, calcareous loamy earths, saline wet soils and salt lake soils. Mallee scrub and salmon gum-York gum woodland.	
Sh2	Level to very gently inclined plains. Dominant soils are alkaline grey shallow sandy and loamy duplex soils, grey deep sandy duplex soils, some calcareous loamy earths and saline wet soils.
Sh3	Gently undulating soil landscapes with dominantly deep sand sheets, lunettes or linear dunes occurring across the area.
Sh4	Undulating mid to upper valley slopes. Long slopes low relief gravels on upland, heavier soils on slopes and valleys.
Lagan. Salt lake chains, in the southern Zone of Ancient Drainage, with salt lake soil and calcareous loamy earths. Mallee, morrell woodland and saltbush-bluebush-samphire flats.	
La2	?

* Source. Unpublished data - Agriculture WA (Overheu in progress)

2.3 Distribution of Landforms and Soils

The catchment contains generally little relief with elevations ranging from about 290 mAHD within the Lakeland Nature Reserve in the centre of the catchment, to approximately 380 mAHD within Reserve 29018 (Silver Wattle Nature Reserve) in the north eastern portion. However based on very broad-scale published mapping by CSIRO (*Atlas of Australian Soils Sheet 6* Northcote et al 1967) and unpublished preliminary mapping by Agriculture WA (Overheu in progress) the catchment contains three major physiographic areas. These are; upland terrain with lateritic residuals, very gently undulating pediment slopes and a broad central valley floor.

2.3.1 Upland Residual Lateritic Terrain (sandplain with some erosional scarps)

Within the higher parts of the landscape, most commonly in the north-western and north-eastern portions of the catchment, ancient plateau soils derived from the breakdown of early Tertiary laterite dominate the landscape. The terrain here consists of an undulating sandplain with long, gentle slopes and some abrupt erosional scarps. On erosional ridges and slopes, the predominant soils are ironstone gravels and gravelly sands. The latter, being underlain by a hardened mottled zone at approximately 30 to 60 cm depth, and have also been classified by Stoneman (1990) as lateritic podzolic soils. On the depositional slopes there are sandy yellow earths and also yellow sands (earthy or siliceous), both with some gravels present.

2.3.2 Gently Undulating Pediment Slopes

Within the more extensive southern and central portions of the catchment, the terrain consists of narrow ironstone gravelly ridges with gently undulating pediments and some swamps and lakes. In this area the ridges contain ironstone gravels and gravelly sands, as described above, however the main pediment slopes contain hardsetting loamy surfaced yellow duplex soils with predominantly alkaline reaction trends. In other classification systems these are referred to as solodized solonetz and solodic soils*.

* Great Soil Groups (Stace et al 1972)

The pediment slopes also contain smaller areas of gley duplex soils, brown or grey clays, and some areas of yellow duplex soils with acid rather than alkaline subsoils. In localised areas around granitic boses and tors (such as Hollands Rock) soils are shallow and often stony or gravelly. Proceeding down slope within this landscape, the soil changes progressively from yellow to red in colour, acid to alkaline in reaction, and from coarse to fine in texture.

2.3.3 Broad Central Valley Floor

Within the central valley floor salt accumulation becomes apparent, and there has been some re-sorting of soil material with formation of sand ridges around lake basins. The terrain consists of paleodrainage channels with salt (and some fresh water) lakes and their fringing areas with remnants of the old lateritic profile, and some rock outcrop.

On the areas of riverine wash there are gypseous and saline loams as well as areas of red surfaced calcareous 'heavy soils' (local name). On rising country generally east south east of salt lakes there are 'morrell soils, (also local name) with characteristic powdery grey or brown surfaces and very high lime content. Both the red 'heavy soils' and the 'morrell soils' are also referred to as solonized brown soils*. On dunes and lunettes which fringe the lakes there are various coarse, medium or fine textured soils with only slight profile development.

3.0 METHODS

3.1 Study Brief Requirements

The collection and recording of soils and landform data was to follow the methodology and codings of McDonald et al (1998).

The location of quadrat sites was to be determined by Ecoscape Pty Ltd in order to examine representative areas of vegetation associations. At each quadrat site, it was requested that the following landform data be obtained;

- underlying geology (from a suitable geology map);
- soil-landscape unit (from a suitable soil-landscape map);
- aspect (one of 16 cardinal directions);
- surface coarse fragments (abundance, size and lithology);
- landform element, using the "Landform element glossary" pp 18-24 of McDonald 1998);
- landform pattern using relief and modal slope;

From a point adjacent to the common (northwest) quadrat corner, but outside the quadrat, the consultant was requested to measure and record the following soil profile information for each horizon to a total depth of 100 cm or pan:

- depth;
- moist colour (Munsell);
- field texture grade;
- boundary distinctness and shape;
- coarse fragments;
- soil water regime (permeability and drainage);
- field pH;
- soil electroconductivity (milliSiemens); and
- effervescence of carbonates ("fizz test").

In addition, the consultant was requested to collect soil samples, each of approximately 50 grams, from the 'A' horizon or upper ten centimetres from 20 evenly spaced (gridded) points within the 100 m^2 quadrat. These samples were to be bulked, and from the bulked soil the quantity of carbon, nitrogen, phosphorus, $P(HCO_3)$, $K(HCO_3)$, $Ca(HCO_3)$, exchangeable Ca, Na & K was to be measured and recorded.

3.2 Variations and Additional Data Provided

Appendix A contains a copy of the site record sheet prepared not only for this survey, but with the data requirements of a more comprehensive total-catchment soils mapping project in mind (Department of Conservation and Land Management – Lake Bryde Soil Mapping Project Quotation No. 4181/00). Appendix A provides a list of the landform and soil data items, the descriptive codes used within the current survey, and the methods used in relation to soil laboratory analyses.

In accordance with the requirements of the study brief, the collection and recording of soils and landform data has followed the methodology and codings of McDonald et al (1998). However in response to practicalities of field survey work and efficiency, some minor variations to the data requirements have been made.

Furthermore, in recognition of the Department of Conservation and Land Management's desire to obtain soils mapping coverage at an appropriate scale over all of the Lake Bryde catchment, the specific data requirements of this survey have been supplemented by a number of additional items. This has been done to assist the classification and interpretation of the information, particularly when it is related to data from other studies such as Agriculture Western Australia's ongoing soil landscape mapping project (Overheu in prep).

The variations and additions to the data required by the study brief are outlined overleaf.

Landform Data

- *Aspect* - not recorded due to very low slope gradients diminishing the relevance of this attribute in relation to influence on vegetation.

- *Landform Pattern* - pattern definition according to glossary in McDonald et al (1998) also given, in addition to the RMS class to facilitate comparison and correlation with data collected by Agriculture WA.

- *Slope* - specific value for gradient given in addition to modal slope category to facilitate more refined sorting of data in relation to this attribute.

- *Morphological Type* - additional item recorded to facilitate comparison and correlation with data collected by Agriculture WA, and to assist further determination of relationships between vegetation and landscape position .

- *Site Drainage* - additional item recorded to assist further determination of relationships between vegetation and landscape factors. Note 'drainage' is not an item that can be recorded independently of 'permeability' for each soil layer or horizon.

- *Surface Condition* - additional item recorded to assist soil classification, particularly according to the Factual Key Nomenclature (Northcote 1967). Item also relevant to any determination of land degradation hazards (such as wind or water erosion) in relation to cleared land. While not directly relevant to the Reserve areas, it will be relevant to the total catchment soils mapping program if data from sites within reserves needs to be extrapolated to nearby farming land.

Soil Classification Record

- *WA Soil Group, Other (Great Soil, Group - as referred to by Stoneman 1990) and Factual Key Notation (as used within the Atlas of Australian Soils)* - additional items determined to enable comparison of site data with results of previous soil studies affecting the area, and to assist the process of supplementing existing site data for the proposed catchment soils mapping project.

Soil Profile field data

- *Horizons* - additional item recorded to assist soil classification, particularly according to the factual Key Nomenclature (Northcote 1967).

- *Boundary Shape* - item not recorded as it is impossible to distinguish when profiles are observed from an auger sample. The alternative method of observation, a pit excavation is too time consuming and results in a significant site disturbance which is undesirable in the immediate vicinity of a vegetation quadrat. Furthermore the item is of no relevance in relation to the system of soil classification now used for Agriculture WA soil landscape surveys (WA Soil Groups - Schoknecht 1999).

- *Mottles* - additional item recorded to assist soil classification, particularly according to the factual Key Nomenclature (Northcote 1967).

- *Soil Water Status* - additional item recorded to assist interpretation of site drainage and seasonal watertable levels (possibly perched) in relation to salinity risk assessment and edaphic influences on vegetation.

- *Consistence* - additional item recorded to assist possible interpretation of vegetation differences, as it affects plant rooting conditions.

- *Structure (pedality and fabric)* - additional items recorded to assist soil classification, particularly according to the Factual Key Nomenclature (Northcote 1967). It is recognised however that this item is difficult to determine with reliability when profiles are observed from an auger sample.

- *Water Repellence* - additional item recorded to assist any determination of land degradation hazards (such as wind or water erosion) in relation to cleared land. While not directly relevant to the Reserve areas, it will be relevant to the total catchment soil mapping program if data from sites within reserves need to be extrapolated to nearby farming land.

- *Field pH and Soil Electrical Conductivity* - these attributes were not determined in the field since it was more efficient in terms of survey time for them to be determined from soils sampled for laboratory analysis. This was particularly so given the number of samples already required by the study brief to be analyses for other attributes.

Soil Profile Laboratory Analyses

- *pH and Electrical Conductivity* - additional items determined from samples delivered to the laboratory rather than in field - for efficiency reasons as discussed, and also to improve reliability of result.

- *Exchangeable Mg, Al and Mn* - additional items determined due to minor additional cost and usefulness in allowing estimation of total CEC (cation exchange capacity) and possible correlations between vegetation and these soil chemical attributes.

4.0 RESULTS

Appendix B contains the field descriptions and laboratory analysis results for each of the 50 soils examined and classified (one at each vegetation quadrat site). Figures contained in Appendix C then show, for each of the Reserves, the approximate location of the sites (quadrats) in relation to the preliminary soil landscape mapping of Agriculture Western Australia (Overheu in prep). Appendix D provides an original, unsorted copy, of the soil analysis results.

Not withstanding the fact that all information within Appendix B is to be entered onto a GIS related database, Tables 3 to 5 provide a summary of the results in various formats to assist their interpretation and correlation with other data sets. These include not only the vegetation as described by Ecoscape Pty Ltd, but also the other soils studies affecting the Lake Bryde catchment.

The summary of results is presented as follows;

Table 3 - Summary list of soil classifications and key soil attributes, sorted by site (quadrat) number.

Table 4 - Summary list of soil classifications recorded during the project, sorted according to WA Soil Groups and Factual Key Notations.

Table 5 - Summary list of soils, corresponding preliminary soil-landscape mapping units, and vegetation classifications, sorted according to Reserves.

TABLE 3. SITE SUMMARY RESULTS - SOIL CLASSIFICATIONS AND KEY CHARACTERISTICS

SITE (Veg Quadrat)	SOIL CLASSIFICATION			KEY CHARACTERISTICS						
	WA Soil Group[1]	Factual Key[2]	Other[3]	Surface Texture[4]	Depth to Clay[5] (cm)	Site Drainage[6]	Subsoil			
							Salinity[7]	Gravel[8]	Calcareous[9]	pH[10]
LB 001	Grey shallow sandy duplex (with gravel)	Dy4.51	Lateritic podzolic	S	15	W	N	C	N	Acid
LB 002	Yellow brown shallow sandy duplex (with gravel)	Dy5.52	Lateritic podzolic	S	45	MW	N	M/H	N	Neutral
LB 003	Pale deep sand	Uc1.21	Grey siliceous sand (deep sand)	S	> 100	W	N	N	N	Neutral
LB 004	Brown loamy earth	Gn4.83	Yellow earths; Brown heavy soil	CL	10	I	H/S	V	N	Alkaline
LB 005	Alkaline grey shallow sandy duplex	Dy4.53	Solodic soil / Solonized brown soil	LS	15	MW	S/M	$V_{(K)}$	S-M	Alkaline
LB 006	Yellow brown shallow sandy duplex	Db4.62	Yellow podzolic	LS	25	MW	N	F	N	Neutral
LB 007	Alkaline grey shallow loamy duplex	Dg2.12	Solodic 'moort' soil or Grey heavy soil	ZCL	12	I	H	N	N	Alkaline
LB 008	Loamy gravel (shallow)	Ks; Uc5.23	Sandy gravel / Lateritic podzolic	LS	> 40	W	N	M	N	Neutral
LB 009	Alkaline grey shallow loamy duplex	Dy2.13	Solodic 'moort' soil or Grey heavy soil	ZCL	20	I	N	F	N	Alkaline
LB 010	Shallow gravel	Ks; Uc5.22	Sandy gravel / Lateritic podzolic	LS	> 25	W	N	A	N	Acid
LB 011	Grey shallow loamy duplex	Dy3.22	Yellow podzolic	LS	30	I	H/E	N	N	Neutral
LB 012	Shallow gravel	Ks; Uc5.21	Sandy gravel / Lateritic podzolic	LS	> 25	W	N	M	N	Acid
LB 013	Brown loamy earth	Gn2.26	Yellow earth	SL	70	W	N	V	N	Alkaline

TABLE 3. SITE SUMMARY RESULTS - SOIL CLASSIFICATIONS AND KEY CHARACTERISTICS (continued)

SITE (Veg Quadrat)	SOIL CLASSIFICATION			KEY CHARACTERISTICS						
	WA Soil Group[1]	Factual Key[2]	Other[3]	Surface Texture[4]	Depth to Clay[5] (cm)	Site Drainage[6]	Subsoil			
							Salinity[7]	Gravel[8]	Calcareous[9]	pH[10]
LB 014	Loamy gravel (shallow)	Ks; Uc5.21	Sandy gravel / Lateritic podzolic	LS	> 25	MW	N	M	N	Neutral
LB 015	Alkaline grey shallow loamy duplex	Dy3.13	Solodic soil (Moort soil) or grey heavy soil	CL	10	I	M/H	V	N	Alkaline
LB 016	Loamy gravel (shallow)	Ks; Uc5.23	Sandy gravel / Lateritic podzolic	SL	> 45	W	N	C	N	Neutral
LB 017	Grey non-cracking clay	Uf6.13	Non-cracking friable clay (grey heavy soil)	CL	10	I	E	N	N	Neutral
LB 018	Yellow brown deep sandy duplex (with gravel)	Dy5.52	Lateritic podzolic	S	65	W	N	M	N	Neutral
LB 019	Alkaline grey deep sandy duplex	Dg4.83	Solodic soil	S	45	MW	M	N	N	Alkaline
LB 020	Alkaline grey deep sandy duplex	Dy5.83	Solodic soil	S	45	MW	S	N	N	Alkaline
LB 021	Alkaline grey shallow sandy duplex	Dy4.53	Solodic soil / Solonised brown soil	CS	15	MW	H	$C_{(K)}$	M	Alkaline
LB 022	Grey deep sandy duplex	Dy5.81	Lateritic podzolic	S	> 70	MW	N	C	N	Acid
LB 023	Shallow gravel	Ks; Uc1.21	Sandy gravel / Lateritic podzolic	S	> 25	MW	N	M	N	Acid
LB 024	Alkaline grey shallow loamy duplex (or calcareous loamy earth)	Dy2.53	Solodic soil / Solonised brown soil	SCL	10	MW	M	$C_{(K)}$	S	Alkaline
LB 025	Yellow brown deep sandy duplex (with gravel)	Dy5.53	Solodic soil / Lateritic podzolic	S	50	I	M	M	N	Alkaline

TABLE 3. SITE SUMMARY RESULTS - SOIL CLASSIFICATIONS AND KEY CHARACTERISTICS (continued)

SITE (Veg Quadrat)	SOIL CLASSIFICATION			KEY CHARACTERISTICS						
	WA Soil Group[1]	Factual Key[2]	Other[3]	Surface Texture[4]	Depth to Clay[5] (cm)	Site Drainage[6]	Subsoil			
							Salinity[7]	Gravel[8]	Calcareous[9]	pH[10]
LB 026	Calcareous loamy earth	Gc1.22	Solonised brown soil (Morrell soil)	L	25	MW	E	$M_{(K)}$	H	Alkaline
LB 027	Pale deep sand (over alkaline grey clay)	Uc1.21/c (or Dg4.83)	Grey siliceous sand (solodic?)	S	90	MW	M	N	N	Alkaline
LB 028	Yellow brown shallow sandy duplex (with gravel)	Dy5.13	Solodic	LS	40	MW	M	N	N	Alkaline
LB 029	Brown loamy earth	Gn2.81	Yellow earth or Brown heavy soil	CL	10	I	M-H	N	N	Acid
LB 030	Yellow brown deep sandy duplex (with gravel)	Dy5.82	Lateritic podzolic	LS	> 50	MW	N	F-M	N	Neutral
LB 031	Loamy gravel (shallow)	Ks; Uc5.21	Sandy gravel / Lateritic podzolic	SL	> 30	W	N	M	N	Acid
LB 032	Yellow loamy earth	Gn2.26	Yellow earth	SL	40	MW	E	F	N	Alkaline
LB 033	Alkaline grey shallow sandy duplex	Dg4.13	Solodic soil (heavy grey soil)	LS	5	P	E	V	S	Alkaline
LB 034	Alkaline grey deep sandy duplex	Dg4.83	Solodic soil / Lateritic podzolic	LS	40	MW	M	M	S	Alkaline
Sites Originally Surveyed by Mattiske and Associates (1999)										
LG1	Alkaline grey shallow sandy duplex	Dg4.13	Solodic soil	S	5	1	E	N	S	Alkaline
LG2	Alkaline grey deep sandy duplex	Dg4.13	Solodic soil / Solonized brown soil	CS	35	MW	M-H	$V_{(K)}$	M	Alkaline
LG3	Calcareous loamy earth	Gc2.22	Solonized brown soil (Red heavy soil)	SL	30	MW	M	$M_{(K)}$	M	Alkaline

TABLE 3. SITE SUMMARY RESULTS - SOIL CLASSIFICATIONS AND KEY CHARACTERISTICS (continued)

SITE (Veg Quadrat)	SOIL CLASSIFICATION			KEY CHARACTERISTICS						
	WA Soil Group[1]	Factual Key[2]	Other[3]	Surface Texture[4]	Depth to Clay[5] (cm)	Site Drainage[6]	Subsoil			
							Salinity[7]	Gravel[8]	Calcareous[9]	pH[10]
LG4	Calcareous loamy earth	Gc2.22	Solonised brown soil (Red heavy soil)	CL	20	I	E	$V_{(K)}$	M	Alkaline
LB 041	Alkaline grey shallow sandy duplex	Dg4.13	Solodic soil	S	20	P	E	N	N	Alkaline
LG6	Brown deep sand	Uc5.11	Siliceous sand	S	> 100	R	N	N	N	Neutral
LB 038	Grey deep sandy duplex	Dy4.11	Yellow podzolic	S	50	MW	M	N	N	Acid
LB 039	Grey non-cracking clay	Uf6.13	Non-cracking friable clay (grey heavy soil)	LMC	0	P	E	N	N	Acid
LB 036	Alkaline grey shallow sandy duplex	Dy5.13	Solodic soil / Solonized brown soil	CS	20	I	M-H	$C_{(K)}$	H	Alkaline
LG10	Alkaline grey deep sandy duplex	Dy5.43	Solodic soil / Solonized brown soil	LS	35	MW	H	N	H	Alkaline
LG11	Calcareous loamy earth	Gc1.22	Solonized brown soil (Morrell soils)	L	30	MW	S	$C_{(K)}$	S	Alkaline
LB 037	Yellow brown deep sandy duplex	Dy4.11	Yellow podzolic	S	55	MW	M	N	N	Neutral
Peg 2	Alkaline grey shallow sandy duplex	Dg3.13	Solodic soil	S	12	MW	H	$M_{(K)}$	H	Alkaline
Peg 3	Alkaline grey shallow loamy duplex	Dy2.13	Solodic 'moort' soil or Grey heavy soil	SL	15	MW	M	$F_{(K)}$	H	Alkaline
LB 035	Alkaline grey shallow sandy duplex	Dg4.13	Solodic soil	S	15	P	E	N	S	Alkaline
LB 042	Grey non-cracking clay	Uf6.13	Non-cracking friable clay (grey heavy soil)	ZC	0	P	E	N	M	Alkaline

1. Reference. Schoknecht (1999).
2. Reference. Northcote (1979).
3. Australian Great Soil Group (Stace et al 1972) or Local Name (Stoneman 1990) - nearest equivalent. (Note. solodic soils here include solodized solonetz as distinguishing features of the latter cannot be easily determined from augered soils.) In places, sandy gravels may also be classified as lateritic podzolic soil because they are likely to be underlain by clay but not reached by hand auger due to gravel/stone content.
4. S = Sand; LS = Loamy sand; CS = Clayey sand; L = Loam; SL = Sandy loam; CL = Clay loam; ZCL = Silty clay loam; SCL = Sandy clay loam; ZC = Silty clay; LMC = Light to medium clay.
5. Depth in centimetres.
6. P = Poor; I = Imperfect; MW = Moderately well; W = Well; R = Rapid.
7. N = Nil (0 - 20 EC 1.5 mS/m); S = Slight (20 - 40 EC 1.5 mS/m); M = Moderate (40 - 80 EC 1.5 mS/m); H = High (80 - 160 EC 1.5 mS/m); E = Extreme (> 160 EC 1.5 mS/m).
8. N = Nil; V = Very few (< 2%); F = Few (2 - 10%); C = Common (10 - 20%); M = Many (20 - 50%); A = Abundant (50 - 90%): All ironstone, otherwise (K) = calcrete nodules
9. N = Non calcareous; S = Slightly calcareous; M = Moderately calcareous; H = Highly calcareous; V = Very highly calcareous.
10. Subsoil pH: Acid < 6.5; Neutral 6.5 - 8.0; Alkaline > 8.0.

TABLE 4. SOIL CLASSIFICATION SUMMARY

WA SOIL SUPERGROUP / SOIL GROUP / FACTUAL KEY*		QUADRAT SITES
300 IRONSTONE GRAVELLY SOILS		
303 Loamy gravels (shallow)		
Ks; Uc5.21	Gravelly earthy sands.	LB 014, LB 031
Ks; Uc5.23	Gravelly earthy sands.	LB 008, LB 016
304 Shallow gravels		
Ks; Uc1.21	Gravelly siliceous sands.	LB 023
Ks; Uc5.21	Gravelly earthy sands.	LB 012
Ks; Uc5.22	Gravelly earthy sands.	LB 010
400 SANDY DUPLEX SOILS		
- deep sandy duplex soils (sandy topsoil over clay at 30 - 80 cm depth)		
401 Alkaline grey deep sandy duplex soils		
Dy5.43	Sandy surfaced mottled yellow duplex soils; bleached A2 horizon; alkaline reaction trend; pedal subsoil.	LG 10
Dy5.83	Sandy surfaced mottled yellow duplex soils; bleached A2 horizon; alkaline reaction trend; apedal subsoil.	LB 020
Dg4.13	Sandy surfaced mottled gley duplex soils; no A2 horizon; alkaline reaction trend; pedal subsoil.	LG 2
Dg4.83	Sandy surfaced mottled gley duplex soils; bleached A2 horizon; alkaline reaction trend; apedal subsoil.	LB 019, LB 034

* WA Soil Supergroup and Soil Group according to Schoknecht (1999), with appropriate AgWA data codes. Factual Key Notation according to Northcote (1979).

TABLE 4. SOIL CLASSIFICATION SUMMARY (continued)

WA SOIL SUPERGROUP / SOIL GROUP / FACTUAL KEY		QUADRAT SITES
400 SANDY DUPLEX SOILS (continued)		
403 Grey deep sandy duplex soils		
Dy4.11	Sandy surfaced yellow duplex soils; no A2 horizon; acid reaction trend; pedal subsoil.	LB 038
Dy5.81	Sandy surfaced mottled yellow duplex soils; bleached A2 horizon; acid reaction trend; apedal subsoil.	LB 022
407 Yellow brown deep sandy duplex soils		
Dy4.11	Sandy surfaced yellow duplex soils; no A2 horizon; acid reaction trend; pedal subsoil.	LB 037
407 Yellow brown deep sandy duplex soils (with gravel)		
Dy5.52	Sandy surfaced mottled yellow duplex soils; no A2 horizon; neutral reaction trend; apedal subsoil.	LB 018
Dy5.53	Sandy surfaced mottled yellow duplex soils; no A2 horizon; alkaline reaction trend; apedal subsoil.	LB 025
Dy5.82	Sandy surfaced mottled yellow duplex soils; bleached A2 horizon; neutral reaction trend; apedal subsoil.	LB 030
- shallow sandy duplex soils (sandy topsoil over clay at < 30 cm depth)		
402 Alkaline grey shallow sandy duplex soils		
Dy4.53	Sandy surfaced yellow duplex soils; no A2 horizon; alkaline reaction trend; apedal subsoil.	LB 005, LB 021
Dy5.13	Sandy surfaced mottled yellow duplex soils; no A2 horizon; alkaline reaction trend; pedal subsoil.	LB 036
Dg3.13	Sandy surfaced gley duplex soils; no A2 horizon; alkaline reaction trend; pedal subsoil.	Peg 2
Dg4.13	Sandy surfaced mottled gley duplex soils; no A2 horizon; alkaline reaction trend; pedal subsoil.	LG 1, LB 033, LB 035, LB 041
404 Grey shallow sandy duplex soils (with gravel)		
Dy4.51	Sandy surfaced yellow duplex soils; no A2 horizon; acid reaction trend; apedal subsoil.	LB 001

TABLE 4. SOIL CLASSIFICATION SUMMARY (continued)

WA SOIL SUPERGROUP / SOIL GROUP / FACTUAL KEY		QUADRAT SITES
400 SANDY DUPLEX SOILS (continued)		
408 Yellow brown shallow sandy duplex soils		
Dy5.13	Sandy surfaced mottled yellow duplex soils; no A2 horizon; alkaline reaction trend; apedal subsoil.	LB 028
Db4.62	Sandy surfaced mottled brown duplex soils; A2 horizon but not bleached; neutral reaction trend; apedal subsoil.	LB 006
408 Yellow brown shallow sandy duplex soils (with gravel)		
Dy5.52	Sandy surfaced mottled yellow duplex soils; no A2 horizon; neutral reaction trend; apedal subsoil.	LB 002
420 DEEP SANDS		
441 Brown deep sands		
Uc5.11	Brownish sands.	LG 6
444 Pale deep sands		
Uc1.21	Siliceous sands.	LB 003
Uc1.21/c	Siliceous sands (over clay at > 80 cm).	LB 027
500 LOAMY DUPLEX SOILS		
502 Alkaline grey shallow loamy duplex soils		
Dg2.12	Loamy surfaced mottled gley duplex soils; no A2 horizon; neutral reaction trend; pedal subsoil.	LB 007
Dy2.13	Loamy surfaced mottled yellow duplex soils; no A2 horizon; alkaline reaction trend; pedal subsoil.	LB 009, Peg 3
Dy2.53	Loamy surfaced yellow duplex soils; no A2 horizon; alkaline reaction trend; apedal subsoil.	LB 024

TABLE 4. SOIL CLASSIFICATION SUMMARY (continued)

WA SOIL SUPERGROUP / SOIL GROUP / FACTUAL KEY		QUADRAT SITES
500 LOAMY DUPLEX SOILS (continued)		
502 Alkaline grey shallow loamy duplex soils (continued)		
Dy3.13	Loamy surfaced mottled yellow duplex soils; no A2 horizon; alkaline reaction trend; pedal subsoil.	LB 015
504 Grey shallow loamy duplex soils		
Dy3.22	Loamy surfaced mottled yellow duplex soils; A2 horizon present but not bleached; neutral reaction trend; pedal subsoil.	LB 011
540 LOAMY EARTHS		
541 Brown loamy earths		
Gn2.26	Yellow massive earth; A2 horizon present but not bleached; alkaline reaction trend.	LB 013
Gn2.81	Yellow massive earth; no A2 horizon; acid reaction trend.	LB 029
Gn4.83	Brown structured earth; no A2 horizon; alkaline reaction trend.	LB 004
542 Calcareous loamy earths		
Gc1.22	Calcareous earth; non-structured.	LB 026, LG 11
Gc2.22	Calcareous earth; structured.	LG 3, LG 4
545 Yellow loamy earths		
Gn2.26	Yellow massive earth; A2 horizon present but not bleached; alkaline reaction trend.	LB 032

TABLE 4. SOIL CLASSIFICATION SUMMARY (continued)

WA SOIL SUPERGROUP / SOIL GROUP / FACTUAL KEY		QUADRAT SITES
620 NON-CRACKING CLAYS		
621 Grey non-cracking clays		
Uf6.13	Non-cracking friable clay.	LB 017, LB 039, LB 042

Notes. Soils assigned the same Factual Key notation can occur in different WA Soils Groups. This is because, for colour designation, the Factual Key relies on subsoil (B horizon) colours whereas the WA Soil Group nomenclature relies on the colour of the top 30 cm (ie basically the A horizon).

All soils were observed in the field using a hand auger. It is difficult to determine the structure from samples obtained from an augered profile. Hence for practical purposes, where two soils have been distinguished only on the basis of whether the subsoil is pedal or apedal, it may be practical to 'lump them together'.

Apparent discrepancies can occur between WA Soil Group nomenclature and Factual Key Notation in relation to soils with sandy loam textures. This is because under the Factual Key, sandy loams (texture group 2) are considered coarse textured (Uc) soils, while under the WA Soil Group nomenclature they are lumped together with the loams (medium textured soils).

TABLE 5. SOIL AND VEGETATION SUMMARY FOR EACH RESERVE

Quadrat Site	Prelim. AgWA Map Unit*	Soil Group (Land Assessment Pty Ltd)	Brief Vegetation Name (Ecoscape Pty Ltd)	Vegetation Summary Description (Ecoscape Pty Ltd)
Reference No. 1 - Reserve 24920. Agriculture WA Experimental Farm**				
LB 008	Nw5	Loamy gravel (shallow)	Heathland	*Hakea cygna* var *cygna* and *Grevillea biformis* over Myrtaceous species.
LB 009	Nw6	Alkaline grey shallow loamy duplex	Woodland	*Eucalyptus occidentalis* over *Melaleuca acuminata.*
LB 010	Nw4	Shallow gravel	Mallee complex (mallee)	*Eucalyptus albida* and *Eucalyptus sporadica* over *Melaleuca tuberculata* with *Hakea pandanicarpa* and *Grevillea* sp.1.
Reference No. 2 - Reserve 29018. Silver Wattle Nature Reserve				
LB 007	Nw5	Alkaline grey shallow loamy duplex	Mallee complex (mallee)	*Eucalyptus flocktoniae* with *E. eremophila, E. calycogona* and *E. pileata* over *Melaleuca lateriflora* and *Hakea commutata.*
LB 011	Nw6	Grey shallow loamy duplex	Mallet woodland***	*Eucalyptus salubris* over tall *Melaleuca* species and *Exocarpus aphyllus.*
Reference No. 3 - Reserve 29019. Breakaway Ridge (Beynon) Nature Reserve				
LB 012	Nw2	Shallow gravel	Mallee complex (mallee)	*Eucalyptus albida* and *E. tetragona* over *Allocasuarina pinaster, Callitris roei, Melaleuca pungens* and mixed Proteaceous species.
LB 013	Nw6	Brown loamy earth	Granite complex	*Allocasuarina campestris* and *Thryptomene* sp. with mixed *Melaleuca* species and *Santalum acuminatum.*
LB 014	Nw5	Loamy gravel (shallow)	Mallet woodland	*Eucalyptus argyphea* over *Beyeria brevipes* var *brevipes* with *Hakea* species and *Acacia chamaeleon.*

* Preliminary soil landscape map unit - Overheu (in progress) - see Figure 4 and figures in Appendix C.

** See Figure 1 for location of Reserves identified by Reference No.

*** Note that this quadrat was mapped as part of the mallee complex (mallet) within the Silver Wattle Nature Reserve as it was not possible to differentiate between mallee and mallet on aerial photos for this reserve.

TABLE 5. SOIL AND VEGETATION SUMMARY FOR EACH RESERVE (continued)

Quadrat Site	Prelim. AgWA Map Unit	Soil Group (Land Assessment Pty Ltd)	Brief Vegetation Name (Ecoscape Pty Ltd)	Vegetation Summary Description (Ecoscape Pty Ltd)
Reference No. 3 - Reserve 29019. Breakaway Ridge (Beynon) Nature Reserve (continued)				
LB 015	Nw5	Alkaline grey shallow loamy duplex	Mallee complex (mallee)	*Eucalyptus eremophila* and *E. calcygona* with *E. pileata* over *Melaleuca uncinata* and *Melaleuca lateriflora*.
LB 016	Nw1	Loamy gravel (shallow)	Mallee complex (mallee)	*Eucalyptus pileata, E. phaenophylla* and *E. uncinata* over *Melaleuca uncinata* and *M. laxiflora* with mixed *Hakea* species.
LB 017	Nw4	Grey non-cracking clay	Mallee complex (mallee)	*Eucalyptus flocktoniae* and *E. calcygona* with *E. eremophila* and *E. pileata* over *Melaleuca adnata* and *M. undulata*.
Reference No. 4 - Reserve 29020. Lake Bryde Nature Reserve (east)				
LB 018	Nw6	Yellow brown deep sandy duplex (with gravel)	Heathland	*Melaleuca tuberculata* var *microphylla, Verticordia roei* subsp *roei* and *Verticordia chrysantha* with mixed heath species.
LB 019	Sh3	Alkaline grey deep sandy duplex	Woodland	*Eucalyptus occidentalis* over *Melaleuca strobophylla* and *M. lateralis* with *M. lateriflora* and *M. uncinata*.
LB 020	Sh3	Alkaline grey deep sandy duplex	Mallee complex (mallee)	*Eucalyptus perangusta* over *Santalum acuminatum* and *Leptospermum erubescens*.
LB 021	Sh2	Alkaline grey shallow sandy duplex	Mallee complex (mallee)	*Eucalyptus flocktoniae* and *E. phenax* over *Melaleuca uncinata* with *Santalum acuminatum* and *Hakea corymbosa*.
LB 022	Sh2	Grey deep sandy duplex	Heathland	*Banksia media* over *Banksia violacea* and *Hakea brachyptera*.
Reference No. 5 - Reserve 29021. Lake Bryde Nature Reserve (south)				
LB 042	Sh3	Grey non-cracking clay	Lake complex	*Melaleuca lateriflora* and *M. uncinata* over *Lawrencia squamata, Halosarcia syncarpa, H. pergranulata* and *Atriplex vesicaria*.

TABLE 5. SOIL AND VEGETATION SUMMARY FOR EACH RESERVE (continued)

Quadrat Site	Prelim. AgWA Map Unit	Soil Group (Land Assessment Pty Ltd)	Brief Vegetation Name (Ecoscape Pty Ltd)	Vegetation Summary Description (Ecoscape Pty Ltd)
Reference No. 6 - Reserve 28667. Lake Bryde Nature Reserve (west)				
LB 023	Nw6	Shallow gravel	Mallee complex (mallee)	*Eucalyptus phaenophylla* and *Eucalyptus* sp.1 over *Leptospermum erubescens* with *Callitris* species, *Leptospermum* species and *Melaleuca uncinata*.
LB 024	Sh2	Alkaline grey shallow loamy duplex (or calcareous loamy earth)	Woodland	*Eucalyptus flocktoniae* over *Melaleuca acuminata* and *M. adnata*.
LB 025	Sh3	Yellow brown deep sandy duplex (with gravel)	Mallee complex (mallee)	*Eucalyptus phenax* and *E. perangusta* with *E. scyphocalyx* over *Melaleuca* species, *Leptospermum erubescens* and *Santalum acuminatum*.
LB 026	Sh3	Calcareous loamy earth	Woodland	*Eucalyptus occidentalis* and *E. kondininensis* over *Ozothamnus lepidophyllus*, *Eremophila decipiens* and *Templetonia sulcata*.
LB 027	Sh3	Pale deep sand (over alkaline grey clay)	Woodland	*Eucalyptus occidentalis* over *Melaleuca strobophylla* over *Olearia dampieri* and *Baeckea* sp.1.
LG 11	Sh3	Calcareous loamy earth	Woodland	*Eucalyptus salmonophloia* over *Olearia dampieri* subsp *eremicola*.
Reference No. 7 - Reserve 29026. Lake Janet Nature Reserve				
LB 035	La2	Alkaline grey shallow sandy duplex	Shrubland (low-lying)	*Melaleuca uncinata* and *M. lateriflora* with *M. brophyi* over tall *Gahnia* sp.
LB 036	La2	Alkaline grey shallow sandy duplex	Woodland	*Eucalyptus flocktoniae* over *Melaleuca adnata*, *M. lateriflora subsp lateriflora*, *M. acuminata* and *M. pauperiflora*.
LG 10	La2	Alkaline grey deep sandy duplex	Mallee complex (mallee)	*Eucalyptus perangusta*, *Eucalyptus* sp.1 and *Eucalyptus sporadica* over tall *Olearia dampieri* and *Leptospermum erubescens*.

TABLE 5. SOIL AND VEGETATION SUMMARY FOR EACH RESERVE (continued)

Quadrat Site	Prelim. AgWA Map Unit	Soil Group (Land Assessment Pty Ltd)	Brief Vegetation Name (Ecoscape Pty Ltd)	Vegetation Summary Description (Ecoscape Pty Ltd)
Reference No. 7 - Reserve 29026. Lake Janet Nature Reserve (continued)				
Peg 3	La2	Alkaline grey shallow loamy duplex	Woodland	*Eucalyptus flocktoniae* with *E. salmonophloia* and *E. phenax* over *Melaleuca adnata, M. lateriflora* and *Microcybe multiflora.*
Reference No. 8 - Reserve 29022. Hollands Rocks Nature Reserve (no sites)				
Reference No. 9 - Reserve 29023. Lakeland Nature Reserve (south)				
LB 030	Nw2	Yellow brown deep sandy duplex (with gravel)	Heathland	*Hakea pandanicarpa* and *Grevillea cagiana* over *Melaleuca tuberculata, Hakea cygna* and *Verticordia roei.*
LB 031	Nw2	Loamy gravel (shallow)	Mallee complex (mallee)	*Eucalyptus uncinata* and *E. phaenophylla* over *Allocasuarina acutivalvis* with *Melaleuca tuberculata.*
LG 1	La2	Alkaline grey shallow sandy duplex	Mallee complex (mallee)	*Eucalyptus suggrandis* var over *Melaleuca brophyi* and *M. pauperiflora.*
LG 2	Sh4	Alkaline grey deep sandy duplex	Mallee complex (mallee)	*Eucalyptus phaenophylla* over *Melaleuca uncinata* and *Hakea lissocarpha.*
LG 3	Sh4	Calcareous loamy earth	Mallee complex (mallee)	*Eucalyptus perangusta* and *E. phenax* with *E. suggrandis* var over *Melaleuca uncinata* with *M. depauperata.*
Peg 2	La2	Alkaline grey shallow sandy duplex	Mallee complex (mallee)	*Eucalyptus suggrandis* var, *E. calycogona* and *E. phenax* with *E. perangusta* over *Melaleuca depauperata* and *Hakea newbeyana.*
Reference No. 10 - Reserve 29024. Lakeland Nature Reserve (north)				
LB 037	La2	Yellow brown deep sandy duplex	Woodland	*Eucalyptus suggrandis* over *Melaleuca acuminata, M. lateriflora* subsp *lateriflora, Acacia chamaeleon* and *Santalum acuminatum.*
LB 038	La2	Grey deep sandy duplex	Mallee complex (mallee)	*Eucalyptus capillosa* subsp *polyclada* over *Melaleuca* species, *Leptospermum erubescens* and *Conostephium roei.*

TABLE 5. SOIL AND VEGETATION SUMMARY FOR EACH RESERVE (continued)

Quadrat Site	Prelim. AgWA Map Unit	Soil Group (Land Assessment Pty Ltd)	Brief Vegetation Name (Ecoscape Pty Ltd)	Vegetation Summary Description (Ecoscape Pty Ltd)
Reference No. 10 - Reserve 29024. Lakeland Nature Reserve (north) (continued)				
LB 039	La2	Grey non-cracking clay	Woodland	*Eucalyptus kondininensis* over *Melaleuca uncinata* and *M. lateriflora* subsp *lateriflora*.
LB 041	La2	Alkaline grey shallow sandy duplex	Shrubland (low-lying)	*Melaleuca uncinata, M. lateriflora* subsp *lateriflora, M. acuminata, M. pauperiflora* and *M. thyoides*.
LG 4	La2	Calcareous loamy earth	Woodland	*Eucalyptus kondininensis* open *Melaleuca* species.
LG 6	La2	Brown deep sand	Mallee complex (upland shrubland)	*Leptospermum erubescens* over *Acacia chaemeleon* and *Eremaea pauciflora*.
Reference No. 11 - Reserve 29025. Lakeland Nature Reserve (far north) (no sites)				
Reference No. 12 - Reserve 15296. Water Reserve				
LB 005	Nw1	Alkaline grey shallow sandy duplex	Woodland	*Eucalyptus salmonophloia* over *Dodonaea pinifolia* var 1, *Olearia dampieri* subsp *eremicola* and *Senna artemisiodes*.
LB 006	Nw6	Yellow brown shallow sandy duplex	Granite complex	*Allocasuarina huegeliana* over *Leptospermum erubescens* with *Melaleuca elliptica, Baeckea crispiflora* and *Santalum acuminatum*.
Reference No. 13 - Reserve 28173. Conservation of Flora and Fauna				
LB 028	Nw4	Yellow brown shallow sandy duplex (with gravel)	Mallee complex (mix of mallee and mallet)	*Eucalyptus flocktoniae* and *E. annulata* and very tall *E. eremophila* with *E. phenax* over tall *Melaleuca pauperiflora*.
LB 029	Nw4	Brown loamy earth	Mallet woodland	*Eucalyptus platypus* over tall mixed *Melaleuca* species.

TABLE 5. SOIL AND VEGETATION SUMMARY FOR EACH RESERVE (continued)

Quadrat Site	Prelim. AgWA Map Unit	Soil Group (Land Assessment Pty Ltd)	Brief Vegetation Name (Ecoscape Pty Ltd)	Vegetation Summary Description (Ecoscape Pty Ltd)
Reference No. 14 - Reserve 25113. Lake Magenta Nature Reserve (Part)				
LB 001	Nw2	Grey shallow sandy duplex (with gravel)	Heathland	*Eucalyptus tetragona* over *Grevillea cagiana* and *Hakea pandanicarpa.*
LB 002	Nw2	Yellow brown shallow sandy duplex (with gravel)	Heathland	*Hakea cygna* var *cygna, Acacia multispicata, Verticordia roei* subsp *roei.*
LB 003	Nw1	Pale deep sand	Heathland	*Banksia prionotes* over *Eremaea pauciflora, Hakea corymbosa, Hakea* sp.1 and *Leptospermum erubescens.*
LB 004	Nw2	Brown loamy earth	Mallet woodland	*Eucalyptus annulata* over *Melaleuca acuminata.*
LB 032	Nw2	Yellow loamy earth	Mallee complex (mallee)	*Eucalyptus scyphocalyx, E. eremophila* and *E. flocktoniae* over *Melaleuca sapientes* with mixed *Melaleuca* species and *Santalum acuminatum.*
LB 033	Nw2	Alkaline grey shallow sandy duplex	Mallee complex (mallee)	*Eucalyptus eremophila* and *E. pileata* with *E. flocktoniae* over mixed *Melaleuca* species.
LB 034	Nw4	Alkaline grey deep sandy duplex	Mallee complex (mallee)	*Eucalyptus phaenophylla* and *E. phenax* with *E. scyphocalyx* and *E. sporadica* over tall *Banksia media.*

5.0 CONCLUSIONS

5.1 Relationships Between Soils and Vegetation

Part of the rationale behind establishing a database for the soil and vegetation information is to enable ecological relationships to be determined. However, while assisting to establish the database structure and some of its content, it is not within the scope of this project to use the database to determine such relationships at this stage. It is anticipated that the usefulness of the database for interrogative purposes will develop gradually as more information is added, and as vegetation quadrat and other catchment data are monitored over time.

Furthermore, given the observed diversity of the study area, in relation to both vegetation and soils, fifty sites within a total area of 15 638 ha (main reserves only) is considered to be a very low number with which to try and determine statistically valid ecological relationships.

From a soils perspective it is expected that the key attributes which will determine particular vegetation - soil relationships will be;

- surface texture,
- depth to clay,
- site drainage,
- salinity,
- gravel content,
- calcareousness,
- soil pH and
- position in the landscape.

Most of these attributes are listed in Table 3 and all can be interrogated through the database.

Not forsaking the unavailability of the database at this stage, the following initial relationships are apparent from the soil and vegetation summary (Table 5).

- *Eucalyptus tetragona* (tallerack) and *Hakea* species occur commonly in higher parts of the landscape with areas of well drained gravelly soils.
- *E. salmonophloia* (salmon gum) commonly occurs within areas of calcareous soils in lower landscape positions.
- *E. eremophila* (sand mallee) is commonly associated with saline soil conditions.
- *Banksia* species are commonly associated with well to rapidly drained sandy soils (either pale deep sands or grey deep sandy surfaced duplex types).
- Mallee complexes are commonly associated with shallow gravelly soils or deep sandy surfaced duplex soils (better drained positions).
- Mallet woodland is associated with loamy earths (gradational texture profile trend).
- Low lying shrub land is commonly associated with sandy surfaced 'gley' duplex soils.

5.2 Range of Soils Within the Reserves and the Catchment

Table 4 shows a significant variation in soils was encountered during the study. Using the WA Soil Group classification system (Schoknecht 1999), six Soil Supergroups were observed containing a total of sixteen component Soil Groups. Further breakdown of Soil Groups according to the Factual Key nomenclature of Northcote (1967) showed a total of thirty one separate principal profile forms occurring within the 50 quadrats. This degree of variation is not unexpected given that sites (quadrats) were located to encompass the anticipated minimum variation in vegetation communities within the reserves.

As part of the current study, relevant Agriculture Western Australia site descriptions from the draft Jerramungup land resource survey (Overheu in prep) were briefly examined and compared with this consultant's results in Appendix B. In addition, soils data from earlier published soil studies (most without specific mapping) were also reviewed.

From these sources, the following conclusions were reached in relation to the results of this study of the reserves, and their incorporation into a wider data set for the soil mapping project of the total Lake Bryde recovery catchment;

- The observed range of soils within the reserves is no greater than that occurring within the Agriculture WA preliminary soil landscape mapping.

- The correlations between soils and broad landscape position and geology are generally as described in the existing published overview studies, with the exception that solodic soils (duplex soils with alkaline reaction trend and structured subsoil) are possibly more prevalent, and lateritic podzolics (gravelly duplex soils with acid reaction trend, and often bleached, subsurface A2 horizons) are possibly less extensive.

- The conclusion above needs to be qualified with the term 'possibly' because the number of sites from this survey is very small in relation to the total catchment area (equivalent to 1 site per 3 300 ha) and still relatively small in relation to the area of the reserves (approximately 1 site per 312 ha).

- The location of sites for the current study has been dictated by the position of the reserves, and broad differences in vegetation within them without direct reference to topographic position. Given this, and the site density, the soils data from these areas are insufficient to make definitive statements about the range of soils within the total catchment.

- For the same reasons, the soils data from these areas are insufficient to make definitive statements about the relationship between soils and all landform types within any one reserve. The vegetation map for each of the reserves (which necessarily includes complexes) cannot therefore be interpreted as a surrogate soils map.

- Not forsaking the above, the soils data provided from this survey's limited number of quadrat sites adds further location-specific information to the knowledge of soils within the reserves of the Lake Bryde catchment. This information has also been recorded in a systematic way in accordance with agreed standard terminology

- Through more detailed comparison of this information with relevant earlier site descriptions from the Agriculture WA Jerramungup soil landscape mapping project, a better picture of the catchment's soils could be determined.

- Such future work would however need to be supplemented by additional site observations. It would also require further review and update of the soil classifications made at each of those earlier sites. This is because many of the Agriculture WA descriptions are incomplete and they were also conducted before the current WA Soil Group classification system was introduced.

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APPENDIX A.

SOIL RECORD SHEET FORMAT

and

LIST OF ITEMS AND CODES

ND ES ENT Y L SIT EC) SH T 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		

REFERENCE RECORD

Described by (104)		SURVEY (102)	
Date (105)		MAP UNIT	
Observation Type (106)		SITE NO. (103)	

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE	SURFACE						
									Gravel		Stone		Boulder	
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element		condition	abund	type	abund	type	abund	type
	506	505	508	509	'10	504	545	544	'19	521	'19	524	'19	526

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	sub	DEPTH (cm) upper	lower	extent	BND distinctness	shape	COLOUR hue	value	chroma	MOTTLES abundance	size	contrast	colour	SWS	TEXTURE qual	grade	CONS PANS consist	cement	type	STRUCTURE pedality	grade	size	type	fabric	ROOTS abundance	size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	sh'pe	size	type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'46	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924

COMMENTS.

REFERENCE RECORD	
SURVEY (102)	
MAP UNIT	
SITE NO. (103)	

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminum (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											

SITE RECORD SHEETS - SOIL AND LANDFORM DATA
LIST OF ITEMS AND CODES

(Note not all need to be recorded at each site, for every survey)

SITE RECORD SHEET 1			
LOCATION RECORD			
Item Name	**Spreadsheet Cell Reference**	**AgWA Ref No***	**Comment and Codes Used (Refer to McDonald et al 1998)**
Sheet #	A7	112	1:100 000 topo sheet number
Easting	E7	109	AMG from GPS
Northing	K7	110	AMG from GPS
Zone	R7	111	From DOLA map sheets
Reserve #	T7		Specific to CALM Vegetation Surveys.
Veg Quadrat	Y7		Specific to CALM Vegetation Surveys. Quadrat number determined by Ecoscape.
REFERENCE RECORD			
Described by	AP4 - AS4	104	First three letters of surname followed by Initial; WELM = Martin Wells
Date	AP5	105	Self explanatory - dd, mon, yy
Observation type	AP6	106	For soils; A = Auger boring.
Survey	BC4 - BE4	102	LBR = Lake Bryde
Map Unit	BC5	305	Not used in this survey
Site No	BC6	103	Same as Veg Quadrat for this survey.
LANDFORM RECORD			
Modal slope	A15		**LP** Level plain **GP** Gently undulating plain **UP** Undulating plain **GR** Gently undulating rises **UR** Undulating rises
Relief class	C15	506	Relief/modal slope class **LE** Level (< 1%) **VG** Very gently inclined (1 - 3%) **GE** Gently inclined (3 - 10%)
Landform Pattern	E15	505	**PLA** Plain **PED** Pediment **SAN** Sandplain **STA** Stagnant alluvial plain **ALP** Alluvial plain **RIS** Rises
Slope	115	508	Gradient in percent

* Corresponding item number in reference document for Agriculture WA Soils Record System (Purdie 1993).

SITE RECORD SHEET 1 (continued)			
LANDFORM RECORD (continued)			
Item Name	**Spreadsheet Cell Reference**	**AgWA Ref No***	**Comment and Codes Used (Refer to McDonald et al 1998)**
Aspect	K15	509	One of eight cardinal points - not used in this survey.
MT	N15	510	Morphological type **C** Crest **U** Upper slope **M** Mid-slope **L** Lower slope **S** Simple slope **F** Flat slope **V** Open depression (vale)
Landform Element	O15	504	**S** Slope (simple) **HSL** Hill slope **HCR** Hill crest **FOO** Footslope **PLA** Plain **VLF** Valley flat **BKP** Backplain **BER** Berm **BEA** Beach **DDE** Drainage depression **LUN** Lunette
Drainage	S15	545	**1** Very poorly drained **2** Poorly drained **3** Imperfectly drained **4** Moderately well drained **5** Well drained **6** Rapidly drained
Condition	V15; W15	544	Surface condition **L** Loose **S** Soft **F** Firm **H** Hard setting **C** Surface crust (Note. more than one value can be recorded)
Surface gravel abundance	X15	519	Gravels (2 mm - 60 mm) **N** No surface coarse fragments 0 **V** Very slightly; very few < 2% **F** Slightly; few 2 - 10% **C** No qualifier; common 10 - 20% **M** Moderately; many 20 - 50% **A** Very; abundant 50 - 90%

SITE RECORD SHEET 1 (continued)			
LANDFORM RECORD (continued)			
Item Name	**Spreadsheet Cell Reference**	**AgWA Ref No***	**Comment and Codes Used (Refer to McDonald et al 1998)**
Surface gravel type	Y15	521	type = lithology **KC** Calcrete **GN** Granite **GR** Granulite **GC** Gravel, ferric smooth-faced **GF** Gravel, ferric rough-faced **QZ** Quartz **UC** Unconsolidated Material (unidentified)
Surface stone abundance	AA15	519	Stones (60 - 600 mm) **N** No surface coarse fragments 0 **V** Very slightly; very few < 2% **F** Slightly; few 2 - 10% **C** No qualifier; common 10 - 20% **M** Moderately; many 20 - 50% **A** Very; abundant 50 - 90%
Surface stone type	AB15	524	type = lithology **KC** Calcrete **GN** Granite **GR** Granulite **GC** Gravel, ferric smooth-faced **GF** Gravel, ferric rough-faced **QZ** Quartz UC Unconsolidated Material (unidentified)
Surface boulders abundance	AD15	519	Boulders (> 600 mm) **N** No surface coarse fragments 0 **V** Very slightly; very few < 2% **F** Slightly; few 2 - 10% **C** No qualifier; common 10 - 20% **M** Moderately; many 20 - 50% **A** Very; abundant 50 - 90%
Surface boulders type	AE15	526	type = lithology **KC** Calcrete **GN** Granite **GR** Granulite **GC** Gravel, ferric smooth-faced **GF** Gravel, ferric rough-faced **QZ** Quartz **UC** Unconsolidated Material (unidentified)

SITE RECORD SHEET 1 (continued)			
EXISTING MAPPING RECORD (from other surveys)			
Item Name	**Spreadsheet Cell Reference**	**AgWA Ref No***	**Comment and Codes Used (Refer to McDonald et al 1998)**
Geology	AI15		Code from 1:250 000 scale geological survey map (Thom et al 1984). **Qa** Alluvium - silt, sand and gravel in stream channels. **Qc** Colluvium and minor alluvium - derived mainly from Czs and Czg. **Ql** Saline and gypsiferous clay and silt in playa lake deposits. **Qd** Gypsiferous sand and silt in dunes adjacent to playa lakes; ancient drainage flats; commonly contain calcrete nodules. **Czg** Reworked sandplain with undulating surface - contains yellow to white sand and clay; gravel and minor laterite outcrop. **Czl** Laterite - limonite nodules in cemented matrix; grades upwards into Czs and Czb, and downwards into weathered bedrock. **Czb** Silcrete - subvitreous siliceous rock with angular quartz grains. **Czo** Deeply weathered rock - kaolinised, subsequently ferruginised and silicified. **Agg** Adamellite and granodiorite - granoblastic texture, strongly foliated; foliation defined by entrainment and alignment of biotite (rarely hornblende). **Amf** Metamorphosed agmatite - granoblastic or gneissic palaeosome consisting of Agg, minor paragneiss and/or amphibolite, enclosed by granoblastic leucocratic granite and adamellite Anf. **Czo/Agg** Area of Agg overlain by Czo.
Soil-Landscape	AO15		Code from relevant 1:250 000 scale AgWA draft mapping (Overheu in preparation).
Other	AX15		Free field - surveyor's choice eg could be used for vegetation map unit - not used in this survey.
SOIL CLASSIFICATION RECORD (results of this survey)			
WA Soil Group - Code	A20		Abbreviated code - refer to Schoknecht (1999)
WA Soil Group - Classification	F20		Longhand name - refer to Schoknecht (1999)
Other	AO20		Free field - surveyor's choice. In Lake Bryde survey it refers to Australian Great Soil Group (Stace et al 1972) and also to local names used by either Stoneman (1990) or Burvill (1945).
Factual Key	BB20	307	Principal Profile Form - refer to Northcote (1979)

SITE RECORD SHEET 1 (continued)

SOIL PROFILE FIELD RECORD - for each layer in profile

Item Name	Spreadsheet Cell Reference	AgWA Ref No*	Comment and Codes Used (Refer to McDonald et al 1998)
Layer #	A29 - A38	904	In combination with site number, this links results of laboratory analyses (Record Sheet 2) with the field profile description.
Sample	B29 - B38		Post field aid to indicate with 'Y' that sample taken for analysis.
Horizon - master	C29 - C38	907	Refer McDonald et al (1998)
Horizon - subscript	E29 - E38	908	Not used in this survey.
Depth - upper	F29 - F38	910	In cm
Depth - lower	I29 - I38	911	In cm
Extent	L29 - L38	912	+ indicates horizon continues but not observed beyond this depth.
Boundary - distinctness	M29 - M38	955	**A** Abrupt 5 - 20 mm (width) **C** Clear 20 - 50 mm (width) **G** Gradual 50 - 100mm (width) **D** Diffuse > 100 mm (width)
Boundary - shape	N29 - N38	956	Not used in this survey (difficult to determine with auger).
Colour - hue	O20 - O38	914	Munsell Color Chart standards.
Colour - value	U29 - U39	915	Munsell Color Chart standards
Colour - chroma	V29 - V38	916	Munsell Color Chart standards

Compilation - Hue value/chroma

5YR	SOIL COLOUR NAMES
5YR 4/4	Reddish brown
7.5 YR	
7.5YR 3/4	Dark brown
7.5YR 4/6	Strong brown
7.5YR 5/3	Brown
7.5YR 5/4	Brown
7.5YR 5/6	Strong brown
7.5YR 5/8	Strong brown
7.5YR 6/3	Light brown
7.5YR 8/1	White
10YR	
10YR 3/1	Very dark grey
10YR 3/2	Very dark greyish brown
10YR 4/1	Dark grey
10YR 4/2	Dark greyish brown
10YR 4/3	Brown

SITE RECORD SHEET 1 (continued)

SOIL PROFILE FIELD RECORD - for each layer in profile (continued)

Item Name	Spreadsheet Cell Reference	AgWA Ref No*	Comment and Codes Used (Refer to McDonald et al 1998)	
Colour - chroma (continued)			10YR 4/4	Dark yellowish brown
			10YR 5/2	Greyish brown
			10YR 5/3	Brown
			10YR 5/4	Yellowish brown
			10YR 5/6	Yellowish brown
			10YR 6/1	Grey
			10YR 6/2	Light brownish grey
			10YR 6/3	Pale brown
			10YR 6/4	Light yellowish brown
			10YR 6/6	Brownish yellow
			10YR 6/8	Brownish yellow
			10YR 7/1	Light grey
			10YR 7/2	Light grey
			10YR 7/3	Very pale brown
			2.5Y	
			2.5Y 4/1	Dark grey
			2.5Y 4/2	Dark greyish brown
			2.5Y 5/1	Grey
			2.5Y 5/2	Greyish brown
			2.5Y 5/3	Light olive brown
			2.5Y 6/1	Grey
			2.5Y 6/2	Light brownish grey
			2.5Y 6/3	Light yellowish brown
			2.5Y 6/4	Light yellowish brown
			2.5Y 7/1	Light grey
			2.5Y 7/2	Light grey
			2.5Y 7/3	Pale yellow
			2.5Y 7/4	Pale yellow
			2.5Y 8/1	White
			5Y	
			5Y 5/1	Grey
			5Y 6/2	Light olive grey
			5Y 7/2	Light grey
			5Y 8/1	White
Mottles - abundance	W29 - W38	925	**V** Very few	< 2%
			F Few	2 - 10%
			C Common	10 - 20%
			M Many	20 - 50%
Mottles - size	X29 - X38	926	**F** Fine	< 5 mm
			M Medium	5 - 15 mm
			C Coarse	15 - 30 mm
Mottles - contrast	Y29 - Y38	927	**F** Faint	
			D Distinct	
			P Prominent	

SITE RECORD SHEET 1 (continued)				
SOIL PROFILE FIELD RECORD - for each layer in profile (continued)				
Item Name	**Spreadsheet Cell Reference**	**AgWA Ref No***	**Comment and Codes Used (Refer to McDonald et al 1998)**	
Mottle - colour	Z29 - Z38	928	Single letter used for predominant colour of mottles as suggested by McDonald et al (1998). If more than one mottle colour, a second line is recorded. **R** Red **O** Orange **B** Brown **Y** Yellow **G** Grey **D** Dark **L** Gley **P** Pale	
SWS	AA29 - AA38	913	Soil Water Status **D** Dry **T** Moderately moist **M** Moist **W** Wet	
Texture - qualifier	AB29 - AB38	920	Variant of texture grade shown below - Light + Heavy **Y** Gritty	
Texture - grade	AC29 - AC38	921	**VWCS**	Very weak clayey sand
			WCS	Weak clayey sand
			S	Sand
			LS	Loamy sand
			CS	Clayey sand
			SL	Sandy loam
			L	Loam
			SCL	Sandy clay loam
			CL	Clay loam
			ZCL	Silty clay loam
			CLS	Clay loam, sandy
			SC	Sandy clay
			ZC	Silty clay
			LC	Light clay
			LMC	Light medium clay
			MC	Medium clay
			MHC	Medium heavy clay
			HC	Heavy clay

SITE RECORD SHEET 1 (continued)			
SOIL PROFILE FIELD RECORD - for each layer in profile (continued)			
Item Name	**Spreadsheet Cell Reference**	**AgWA Ref No***	**Comment and Codes Used (Refer to McDonald et al 1998)**
Consistence	AG29 - AG38	932	Soil strength **0** Loose **1** Very weak **2** Weak **3** Firm **4** Very firm **5** Strong **6** Very strong **7** Rigid
Pans - cementation	AH29 - AH38	946	Not used in this survey
Pans - type	AI29 - AI38	948	Not used in this survey
Structure - pedality	AJ29 - AJ38	935	**P** Pedal A Apedal
Structure - grade	AK29 - AK38	936	**G** Single grain **V** Massive **W** Weak **M** Moderate **S** Strong
Structure - size	AL29 - AL38	937	Size of peds **4** 10 - 20 mm **5** 20 - 50 mm
Structure - type	AM29 - AM38	938	Type of peds **PR** Pedal **AB** Angular blocky **SB** Subangular blocky
Fabric	AO29 - A038	939	**E** Earthy **G** Sandy *(grains prominent)* **R** Rough-ped **S** Smooth-ped
Roots - abundance	AP29 - AP38	953	Not used in this survey.
Roots - size	AQ29 - AQ38	954	Not used in this survey.

SITE RECORD SHEET 1 (continued)			
SOIL PROFILE FIELD RECORD - for each layer in profile (continued)			
Item Name	**Spreadsheet Cell Reference**	**AgWA Ref No***	**Comment and Codes Used (Refer to McDonald et al 1998)**
Permeability	AR29 - AR38	957	Horizon permeability (estimated) **1** Very slow < 1 Ks (mm/hr) **2** Slow 1 - 5 Ks (mm/hr) **3** Moderately slow 5 - 20 Ks (mm/hr) **4** Moderate 20 - 65 Ks (mm/hr) **5** Moderately rapid 65 - 130 Ks (mm/hr) **6** Rapid 130 - 250 Ks (mm/hr) **7** Very rapid > 250 Ks (mm/hr)
Slaking	AS29 - AS38	958	Part of Emerson Aggregate test - not used in this survey.
Dispersion	AT29 - AT38q	959	Part of Emerson Aggregate test - not used in this survey.
Water repellence	AU29 - AU38	960	Usually only relevant for A horizons **N** Non water repellent **R** Water repellent **S** Strongly water repellent
Effervescence (carbonates)	AV29 - AV38	961	'Fizz test' for $CaCo_3$. Usually only relevant for B horizons where segregations or pH suggest carbonates could be present. **N** Non-calcareous **S** Slightly calcareous **M** Moderately calcareous **H** Highly calcareous **V** Very highly calcareous
pH	AW29 - AW38	963	Field measurement of pH (Raupach and Tucker 1959) - not used in the survey. Refer to laboratory analysis results.
EC	AZ29 - AZ38	964	Field measurement of Soil Eleetrical Conductivity in mS/m - not used in this survey. Refer to laboratory analysis results.
Coarse fragments - abundance	BD29 - BD38	519	**N** No surface coarse fragments 0 **V** Very slightly; very few < 2% **F** Slightly; few 2 - 10% **C** No qualifier; common 10 - 20% **M** Moderately; many 20 - 50% **A** Very; abundant 50 - 90%
Coarse fragments - shape	BE29 - BE38	966	**A** Angular **S** Subangular **U** Subrounded **R** Rounded
Coarse fragments - size	BG29 - BG38	965	**1** Fine gravel 2 - 6 mm **2** Medium gravel 6 - 20 mm **3** Coarse gravel 20 - 60 mm **4** Cobbly 60 - 200 mm

SITE RECORD SHEET 1 (continued)			
SOIL PROFILE FIELD RECORD - for each layer in profile (continued)			
Item Name	**Spreadsheet Cell Reference**	**AgWA Ref No***	**Comment and Codes Used (Refer to McDonald et al 1998)**
Coarse fragments - type	BH29 - BH38	924	type = lithology **KC** Calcrete **GN** Granite **GR** Granulite **GC** Gravel, ferric smooth-faced **GF** Gravel, ferric rough-faced **QZ** Quartz **UC** Unconsolidated Material (unidentified)
COMMENTS	A39		Free field

SITE RECORD SHEET 2		
REFERENCE RECORD		
Item Name	**Spreadsheet Cell Reference**	**Comment and Codes Used**
Survey	BN4 - BP4	LBR = Lake Bryde
Map Unit	BN5	Not used in this survey
Site No	BN6	Same as Veg Quadrat for this survey.
SOIL PROFILE ANALYSIS RECORD		
Layer #	BJ17 - BJ31	Provides linkage to soil profile field record.
Horizon - master	BK17 - BK31	Provides linkage to soil profile field record.
Horizon - subscript	BM17 - BM31	Provides linkage to soil profile field record - not used in this survey.
Depth - upper	BN17 - BN31	Provides linkage to soil profile field record.
Depth - lower	BQ17 - BQ31	Provides linkage to soil profile field record.
Extent	BT17 - BT31	Provides linkage to soil profile field record.
pH	BU17 - BU31	pH (H_2O) - 1:5 soil:water extract; method 4A1 page 17 - 19 of Rayment and Higginson (1992).
EC	BV17 - BV31	EC (1:5) - same extract, converted to value at 25 degrees; method 3A1, p15 - 17 (Rayment and Higginson 1992)

SITE RECORD SHEET 2 (continued)		
SOIL PROFILE ANALYSIS RECORD (continued)		
Item Name	**Spreadsheet Cell Reference**	**Comment and Codes Used**
Organic C %	BW17 - BW31	OrgC (W/B) - organic carbon - Walkley and Black procedure, wet oxidation with dichromate/sulphuric acid, chromium (III) measured spectrphotometrically; method 6A1, p29 - 31 (Rayment and Higginson 1992)
Nitrogen (total) %	BX17 - BX31	Total N - Kjeldahl digest, NH4 measured by flow segmented AutoAnalyser; method 7A2, p41 - 43 (Rayment and Higginson 1992)
Phosphorus (total) mg/kg	BY17 - BY31	Total P, same digest for total N - P measured by colorimetry, phosphomolybdenum blue; modified J Murphy & JP Riley (1962)
Phosphorus (HCO_3) mg/kg	BZ17 - BZ31	Bicarbonate extractable P - Colwell procedure (1:100 ratio, 23 degrees, 16 hours, P conc measured by flow segmented AutoAnalyser); method 9B2, p66 - 68 (Rayment and Higginson 1992)
Potassium (HCO_3) mg/kg	CA17 - CA31	Bicarb-K - same extract, K measured by flame atomic absorption spectrophotometry; method 18A1, p203 - 4 (Raymond and Higginson 1992). Results for Bic-K are only reported for soils that were saline and prewashed for exchangeable cations (EC > 20 mS/m - 9 samples). For the remainder bic-K was calculated by multiplying exch-K by 391 (advice from Chemistry Centre - D. Allen pers. comm.).
Exchangeable cations		
Calcium (exch) me %	CB17 - CB31	Exchangeable cations: soils with EC >20 mS/m were pre-washed with ethanol/glycol to remove soluble salts. Different methods depending on pH: 'a' 1 M NH4Cl, pH 7 for neutral soils (pH 5.5 to 7.5) 'b' 0.1 M BaCl2 for acid soils (pH <5.5) 'c' 1 M NH4Cl in 60% ethanol for gypsic/calcareous soils (pH >8) 'a' method 15A2, p144 - 5 (Rayment and Higginson 1992) 'b' 'in house' 'c' method 15C1, p148 - 154 (Rayment and Higginson 1992)
Magnesium (exch) me %	CC17 - CC31	
Sodium (exch) me %	CD17 - CD31	
Potassium (exch) me %	CE17 - CE31	As for Ca, Mg and Na above plus, for non-saline soils the value of exchangeable K should be very close to that for bicarbonate extractable K (D. Allen, Chemistry Centre of WA, pers. comm.).
Aluminium (exch) me %	CF17 - CF31	As for Ca, Mg and Na above plus, exchangeable Al and Mn were only able to be measured on soils with pH < 6.5 (D. Allen, Chemistry Centre, pers. comm.).
Manganese (exch) me %	CG17 - CG31	

APPENDIX B.

SITE RECORD SHEETS

(Soil and Landform Data)

ND ES NT Y L SIT EC) SI T 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	675445	6298289	50	25113	LB 001

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	10-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 001

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE	SURFACE							
								condition	Gravel		Stone		Boulder	
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element			abund	type	abund	type	abund	type
	508	505	508	509	'10	504	545	544	'19	521	'19	524	'19	526
VG	GR	PED	2		C	HCR	5	S C	F	GF	N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Czg	Nw2	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999)		OTHER	FACTUAL KEY
CODE	CLASSIFICATION		(PPF) (307)
404	GREY SHALLOW SANDY DUPLEX (WITH GRAVEL)	Lateritic podozolic	Dy4.51

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	BND extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		807	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'48	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'85	924
1	Y	A		0	15				2.5 Y	6	3					D		S	1			A				G			6			N	N	.		V	U	1	GF
																																	.					
2	Y	B		15	80	+			7.5 YR	5	6					D	Y	SC	3			A	V			E			4			N	N	.		C	S	2	GF
																																	.					
																																	.					
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COMMENTS.

REFERENCE RECORD							
SURVEY (102)	L	B	R				
MAP UNIT							
SITE NO. (103)	L	B	0	0	1		

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A		0	15		6.1	2	0.70	0.032	24	<2	23	0.91b	0.35b	0.04b	0.06b	0.09b	<0.02
2	B		15	80	+	6	3											

LAND ASSESSMENT PTY LTD SITE RECORD SHEET 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	672189	6297822	50	25113	LB 002

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	10-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 002

LANDFORM RECORD

L'FORM PATTERN modal slope	rel/ms class	landform pattern	L'FORM ELEMENT slope %	aspect	MT	landform element	DRAINAGE	SURFACE condition	Gravel abund	Gravel type	Stone abund	Stone type	Boulder abund	Boulder type
	506	505	508	509	'10	504	545	544	'19	521	'19	524	'19	526
VG	GP	PED	3	N	S	HSL	4	F C	V	GF	N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Czg	Nw2	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
408	YELLOW BROWN SHALLOW SANDY DUPLEX SOIL (WITH GRAVEL)	Lateritic podzolic	Dy5.52

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'46	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A		0	10		A		10 YR	6	4					D		S	1			A				G			6			N	N	.		V	U	2	GC
2	Y	B11		10	30		G		10 YR	5	3					D	Y	CL	3			A	V			E			5			N	N	.		M	S	2	GF
3		B12		30	45		C		10 YR	6	4					D	Y	SCL	3			A	V			E			4			N	N	.		A	U	3	GC
4	Y	B2		45	60	+			10 YR	6	4	C	M	D	G	D		LC	5										1			N	N	.		N			
															R																			.					

COMMENTS.

REFERENCE RECORD							
SURVEY (102)	L	B	R				
MAP UNIT							
SITE NO. (103)	L	B	0	0	2		

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A		0	10		6.3	2	0.5	0.03	26	<2	23	1.11b	0.16b	0.02b	0.06b	0.02b	0.02b
2	B11		10	30		6.8	2											
3	B12		30	45														
4	B2		45	60	+	6.9	3											

...ND ... ES...NT ... / L... SIT... ECO... SH...T 1

LOCATION RECORD

Sheet #	Easting	Northing	Zone	Reserve #	Veg Quadrat #
	MAP REFERENCES				
112	109	110	111		
2361	672191	6296883	50	25113	LB 003

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	10-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 003

LANDFORM RECORD

L'FORM PATTERN modal slope	rel/ms class	landform pattern	L'FORM ELEMENT slope %	aspect	MT	landform element	DRAINAGE	SURFACE condition	Gravel abund	Gravel type	Stone abund	Stone type	Boulder abund	Boulder type
	506	505	508	509	'10	504	545	544	'19	521	'19	524	'19	526
VG	GP	SAN	2		S	PLA	5	L	N		N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Qa	Nw1	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
444	PALE DEEP SAND	Grey siliceous sand (deep sand)	Uc1.21

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	extent	BND distinctness	BND shape	COLOUR hue	value	chroma	MOTTLES abundance	size	contrast	colour	SWS	TEXTURE qual	TEXTURE grade	CONS consist	PANS cement	PANS type	STRUCTURE pedality	grade	size	type	fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	sh'pe	size	type
'04		907	'08	910	911	'12	'55	'58	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'46	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	866	'65	924
1	Y	A1		0	10		G		10 YR	6	1					D	Y	S	0			A				G			7			S	N	.		N			
2		A21		10	30		D		10 YR	5	2					D	Y	S	0			A				G			7			R	N	.		N			
3	Y	A22		30	100	+			10 YR	6	2					D	Y	S	0			A				G			7			N	N	.		N			

COMMENTS.

REFERENCE RECORD							
SURVEY (102)	L	B	R				
MAP UNIT							
SITE NO. (103)	LB 003						

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A1		0	10		6.1	1	0.57	0.024	28	<2	8	0.83b	0.12b	0.02b	0.02b	0.05b	<0.02
2	A21		10	30														
3	A22		30	100	+	6.8	1											

ND / ES NT / L SIT EC) SI T 1

LOCATION RECORD

Sheet #	MAP REFERENCES: Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	672147	6294044	50	25113	LB 004

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	10-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 004

LANDFORM RECORD

L'FORM PATTERN: modal slope	rel/ms class	landform pattern	L'FORM ELEMENT: slope %	aspect	MT	landform element	DRAINAGE	SURFACE: condition	Gravel abund	Gravel type	Stone abund	Stone type	Boulder abund	Boulder type
	506	505	508	509	'10	504	545	544	'19	521	'19	524	'19	526
VG	GP	ALP	1		M	PLA	3	H C	F	QZ	N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Czg	Nw4	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
541	BROWN LOAMY EARTH	Yellow earth (Brown heavy soil)	Gn4.83

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'46	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A1		0	10		G		7.5 YR	4	3					D		CL	4			P	V			E			3			N	N	.		V	S	2	QZ
																																	.					
2	Y	B1		10	45		C		7.5 YR	5	6	C	F	D	R	D		LC	4			P	M			R			2			N	N	.		V	S	3	QZ
																																	.					
3		B21		45	65		D		7.5 YR	5	6	M	M	D	P	D		LMC	5			P	M			R			1			N	N	.		N			
																																	.					
4	Y	B22		65	100	+			7.5 YR	8	1	F	M	D	G	D		MHC	5			P	S		PR	R			1			N	N	.		N			
																																	.					
																																	.					
																																	.					

COMMENTS.

L_ _D A_ _ESS_ _NT . . . LT_ SITE _ECC_ _ SH_ _ _ 2

REFERENCE RECORD

SURVEY (102)	L B R
MAP UNIT	
SITE NO. (103)	LB 004

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	sub	DEPTH (cm) upper	lower	extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A1		0	10		6.8	90	2.45	0.138	90	3	180	5.32a	6.69a	1.73a	0.43a		
2	B1		10	45		7.4	160											
3	B21		45	65														
4	B22		65	100	+	8.2	28											

LAND ASSESSMENT SURVEY LAND SITE RECORD SHEET 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	661835	6306317	50	15296	LB 005

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	10-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 005

LANDFORM RECORD

L'FORM PATTERN modal slope	rel/ms class 506	landform pattern 505	L'FORM ELEMENT slope % 508	aspect 509	MT '10	landform element 504	DRAINAGE 545	SURFACE condition 544	Gravel abund '19	Gravel type 521	Stone abund '19	Stone type 524	Boulder abund '19	Boulder type 526
LE	LP	PLA	1		F	VLF	4	F	N		N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Czg	Nw1	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
402	ALKALINE GREY SHALLOW SANDY DUPLEX	Solodic soil / Solonized brown soil	Dy4.53

SOIL PROFILE FIELD RECORD

LAYER '04	SAMPLE	HORIZ'N mst 907	sub '08	DEPTH (cm) upper 910	lower 911	extent '12	BND distinctness '55	shape '56	COLOUR hue 934	value '15	chroma '16	MOTTLES abundance '25	size '26	contrast '27	colour '28	SWS '13	TEXTURE qual '20	grade 921	CONS PANS consist '32	cement '46	type '48	STRUCTURE pedality '35	grade '36	size '37	type 938	fabric '39	ROOTS abundance 953	size 954	permeability '57	slaking '58	dispersion '59	w' repellence '60	effervescence '61	pH 963	EC mS/m 964	COARSE FRAGMENTS abund '23	sh'pe 966	size '65	type 924
1	Y	A1		0	15		A		10 YR	4	2					D		LS	2			A	V			E			5			R	N			N			
2	Y	B1		15	30		D		2.5 Y	6	4					D		LC	4			P	W			R			3			N	S			N			
3	Y	B2		30	55		A		2.5 Y	6	4	F	F	F	O	D		LMC	4			P	W			R			2			N	M			V	U	3	KC

COMMENTS. Could also be called Yellow Solonetzic Duplex

REFERENCE RECORD							
SURVEY (102)	L	B	R				
MAP UNIT							
SITE NO. (103)	LB 005						

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A1		0	15		6.3	9	1.88	0.093	67	3	129	5.19b	1.73b	0.30b	0.33b	0.04b	0.04b
2	B1		15	30		8.2	29											
3	B2		30	55		9	54											

ND ES ENT Y L SI EC D SI T 1

LOCATION RECORD

Sheet #	MAP REFERENCES: Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	662307	6307479	50	15296	LB 006

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	10-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 006

LANDFORM RECORD

L'FORM PATTERN: modal slope	rel/ms class	landform pattern	L'FORM ELEMENT: slope %	aspect	MT	landform element	DRAINAGE	SURFACE: condition	Gravel abund	Gravel type	Stone abund	Stone type	Boulder abund	Boulder type
	506	505	506	509	'10	504	545	544	'19	521	'19	524	'19	526
VG	GR	PED	3		U	HSL	4	S	N		N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Agg	Nw6	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
408	YELLOW BROWN SHALLOW SANDY DUPLEX	Yellow podzolic	Db4.62

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	BND extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'58	834	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'48	'48	'35	'36	'37	838	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A1		0	5		G		7.5 YR	4	3					D		LS	1			A	V			E			5			N	N			N			
2	Y	A2		5	25		G		10 YR	5	4					D		ZCS	2			A	V			E			5			N	N			V	U	2	GC
3	Y	B2		25	90		A		7.5 YR	4	6	C	M	D	R	D		ZSC	4			A	V			E			3			N	N			F	U	1	GC
															G																							
4	Y	C		90	100	+			7.5 YR	4	6					D						A									N	N						

COMMENTS. Lower horizon is weak parent material

[illegible] D A[illegible]ESS[illegible]NT [illegible] LT[illegible] SITE[illegible]ECO[illegible] SH[illegible] 2

REFERENCE RECORD							
SURVEY (102)	L	B	R				
MAP UNIT							
SITE NO. (103)	LB 006						

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A1		0	5		5.8	4	0.89	0.067	46	<2	66	1.16b	0.54b	0.10b	0.17b	0.09b	0.03b
2	A2		5	25		5.9	2											
3	B2		25	90		6.8	5											
4	C		90	100	+													

LAND ASSESSMENT PTY LTD SITE RECORD SHEET 1

LOCATION RECORD

	MAP REFERENCES				
Sheet #	Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	667736	6329279	50	24920	LB 007

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	10-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 007

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE	SURFACE							
									Gravel		Stone		Boulder	
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element		condition	abund	type	abund	type	abund	type
	506	505	508	509	'10	504	545	544	'19	521	'19	524	'19	526
LE	LP	PED	1		S	VLE	3	H	F	QZ	N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Agg	Nw5	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999)		OTHER	FACTUAL KEY
CODE	CLASSIFICATION		(PPF) (307)
502	ALKALINE GREY SHALLOW LOAMY DUPLEX	Solodic 'Moort' soil or Grey heavy soil	Dg2.12

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'46	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A		0	12		C		2.5 Y	5	2					D		ZCL	3			P	W		SB	R			4			N	N	.		N			
																																		.					
2	Y	B1		12	30		G		2.5 Y	7	2	F	F	F	O	D		LMC	5			P	M			R			2			N	N	.		N			
																																		.					
3		B21		30	60		D		5 Y	7	2					D		MC	5			P	M			R			2			N	N	.		N			
																																		.					
4	Y	B22		60	100	+			5 Y	8	1	F	M	F	B	D		HC	6			P	M			R			2			N	N	.		N			
																																		.					
																																		.					
																																		.					

COMMENTS.

LAND ASSESSMENT RESULTS SITE RECORD SHEET 2

REFERENCE RECORD

SURVEY (102)	L	B	R				
MAP UNIT							
SITE NO. (103)	LB 007						

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	sub	DEPTH (cm) upper	lower	extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A		0	12		6.6	3	0.81	0.034	28	<2	51	1.37a	1.51a	0.18a	0.13a		
2	B1		12	30		8.8	140											
3	B21		30	60														
4	B22		60	100	+	8	190											

LAND ASSESSMENT FIELD BOOK SITE RECORD SHEET 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	666231	6330791	50	24920	LB 008

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	10-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 008

LANDFORM RECORD

L'FORM PATTERN modal slope	rel/ms class	landform pattern	L'FORM ELEMENT slope %	aspect	MT	landform element	DRAINAGE		SURFACE condition	Gravel abund	Gravel type	Stone abund	Stone type	Boulder abund	Boulder type
	506	505	506	509	'10	504	545		544	'19	521	'19	524	'19	528
GE	UR	RIS	4		M	HSL	5		F C	F	GF	N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Czg	Nw5	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
303	LOAMY GRAVEL (SHALLOW)	Sandy gravel / lateritic podzolic	Ks; Uc5.23

SOIL PROFILE FIELD RECORD

LAYER '04	SAMPLE	HORIZ'N mst 807	HORIZ'N sub '08	DEPTH (cm) upper 910	DEPTH (cm) lower 911	DEPTH (cm) extent '12	BND distinctness '55	BND shape '56	COLOUR hue 934	COLOUR value '15	COLOUR chroma '16	MOTTLES abundance '25	MOTTLES size '26	MOTTLES contrast '27	MOTTLES colour '28	SWS '13	TEXTURE qual '20	TEXTURE grade 921	CONS PANS consist '32	CONS PANS cement '46	CONS PANS type '48	STRUCTURE pedality '35	STRUCTURE grade '36	STRUCTURE size '37	STRUCTURE type 938	STRUCTURE fabric '39	ROOTS abundance 953	ROOTS size 954	permeability '57	slaking '58	dispersion '59	w' repellence '60	effervescence '61	pH 983	EC mS/m 984	COARSE FRAGMENTS abund '23	COARSE FRAGMENTS sh'pe 988	COARSE FRAGMENTS size '65	COARSE FRAGMENTS type 924
1	Y	A		0	5		G		7.5 YR	4	6					D	+	LS	3			A	V			E			5			N	N			F	S	2	GF
2	Y	B		5	40				10 YR	5	4					D		SL	2			A	V			E			5			N	N			M	S	2	GF

COMMENTS. Stopped by coarse gravel / stone.

REFERENCE RECORD	
SURVEY (102)	L B R
MAP UNIT	
SITE NO. (103)	LB 008

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A		0	5		6.4	2	0.52	0.034	35	<2	70	1.43b	0.67b	0.05b	0.18b	0.02b	<0.02
2	B		5	40		6.5	3											

LAND ASSESSMENT FIELD SITE RECORD SHEET 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	666036	6331284	50	24920	LB 009

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	10-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 009

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE	SURFACE							
								condition	Gravel		Stone		Boulder	
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element			abund	type	abund	type	abund	type
	506	505	508	509	'10	504	545	544	'19	521	'19	524	'19	526
VG	GP	PED	2		L	S	3	F C	N		V		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Czb	Nw6	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
502	ALKALINE GREY SHALLOW LOAMY DUPLEX	Solodic 'Moort' soil or Heavy grey soil	Dy2.13

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	BND extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'46	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A		0	20		G		2.5 Y	4	2					D		ZCL	2			A	V			E			4			N	N	.		N			
																																	.					
2	Y	B1		20	40		D		2.5 Y	5	2					D		LMC	3			P	M		SB	R			2			N	N	.		N			
																																	.					
3		B2		40	70		D		5 Y	6	2					D		LMC	3			P	M		SB	R			2			N	N	.		N			
																																	.					
4	Y	B2		70	100	+			5 Y	6	2					D		LMC	3			P	S		SB	R			2			N	N	.		N			
																																	.					
																																	.					
																																	.					

COMMENTS. Surface stone unknown - appears like fossilised wood.

REFERENCE RECORD	
SURVEY (102)	L B R
MAP UNIT	
SITE NO. (103)	LB 009

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A		0	20		6.3	19	2.17	0.128	130	5	700	13.06b	5.06b	0.77b	1.79b	0.03b	0.05b
2	B1		20	40		8	6											
3	B2		40	70														
4	B2		70	100	+	8.3	6											

LAND ASSESSMENT BY L[illegible] SI[illegible]EC[illegible]D SH[illegible]T 1

LOCATION RECORD

Sheet #	MAP REFERENCES			Reserve #	Veg Quadrat #
	Easting	Northing	Zone		
112	109	110	111		
2361	665647	6332198	50	24920	LB 010

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	10-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 010

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE		SURFACE							
									condition	Gravel		Stone		Boulder	
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element				abund	type	abund	type	abund	type
	508	505	508	509	'10	504	545		544	'19	521	'19	524	'19	526
GE	UR	RIS	4	SE	U	HSL	5		F C	C	GF	V	GF	N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Czg	Nw4	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999)		OTHER	FACTUAL KEY
CODE	CLASSIFICATION		(PPF) (307)
304	SHALLOW GRAVEL	Sandy gravel	Ks; Uc5.22

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'28	'27	'28	'13	'20	921	'32	'48	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A		0	10				10 YR	5	2					D		LS	2			A	V			E			6			N	N	.		F	S	3	GR
																																	.					
2	Y	B		10	25				7.5 YR	5	6					D		LS	2			A	V			E			6			N	N	.		A	S	3	GR
																																	.					
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																																	.					
																																	.					

COMMENTS. Could also be lithosol.

REFERENCE RECORD	
SURVEY (102)	L B R
MAP UNIT	
SITE NO. (103)	LB 010

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A		0	10		6.3	2	0.85	0.036	22	<2	47	2.45b	0.64b	0.04b	0.12b	0.04b	<0.02
2	B		10	25		6.2	3											

LAND ASSESSMENT BY L... SI... REC... D SH... T 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	669987	6327631	50	24920	LB 011

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	10-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 011

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE		SURFACE							
									condition	Gravel		Stone		Boulder	
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element				abund	type	abund	type	abund	type
	508	505	508	509	'10	504	545		544	'19	521	'19	524	'19	526
VG	GR	PED	1		C	HCR	3		H	C	F	QZ	N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Czg	Nw6	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999)		OTHER	FACTUAL KEY
CODE	CLASSIFICATION		(PPF) (307)
504	GREY SHALLOW LOAMY DUPLEX	Yellow podzolic	Dy3.22

SOIL PROFILE FIELD RECORD

		HORIZ'N		DEPTH (cm)			BND		COLOUR			MOTTLES					TEXTURE		CONS			STRUCTURE					ROOTS						pH	EC	COARSE FRAGMENTS			
																			PANS																mS/m			
LAYER	SAMPLE	mst	sub	upper	lower	extent	distinctness	shape	hue	value	chroma	abundance	size	contrast	colour	SWS	qual	grade	consist	cement	type	pedality	grade	size	type	fabric	abundance	size	permeability	slaking	dispersion	w' repellence	effervescence			abund	sh'pe	size	type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'28	'27	'28	'13	'20	921	'32	'48	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A1		0	10		G		10 YR	3	1					D		LS	2			A	V			E			5			R	N	.		N			
2		A2		10	30		G		10 YR	4	2					D	+	SCL	4			A	V			E			4			N	N	.		N			
3	Y	B21		30	55		C		7.5 YR	5	3	C	F	F	P	D		LMC	4			P	W			R			2			N	N	.		N			
4	Y	B22		55	100	+			10 YR	7	2	F	F	F	O	D		LMC	4										1			N	N	.		N			

COMMENTS.

REFERENCE RECORD	
SURVEY (102)	L B R
MAP UNIT	
SITE NO. (103)	LB 011

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A1		0	10		7.3	35	2.6	0.152	120	10	300	11.08a	5.60a	0.71a	0.82a		
2	A2		10	30														
3	B21		30	55		7.4	93											
4	B22		55	100	+	7.8	180											

...ND ...ESS...ENT ... / L... SITE RECORD SHEET 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	680785	6319038	50	29019	LB 012

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	10-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 012

LANDFORM RECORD

L'FORM PATTERN modal slope	rel/ms class	landform pattern	L'FORM ELEMENT slope %	aspect	MT	landform element	DRAINAGE		SURFACE condition	Gravel abund	Gravel type	Stone abund	Stone type	Boulder abund	Boulder type
	508	505	508	509	'10	504	545		544	'19	521	'19	524	'19	526
VG	GR	PED	4	NE	U	HSL	5		F	C	GF	F	GF	N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Czg	Nw2	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
304	SHALLOW GRAVEL	Sandy gravel	Ks; Uc5.21

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	BND extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'48	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A		0	10		G		10 YR	3	2					D		LS	2			A	V			E			5			N	N	.		F	S	2	GR
																																	.					
2	Y	B		10	25				10YR	4	3					D	Y	CS	2			A	V			E			5			N	N	.		M	S	3	GR
																																	.		F	S	4	GR
																																	.					
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COMMENTS. Could also be lithosol.

L D A SS IT F LTI ITE CO SHL 2

REFERENCE RECORD							
SURVEY (102)	L	B	R				
MAP UNIT							
SITE NO. (103)	LB 012						

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	810	911	'12	963	964											
1	A		0	10		6.2	2	0.92	0.046	32	<2	47	1.67b	0.56b	0.04b	0.12b	0.08b	<0.02
2	B		10	25		6.2	2											

ND / ESS NT / LT SIT EC Sh T 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	679865	6320196	50	29019	LB 013

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	10-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 013

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE		SURFACE condition	Gravel abund	Gravel type	Stone abund	Stone type	Boulder abund	Boulder type
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element									
	506	505	506	509	'10	504	545		544	'19	521	'19	524	'18	526
VG	GR	RIS	3	NE	C	HCR	5		F C	N		N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Agg	Nw6	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
541	BROWN LOAMY EARTH	Yellow earth	Gn2.26

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	BND extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'48	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	986	'65	924
1	Y	A1		0	5				7.5 YR	4	3					D		SL	2			A	V			E			6			N	N	.		N			
2	Y	A2		5	35				7.5 YR	5	6					D		SCL	3			A	V			E			4			N	N	.		N			
3		B1		35	70				7.5 YR	5	8					D		CL	3			A	V			E			4			N	N	.		V		2	GN
4	Y	B2		70	80				10 YR	5	6					D		LC	3			A	V			E			3			N	N	.		V		2	GN

COMMENTS. Stopped by weathered granite.

L[illegible]D A[illegible]ESS[illegible]NT [illegible] LT[illegible] SITE [illegible]ECC[illegible] SH[illegible] 2

REFERENCE RECORD

SURVEY (102)	L B R
MAP UNIT	
SITE NO. (103)	LB 013

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	sub	DEPTH (cm) upper	DEPTH (cm) lower	extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A1		0	5		6.3	8	0.98	0.049	51	<2	98	2.09b	1.04b	0.41b	0.25b	0.03b	0.03b
2	A2		5	35		6.4	2											
3	B1		35	70														
4	B2		70	80		8.2	8											

ND / ESS NT / LT SIT EC SH T 1

LOCATION RECORD

Sheet #	Easting	Northing	Zone	Reserve #	Veg Quadrat #
	MAP REFERENCES				
112	109	110	111		
2361	679425	6320919	50	29019	LB 014

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	10-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 014

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE		SURFACE						
										Gravel		Stone		Boulder	
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element			condition	abund	type	abund	type	abund	type
	506	505	508	509	'10	504	545		544	'19	521	'18	524	'19	526
LE	LP	PLA	1		C	HCR	4		F	F	GR	N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Czl	Nw5	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999)		OTHER	FACTUAL KEY
CODE	CLASSIFICATION		(PPF) (307)
303	LOAMY GRAVEL (SHALLOW)	Sandy gravel / Lateritic podzolic	Ks; Uc5.21

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	extent	BND distinctness	BND shape	COLOUR hue	value	chroma	MOTTLES abundance	size	contrast	colour	SWS	TEXTURE qual	TEXTURE grade	CONS consist	PANS cement	PANS type	STRUCTURE pedality	grade	size	type	fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	sh'pe	size	type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'46	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A		0	5		G		10 YR	4	3					D		LS	2			A	V			E			6			S	N	.		F	S	2	GR
2	Y	B		5	25				7.5 YR	4	6					D		SL	2			A	V			E			6			R	N	.		M	S	3	GR

COMMENTS. Possibly also a lithosol - gravels not typical ferruginous

I D A ESS NT LT SITI CC SH 2

REFERENCE RECORD	
SURVEY (102)	L B R
MAP UNIT	
SITE NO. (103)	LB 014

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
804	907	'08	910	911	'12	963	964											
1	A		0	5		6.6	11	3.14	0.122	73	2	493	8.13a	3.68a	0.75a	1.26a		
2	B		5	25		7.9	8											

ND ES ENT Y L SI EC D SI T 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	678555	6322071	50	29019	LB 015

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	11-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 015

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE	SURFACE							
								condition	Gravel		Stone		Boulder	
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element			abund	type	abund	type	abund	type
	508	505	508	509	'10	504	545	544	'19	521	'19	524	'19	526
VG	GP	PED	1		S	S	3	F C	N		N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Agg	Nw5	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
502	ALKALINE GREY SHALLOW LOAMY DUPLEX	Solodic soil or Grey heavy soil	Dy3.13

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	BND extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'48	'46	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A		0	10		G		10 YR	5	3					D		CL	3			A	V			E						N	N			N			
2	Y	B1		10	50		C		7.5 YR	6	3					D		LMC	4			P	M		SB	R						N	N			N			
3	Y	B2		50	95		C		2.5 Y	7	4	C	F	F	P	D		MC	4			P	M		SB	R						N	N			N			
4	Y	C		95	100	+			10 YR	6	4	C	F	F	Y	D		SC	3													N	N			V	U	2	GN

COMMENTS. Lowest layer is weathered parent material.

[illegible] D A[illegible]ESS[illegible]NT [illegible] LT[illegible] SITE[illegible]ECO[illegible] SH[illegible]2

REFERENCE RECORD							
SURVEY (102)	L	B	R				
MAP UNIT							
SITE NO. (103)	LB 015						

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A		0	10		6.6	61	2.52	0.124	59	3	89	4.84a	5.74a	1.38a	0.21a		
2	B1		10	50		8	50											
3	B2		50	95		8.6	110											
4	C		95	100	+													

LAND ASSESSMENT FIELD SITE RECORD SHEET 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	678495	6325748	50	29019	LB 016

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	11-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 016

LANDFORM RECORD

L'FORM PATTERN modal slope	rel/ms class	landform pattern	L'FORM ELEMENT slope %	aspect	MT	landform element	DRAINAGE	SURFACE condition	Gravel abund	Gravel type	Stone abund	Stone type	Boulder abund	Boulder type
	506	505	506	509	'10	504	545	544	'19	521	'19	524	'19	526
GE	UR	RIS	3		U	HCR	5	F	C	GR	F	GR	N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Czg	Nw1	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
303	LOAMY GRAVEL (SHALLOW)	Sandy gravel / Lateritic podzolic	Ks; Uc5.23

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'46	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A		0	20		G		10 YR	5	3					D		SL	2			A	V			E			5			N	N	.		F	U	2	GR
																																	.					
2	Y	B		20	45				10 YR	5	4					D	-	SCL	2			A	V			E			5			N	N	.		M	U	2	GR
																																	.					
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COMMENTS. Surface gravel patchy; stopped by coarse gravel / stone layer.

REFERENCE RECORD	
SURVEY (102)	L B R
MAP UNIT	
SITE NO. (103)	LB 016

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A		0	20		6.6	6	2.13	0.073	39	<2	113	4.97a	1.70a	0.19a	0.29a		
2	B		20	45		7.1	10											

ND ES NT / L SIT EC D SH T 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	680572	6323045	50	29019	LB 017

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	11-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 017

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE		SURFACE							
									condition	Gravel		Stone		Boulder		
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element				abund	type	abund	type	abund	type	
	506	505	506	509	'10	504	545		544	'19	521	'19	524	'19	526	
VG	GP	PED	2		S	S	3		H	C	F	QZ	V	QZ	N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Czg	Nw4	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
621	GREY NON-CRACKING CLAY	Grey heavy soil	Uf6.13

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	BND extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'46	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'85	924
1	Y	A		0	10				2.5 Y	5	2					D	+	CL	3			A	V			E			3			N	N	.		N			
2	Y	B1		10	20				2.5 Y	6	3					D		LC	4			P	W			R			2			N	N	.		N			
3		B21		20	40				2.5 Y	7	3	F	F	F	B	D		LMC	4			P	W			R			2			N	N	.		N			
4	Y	B22		40	70				2.5 Y	8	1	C	F	D	R	D		MC	4			P	W			R			1			N	N	.		N			
5		B22		70	100				2.5 Y	8	1	C	M	D	R	D		MC	4			P	M			R			1			N	N	.		N			

COMMENTS. Classified as grey (non-calcareous) clay due to only thin surface layer and no specific WA Soil Group for loamy earths. Too pale for yellow loamy earth.

REFERENCE RECORD	
SURVEY (102)	L B R
MAP UNIT	
SITE NO. (103)	LB 017

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A		0	10		7.4	15	1.1	0.046	34	<2	78	1.75a	6.00a	1.09a	0.20a		
2	B1		10	20		7.1	10											
3	B21		20	40														
4	B22		40	70		7.2	190											
5	B22		70	100														

ND ES ENT Y L SIT EC D SI T 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	676545	6307835	50	29020	LB 018

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	11-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 018

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE		SURFACE							
									condition	Gravel		Stone		Boulder		
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element				abund	type	abund	type	abund	type	
	506	505	508	509	'10	504	545		544	'19	521	'19	524	'19	526	
GE	UP	PED	4		L	S	5		S	C	V	GC	N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Agg	Nw6	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
407	YELLOW BROWN DEEP SANDY DUPLEX (WITH GRAVEL)	Lateritic podzolic	Dy5.52

SOIL PROFILE FIELD RECORD

		HORIZ'N		DEPTH (cm)			BND		COLOUR			MOTTLES				SWS	TEXTURE		CONS			STRUCTURE					ROOTS						pH	EC	COARSE FRAGMENTS			
LAYER	SAMPLE	mst	sub	upper	lower	extent	distinctness	shape	hue	value	chroma	abundance	size	contrast	colour		qual	grade	consist	cement	type	pedality	grade	size	type	fabric	abundance	size	permeability	slaking	dispersion	w' repellence	effervescence		mS/m	abund	sh'pe	size	type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'48	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	983	964	'23	966	'65	924
1	Y	A1		0	20		A		10 YR	5	4					D		S	1			A				G			6			R	N	.		V	U	2	GC
																																		.					
2	Y	A3		20	40		G		7.5 YR	5	4					D	Y	CS	2			A	V			E			5			N	N	.		M	S	2	GR
																																		.					
3		B1		40	65				7.5 YR	5	4					D		SCL	3			A	V			E			4			N	N	.		C	S	2	GR
																																		.					
4	Y	B2		65	70				7.5 YR	5	4	F	F	D	Y	D		SC	5			A	V			E			2			N	N	.					
																																		.					
																																		.					
																																		.					

COMMENTS.

REFERENCE RECORD	
SURVEY (102)	L B R
MAP UNIT	
SITE NO. (103)	LB 018

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A1		0	20		6.4	2	0.43	0.028	29	<2	55	0.82b	0.33b	0.04b	0.14b	0.02b	<0.02
2	A3		20	40		6.6	7											
3	B1		40	65														
4	B2		65	70		6.8	6											

ND ES ENT / L SIT EC D SH T 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	676661	6307048	50	29020	LB 019

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	11-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 019

LANDFORM RECORD

L'FORM PATTERN modal slope	rel/ms class	landform pattern	L'FORM ELEMENT slope %	aspect	MT	landform element	DRAINAGE	SURFACE condition	Gravel abund	Gravel type	Stone abund	Stone type	Boulder abund	Boulder type
	506	505	508	509	'10	504	545	544	'19	521	'19	524	'19	526
GE	UP	STA	4		R	BER	4	S	N		N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Qd	Sh3	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
401	ALKALINE GREY DEEP SANDY DUPLEX	Solodic soil	Dg4.83

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'58	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'46	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A1		0	10				2.5 Y	6	2					D		S	2			A				G			6			N	N	.		N			
																																		.					
2	Y	A2		10	45				2.5 Y	6	1					D		CS	4			A	V			E			5			N	N	.		N			
																																		.					
3		B1		45	85				10 YR	7	1					D		SC	5			A	V			E			2			N	N	.		N			
																																		.					
4	Y	B2		85	100				2.5 Y	7	2	C	F	D	O	D		MC	5			A	V			E			2			N	N	.		N			
																																		.					
																																		.					
																																		.					

COMMENTS. Major part of this quadrat is a beach, although soil site is on berm. Soil could also be a pale sand over buried clay.

REFERENCE RECORD	
SURVEY (102)	L B R
MAP UNIT	
SITE NO. (103)	LB 019

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A1		0	10		7.2	6	0.18	0.011	18	<2	43	0.42a	0.34a	0.24a	0.11a		
2	A2		10	45		7.3	7											
3	B1		45	85														
4	B2		85	100		9.4	75											

ID / ESS NT / LT SIT EC( ) SH T 1

LOCATION RECORD

	MAP REFERENCES				
Sheet #	Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	676890	6306307	50	29020	LB 020

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	11-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 020

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE		SURFACE							
										Gravel		Stone		Boulder	
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element			condition	abund	type	abund	type	abund	type
	506	505	508	509	'10	504	545		544	'19	521	'19	524	'19	526
VG	GP	STA	1		F	PLA	4		S	N		N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Qd	Sh3	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999)		OTHER	FACTUAL KEY
CODE	CLASSIFICATION		(PPF) (307)
401	ALKALINE GREY DEEP SANDY DUPLEX	Solodic soil	Dy5.83

SOIL PROFILE FIELD RECORD

		HORIZ'N		DEPTH (cm)			BND		COLOUR			MOTTLES					TEXTURE		CONS			STRUCTURE					ROOTS						pH	EC	COARSE FRAGMENTS			
																			PANS																mS/m			
LAYER	SAMPLE	mst	sub	upper	lower	extent	distinctness	shape	hue	value	chroma	abundance	size	contrast	colour	SWS	qual	grade	consist	cement	type	pedality	grade	size	type	fabric	abundance	size	permeability	slaking	dispersion	w' repellence	effervescence			abund	sh'pe	size	type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'28	'27	'28	'13	'20	921	'32	'48	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A1		0	10		G		2.5 Y	6	2					D		LS	1			A				G			6			N	N	.		N			
																																		.					
2		A2		10	45		A		2.5 Y	6	2					D		S	O			A				G			7			N	N	.		N			
																																		.					
3	Y	B		45	70	+			7.5 YR	5	4	C	M	D	Y	D	Y	MC	6			A	V			E			2			N	N	.		N			
																																		.					
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																																		.					
																																		.					

COMMENTS.

L..D A...ESS...NT ... LT. SITL ..ECC.. SH... 2

REFERENCE RECORD

SURVEY (102)	L	B	R				
MAP UNIT							
SITE NO. (103)	LB 020						

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	sub	DEPTH (cm) upper	lower	extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A1		0	10		6.3	3	0.44	0.024	21	<2	27	1.25b	0.24b	0.03b	0.07b	0.02b	<0.02
2	A2		10	45														
3	B		45	70	+	8.1	25											

ND ES NT / L SIT EC SH T 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	675899	6305787	50	29020	LB 021

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	11-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 021

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE		SURFACE							
									condition	Gravel		Stone		Boulder	
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element				abund	type	abund	type	abund	type
	506	505	508	509	'10	504	545		544	'19	521	'19	524	'19	526
LE	LP	STA	1		F	PLA	4		S C	F	GC	N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Qd	Sh2	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
402	ALKALINE GREY SHALLOW SANDY DUPLEX	Solodic / Solonised brown soil	Dy4.53

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	sub	DEPTH (cm) upper	lower	extent	BND distinctness	shape	COLOUR hue	value	chroma	MOTTLES abundance	size	contrast	colour	SWS	TEXTURE qual	grade	CONS PANS consist	cement	type	STRUCTURE pedality	grade	size	type	fabric	ROOTS abundance	size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	sh'pe	size	type
'04		907	'08	910	911	'12	'55	'56	934	'15	'18	'25	'26	'27	'28	'13	'20	921	'32	'46	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A		0	15		C		10 YR	6	3					D		CS	2			A				G			6			N	N	.		V	U	2	GR
																																	.					
2	Y	B1		15	45		G		2.5 YR	6	4					D		LC	4			A	V			E			2			N	S	.		V	S	1	KC
																																	.					
3	Y	B2		45	55	+			2.5 YR	6	4					D		LMC	4			A	V			E			2			N	M	.		C	S	3	KC
																																	.					
																																	.					
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COMMENTS.

REFERENCE RECORD							
SURVEY (102)	L	B	R				
MAP UNIT							
SITE NO. (103)	LB 021						

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N		DEPTH (cm)			pH	EC	Organic	Nitrogen	Phosphorus	Phosphorus	Potassium	Calcium	Magnesium	Sodium	Potassium	Aluminium	Manganese
							mS/m	Carbon	(total)	(total)	(HCO_3)	(HCO_3)	(exch)	(exch)	(exch)	(exch)	(exch)	(exch)
	mst	sub	upper	lower	extent			%	%	mg/kg	mg/kg	mg/kg	me%	me%	me%	me%	me%	me%
904	907	'08	910	911	'12	963	964											
1	A		0	15		6.6	2	0.45	0.018	24	<2	74	1.57a	0.70a	0.06a	0.19a		
2	B1		15	45		9.5	88											
3	B2		45	55	+	9.4	130											

ND ... ES...NT ... / L... SIT... EC...D SH...T 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	679516	6306092	50	29020	LB 022

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	11-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 022

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE	SURFACE							
									Gravel		Stone		Boulder	
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element		condition	abund	type	abund	type	abund	type
	506	505	508	509	'10	504	545	544	'19	521	'19	524	'19	526
LE	LP	SAN	1		F	PLA	4	S	N		N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Czg	Sh2	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999)		OTHER	FACTUAL KEY
CODE	CLASSIFICATION		(PPF) (307)
403	GREY DEEP SANDY DUPLEX	Lateritic podzolic	Dy5.81

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	BND extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'58	934	'15	'18	'25	'26	'27	'28	'13	'20	921	'32	'46	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A1		0	10		G		2.5 Y	6	2					D		S	1			A				G			6			N	N	.		N			
																																		.					
2	Y	A2		10	35		A		2.5 Y	7	3					D		S	0			A				G			7			N	N	.		N			
																																		.					
3		B11		35	45		G		10 YR	6	8					D		SCL	4			A	V			E			4			N	N	.		C	U	2	GR
																																		.					
4	Y	B12		45	70	+			10 YR	6	8	F	F	D	R	D		SCL	5			A	V			E			3			N	N	.		V	U	2	GR
																																		.					

COMMENTS.

L...D A...ESS...NT I . . LT... SITE ...ECC...D SH... 2

REFERENCE RECORD

SURVEY (102)	L B R
MAP UNIT	
SITE NO. (103)	LB 022

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A1		0	10		6.2	2	0.42	0.022	18	<2	16	0.53b	0.10b	0.02b	0.04b	0.04b	<0.02
2	A2		10	35		6.4	1											
3	B11		35	45														
4	B12		45	70	+	6	3											

LAND ASSESSMENT FIELD SITE RECORD SHEET 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	669567	6311312	50	28667	LB 023

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	11-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 023

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE	SURFACE							
								condition	Gravel		Stone		Boulder	
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element			abund	type	abund	type	abund	type
	508	505	508	509	'10	504	545	544	'19	521	'19	524	'19	526
VG	GP	PED	2		U	HCR	4	F C	C	GC	V	GC	N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Agg	Nw6	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
304	SHALLOW GRAVEL	Sandy gravel / Lateritic podzolic	Ks; Uc1.21

SOIL PROFILE FIELD RECORD

		HORIZ'N		DEPTH (cm)			BND		COLOUR			MOTTLES					TEXTURE		CONS PANS			STRUCTURE					ROOTS						pH	EC mS/m	COARSE FRAGMENTS			
LAYER	SAMPLE	mst	sub	upper	lower	extent	distinctness	shape	hue	value	chroma	abundance	size	contrast	colour	SWS	qual	grade	consist	cement	type	pedality	grade	size	type	fabric	abundance	size	permeability	slaking	dispersion	w' repellence	effervescence			abund	sh'pe	size	type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'46	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A		0	8		G		10 YR	5	3					D		S	2			A				G			6			N	N			F	U	2	GC
2	Y	B		8	25	+			10 YR	6	3					D		S	2			A				G			6			N	N			M	U	3	GC

COMMENTS. Stopped by stony layer.

REFERENCE RECORD	
SURVEY (102)	L B R
MAP UNIT	
SITE NO. (103)	LB 023

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A		0	8		6.2	2	1.1	0.041	29	<2	27	1.77b	0.40b	0.03b	0.07b	0.09b	<0.02
2	B		8	25		6.2	2											

LAND ASSESSMENT PTY LTD - SITE RECORD SHEET 1

LOCATION RECORD

	MAP REFERENCES				
Sheet #	Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	669263	6307324	50	28667	LB 024

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	11-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 024

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE		SURFACE	Gravel		Stone		Boulder	
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element			condition	abund	type	abund	type	abund	type
	506	505	508	509	'10	504	545		544	'19	521	'19	524	'19	526
VG	GP	STA	2		U	S	4		F C	V	KC	N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Qd	Sh2	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999)		OTHER	FACTUAL KEY
CODE	CLASSIFICATION		(PPF) (307)
502	ALKALINE GREY SHALLOW LOAMY DUPLEX (CALCAREOUS EARTH)	Solodic or Solonised brown soil	Dy2.53

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	extent	BND distinctness	BND shape	COLOUR hue	value	chroma	MOTTLES abundance	size	contrast	colour	SWS	TEXTURE qual	TEXTURE grade	CONS consist	PANS cement	PANS type	STRUCTURE pedality	grade	size	type	fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	sh'pe	size	type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'46	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A		0	10		G		10 YR	4	2					D		SCL	2			A	V			E			4			R	N	.		N			
																																		.					
2	Y	B		10	30				2.5 Y	5	2					D		LC	3			A	V			E			3			N	S	.		C	U	2	KC
																																		.					
																																		.					
																																		.					
																																		.					
																																		.					
																																		.					
																																		.					

COMMENTS. Possibly also able to classify as Calcareous Earth. Stopped by calcrete.

L D A SS NT I LTL SITE CO SHL 2

REFERENCE RECORD							
SURVEY (102)	L	B	R				
MAP UNIT							
SITE NO. (103)	LB 024						

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A		0	10		7.8	37	1.67	0.101	59	3	380	12.66a	3.85a	0.62a	1.22a		
2	B		10	30		9.3	41											

ND ...SES...ENT ...Y L... SI... RECORD SHEET 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	669369	6308036	50	28667	LB 025

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	11-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 025

LANDFORM RECORD

L'FORM PATTERN modal slope	rel/ms class	landform pattern	L'FORM ELEMENT slope %	aspect	MT	landform element	DRAINAGE	SURFACE condition	Gravel abund	Gravel type	Stone abund	Stone type	Boulder abund	Boulder type
	508	505	508	509	'10	504	545	544	'19	521	'19	524	'19	526
LE	LP	STA	1		F	PLA	3	S C	F	GF	N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Qd	Sh3	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
407	YELLOW BROWN DEEP SANDY DUPLEX (WITH GRAVEL)	Solodic	Dy5.53

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'58	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'48	'48	'35	'36	'37	936	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A1		0	10		G		10 YR	6	3					D		S	2			A				G			6			R	N	.		F	U	2	GC
																																	.					
2	Y	A31		10	30		D		10 YR	5	3					D		S	2			A				G			7			N	N	.		M	U	2	GC
																																	.					
3		A32		30	50		C		2.5 Y	5	3					D	+	SL	2			A	V			E			5			N	N	.		M	U	3	GC
																																	.					
4	Y	B		50	65	+			10 YR	5	4	F	M	D	R	D		LC	4			A	V			E			3			N	N	.		V	S	2	GF
																																	.					
																																	.					
																																	.					

COMMENTS.

REFERENCE RECORD	
SURVEY (102)	L B R
MAP UNIT	
SITE NO. (103)	LB 025

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'06	910	911	'12	963	964											
1	A1		0	10		6.7	3	1.03	0.051	38	<2	70	2.85a	0.38a	0.07a	0.18a		
2	A31		10	30		7.4	6											
3	A32		30	50														
4	B		50	65	+	8.8	55											

LAND ASSESSMENT FIELD SITE RECORD SHEET 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	670367	6308238	50	228667	LB 026

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	11-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 026

LANDFORM RECORD

L'FORM PATTERN modal slope	rel/ms class	landform pattern	L'FORM ELEMENT slope %	aspect	MT	landform element	DRAINAGE	SURFACE condition	Gravel abund	Gravel type	Stone abund	Stone type	Boulder abund	Boulder type
	508	505	508	509	'10	504	545	544	'19	521	'19	524	'19	526
VG	GP	STA	4	E	S	LUN	4	F	N		N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Qd	Sh3	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
542	CALCAREOUS LOAMY EARTH	Solonised brown soil (Morrell soil)	Gc1.22

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'48	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	984	'23	966	'65	924
1	Y	A1		0	10		G		10 YR	3	2					D		L	3			A	V			E			5			N	N	.		N			
																																		.					
2		A3		10	25		G		10 YR	4	3					D		CL	3			A	V			E			4			N	M	.		N			
																																		.					
3		B1		25	50		C		10 YR	5	4					D		LC	4			A	V			E			3			N	H	.		V	S	2	KC
																																		.					
4	Y	B21		50	95		C		2.5 Y	6	2	F	F	F	B	D		MC	4			A	V			E			2			N	H	.		V	S	2	KC
																																		.					
5	Y	B22		95	100	+			2.5 Y	6	2	F	F	F	B	D		MC	4			A	V			E			2			N	H	.		M	A	3	KC
																																		.					

COMMENTS.

REFERENCE RECORD	
SURVEY (102)	L B R
MAP UNIT	
SITE NO. (103)	LB 026

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A1		0	10		7.1	13	2.1	0.121	130	13	454	7.60a	3.88a	0.28a	1.16a		
2	A3		10	25														
3	B1		25	50														
4	B21		50	95		9.2	200											
5	B22		95	100	+	8.9	250											

LAND ASSESSMENT ... SITE RECORD SHEET 1

LOCATION RECORD

	MAP REFERENCES				
Sheet #	Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	670239	6308508	50	28667	LB 027

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	11-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 027

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE		SURFACE						
									condition	Gravel		Stone		Boulder	
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element				abund	type	abund	type	abund	type
	508	505	508	509	'10	504	545		544	'19	521	'19	524	'19	526
VG	GP	STA	2		S	BEA	3		L	N		N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Qd	Sh3	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999)		OTHER	FACTUAL KEY (PPF) (307)
CODE	CLASSIFICATION		
444	PALE DEEP SAND (over alkaline grey clay)	Grey siliceous sand (solodic?)	Uc1.21/c

SOIL PROFILE FIELD RECORD

		HORIZ'N		DEPTH (cm)			BND		COLOUR			MOTTLES				SWS	TEXTURE		CONS PANS			STRUCTURE					ROOTS						pH	EC	COARSE FRAGMENTS			
LAYER	SAMPLE	mst	sub	upper	lower	extent	distinctness	shape	hue	value	chroma	abundance	size	contrast	colour		qual	grade	consist	cement	type	pedality	grade	size	type	fabric	abundance	size	permeability	slaking	dispersion	w' repellence	effervescence		mS/m	abund	sh'pe	size	type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'48	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A1		0	8		G		10 YR	5	2					D		S	1			A				G			7			R	N	.		N			
																																	.					
2		B11		8	35		G		10 YR	6	2					D		S	0			A				G			7			R	N	.		N			
																																	.					
3	Y	B12		35	50		G		10 YR	6	2					M	Y	S	1			A				G			7			N	N	.		N			
																																	.					
4		B2		50	90		A		10 YR	7	2					W	Y	S	1			A				G			7			N	N	.		N			
																																	.					
5	Y	D		90	100	+			2.5 Y	7	1	F	M	F	L	W		SC	4			A	V			E			2			N	N	.		N			
																																	.					

COMMENTS. Factual Key possibly also Dg4.83

REFERENCE RECORD	
SURVEY (102)	L B R
MAP UNIT	
SITE NO. (103)	LB 027

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A1		0	8		6.8	7	0.3	0.017	27	2	35	0.72a	0.34a	0.19a	0.09a		
2	B11		8	35														
3	B12		35	50		7.2	4											
4	B2		50	90														
5	D		90	100	+	9.2	52											

ND ES NT / L SIT EC D SH T 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	648765	6315358	50	28173	LB 028

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	12-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 028

LANDFORM RECORD

L'FORM PATTERN modal slope	rel/ms class	landform pattern	L'FORM ELEMENT slope %	aspect	MT	landform element	DRAINAGE	SURFACE condition	Gravel abund	Gravel type	Stone abund	Stone type	Boulder abund	Boulder type
	506	505	508	509	'10	504	545	544	'19	521	'18	524	'19	526
GE	GP	PED	4		S	HSL	4	H C	F	QZ	N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Czo/Agg	Nw4	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
408	YELLOW BROWN SHALLOW SANDY DUPLEX	Solodic	Dy5.13

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'46	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A1		0	5		G		10 YR	5	3					T		LS	2			A	V			E			6			R	N	.		F	S	1	QZ
																																	.					
2		A2		5	20		G		10 YR	5	3					D		LS	2			A	V			E			7			R	N	.		F	S	1	QZ
																																	.					
3	Y	B1		20	40		C		10 YR	5	4					D		SCL	3			A	V			E			4			N	N	.		N			
																																	.					
4	Y	B2		40	100	+			10 YR	6	6	C	F	F	G	D		LC	4			P	W			R			2			N	N	.		N			
																																	.					
																																	.					
																																	.					

COMMENTS.

REFERENCE RECORD	
SURVEY (102)	L B R
MAP UNIT	
SITE NO. (103)	LB 028

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A1		0	5		6.4	10	1.11	0.043	38	2	55	1.87b	1.96b	0.32b	0.14b	<0.02	<0.02
2	A2		5	20														
3	B1		20	40		7.8	33											
4	B2		40	100	+	9	67											

ND ES ENT Y L SIT EC D SH T 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	648863	6316489	50	28173	LB 029

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	11-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 029

LANDFORM RECORD

L'FORM PATTERN modal slope	rel/ms class	landform pattern	L'FORM ELEMENT slope %	aspect	MT	landform element	DRAINAGE	SURFACE condition	Gravel abund	Gravel type	Stone abund	Stone type	Boulder abund	Boulder type
	506	505	506	509	'10	504	545	544	'19	521	'19	524	'19	526
VG	GR	PED	3		U	HSL	3	H C	F	QZ	V	QZ	N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Czo/Agg	Nw4	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
541	BROWN LOAMY EARTH	Yellow earth / Brown heavy soil	Gn2.81

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	BND extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'48	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	983	964	'23	986	'85	924
1	Y	A1		0	10		G		10 YR	3	2					D	Y	CL	2			A	V			E			4			N	N	.					
																																	.					
2		B1		10	35		G		10 YR	5	3					D	Y	LC	3			A	V			E			3			N	N	.		F	S	1	QZ
																																	.					
3	Y	B21		35	70		G		10 YR	6	3	F	F	F	B	D		LMC	4			P	W			R			2			N	N	.					
																																	.					
4	Y	B22		70	100	+			10 YR	6	4	F	F	D	R	D		LMC	4			P	W			R			2			N	N	.					
																																	.					
																																	.					
																																	.					

COMMENTS.

REFERENCE RECORD							
SURVEY (102)	L	B	R				
MAP UNIT							
SITE NO. (103)	LB 029						

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N		DEPTH (cm)			pH	EC	Organic	Nitrogen	Phosphorus	Phosphorus	Potassium	Calcium	Magnesium	Sodium	Potassium	Aluminium	Manganese
							mS/m	Carbon	(total)	(total)	(HCO_3)	(HCO_3)	(exch)	(exch)	(exch)	(exch)	(exch)	(exch)
	mst	sub	upper	lower	extent			%	%	mg/kg	mg/kg	mg/kg	me%	me%	me%	me%	me%	me%
904	907	'08	910	911	'12	963	964											
1	A1		0	10		6.3	53	2.57	0.105	70	3	130	4.89b	6.05b	0.48b	0.22b	0.02b	0.05b
2	B1		10	35														
3	B21		35	70		5.7	74											
4	B22		70	100	+	5.1	140											

LAND ASSESSMENT ... SITE RECORD SHEET 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	666241	6312660	50	29023	LB 030

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	12-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 030

LANDFORM RECORD

L'FORM PATTERN modal slope	rel/ms class	landform pattern	L'FORM ELEMENT slope %	aspect	MT	landform element	DRAINAGE		SURFACE condition	Gravel abund	Gravel type	Stone abund	Stone type	Boulder abund	Boulder type
	506	505	508	509	'10	504	545		544	'19	521	'19	524	'19	526
GE	GP	PED	3		M	S	4		S	F	GF	N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Qc	Nw2	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
407	YELLOW BROWN DEEP SANDY DUPLEX (WITH GRAVEL)	Lateritic podzolic	Dy5.82

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	BND extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'48	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	986	'85	924
1	Y	A1		0	10		C		10 YR	6	3					D		LS	1			A				G			6			N	N	.		V	S	2	GF
2	Y	A2		10	40		G		7.5 YR	5	3					D		CS	2			A				G			6			N	N	.		M	S	3	GF
3	Y	B		40	50	+			5 YR	4	4	F	F	F	Y	D	-	SCL	6			A	V			E			3			N	N	.		F	S	2	GF

COMMENTS. Surface gravels patchy; considered likely to be more clayey at depth. Unable to penetrate further - very dense subsoil.

REFERENCE RECORD	
SURVEY (102)	L B R
MAP UNIT	
SITE NO. (103)	LB 030

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A1		0	10		6.1	2	0.54	0.03	22	<2	23	0.81b	0.27b	0.03b	0.06b	0.06b	<0.02
2	A2		10	40		6.3	3											
3	B		40	50	+	6.6	3											

LAND ASSESSMENT FIELD - SITE RECORD SHEET 1

LOCATION RECORD

Sheet #	MAP REFERENCES			Reserve #	Veg Quadrat #
	Easting	Northing	Zone		
112	109	110	111		
2361	663572	6315870	50	29023	LB 031

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	12-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 031

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE	SURFACE							
									Gravel		Stone		Boulder	
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element		condition	abund	type	abund	type	abund	type
	506	505	508	509	'10	504	545	544	'19	521	'19	524	'19	526
GE	UR	RIS	5		U	HSL	5	F	M	GF	F	GF	N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Czl	Nw2	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999)		OTHER	FACTUAL KEY
CODE	CLASSIFICATION		(PPF) (307)
303	LOAMY GRAVEL (SHALLOW)	Sandy gravel / Lateritic podzolic	Ks; Uc5.21

SOIL PROFILE FIELD RECORD

		HORIZ'N		DEPTH (cm)			BND		COLOUR			MOTTLES					TEXTURE		CONS			STRUCTURE					ROOTS						pH	EC	COARSE FRAGMENTS			
LAYER	SAMPLE	mst	sub	upper	lower	extent	distinctness	shape	hue	value	chroma	abundance	size	contrast	colour	SWS	qual	grade	consist	cement	type	pedality	grade	size	type	fabric	abundance	size	permeability	slaking	dispersion	w' repellence	effervescence		mS/m	abund	sh'pe	size	type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'48	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A		0	10		G		10 YR	4	3					D		SL	2			A	V			E			5			R	N			C	U	2	GR
2	Y	B		10	30	+			10 YR	4	4					D		SL	2			A	V			E			5			N	N			M	S	2	GR
																																			F	S	3	GR

COMMENTS. Possibly also classified as Stony Soil.

REFERENCE RECORD							
SURVEY (102)	L	B	R				
MAP UNIT							
SITE NO. (103)	LB 031						

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A		0	10		6.1	2	1.38	0.043	31	<2	39	1.52b	0.40b	0.04b	0.10b	0.07b	<0.02
2	B		10	30	+	6.3	4											

LAND ASSESSMENT FIELD SITE RECORD SHEET 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	672857	6292396	50	25113	LB 032

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	12-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 032

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE	SURFACE							
								condition	Gravel		Stone		Boulder	
modal	rel/ms	landform			MT	landform			abund	type	abund	type	abund	type
slope	class	pattern	slope %	aspect		element								
	506	505	506	509	'10	504	545	544	'19	521	'19	524	'19	526
VG	GP	PED	2		S	S	4	F C	F	GF	N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Czg	Nw2	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999)		OTHER	FACTUAL KEY (PPF) (307)
CODE	CLASSIFICATION		
545	YELLOW LOAMY EARTH	Yellow earth	Gn2.26

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'58	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'48	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	984	'23	986	'65	924
1	Y	A1		0	10		G		10 YR	5	3					D	Y	SL	2			A	V			E			6			N	N	.		F	U	2	GC
																																	.					
2		A2		10	40		G		10 YR	6	4					D		SCL	3			A	V			E			5			N	N	.		N			
																																	.					
3	Y	B21		40	70		C		10 YR	6	6	F	F	F	G	D		LC	4			A	V			E			3			N	N	.		N			
																																	.					
4	Y	B22		70	100	+			7.5 YR	5	4	M	F	F	Y	D		LMC	5										2			N	N	.		F	S	2	GF
																																	.					

COMMENTS. Many surface gravel and stone in places.

REFERENCE RECORD	
SURVEY (102)	L B R
MAP UNIT	
SITE NO. (103)	LB 032

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A1		0	10		6.5	6	0.94	0.039	41	<2	180	2.38a	1.77a	0.19a	0.46a		
2	A2		10	40														
3	B21		40	70		9	190											
4	B22		70	100	+	8.6	190											

LAND ASSESSMENT FIELD SITE RECORD SHEET 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	676085	6294261	50	25113	LB 033

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	12-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 033

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE		SURFACE							
									condition	Gravel		Stone		Boulder		
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element				abund	type	abund	type	abund	type	
	506	505	508	509	'10	504	545		544	'19	521	'19	524	'19	526	
LE	LP	PLA	0		F	PLA	2		S	C	V	QZ	N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Cag	Nw2	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999)		OTHER	FACTUAL KEY (PPF) (307)
CODE	CLASSIFICATION		
402	ALKALINE GREY SHALLOW SANDY DUPLEX	Solodic soil (Heavy grey soil)	Dg4.13

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	BND extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'58	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'46	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A		0	5		C		10 YR	5	2					D		LS	2				V			E			6			N	N	.		N			
																																	.					
2	Y	B11		5	30		C		5 Y	7	2	F	F	F	B	D		ZC	4				M			R			2			N	H	.		N			
																																	.					
3	Y	B12		30	50		C		5 Y	8	1	C	M	D	G	D		ZC	3				V			E			2			N	S	.		N			
																																	.					
4	Y	B2		50	100	+			7.5 YR	6	3	M	M	D	L	T		MHC	5				W			R			1			N	S	.		V	U	3	UC
																																	.					
																																	.					
																																	.					

COMMENTS. Evidence of surface sheet flow (ie sandy wash veneer) on soil which might otherwise be classified as grey clay.

REFERENCE RECORD	
SURVEY (102)	L B R
MAP UNIT	
SITE NO. (103)	LB 033

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A		0	5		6.8	4	0.69	0.029	27	<2	63	1.48a	1.33a	0.17a	0.16a		
2	B11		5	30		9.4	180											
3	B12		30	50		9.4	160											
4	B2		50	100	+	9.2	220											

ND ES ENT Y L SIT EC D SI T 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	676945	6296921	50	25113	LB 034

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	12-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 034

LANDFORM RECORD

L'FORM PATTERN modal slope	rel/ms class	landform pattern	L'FORM ELEMENT slope %	aspect	MT	landform element	DRAINAGE	SURFACE condition	Gravel abund	Gravel type	Stone abund	Stone type	Boulder abund	Boulder type
	508	505	508	509	'10	504	545	544	'19	521	'19	524	'19	526
VG	GP	PED	3		S	S	4	S V		GC	N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Czg	Nw4	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
401	ALKALINE GREY DEEP SANDY DUPLEX	Solodic soil / Lateritic podzolic	Dg4.83

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	BND extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'28	'27	'28	'13	'20	921	'32	'48	'48	'35	'38	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A1		0	5		G		10 YR	6	3					D		LS	1			A				G			6			R	N	.		N			
2	Y	A21		5	25		C		10 YR	7	3					D		S	1			A				G			7			R	N	.		N			
3		A22		25	40		A		10 YR	7	3					D		S	1			A				G			7			N	N	.		M	U	2	GC
4	Y	B		40	50	+			10 YR	6	6	C	M	F	R	D		LC	6			A	V			E			2			N	S	.		V	U	2	GR

COMMENTS. Tempting to classify as lateritic podzolic foremost but for alkaline reaction trend.

REFERENCE RECORD							
SURVEY (102)	L	B	R				
MAP UNIT							
SITE NO. (103)	LB 034						

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A1		0	5		6.2	4	0.6	0.02	20	<2	35	0.90b	0.27b	0.07b	0.09b	0.05b	<0.02
2	A21		5	25		7.3	5											
3	A22		25	40														
4	B		40	50	+	9.3	67											

LAND ASSESSMENT PTY LTD SITE RECORD SHEET 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	666848	6308240	50	29026	LB 035

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	8-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 035

LANDFORM RECORD

L'FORM PATTERN modal slope	rel/ms class	landform pattern	L'FORM ELEMENT slope %	aspect	MT	landform element	DRAINAGE		SURFACE condition	Gravel abund	Gravel type	Stone abund	Stone type	Boulder abund	Boulder type
	506	505	508	509	'10	504	545		544	'19	521	'19	524	'18	526
LE	LP	STA	< 1		V	DDE	2		C	N		N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Qd	La2	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
402	ALKALINE GREY SHALLOW SANDY DUPLEX (OVER BURIED SAND)	Solodic soil	Dg4.13

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	BND extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'48	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'80	'81	983	984	'23	988	'85	924
1	Y	A		0	15		C		10 YR	5	2					D	Y	S	1			A				G			7			N	N	.		N			
																																		.					
2	Y	B		15	50		G		2.5 Y	6	2					T		MC	3			P	M			R			1			N	S	.		N			
																																		.					
3		B		50	70		G		2.5 Y	7	2	F	M	D	O	T		MC	4			P	M			R			1			N	S	.		N			
																																		.					
4		2B		70	90		C		2.5 Y	7	2	C	C	D	O	M	Y	CS	3			A							6			N	N	.		N			
																																		.					
5	Y	2B		90	100	+			2.5 Y	7	1	C	C	P	O	W		CS	2			A							6			N	N	.		N			
																																		.					

COMMENTS. At former Mattiske Quadrat Peg 4. Moderately deep duplex soil over buried sand.

REFERENCE RECORD	
SURVEY (102)	L B R
MAP UNIT	
SITE NO. (103)	LB 035

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A		0	15		6.5	200	0.61	0.029	33	2	80	1.04a	1.92a	0.58a	0.16a		
2	B		15	50		8.8	270											
3	B		50	70														
4	2B		70	90														
5	2B		90	100	+	7.9	270											

...ND ...SES...ENT ...Y L... SI... RECO...D SHEET 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	667181	6308647	50	29026	LB 036

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	8-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 036

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE	SURFACE							
								condition	Gravel		Stone		Boulder	
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element			abund	type	abund	type	abund	type
	506	505	508	509	'10	504	545	544	'19	521	'19	524	'19	526
LE	LP	PLA	1		F	PLA	3	C	N		N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Qd	La2	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
402	ALKALINE GREY SHALLOW SANDY DUPLEX	Solodic soil / Solonised brown soil	Dy5.13

SOIL PROFILE FIELD RECORD

		HORIZ'N		DEPTH (cm)			BND		COLOUR			MOTTLES				SWS	TEXTURE		CONS PANS			STRUCTURE					ROOTS		permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS			
LAYER	SAMPLE	mst	sub	upper	lower	extent	distinctness	shape	hue	value	chroma	abundance	size	contrast	colour		qual	grade	consist	cement	type	pedality	grade	size	type	fabric	abundance	size								abund	sh'pe	size	type
'04		907	'08	910	911	'12	'55	'58	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'46	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A1		0	10		C		10 YR	4	2					D		WCS	2			A				E			6			R	N	.		N			
																																		.					
2	Y	B1		10	20		G		2.5 Y	6	2					D		CLS	4			P	M	5	SB	R			4			N	S	.		N			
																																		.					
3	Y	B2		20	50		A		2.5 Y	6	2	F	M	D	B	D		MC	3										2			N	H	.		C	U	3	KC
																																		.					
																																		.					
																																		.					
																																		.					
																																		.					

COMMENTS. Very near Mattiske Quadrat LG9 but unable to locate. Stopped by rock.

D A ESS NT LT SITL ECC SH 2

REFERENCE RECORD							
SURVEY (102)	L	B	R				
MAP UNIT							
SITE NO. (103)	LB 036						

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A1		0	10		7	8	1.25	0.074	59	2	258	5.46a	2.84a	0.24a	0.66a		
2	B1		10	20		9.4	79											
3	B2		20	50		9.6	80											

LAND ASSESSMENT ... / LTE SITE RECORD SHEET 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	661254	6317113	50	29024	LB 037

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	9-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 037

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE	SURFACE							
								condition	Gravel		Stone		Boulder	
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element			abund	type	abund	type	abund	type
	508	505	508	509	'10	504	545	544	'19	521	'19	524	'19	528
LE	LP	STA	< 1		F	VLF	4	C	N		N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Qd	La2	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
407	YELLOW BROWN DEEP SANDY DUPLEX	Yellow podzolic	Dy4.11

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'46	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A1		0	4		C		10 YR	4	2					D	Y	S	1			A	G			G			7			R	N	.		N			
																																	.					
2		A31		4	20		G		10 YR	5	3					D		S	0			A	G			G			7			R	N	.		N			
																																	.					
3	Y	A32		20	55		A		2.5 Y	6	2					D		S	0			A	G			G			7			R	N	.		N			
																																	.					
4	Y	B		55	80	+			10 YR	6	3	C	M	D	R	D		LMC	5			P	W		AB	R			2			R	N	.		N			
																																	.					
																																	.					
																																	.					

COMMENTS. At former Mattiske Quadrat Peg 1. Sandplain rise within valley flat.

REFERENCE RECORD	
SURVEY (102)	L B R
MAP UNIT	
SITE NO. (103)	LB 037

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A1		0	4		6.1	2	0.7	0.032	30	<2	8	1.13b	0.14b	<0.02	0.02b	0.05b	<0.02
2	A31		4	20														
3	A32		20	55		6.9	2											
4	B		55	80	+	6.5	60											

LAND ASSESSMENT ... / LB SITE RECORD SHEET 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	660460	6317867	50	29024	LB 038

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	10-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 038

LANDFORM RECORD

L'FORM PATTERN modal slope	rel/ms class	landform pattern	L'FORM ELEMENT slope %	aspect	MT	landform element	DRAINAGE	SURFACE condition	Gravel abund	Gravel type	Stone abund	Stone type	Boulder abund	Boulder type
	506	505	508	509	'10	504	545	544	'19	521	'19	524	'19	528
LE	LP	STA	1		F	BKP	4	S	N		N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
QI	La2	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
403	GREY DEEP SANDY DUPLEX	Yellow podzolic	Dy4.11

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'58	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'48	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'80	'61	963	964	'23	986	'65	924
1	Y	A11		0	10		D		10 YR	5	2					D		S	0			A	G			G			7			R	N	.		N			
																																	.					
2		A12		10	30				10 YR	5	2					D		S	0			A	G			G			7			N	N	.		N			
																																	.					
3	Y	A3		30	50				2.5 Y	6	2					D		S	0			A	G			G			7			N	N	.		N			
																																	.					
4	Y	B		50	80	+			2.5 Y	6	2	F	M	D	B	T		SC	4			P	W			R			2			N	N	.		N			
																																	.					
																																	.					
																																	.					

COMMENTS. Near Mattiske Quadrat LG7 but unable to locate.

REFERENCE RECORD	
SURVEY (102)	L B R
MAP UNIT	
SITE NO. (103)	LB 038

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A11		0	10		6	2	0.93	0.04	27	<2	12	1.21b	0.19b	0.02	0.03b	0.05b	0.03b
2	A12		10	30														
3	A3		30	50		6.5	6											
4	B		50	80	+	6.2	70											

_ND ... ES...NT ... / L... SIT... ECO...D SH...T 1

LOCATION RECORD					
	MAP REFERENCES				
Sheet #	Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	660238	6318177	50	29024	LB 039

REFERENCE RECORD			
Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	9-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 039

LANDFORM RECORD															
L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE		SURFACE						
										Gravel		Stone		Boulder	
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element			condition	abund	type	abund	type	abund	type
	506	505	508	509	'10	504		545	544	'19	521	'19	524	'19	526
VG	GP	STA	2		F	BKP	2		H	N		N		N	

EXISTING MAPPING RECORD (previous studies)		
GEOLOGY	SOIL-LANDSCAPE	OTHER
Ql	La2	

SOIL CLASSIFICATION RECORD (this survey)			
WA SOIL GROUP (Schoknecht 1999)		OTHER	FACTUAL KEY
CODE	CLASSIFICATION		(PPF) (307)
621	GREY NON-CRACKING CLAY	Non-cracking friable clay/Grey heavy soil	Uf6.13

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'46	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A		0	5		G		10 YR	4	1					D		LMC				P	W		SB	R			2			N	N	.		N			
																																		.					
2		B1		5	20		C		10 YR	4	1	F	M	D	D	D		LMC				P	W		AB	R			2			N	N	.		N			
																																		.					
3	Y	B2		20	80	+			10 YR	6	2	V	F	D	O	T		MHC											1			N	N	.		N			
																																		.					
																																		.					
																																		.					
																																		.					
																																		.					

COMMENTS. Very near Mattiske Quadrat LG8 but unable to locate. Saline lake margin - some surface cracking but not strong.

REFERENCE RECORD								
SURVEY (102)	L	B	R					
MAP UNIT								
SITE NO. (103)	LB 039							

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A		0	5		6.9	8	2.2	0.155	110	8	512	6.15a	6.91a	6.49a	1.31a		
2	B1		5	20														
3	B2		20	80	+	5.7	470											

LAND ASSESSMENT PTY LTD SITE RECORD SHEET 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	659273	6319349	50	29024	LB 041

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	9-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 041

LANDFORM RECORD

L'FORM PATTERN modal slope	rel/ms class	landform pattern	L'FORM ELEMENT slope %	aspect	MT	landform element	DRAINAGE	SURFACE condition	Gravel abund	Gravel type	Stone abund	Stone type	Boulder abund	Boulder type
	506	505	508	509	'10	504	545	544	'19	521	'19	524	'19	526
VG	GP	STA	3		S	BEA	2	S	N		N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Qd	La2	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
402	ALKALINE GREY SHALLOW SANDY DUPLEX	Solodic soil	Dg4.13

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	BND extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'06	910	911	'12	'55	'56	934	'15	'16	'25	'28	'27	'28	'13	'20	921	'32	'48	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A		0	20		A		2.5 Y	5	1					M		S	1			A				G			7			N	N	.		N			
2	Y	B21		20	40		D		10 YR	6	1	V	F	F	P	W		LMC	3			P	W			R			2			N	N	.		N			
3	Y	B22		40	100	+			5 Y	7	2	F	M	D	O	W		HC	5			P	W			R			1			N	N	.		N			

COMMENTS. At former Mattiske Quadrat LG5. Watertable at 10 cm. Could also be classified as clay with unrelated surface sand veneer.

REFERENCE RECORD	
SURVEY (102)	L B R
MAP UNIT	
SITE NO. (103)	LB 041

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminium (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A		0	20		7.5	5	0.59	0.031	28	2	82	2.07a	1.18a	1.20a	0.21a		
2	B21		20	40		9.6	67											
3	B22		40	100	+	8.8	210											

LAND ASSESSMENT PTY LTD SITE RECORD SHEET 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	672075	6306572	50	29021	LB 042

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	9-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LB 042

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE	SURFACE							
									Gravel		Stone		Boulder	
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element		condition	abund	type	abund	type	abund	type
	506	505	506	509	'10	504	545	544	'19	521	'19	524	'19	528
LE	LP	STA	1		F	BKP	2	H C	N		N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Qi	Sh3	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999)		OTHER	FACTUAL KEY
CODE	CLASSIFICATION		(PPF) (307)
621	GREY NON-CRACKING CLAY	Non-cracking friable clay/Grey heavy soil	Uf6.13

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		807	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'46	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A1		0	5		G		5 Y	5	1					D		ZC	4			P	S	5	AB	R			3			N	S	.		N			
																																	.					
2		B1		5	15		C		5 Y	5	1					D		ZC	4			P	M	5	SB	R			3			N	M	.		N			
																																	.					
3	Y	B21		15	50		C		5 Y	6	2	V	F	F	B	T		MC	3										2			N	M	.		N			
																																	.					
4	Y	B22		50	100	+			5 Y	7	2					M		MC	3										1			N	S	.		N			
																																	.					
																																	.					
																																	.					

COMMENTS. At former Mattiske Quadrat Peg 5. Lake margin.

REFERENCE RECORD	
SURVEY (102)	L B R
MAP UNIT	
SITE NO. (103)	LB 042

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminum (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A1		0	5		8.5	120	0.96	0.104	110	2	1100	8.02c	3.92c	1.80c	3.64c		
2	B1		5	15														
3	B21		15	50		8.4	710											
4	B22		50	100	+	8.3	890											

LAND ASSESSMENT PTY LTD SITE RECORD SHEET 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	664133	6313406	50	29023	LG 1

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	9-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LG 1

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE	SURFACE							
								condition	Gravel abund	Gravel type	Stone abund	Stone type	Boulder abund	Boulder type
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element									
	506	505	506	509	'10	504	545	544	'19	521	'19	524	'19	526
LE	LP	STA	1		F	VLF	3	F	N		N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Qd	La2	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
402	ALKALINE GREY SHALLOW SANDY DUPLEX	Solodic soil	Dg4.13

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	BND extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'58	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'46	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	983	984	'23	986	'65	924
1	Y	A		0	5		C		2.5 Y	4	1					D		S	1			A				G			6			N	N	.		N			
																																	.					
2		B1		5	30		D		2.5 Y	6	2					T		ZC	4			P	W			R			2			N	M	.		N			
																																	.					
3	Y	B21		30	70		G		2.5 Y	7	2	V	F	F	O	T		ZMC	4			P	W			R			2			N	S	.		N			
																																	.					
4	Y	B22		70	100	+			2.5 Y	7	2	C	M	D	O	T		ZMC	4			P	W			R			2			N	N	.		N			
																																	.					
																																	.					

COMMENTS. At former Mattiske Quadrat LG1.

REFERENCE RECORD							
SURVEY (102)	L	B	R				
MAP UNIT							
SITE NO. (103)	LG 1						

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminum (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A		0	5		6.7	24	0.77	0.032	29	<2	73	1.40a	0.94a	0.38a	0.13a		
2	B1		5	30														
3	B21		30	70		9.2	200											
4	B22		70	100	+	7.4	170											

LAND ASSESSMENT PTY LTD SITE RECORD SHEET 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	664327	6313562	50	29023	LG 2

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	9-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LG 2

LANDFORM RECORD

L'FORM PATTERN modal slope	rel/ms class	landform pattern	L'FORM ELEMENT slope %	aspect	MT	landform element	DRAINAGE		SURFACE condition	Gravel abund	Gravel type	Stone abund	Stone type	Boulder abund	Boulder type
	506	505	508	509	'10	504	545		544	'19	521	'19	524	'19	526
VG	GP	PED	1		L	FOO	4		S	C	N		N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Qc	Sh4	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
401	ALKALINE GREY DEEP SANDY DUPLEX	Solodic soil or Solonised brown soil	Dg4.13

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'58	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'48	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A1		0	10		G		10 YR	6	3					D		VWCS	2			A				G			6			R	N	.		N			
																																	.					
2		A3		10	35		C		10 YR	6	3					D		S	1			A				G			7			N	N	.		N			
																																	.					
3	Y	B21		35	70		G		10 YR	7	2	F	F	D	O	D		LC	4			P	M			R			2			N	N	.		V	S	2	KC
																																	.					
4	Y	B22		70	100	+			10 YR	7	3	C	M	D	R	D		LMC	5			P	M			R			2			N	N	.		N			
																																	.					
																																	.					
																																	.					

COMMENTS. At former Mattiske Quadrat LG2.

REFERENCE RECORD								
SURVEY (102)	L	B	R					
MAP UNIT								
SITE NO. (103)	LG 2							

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N		DEPTH (cm)			pH	EC	Organic	Nitrogen	Phosphorus	Phosphorus	Potassium	Calcium	Magnesium	Sodium	Potassium	Aluminum	Manganese
							mS/m	Carbon	(total)	(total)	(HCO_3)	(HCO_3)	(exch)	(exch)	(exch)	(exch)	(exch)	(exch)
	mst	sub	upper	lower	extent			%	%	mg/kg	mg/kg	mg/kg	me%	me%	me%	me%	me%	me%
904	907	'08	910	911	'12	963	964											
1	A1		0	10		6.1	2	0.64	0.029	19	<2	16	1.03b	0.26b	0.02b	0.04b	0.05b	<0.02
2	A3		10	35														
3	B21		35	70		9.4	59											
4	B22		70	100	+	9.6	85											

LAND ASSESSMENT PTY LTD SITE RECORD SHEET 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	664991	6313880	50	29023	LG 3

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	9-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LG 3

LANDFORM RECORD

L'FORM PATTERN modal slope	rel/ms class	landform pattern	L'FORM ELEMENT slope %	aspect	MT	landform element	DRAINAGE	SURFACE condition	Gravel abund	Gravel type	Stone abund	Stone type	Boulder abund	Boulder type
	506	505	508	509	'10	504	545	544	'19	521	'19	524	'19	526
VG	GP	PED	1		F	FOO	4	F	N		N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Qc	Sh4	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
542	CALCAREOUS LOAMY EARTH	Solonised brown soil / Red heavy soil	Gc2.22

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'46	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A		0	10		G		10 YR	5	4					D		SL	2			A	V			E			6			N	N	.		N			
																																		.					
2		B1		10	30		D		10 YR	6	6					D		CL	3			A	V			E			3			N	N	.		F	U	2	KC
																																		.					
3	Y	B2		30	50	+			10 YR	6	6					D		LC	3				W			R			3			N	M	.		F	U	2	KC
																																		.					
																																		.					
																																		.					
																																		.					
																																		.					

COMMENTS. At former Mattiske Quadrat LG3. Stopped by calcrete.

REFERENCE RECORD							
SURVEY (102)	L	B	R				
MAP UNIT							
SITE NO. (103)	LG 3						

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminum (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A		0	10		6.4	3	0.82	0.04	37	<2	51	2.02b	0.53b	0.02b	0.13b	0.02b	0.03b
2	B1		10	30														
3	B2		30	50	+	9.2	43											

LAND ASSESSMENT PTY LTD SITE RECORD SHEET 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	659326	6319349	50	29024	LG 4

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	9-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LG 4

LANDFORM RECORD

L'FORM PATTERN modal slope	rel/ms class	landform pattern	L'FORM ELEMENT slope %	aspect	MT	landform element	DRAINAGE		SURFACE condition	Gravel abund	Gravel type	Stone abund	Stone type	Boulder abund	Boulder type
	506	505	508	509	'10	504	545		544	'18	521	'19	524	'19	526
LE	LP	STA	<1		F	VLF	3		H C	N		N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Qd	La2	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
542	CALCAREOUS LOAMY EARTH	Solonised brown soil / Red heavy soil	Gc2.22

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'48	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A		0	20		G		10 YR	4	2					T		CL	2			A	V			E			4			N	N	.		N			
																																	.					
2	Y	B1		20	55		C		10 YR	6	3					T		LC	2			P	W			R			2			N	M	.		V	U	3	KC
																																	.					
3	Y	B2		55	100	+			2.5 Y	7	2	F	M	D	B	T		MC	3			P	W			R			1			N	S	.		V	U	2	KC
																																	.					
																																	.					
																																	.					
																																	.					
																																	.					

COMMENTS. At former Mattiske Quadrat LG4.

REFERENCE RECORD	
SURVEY (102)	L B R
MAP UNIT	
SITE NO. (103)	LG 4

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminum (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A		0	20		7.1	210	3.27	0.2	150	5	630	8.76a	8.75a	2.83a	1.88a		
2	B1		20	55		8.9	310											
3	B2		55	100	+	8.6	350											

LAND ASSESSMENT PTY LTD SITE RECORD SHEET 1

LOCATION RECORD

	MAP REFERENCES				
Sheet #	Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	659326	6319349	50	29024	LG 6

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	9-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LG 6

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE	SURFACE						
									Gravel		Stone		Boulder	
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element		condition	abund	type	abund	type	abund	type
	506	505	508	509	'10	504	545	544	'19	521	'19	524	'19	528
LE	LP	STA	< 1		F	BKP	6	S	N		N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
QI	La2	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999)		OTHER	FACTUAL KEY
CODE	CLASSIFICATION		(PPF) (307)
441	BROWN DEEP SAND	Siliceous sand	Uc5.11

SOIL PROFILE FIELD RECORD

		HORIZ'N		DEPTH (cm)			BND		COLOUR			MOTTLES				SWS	TEXTURE		CONS PANS			STRUCTURE					ROOTS						pH	EC mS/m	COARSE FRAGMENTS			
LAYER	SAMPLE	mst	sub	upper	lower	extent	distinctness	shape	hue	value	chroma	abundance	size	contrast	colour		qual	grade	consist	cement	type	pedality	grade	size	type	fabric	abundance	size	permeability	slaking	dispersion	w' repellence	effervescence			abund	sh'pe	size	type
'04		907	'08	910	911	'12	'55	'58	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'46	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A		0	15		C		10 YR	4	2					D		S	1			A				G			7			N	N	.		N			
																																	.					
2	Y	B1		15	80		G		10 YR	5	3					D		S	0			A				G			7			N	N	.		N			
																																	.					
3	Y	B2		80	100	+			10 YR	6	3					D		S	2			A				G			7			N	N	.		N			
																																	.					
																																	.					
																																	.					
																																	.					
																																	.					

COMMENTS. At former Mattiske Quadrat LG6.

REFERENCE RECORD							
SURVEY (102)	L	B	R				
MAP UNIT							
SITE NO. (103)	LG 6						

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminum (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A		0	15		5.8	5	1.44	0.079	39	<2	27	3.07b	0.48b	0.05b	0.07b	0.06b	0.10b
2	B1		15	80		6.5	1											
3	B2		80	100	+	6.6	4											

LAND ASSESSMENT PTY LTD SITE RECORD SHEET 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	666890	6308259	50	29026	LG 10

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	8-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LG 10

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE		SURFACE						
										Gravel		Stone		Boulder	
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element			condition	abund	type	abund	type	abund	type
	506	505	508	509	'10	504	545		544	'19	521	'19	524	'19	526
GE	UP	STA	4	S	L	S	4		S	N		N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Qd	La2	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999)		OTHER	FACTUAL KEY
CODE	CLASSIFICATION		(PPF) (307)
401	ALKALINE GREY DEEP SANDY DUPLEX	Solodic soil / Solonised brown soil	Dy5.43

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'56	834	'15	'18	'25	'26	'27	'28	'13	'20	921	'32	'48	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A1		0	5		G		10 YR	4	2					D	Y	LS	1			A	V			E			7			R	N	.		N			
																																	.					
2		A2		5	35		A		7.5 YR	6	3					D		S	1			A				G			7			R	N	.		N			
																																	.					
3	Y	B1		35	55		G		7.5 YR	5	3	F	F	F	B	T		SC	4			P			SB	R			2			N	H	.		N			
																																	.					
4	Y	B2		55	100	+			10 YR	7	2	M	C	P	R	T		LMC	4										2			N	H	.		N			
															P																			.					
																																	.					
																																	.					

COMMENTS. At former Mattiske Quadrat LG10. Much fungal hyphae in second layer.

REFERENCE RECORD	
SURVEY (102)	L B R
MAP UNIT	
SITE NO. (103)	LG 10

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminum (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A1		0	5		6.6	3	0.97	0.044	34	<2	47	2.58a	0.59a	0.03a	0.12a		
2	A2		5	35														
3	B1		35	55		9.2	70											
4	B2		55	100	+	9.4	140											

LAND ASSESSMENT PTY LTD SITE RECORD SHEET 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	669498	6308642	50	28667	LG 11

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	11-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	LG 11

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE		SURFACE							
									condition	Gravel abund	Gravel type	Stone abund	Stone type	Boulder abund	Boulder type
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element									
	506	505	508	509	'10	504	545		544	'19	521	'19	524	'19	526
VG	GP	STA	1		F	PLA	4		F C	N		N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Qd	Sh3	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999) CODE	CLASSIFICATION	OTHER	FACTUAL KEY (PPF) (307)
542	CALCAREOUS LOAMY EARTH	Solonised brown soil (Morrell soil)	Gc1.22

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'48	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	986	'65	924
1	Y	A		0	15		G		10 YR	4	2					D		L	2			A	V			E			5			N	N	.		N			
																																		.					
2	Y	B1		15	30		G		10 YR	4	3					D		CL	3			A	V			E			4			N	S	.		V	S	1	KC
																																		.					
3	Y	B2		30	45	+			10 YR	5	4					D		LC	3			A	V			E			3			N	S	.		C	S	3	KC
																																		.					
																																		.					
																																		.					
																																		.					
																																		.					

COMMENTS. At former Mattiske Quadrat LG11. Crusted surface in open areas.

LAND ASSESSMENT BY L... SITE RECORD SHEET 2

REFERENCE RECORD								
SURVEY (102)	L	B	R					
MAP UNIT								
SITE NO. (103)	LG 11							

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminum (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A		0	15		6.1	15	1.88	0.112	92	9	336	5.51b	2.49b	0.52b	0.86b	0.04b	0.03b
2	B1		15	30		8.6	22											
3	B2		30	45	+	9.1	30											

LAND ASSESSMENT BY L[illegible] SI[illegible] REC[illegible] D S[illegible] T 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	663278	6312961	50	29023	Peg 2

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	9-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	Peg 2

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE		SURFACE							
									condition	Gravel		Stone		Boulder	
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element				abund	type	abund	type	abund	type
	506	505	508	509	'10	504	545		544	'19	521	'19	524	'19	526
LE	LP	STA	1		F	VLF	4		F	C	N		N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Qd	La2	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999)		OTHER	FACTUAL KEY
CODE	CLASSIFICATION		(PPF) (307)
402	ALKALINE GREY SHALLOW SANDY DUPLEX	Solodic soil	Dg3.13

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	BND extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'28	'27	'28	'13	'20	921	'32	'48	'48	'35	'36	'37	938	'39	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A1		0	5		C		2.5 Y	5	2					D		S	1			A				G			6			N	N	.		N			
																																	.					
2		A3		5	12		C		2.5 Y	6	2					D		S	1			A				G			7			N	N	.		N			
																																	.					
3	Y	B		12	45		A		5 Y	7	2	V	F	F	B	D		SC	4			P	W			R			3			N	M	.		V	U	2	KC
																																	.					
4																																N	H	.		M	U	4	KC
																																	.					
																																	.					
																																	.					

COMMENTS. At former Mattiske Quadrat Peg 2. Layer 4 is calcrete pan. Fungal hyphae common in layer 1.

REFERENCE RECORD							
SURVEY (102)	L	B	R				
MAP UNIT							
SITE NO. (103)	Peg 2						

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminum (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A1		0	5		6	2	0.65	0.032	29	<2	23	1.10b	0.29b	0.03b	0.06b	0.09b	0.03b
2	A3		5	12														
3	B		12	45		9.6	120											
4																		

LAND ASSESSMENT PTY LTD SITE RECORD SHEET 1

LOCATION RECORD

Sheet #	MAP REFERENCES Easting	Northing	Zone	Reserve #	Veg Quadrat #
112	109	110	111		
2361	666922	6308402	50	29026	Peg 3

REFERENCE RECORD

Described by (104)	W E L M	SURVEY (102)	L B R
Date (105)	8-May-00	MAP UNIT	
Observation Type (106)	A	SITE NO. (103)	Peg 3

LANDFORM RECORD

L'FORM PATTERN			L'FORM ELEMENT				DRAINAGE	SURFACE							
								condition	Gravel		Stone		Boulder	
modal slope	rel/ms class	landform pattern	slope %	aspect	MT	landform element			abund	type	abund	type	abund	type
	506	505	508	509	'10	504	545	544	'19	521	'19	524	'19	526
VG	GP	STA	1		F	PLA	4	H C	N		N		N	

EXISTING MAPPING RECORD (previous studies)

GEOLOGY	SOIL-LANDSCAPE	OTHER
Qd	La2	

SOIL CLASSIFICATION RECORD (this survey)

WA SOIL GROUP (Schoknecht 1999)		OTHER	FACTUAL KEY
CODE	CLASSIFICATION		(PPF) (307)
502	ALKALINE GREY SHALLOW LOAMY DUPLEX	Solodic soil or Grey heavy soil	Dy2.13

SOIL PROFILE FIELD RECORD

LAYER	SAMPLE	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	BND distinctness	BND shape	COLOUR hue	COLOUR value	COLOUR chroma	MOTTLES abundance	MOTTLES size	MOTTLES contrast	MOTTLES colour	SWS	TEXTURE qual	TEXTURE grade	CONS PANS consist	CONS PANS cement	CONS PANS type	STRUCTURE pedality	STRUCTURE grade	STRUCTURE size	STRUCTURE type	STRUCTURE fabric	ROOTS abundance	ROOTS size	permeability	slaking	dispersion	w' repellence	effervescence	pH	EC mS/m	COARSE FRAGMENTS abund	COARSE FRAGMENTS sh'pe	COARSE FRAGMENTS size	COARSE FRAGMENTS type
'04		907	'08	910	911	'12	'55	'56	934	'15	'16	'25	'26	'27	'28	'13	'20	921	'32	'48	'48	'35	'36	'37	938	'38	953	954	'57	'58	'59	'60	'61	963	964	'23	966	'65	924
1	Y	A		0	5		C		10 YR	4	2					D		SL	2			P	W	4	SB	R			5			S	N	.		N			
																																		.					
2	Y	B1		5	15		G		2.5 Y	4	2					D		CL	3			P	W	4	SB	R			4			N	S	.		N			
																																		.					
3	Y	B2		15	30		A		10 YR	6	3					D		LMC	4			P	W	4	SB	R			2			N	H	.		F	U	4	KC
																																		.					
																																		.					
																																		.					
																																		.					
																																		.					

COMMENTS. At former Mattiske Quadrat Peg 3. Stopped by calcrete. Shallow calcareous loam (Um) in places.

REFERENCE RECORD	
SURVEY (102)	L B R
MAP UNIT	
SITE NO. (103)	Peg 3

SOIL PROFILE ANALYSIS RECORD

LAYER	HORIZ'N mst	HORIZ'N sub	DEPTH (cm) upper	DEPTH (cm) lower	DEPTH (cm) extent	pH	EC mS/m	Organic Carbon %	Nitrogen (total) %	Phosphorus (total) mg/kg	Phosphorus (HCO_3) mg/kg	Potassium (HCO_3) mg/kg	Calcium (exch) me%	Magnesium (exch) me%	Sodium (exch) me%	Potassium (exch) me%	Aluminum (exch) me%	Manganese (exch) me%
904	907	'08	910	911	'12	963	964											
1	A		0	5		7	14	1.61	0.092	69	3	375	7.45a	3.77a	0.30a	0.96a		
2	B1		5	15		9	23											
3	B2		15	30		9.5	64											

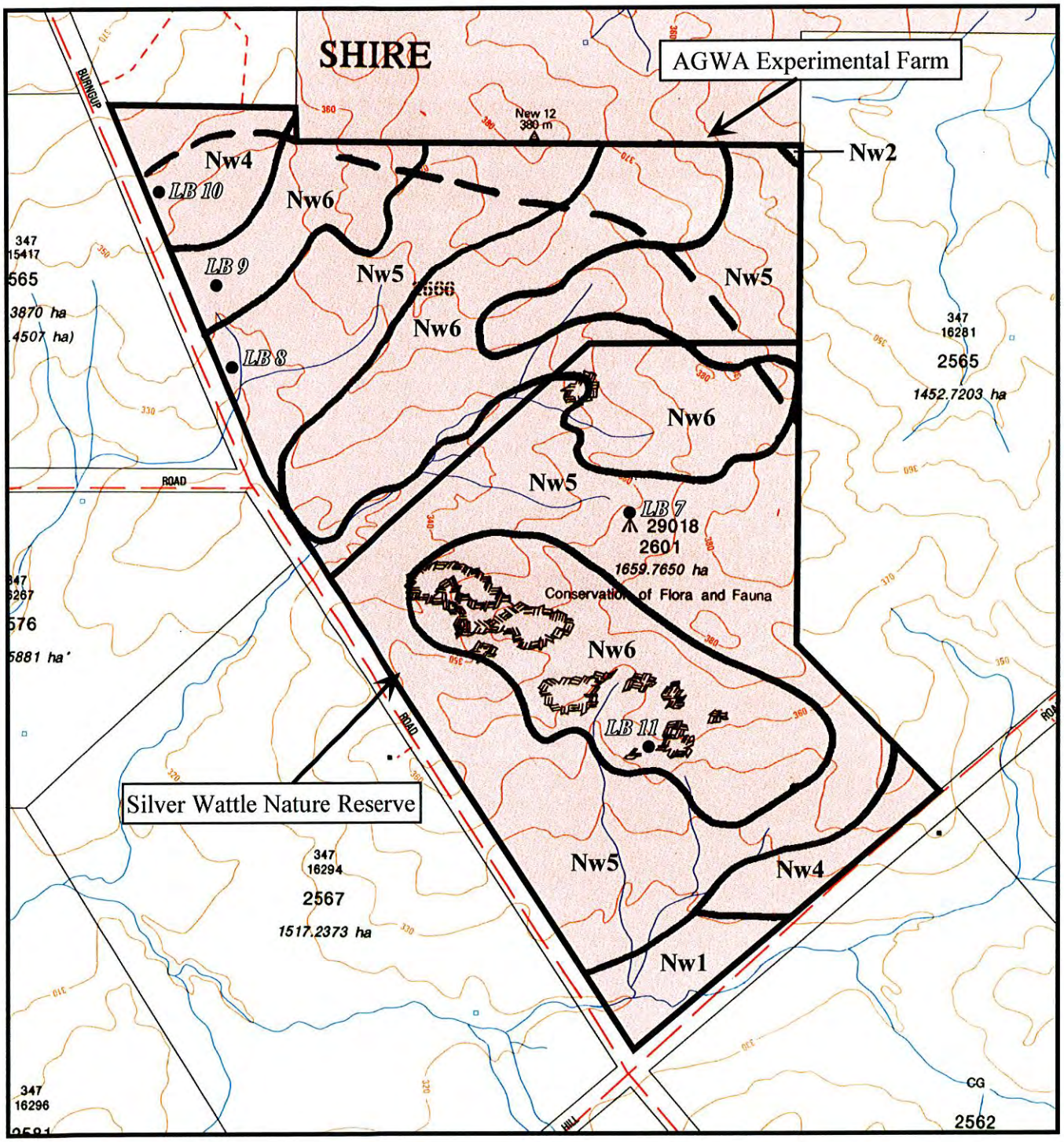
APPENDIX C.

RESERVE STUDY AREAS

(Site Locations in Relation To Preliminary Soil Landscape Map Units*)

Source. Adapted from Agriculture WA (Overheu in preparation)

STUDY AREA REFERENCE NO. 1 AND 2. AGRICULTURE WA EXPERIMENTAL FARM (Reserve 24920) AND SILVER WATTLE NATURE RESERVE (Reserve 29018)



Catchment Boundary

Note. Mapping units are preliminary AgWA soil-landscape systems/subsystems.

Site locations are approximate - more definitive locations (from GPS co-ordinates) to be shown within the vegetation mapping.

NORTH ↑

Scale 1:50 000

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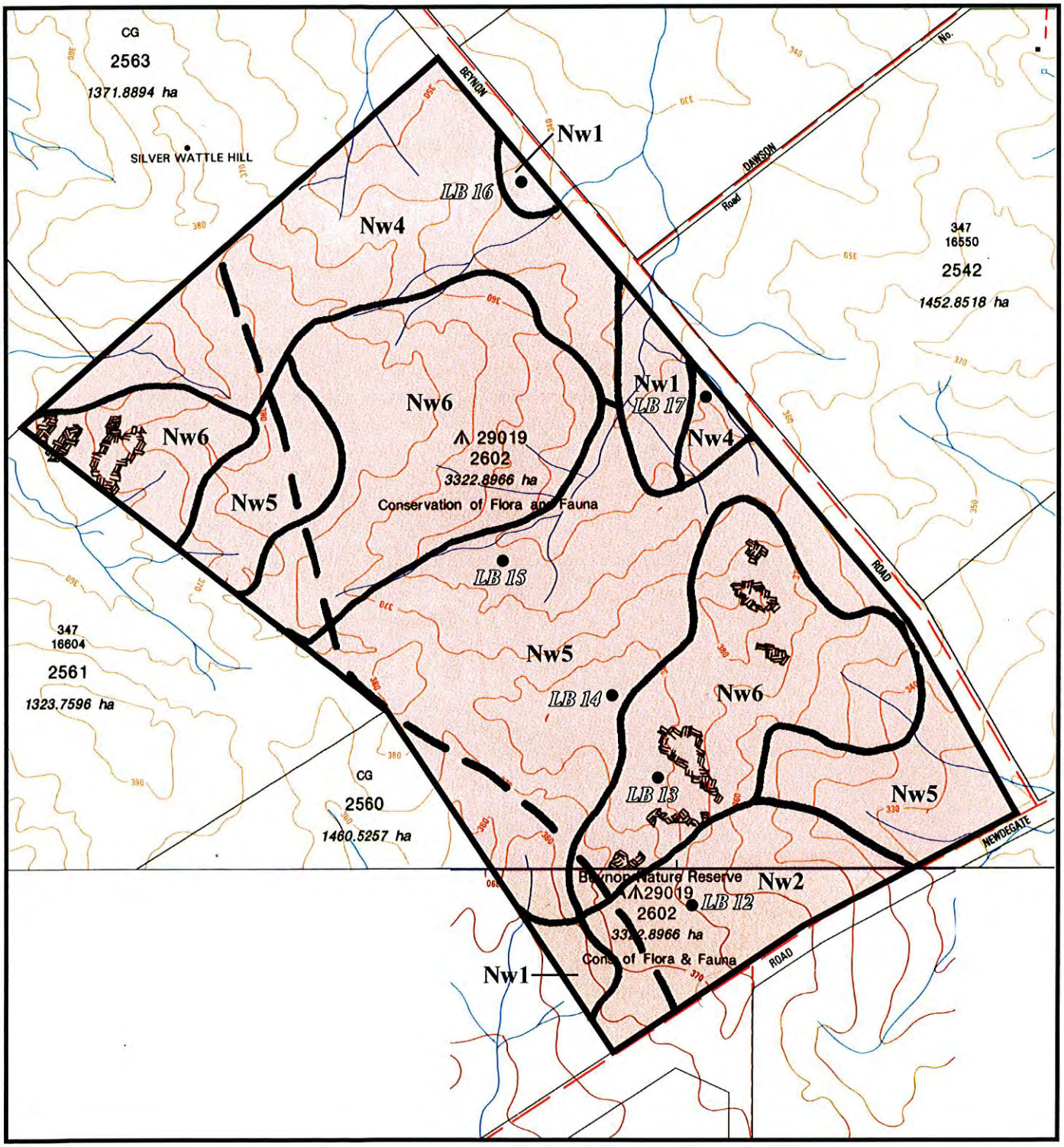
STUDY AREA REFERENCE NO. 3. BREAKAWAY RIDGE NATURE RESERVE (Reserve 29019)



Catchment Boundary

Note. Mapping units are preliminary AgWA soil-landscape systems/subsystems.

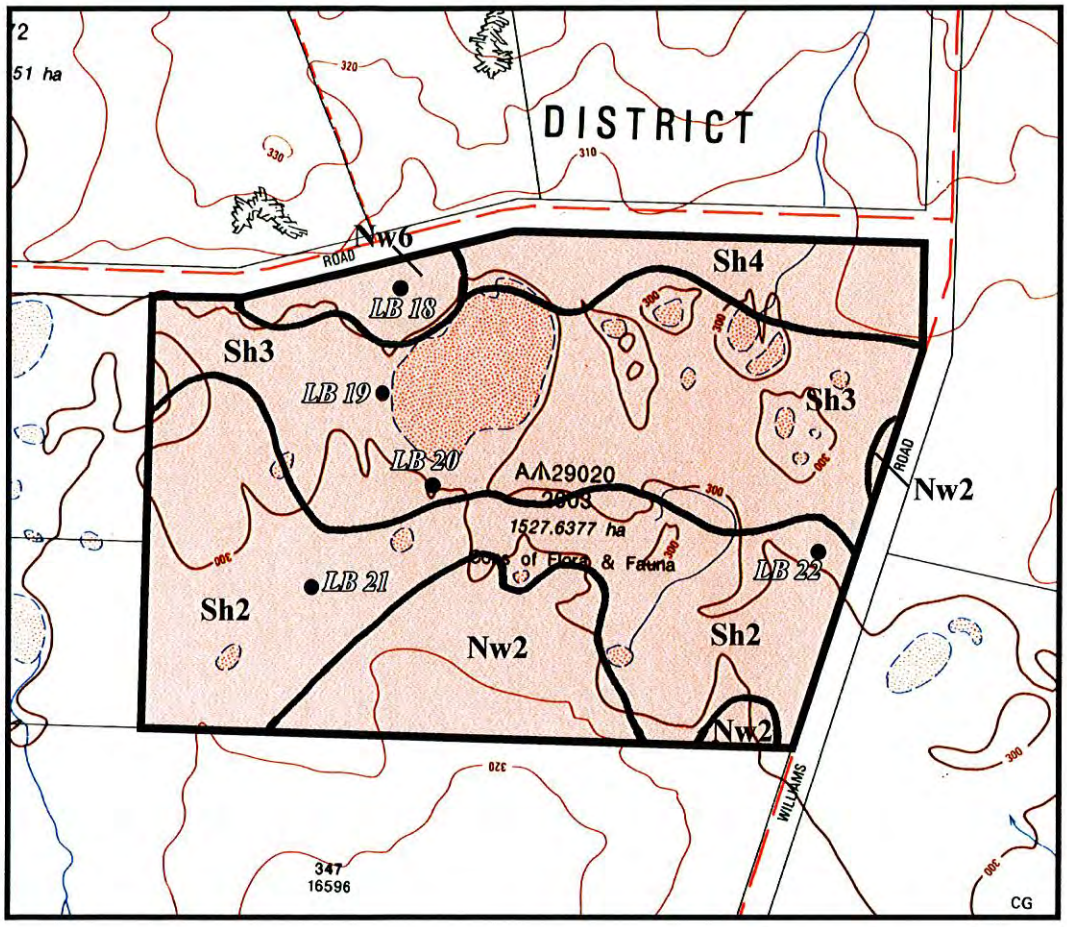
Site locations are approximate - more definitive locations (from GPS co-ordinates) to be shown within the vegetation mapping.

NORTH ↑

Scale 1:50 000

Land Assessment Pty Ltd 2000

STUDY AREA REFERENCE NO. 4. LAKE BRYDE NATURE RESERVE (Reserve 29020)



Note. Mapping units are preliminary AgWA soil-landscape systems/subsystems.

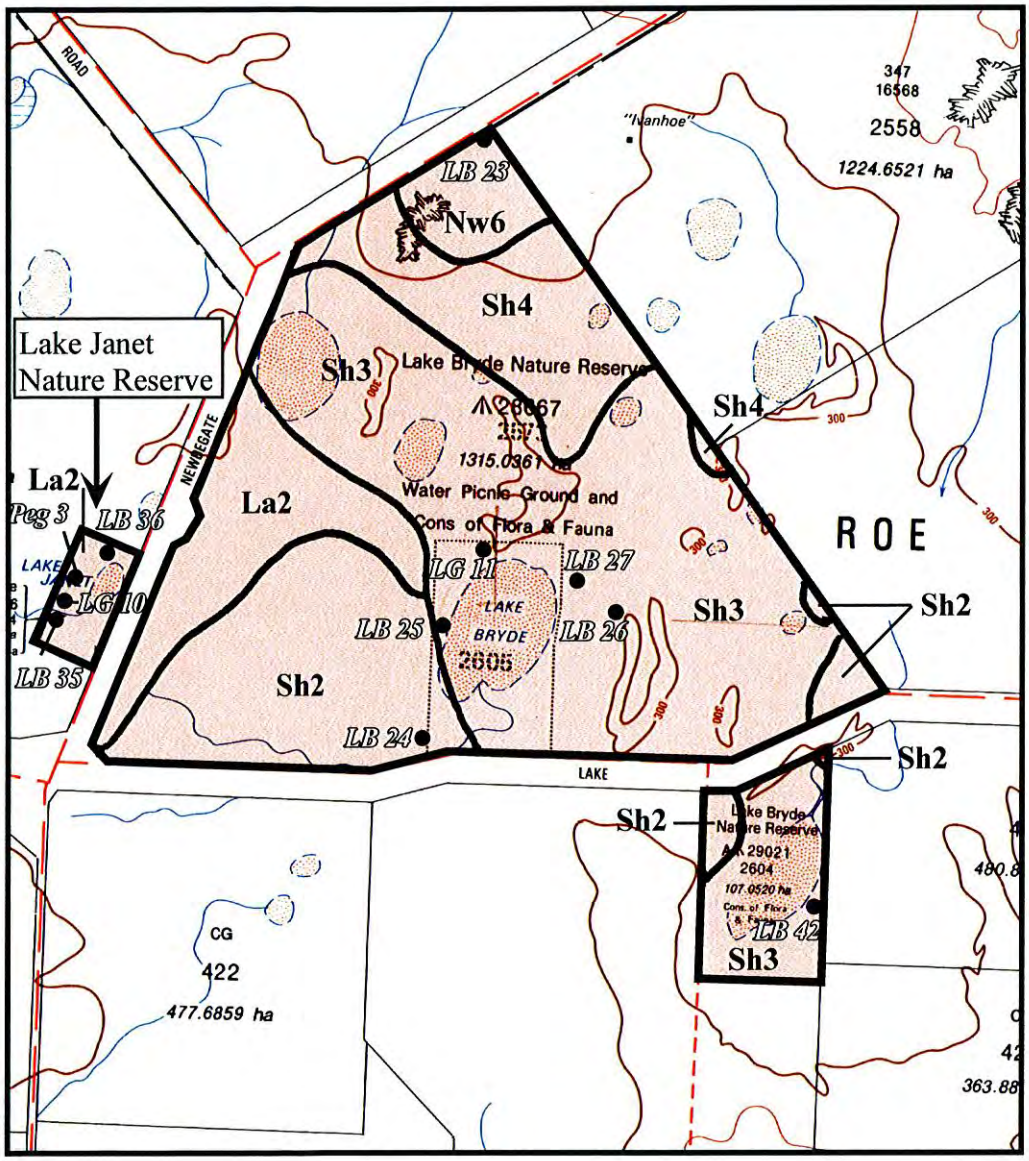
Site locations are approximate - more definitive locations (from GPS co-ordinates) to be shown within the vegetation mapping.

NORTH ↑

Scale 1:50 000

Land Assessment Pty Ltd 2000

STUDY AREA REFERENCE NO. 5, 6 AND 7. LAKE BRYDE NATURE RESERVE (Reserves 29021 and 28667) AND LAKE JANET NATURE RESERVE (Reserve 29026)



Note. Mapping units are preliminary AgWA soil-landscape systems/subsystems.

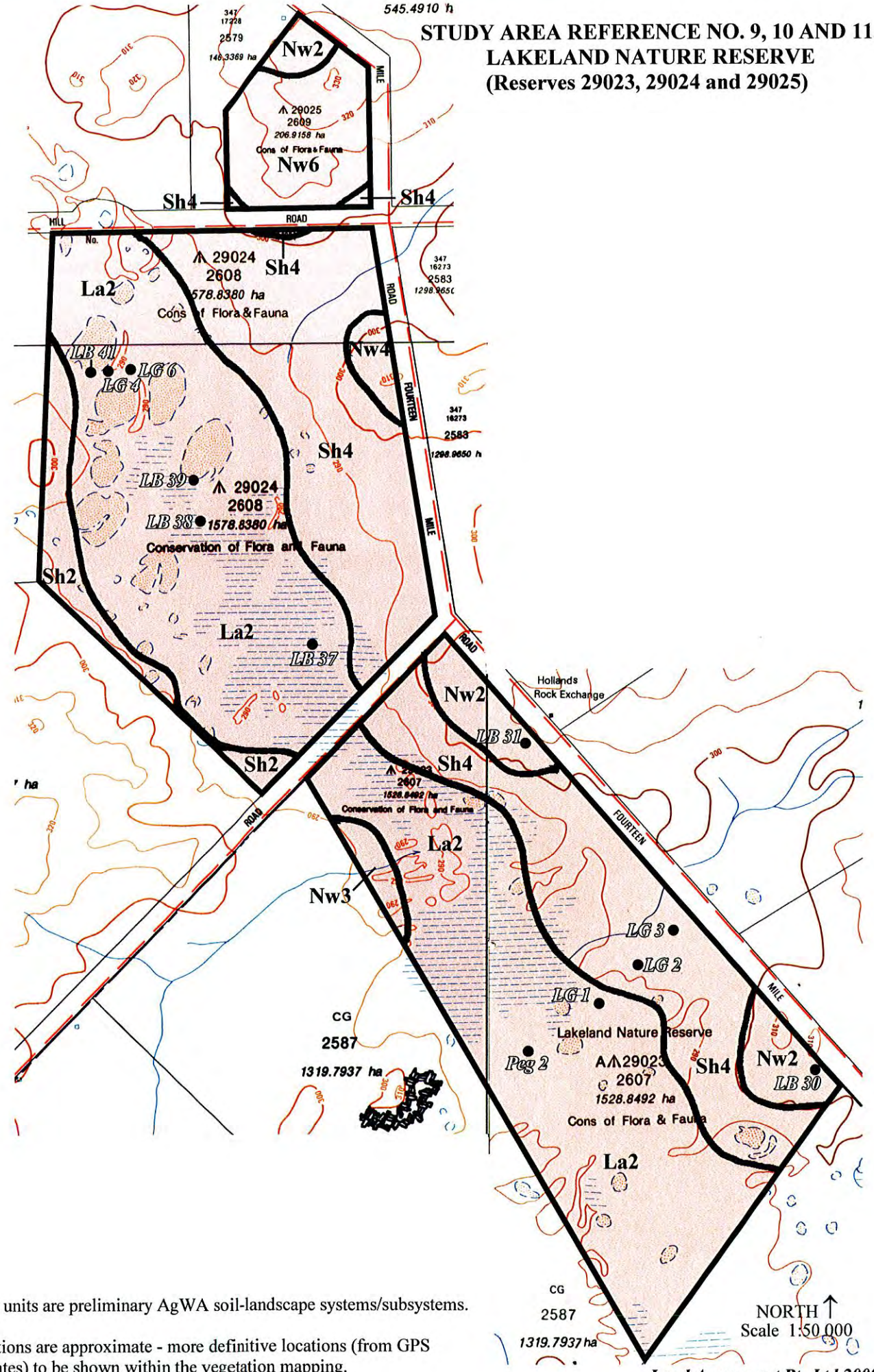
Site locations are approximate - more definitive locations (from GPS co-ordinates) to be shown within the vegetation mapping.

NORTH ↑

Scale 1:50 000

Land Assessment Pty Ltd 2000

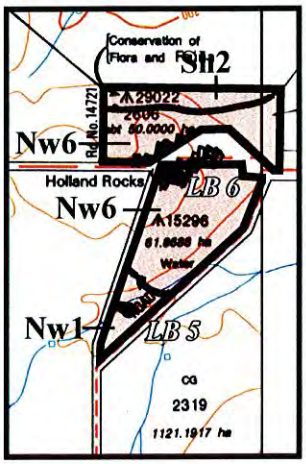
STUDY AREA REFERENCE NO. 9, 10 AND 11.
LAKELAND NATURE RESERVE
(Reserves 29023, 29024 and 29025)



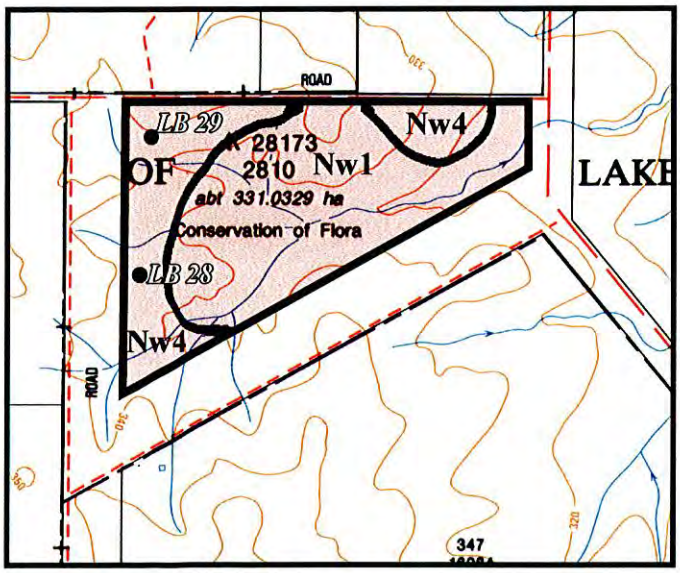
Note. Mapping units are preliminary AgWA soil-landscape systems/subsystems.

Site locations are approximate - more definitive locations (from GPS co-ordinates) to be shown within the vegetation mapping.

STUDY AREA REFERENCE NO. 8 AND 12. HOLLANDS ROCK NATURE RESERVE (Reserve 29022) AND WATER RESERVE (Reserve 15296)



STUDY AREA REFERENCE NO. 13. CONSERVATION OF FLORA AND FAUNA (Reserve 28173)



Note. Mapping units are preliminary AgWA soil-landscape systems/subsystems.

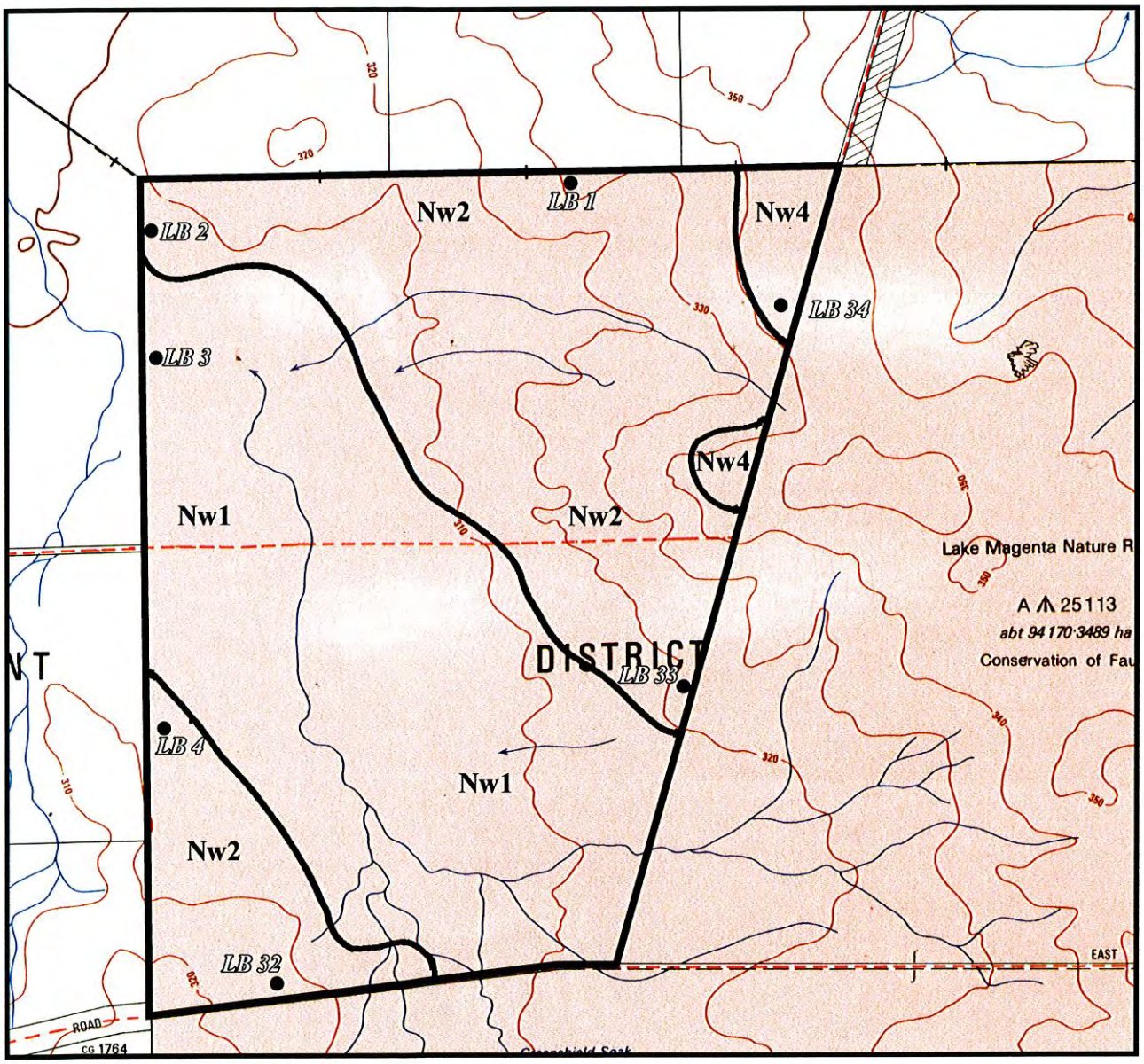
Site locations are approximate - more definitive locations (from GPS co-ordinates) to be shown within the vegetation mapping.

NORTH ↑

Scale 1:50 000

Land Assessment Pty Ltd 2000

STUDY AREA REFERENCE NO. 14. (PART) LAKE MAGENTA NATURE RESERVE (Reserve 25113)



Note. Mapping units are preliminary AgWA soil-landscape systems/subsystems.

Site locations are approximate - more definitive locations (from GPS co-ordinates) to be shown within the vegetation mapping.

NORTH ↑

Scale 1:50 000

Land Assessment Pty Ltd 2000

APPENDIX D.

LABORATORY DATA

(Unsorted Originals)

Your Ref :
Our Ref : 006/1
Enquiries to : Lab. No. 99A862/1-50
Telephone : I.Wilson

CHEMISTRY CENTRE

Land Assessment Pty Ltd
Suite 5, 27 York Street
P.O. Box 117
SUBIACO WA 6008

ATTENTION: M. Wells

Report on 50 samples of soil from Lake Bryde
received on 15-MAY-2000 26-JUN-2000

LAB NO 99A	SAMPLE	EC (1:5) mS/m	pH (H2O)	OrgC (W/B) %	N (total) %	P (total) mg/kg	P (HCO3) mg/kg	K (HCO3) mg/kg
862_001	LB 001/1	2	6.1	0.70	0.032	24	<2	
862_002	LB 002/1	2	6.3	0.50	0.030	26	<2	
862_003	LB 003/1	1	6.1	0.57	0.024	28	<2	
862_004	LB 004/1	90	6.8	2.45	0.138	90	3	180
862_005	LB 005/1	9	6.3	1.88	0.093	67	3	
862_006	LB 006/1	4	5.8	0.89	0.067	46	<2	
862_007	LB 007/1	3	6.6	0.81	0.034	28	<2	
862_008	LB 008/1	2	6.4	0.52	0.034	35	<2	
862_009	LB 009/1	19	6.3	2.17	0.128	130	5	
862_010	LB 010/1	2	6.3	0.85	0.036	22	<2	
862_011	LB 011/1	35	7.3	2.60	0.152	120	10	300
862_012	LB 012/1	2	6.2	0.92	0.046	32	<2	
862_013	LB 013/1	8	6.3	0.98	0.049	51	<2	
862_014	LB 014/1	11	6.6	3.14	0.122	73	2	
862_015	LB 015/1	61	6.6	2.52	0.124	59	3	89
862_016	LB 016/1	6	6.6	2.13	0.073	39	<2	
862_017	LB 017/1	15	7.4	1.10	0.046	34	<2	
862_018	LB 018/1	2	6.4	0.43	0.028	29	<2	
862_019	LB 019/1	6	7.2	0.18	0.011	18	<2	
862_020	LB 020/1	3	6.3	0.44	0.024	21	<2	
862_021	LB 021/1	2	6.6	0.45	0.018	24	<2	
862_022	LB 022/1	2	6.2	0.42	0.022	18	<2	
862_023	LB 023/1	2	6.2	1.10	0.041	29	<2	
862_024	LB 024/1	37	7.8	1.67	0.101	59	3	380
862_025	LB 025/1	3	6.7	1.03	0.051	38	<2	
862_026	LB 026/1	13	7.1	2.10	0.121	130	13	
862_027	LB 027/1	7	6.8	0.30	0.017	27	2	
862_028	LB 028/1	10	6.4	1.11	0.043	38	2	
862_029	LB 029/1	53	6.3	2.57	0.105	70	3	130
862_030	LB 030/1	2	6.1	0.54	0.030	22	<2	
862_031	LB 031/1	2	6.1	1.38	0.043	31	<2	
862_032	LB 032/1	6	6.5	0.94	0.039	41	<2	
862_033	LB 033/1	4	6.8	0.69	0.029	27	<2	
862_034	LB 034/1	4	6.2	0.60	0.020	20	<2	
862_035	LG 1/1	24	6.7	0.77	0.032	29	<2	73
862_036	LG 2/1	2	6.1	0.64	0.029	19	<2	

Chemistry Centre (WA)
Baron-Hay Court, East Perth, Western Australia 6004 Phone: 08 9222 3177 Facsimile: 08 9325 7767

LAB NO	SAMPLE	EC (1:5)	pH (H2O)	OrgC (W/B)	N (total)	P (total)	P (HCO3)	K (HCO3)
99A		mS/m		%	%	mg/kg	mg/kg	mg/kg
862_037	LG 3/1	3	6.4	0.82	0.040	37	<2	
862_038	LG 4/1	210	7.1	3.27	0.200	150	5	630
862_039	LG 5/1	5	7.5	0.59	0.031	28	2	
862_040	LG 6/1	5	5.8	1.44	0.079	39	<2	
862_041	LG 7/1	2	6.0	0.93	0.040	27	<2	
862_042	LG 8/1	8	6.9	2.20	0.155	110	8	
862_043	LG 9/1	8	7.0	1.25	0.074	59	2	
862_044	LG 10/1	3	6.6	0.97	0.044	34	<2	
862_045	LG 11/1	15	6.1	1.88	0.112	92	9	
862_046	Peg 1/1	2	6.1	0.70	0.032	30	<2	
862_047	Peg 2/1	2	6.0	0.65	0.032	29	<2	
862_048	Peg 3/1	14	7.0	1.61	0.092	69	3	
862_049	Peg 4/1	200	6.5	0.61	0.029	33	2	80
862_050	Peg 5/1	120	8.5	0.96	0.104	110	2	1100

EC	(1:5)	= Electrical Conductivity (1:5) at 25 deg C by method S2
pH	(H2O)	= pH (1:5) in water by method S1
OrgC	(W/B)	= Organic Carbon C, Walkley and Black method S09
N	(total)	= Nitrogen N, total by method S10
P	(total)	= Phosphorus P, total by method S14
P	(HCO3)	= Phosphorus P, extracted in 0.5M NaHCO3 (1:100) by method S12
K	(HCO3)	= Potassium K, extracted in 0.5M NaHCO3 (1:100) by method S17
%		= per cent
mg/kg		= milligrams per kilogram
mS/m		= milliSiemens per metre

Bicarbonate extractable potassium was only determined on samples with EC values greater than 20 mS/m. The values for the other samples can be estimated (in units of mg/kg) from the results for exchangeable potassium (me%) by multiplying by 391.

The results apply only to samples as received.

D.G.ALLEN
Principal Chemist
LAND RESOURCES CHEMISTRY SECTION

Your Ref :
Our Ref : 006/1
Enquiries to : Lab. No. 99A862/1-50
Telephone : I.Wilson

CHEMISTRY CENTRE

Land Assessment Pty Ltd
Suite 5, 27 York Street
P.O. Box 117
SUBIACO WA 6008

ATTENTION: M. Wells

Report on 50 samples of soil from Lake Bryde
received on 15-MAY-2000 26-JUN-2000

LAB NO 99A	SAMPLE	Ca (exch) me%	Mg (exch) me%	Na (exch) me%	K (exch) me%	Al (exch) me%	Mn (exch) me%
862_001	LB 001/1	0.91b	0.35b	0.04b	0.06b	0.09b	<0.02
862_002	LB 002/1	1.11b	0.16b	0.02b	0.06b	0.02b	0.02b
862_003	LB 003/1	0.83b	0.12b	0.02b	0.02b	0.05b	<0.02
862_004	LB 004/1	5.32a	6.69a	1.73a	0.43a		
862_005	LB 005/1	5.19b	1.73b	0.30b	0.33b	0.04b	0.04b
862_006	LB 006/1	1.16b	0.54b	0.10b	0.17b	0.09b	0.03b
862_007	LB 007/1	1.37a	1.51a	0.18a	0.13a		
862_008	LB 008/1	1.43b	0.67b	0.05b	0.18b	0.02b	<0.02
862_009	LB 009/1	13.06b	5.06b	0.77b	1.79b	0.03b	0.05b
862_010	LB 010/1	2.45b	0.64b	0.04b	0.12b	0.04b	<0.02
862_011	LB 011/1	11.08a	5.60a	0.71a	0.82a		
862_012	LB 012/1	1.67b	0.56b	0.04b	0.12b	0.08b	<0.02
862_013	LB 013/1	2.09b	1.04b	0.41b	0.25b	0.03b	0.03b
862_014	LB 014/1	8.13a	3.68a	0.75a	1.26a		
862_015	LB 015/1	4.84a	5.74a	1.38a	0.21a		
862_016	LB 016/1	4.97a	1.70a	0.19a	0.29a		
862_017	LB 017/1	1.75a	6.00a	1.09a	0.20a		
862_018	LB 018/1	0.82b	0.33b	0.04b	0.14b	0.02b	<0.02
862_019	LB 019/1	0.42a	0.34a	0.24a	0.11a		
862_020	LB 020/1	1.25b	0.24b	0.03b	0.07b	0.02b	<0.02
862_021	LB 021/1	1.57a	0.70a	0.06a	0.19a		
862_022	LB 022/1	0.53b	0.10b	0.02b	0.04b	0.04b	<0.02
862_023	LB 023/1	1.77b	0.40b	0.03b	0.07b	0.09b	<0.02
862_024	LB 024/1	12.66a	3.85a	0.62a	1.22a		
862_025	LB 025/1	2.85a	0.38a	0.07a	0.18a		
862_026	LB 026/1	7.60a	3.88a	0.28a	1.16a		
862_027	LB 027/1	0.72a	0.34a	0.19a	0.09a		
862_028	LB 028/1	1.87b	1.96b	0.32b	0.14b	<0.02	<0.02
862_029	LB 029/1	4.89b	6.05b	0.48b	0.22b	0.02b	0.05b
862_030	LB 030/1	0.81b	0.27b	0.03b	0.06b	0.06b	<0.02
862_031	LB 031/1	1.52b	0.40b	0.04b	0.10b	0.07b	<0.02
862_032	LB 032/1	2.38a	1.77a	0.19a	0.46a		
862_033	LB 033/1	1.48a	1.33a	0.17a	0.16a		
862_034	LB 034/1	0.90b	0.27b	0.07b	0.09b	0.05b	<0.02
862_035	LG 1/1	1.40a	0.94a	0.38a	0.13a		
862_036	LG 2/1	1.03b	0.26b	0.02b	0.04b	0.05b	<0.02

Chemistry Centre (WA)
[illegible] East Perth, Western Australia 6004 Phone (08) 9222 3177 Facsimile (08) 9325 7767
E Mail: chemistry@ccwa.wa.gov.au

LAB NO 99A	SAMPLE	Ca (exch) me%	Mg (exch) me%	Na (exch) me%	K (exch) me%	Al (exch) me%	Mn (exch) me%
862_037	LG 3/1	2.02b	0.53b	0.02b	0.13b	0.02b	0.03b
862_038	LG 4/1	8.76a	8.75a	2.83a	1.88a		
862_039	LG 5/1	2.07a	1.18a	1.20a	0.21a		
862_040	LG 6/1	3.07b	0.48b	0.05b	0.07b	0.06b	0.10b
862_041	LG 7/1	1.21b	0.19b	0.02	0.03b	0.05b	0.03b
862_042	LG 8/1	6.15a	6.91a	6.49a	1.31a		
862_043	LG 9/1	5.46a	2.84a	0.24a	0.66a		
862_044	LG 10/1	2.58a	0.59a	0.03a	0.12a		
862_045	LG 11/1	5.51b	2.49b	0.52b	0.86b	0.04b	0.03b
862_046	Peg 1/1	1.13b	0.14b	<0.02	0.02b	0.05b	<0.02
862_047	Peg 2/1	1.10b	0.29b	0.03b	0.06b	0.09b	0.03b
862_048	Peg 3/1	7.45a	3.77a	0.30a	0.96a		
862_049	Peg 4/1	1.04a	1.92a	0.58a	0.16a		
862_050	Peg 5/1	8.02c	3.92c	1.80c	3.64c		

Ca	(exch)	= Calcium Ca, exchangeable
Mg	(exch)	= Magnesium Mg, exchangeable
Na	(exch)	= Sodium Na, exchangeable
K	(exch)	= Potassium K, exchangeable
Al	(exch)	= Aluminium Al, exchangeable
Mn	(exch)	= Manganese Mn, exchangeable
me%		= milliequivalents per 100g of soil

Identification of suffixes which denote the exchangeable cation method used.

a	= extracted in 1M NH4Cl pH 7.0	Method S22.0
b	= extracted in 0.1M BaCl2	Method S21
c	= extracted in 1M NH4Cl pH 8.5	Method S22.1

The results apply only to samples as received.

D.G.ALLEN
Principal Chemist
LAND RESOURCES CHEMISTRY SECTION

Your Ref :
Our Ref : 006/2
Enquiries to : Lab. No. 99A861/1-87
Telephone : D.Allen

CHEMISTRY CENTRE

Land Assessment Pty Ltd
Suite 5, 27 York Street
P.O. Box 117
SUBIACO WA 6008

ATTENTION: M. Wells

Report on 87 samples of soil from Lake Bryde
received on 15-MAY-2000 24-MAY-2000

LAB NO	SAMPLE	EC (1:5)	pH (H2O)
99A		mS/m	
861_001	LB 001/2	3	6.0
861_002	LB 002/2	2	6.8
861_003	LB 002/4	3	6.9
861_004	LB 003/3	1	6.8
861_005	LB 004/2	160	7.4
861_006	LB 004/4	28	8.2
861_007	LB 005/2	29	8.2
861_008	LB 005/3	54	9.0
861_009	LB 006/2	2	5.9
861_010	LB 006/3	5	6.8
861_011	LB 007/2	140	8.8
861_012	LB 007/4	190	8.0
861_013	LB 008/2	3	6.5
861_014	LB 009/2	6	8.0
861_015	LB 009/4	6	8.3
861_016	LB 010/2	3	6.2
861_017	LB 011/3	93	7.4
861_018	LB 011/4	180	7.8
861_019	LB 012/2	2	6.2
861_020	LB 013/2	2	6.4
861_021	LB 013/4	8	8.2
861_022	LB 014/2	8	7.9
861_023	LB 015/2	50	8.0
861_024	LB 015/3	110	8.6
861_025	LB 016/2	10	7.1
861_026	LB 017/2	10	7.1
861_027	LB 017/4	190	7.2
861_028	LB 018/2	7	6.6
861_029	LB 018/4	6	6.8
861_030	LB 019/2	7	7.3
861_031	LB 019/4	75	9.4
861_032	LB 020/3	25	8.1
861_033	LB 021/2	88	9.5

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LAB NO 99A	SAMPLE	EC (1:5) mS/m	pH (H2O)
861_034	LB 021/3	130	9.4
861_035	LB 022/2	1	6.4
861_036	LB 022/4	3	6.0
861_037	LB 023/2	2	6.2
861_038	LB 024/2	41	9.3
861_039	LB 025/2	6	7.4
861_040	LB 025/4	55	8.8
861_041	LB 026/4	200	9.2
861_042	LB 026/5	250	8.9
861_043	LB 027/3	4	7.2
861_044	LB 027/5	52	9.2
861_045	LB 028/3	33	7.8
861_046	LB 028/4	67	9.0
861_047	LB 029/3	74	5.7
861_048	LB 029/4	140	5.1
861_049	LB 030/2	3	6.3
861_050	LB 030/3	3	6.6
861_051	LB 031/2	4	6.3
861_052	LB 032/3	190	9.0
861_053	LB 032/4	190	8.6
861_054	LB 033/2	180	9.4
861_055	LB 033/3	160	9.4
861_056	LB 033/4	220	9.2
861_057	LB 034/2	5	7.3
861_058	LB 034/4	67	9.3
861_059	LG 1/3	200	9.2
861_060	LG 1/4	170	7.4
861_061	LG 2/3	59	9.4
861_062	LG 2/4	85	9.6
861_063	LG 3/3	43	9.2
861_064	LG 4/2	310	8.9
861_065	LG 4/3	350	8.6
861_066	LG 5/2	67	9.6
861_067	LG 5/3	210	8.8
861_068	LG 6/2	1	6.5
861_069	LG 6/3	4	6.6
861_070	LG 7/3	6	6.5
861_071	LG 7/4	70	6.2
861_072	LG 8/3	470	5.7
861_073	LG 9/2	79	9.4
861_074	LG 9/3	80	9.6
861_075	LG 10/3	70	9.2
861_076	LG 10/4	140	9.4
861_077	LG 11/2	22	8.6
861_078	LG 11/3	30	9.1
861_079	Peg 1/3	2	6.9
861_080	Peg 1/4	60	6.5
861_081	Peg 2/3	120	9.6
861_082	Peg 3/2	23	9.0
861_083	Peg 3/3	64	9.5
861_084	Peg 4/2	270	8.8
861_085	Peg 4/5	270	7.9
861_086	Peg 5/3	710	8.4
861_087	Peg 5/4	890	8.3

EC	(1:5)	= Electrical Conductivity (1:5) at 25 deg C by method S2
pH	(H2O)	= pH (1:5) in water by method S1
mS/m		= milliSiemens per metre

The results apply only to samples as received.

D.G.ALLEN
Principal Chemist
LAND RESOURCES CHEMISTRY SECTION