



Douglas Partners

Geotechnics | Environment | Groundwater

Report on
Preliminary Site Investigation (Contamination)

Proposed Sumatran Tiger Redevelopment
Taronga Zoo

Prepared for
Taronga Conservation Society Australia

Project 73809.01
April 2015

Integrated Practical Solutions



Document History

Document details

Project No.	73809.01	Document No.	1
Document title	Report on Preliminary Site Investigation (Contamination) Proposed Sumatran Tiger Redevelopment		
Site address	Bradleys Head Road, Mosman		
Report prepared for	Taronga Conservation Society Australia		
File name	P:\73809.01 - MOSMAN Taronga Sumatran Tigers PSI\8.0 Documents\Taronga Tigers PSI Contamination Report.docx		

Document status and review

Revision	Prepared by	Reviewed by	Date issued
DRAFT	P Oitmaa	M J Thom	28 March 2015
0	P Oitmaa	M J Thom	30 March 2015

Distribution of copies

Revision	Electronic	Paper	Issued to
DRAFT	1		Taronga Conservation Society Australia
0	1		Taronga Conservation Society Australia

The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.



	Signature	Date
Author		30 April 2015
Reviewer		30 April 2015

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Report on Preliminary Site Investigation (Contamination) Proposed Sumatran Tiger Redevelopment Taronga Zoo

1. Introduction

This report presents the results of a Preliminary Site Investigation (Contamination) undertaken for the proposed Sumatran Tiger redevelopment at Taronga Zoo. The work was commissioned by the Taronga Conservation Society Australia.

The project involves the redevelopment of the areas adjacent to the existing tiger and lion exhibits. This will involve the demolition of various structures, some cut-to-fill earthworks and the construction of new exhibits.

The Preliminary Site Investigation was undertaken to:

- assess the previous land uses and likely subsurface conditions to determine the potential for soil and groundwater contamination on the site;
- provide a preliminary assessment of the suitability of the site for the proposed development; and
- provide recommendations for additional investigation, if required.

The Preliminary Site Investigation has been prepared to address the requirements of *State Environmental Planning Policy No 55 – Remediation of Land*. The overall approach for the Preliminary Site Investigation included a review of available historical information and a site visit. Details of the site history are given in this report, as well as comments on the issues outlined above.

This report has not been specifically prepared for site audit purposes.

2. Site Description

The area of the proposed works is located in the south-western portion of the publically-accessible area of the zoo. It currently houses the African lion, Sumatran tiger, snow leopard and Fennec fox exhibits. The bird show amphitheatre is located to the south-west of the site.

The zoo is located on the southern side of a steep slope that dips towards Athol Bay. The site has been extensively terraced and numerous retaining walls provide level areas which house exhibits and walking paths/roadways. Many sandstone rock faces and cuttings are evident on the wider zoo site.

Taronga Zoo is located on Lot 22 DP 843294. The portion of the site proposed for redevelopment is shown on Drawing 1 in Appendix B.

3. Regional Geology and Hydrogeology

The *Sydney 1:100 000 Geological Series Sheet* shows that the site is underlain by Hawkesbury Sandstone which typically comprises medium to coarse-grained quartz sandstone with minor shale and laminite lenses. An extract from the geological map is shown in Figure 1.



Figure 1: Extract from geological map

The groundwater table is likely to be well below the bedrock surface. Near-surface Hawkesbury Sandstone generally exhibits low permeabilities which result in very low groundwater yields. Groundwater use from this aquifer is therefore unlikely to be significant.

Surface water is likely to follow the surface topography and flow to the south.

4. Scope of Works

The scope of the Preliminary Site Investigation was as follows:

- Review various historical documents including aerial photographs, historical title deeds, the EPA Contaminated Land register and groundwater bore licences to determine the nature of previous activities that may have occurred on the site;
- Undertake a brief site inspection of the external areas of the site; and

- Provide a Preliminary Site Investigation report which comments on the historical uses of the site, the potential for soil and groundwater contamination to be present, and provides recommendations for follow up action (if required).

5. Site History

5.1 Aerial Photographs

A review of aerial photographs from 1930, 1951, 1961, 1994, 2005 and 2009 was undertaken to evaluate the land-use patterns on the site. Some development can be seen in this area of the site in the 1930 photograph, although the 1951 photograph shows more extensive development with roadways and structures for exhibits present. The 1961 photograph shows similar conditions to the 1951 photograph.

The 1994 photograph shows significant tree coverage compared to the earlier images. The 2005 and 2009 photographs show similar conditions to the present.

Scanned images of the aerial photographs are provided in Appendix C.

5.2 Historical Land Uses

The Taronga Zoo site was originally Crown land known as Ashburn Park. Control of the land was passed to the Zoological Society of NSW between 1912 and 1916 and the zoo was officially opened in 1916. Ownership of the land was officially transferred to the Zoological Parks Board of NSW in 1992.

Taronga Zoo has been progressively developed since its inception and changes to site layout and exhibits have occurred intermittently throughout the zoo's operation. Filling is known to have been imported to the site in the past and asbestos-containing material (ACM) has been identified in existing filling in numerous areas of the site. Title deed information is provided in Appendix C.

5.3 Contaminated Land Public Register

A search undertaken on 28 April 2015 indicated that the development site is not on the Public Register of Notices issues under the *Contaminated Land Management Act 1997*. No sites within the Mosman Council local government area are listed on the register.

5.4 Groundwater Bore Search

A search of licensed groundwater bores in the Mosman area indicated that there are no licensed groundwater bores within Taronga Zoo.

6. Previous Assessments

Douglas Partners has previously undertaken contamination assessments at Taronga Zoo including:

- *Preliminary Contamination Assessment for the Top Entrance and Staff Carpark* (Project 37522A dated April 2005);
- *Contamination Assessment for the Amazonian Exhibit Area* (Project 45819B dated February 2009); and
- *Contamination Assessment for the 'Heart of the Zoo' Area* (Project 71144 dated June 2009).

In addition, Douglas Partners undertook a geotechnical investigation for the Sumatran Tiger redevelopment (Project 73809.00 dated 17 March 2014).

Information from these previous assessments by Douglas Partners was used in the current assessment where relevant.

7. Site Inspection

A brief inspection was undertaken by the writer on 25 March 2015. The inspection and discussions with zoo staff indicated:

- The area proposed for redevelopment currently houses exhibits that are in use and open to the public;
- Chemicals are not stored within the redevelopment area;
- The only known asbestos in the area is an underground water pipe;
- All solid waste is removed from the site and recycled or disposed of in an appropriate manner; and
- All liquid waste is treated at an on-site treatment plant prior to being recycled for use within the zoo.

Photographs taken at the time of the inspection are included in Appendix D.

8. Initial Conceptual Site Model

On the basis of the information contained in this report, potentially contaminating activities that may have occurred on the site include:

- The placement of filling on the site;
- Contaminants associated with demolition activities (e.g. lead and asbestos);
- Contaminants associated with maintenance of the buildings on the site (e.g. pesticides and herbicides); and

- Naturally occurring elements in the soils and rock underlying the site (e.g. heavy metals).

The regional groundwater table is likely to be at considerable depth. The quality of the groundwater should therefore not hinder the proposed development or the continuing use of the site as a zoo.

9. Conclusions and Recommendations

The site history information indicated that the site was converted from vacant (assumed) Crown land to Taronga Zoo in the early part of the 20th Century. There were no obvious indicators of contaminating activities on the site other than imported filling and, in the later years, demolition of buildings that are likely to have contained asbestos-containing material. Obvious sources of contamination were not observed in the assessment area during the recent inspection.

On the basis of the results of this Preliminary Site Investigation, there is little to suggest that activities with a high potential for causing soil and groundwater contamination have been undertaken on the site to date. Any existing filling that is present on the site will need to be assessed for the presence of asbestos materials during construction. An Unexpected Finds Protocol should be incorporated into the Environmental Management Plan for the project so that procedures are in place for handling asbestos.

It is therefore considered that the site either is suitable or could be made suitable for the proposed development. Any materials encountered that are deemed unsuitable will need to be removed as part of the construction process.

All materials requiring removal from the site will need to be classified in accordance with *Waste Classification Guidelines* (NSW EPA, 2014). The demolition contractor should ensure that the demolition works are undertaken in an appropriate manner and that cross-contamination of the site does not occur. Removal of asbestos and other hazardous building materials (if present) should be undertaken by a suitably licensed contractor and an asbestos clearance certificate provided before waste classification, disposal or site validation is undertaken.

10. Limitations

Douglas Partners (DP) has prepared this report for this project at Taronga Zoo in accordance with our proposal dated 16 March 2015. This report is provided for the use of the Taronga Conservation Society Australia for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are based on a non-intrusive review of potential contamination at the site using available information only. Intrusive sampling and testing was not in the scope of the PSI.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

Douglas Partners Pty Ltd

Appendix A

About this Report

About this Report

Douglas Partners



Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Conditions of Engagement for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;

- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

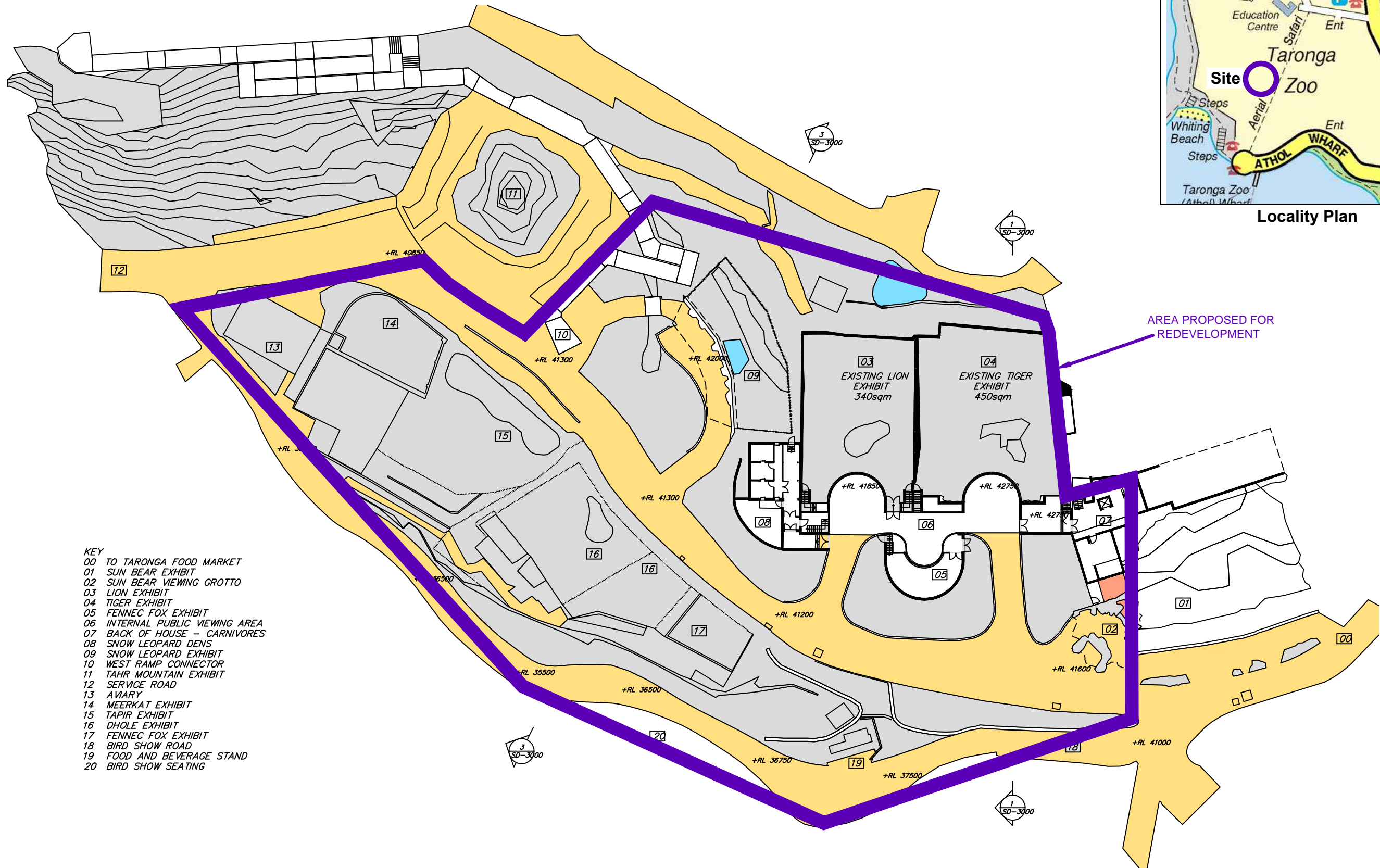
The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

Appendix B

Drawing



Locality Plan



AREA PROPOSED FOR REDEVELOPMENT

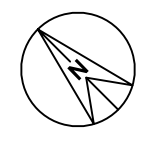
- KEY
- 00 TO TARONGA FOOD MARKET
 - 01 SUN BEAR EXHIBIT
 - 02 SUN BEAR VIEWING GROTTO
 - 03 LION EXHIBIT
 - 04 TIGER EXHIBIT
 - 05 FENNEC FOX EXHIBIT
 - 06 INTERNAL PUBLIC VIEWING AREA
 - 07 BACK OF HOUSE - CARNIVORES
 - 08 SNOW LEOPARD DENS
 - 09 SNOW LEOPARD EXHIBIT
 - 10 WEST RAMP CONNECTOR
 - 11 TAHR MOUNTAIN EXHIBIT
 - 12 SERVICE ROAD
 - 13 AVIARY
 - 14 MEERKAT EXHIBIT
 - 15 TAPIR EXHIBIT
 - 16 DHOLE EXHIBIT
 - 17 FENNEC FOX EXHIBIT
 - 18 BIRD SHOW ROAD
 - 19 FOOD AND BEVERAGE STAND
 - 20 BIRD SHOW SEATING

NOTE: Base drawing from Lahz Nimmo Architects Pty Ltd (Proj. 1407, Dwg A-SD-1200, dated 6.12.2014)

PV3809.01 - MCSMAN Taronga Sumatran Tigers PSI\7.0 Drawings\73809.01-1.dwg, 28/04/2015 3:23:13 PM

CLIENT: Taronga Conservation Society Australia	
OFFICE: Sydney	DRAWN BY: PSCH
SCALE: N.T.S.	DATE: 28.4.2015

TITLE: **Redevelopment Area**
Sumatran Tiger PSI
Taronga Zoo



PROJECT No:	73809.01
DRAWING No:	1
REVISION:	0

Appendix C

Site History Information



Photo 1 – Aerial photograph from 1930

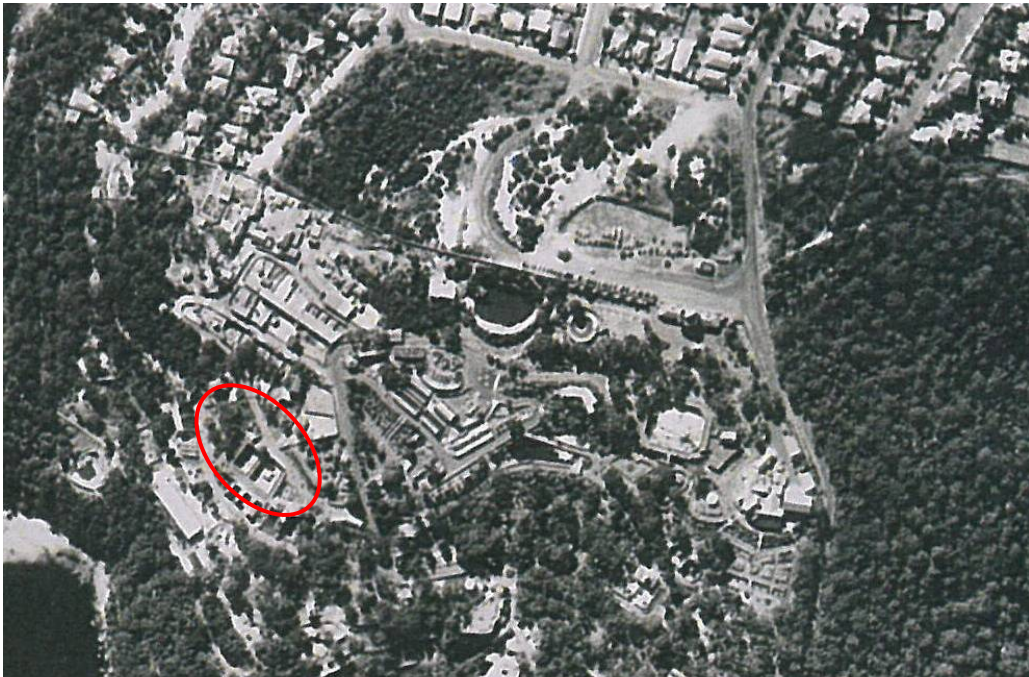


Photo 2 – Aerial photograph from 1951



Historical Aerial Photographs
Sumatran Tiger PSI
Taronga Zoo

PROJECT: 73809.01

PLATE No: 1

REV: 0

CLIENT: Taronga Conservation Soc.

DATE: 28-Apr-15



Photo 3 – Aerial photograph from 1961



Photo 4 – Aerial photograph from 1994



Historical Aerial Photographs
Sumatran Tiger PSI
Taronga Zoo

PROJECT: 73809.01

PLATE No: 2

REV: 0

CLIENT: Taronga Conservation Soc.

DATE: 28-Apr-15

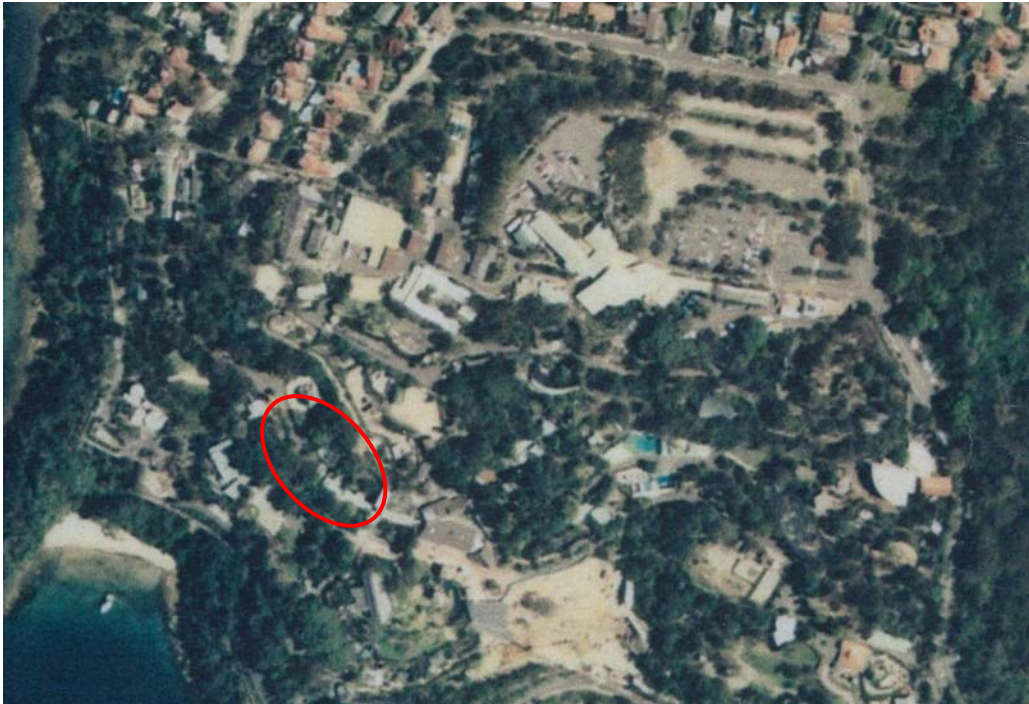


Photo 5 – Aerial photograph from 2005



Photo 6 – Aerial photograph from 2009



Historical Aerial Photographs
Sumatran Tiger PSI
Taronga Zoo

CLIENT: Taronga Conservation Soc.

PROJECT: 73809.01

PLATE No: 3

REV: 0

DATE: 28-Apr-15

ACN: 093 398 611
ABN: 61 093 412 474

Peter S. Hopley Pty Limited
Legal Searchers

1 Boronia Avenue
Mount Annan , NSW , 2567
Mobile: 0412 199 304
Fax 9233 4590 (Attn Box 29)

SUMMARY AS TO OWNERS.

Property: Taronga Zoo

Description: Lot 22 D.P. 843294

The part of the subject land formerly comprised in Lot 5 D.P. 727103 (shown highlighted yellow on D.P. 843294), was Crown Land prior to the issue of Folio Identifier 5/727103, dated 21.09.1992. This land was Transferred to Zoological Parks Board of New South Wales by Transfer dated 27.10.1992.

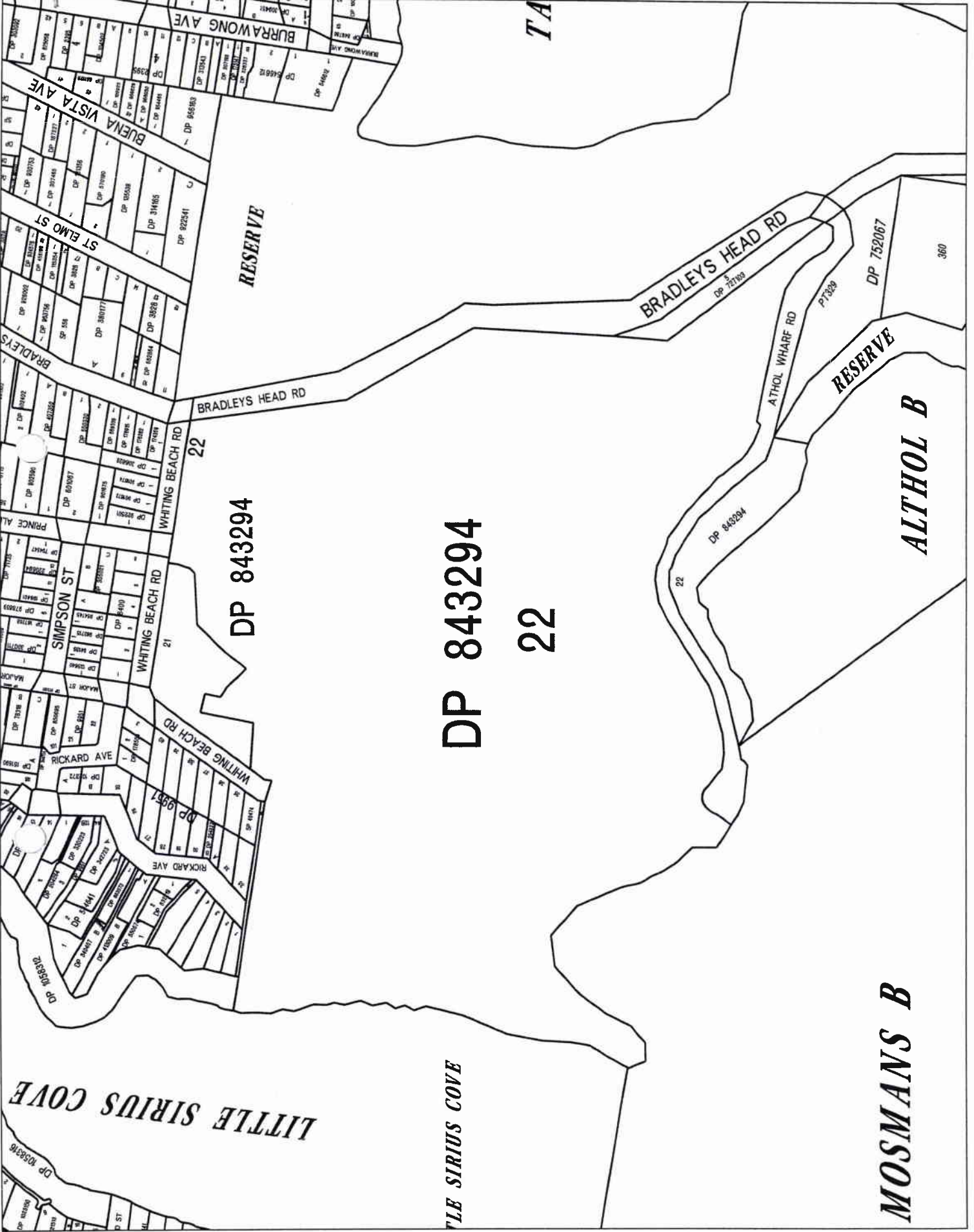
D.P. 727103 describes lot 5 therein as being the residue area of Ashton Park dedicated 29.11.1918.

The title to the remainder of the land prior to Volume 12162 Folio 4 was Crown Land. This title issued to the Zoological Parks Board of New South Wales on 19.07.1973.

An inspection of Crown Plan 13677 - 3000 disclosed the site of the Zoo to have been formerly comprised within an area known as Ashton Park.(Dedication of Park now revoked). It is also noted dedicated for Zoological Gardens by various Gazettes dated 24.04.1912, 22.04.1914, 29.11.1918 & 14.10.1932. Now revoked 22.12.1950.

70 acres parcel was dedicated for Zoological Gardens by Gazette dated 22.12.1950 then subsequently revoked by Taronga Park Zoological Act, 1956.

This 70 acres "Taronga Zoological Park" was dedicated as a Public Park by Taronga Zoological Part Act, 1956.



DP 843294

DP 843294

22

MOSMANS B

ALTHOL B

RESERVE

RESERVE

LITTLE SIRIUS COVE

LITTLE SIRIUS COVE

BRADLEYS HEAD RD

ATHOL WHARF RD

WHITING BEACH RD

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Registered: 12/12/1994

This is sheet 2 of my plan in 2 sheets

D.R. Buckton

Surveyor registered under Surveyors Act 1928

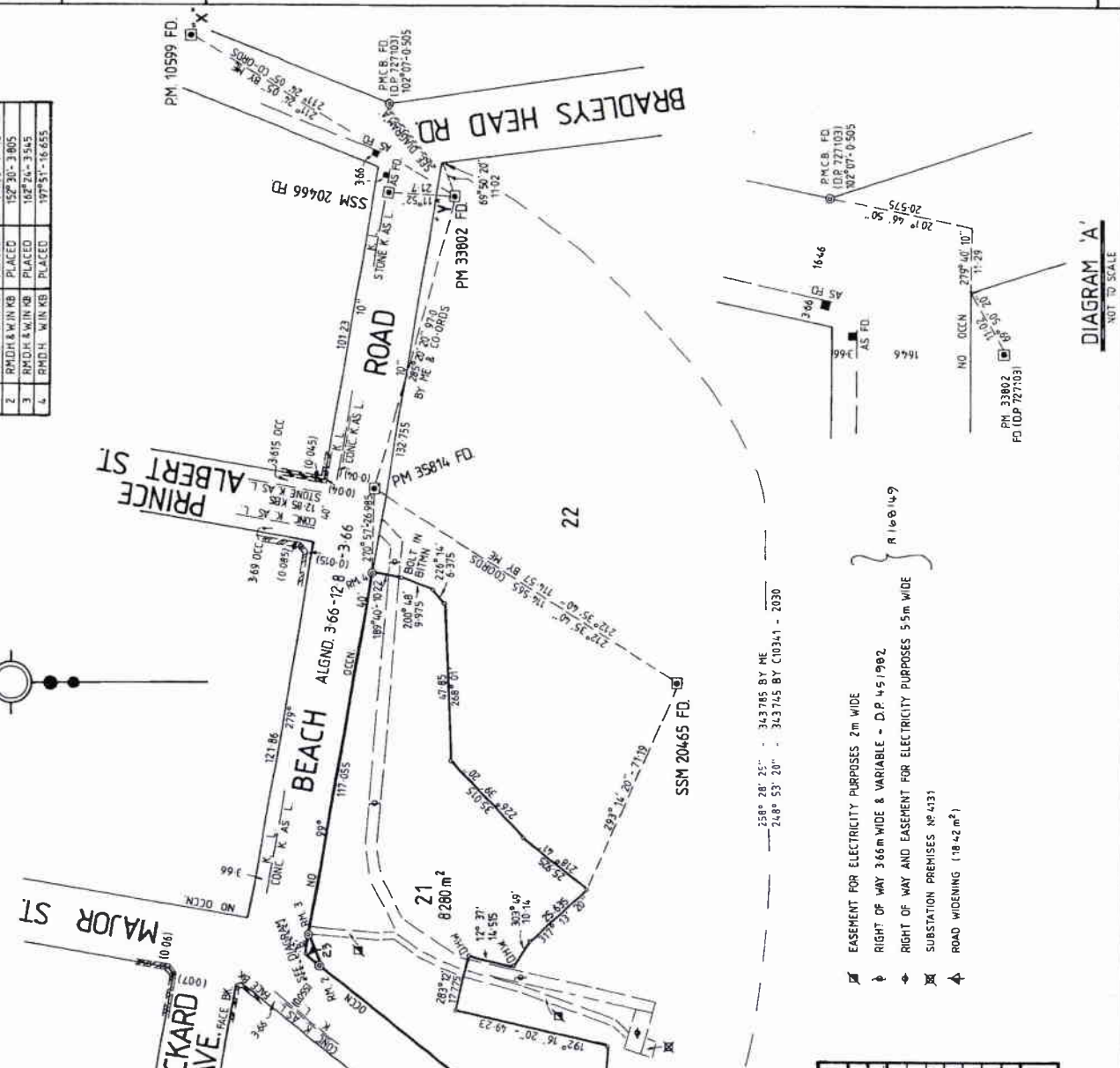
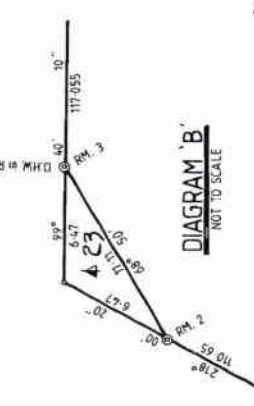
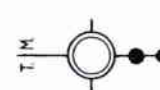
This is sheet 1 of the plan of the site located by my Certificate No. 1000000000

For use where space is insufficient in any panel on Plan Form 2

Council Clerk

SCHEDULE OF REFERENCE MARKS

Nº	DESC.	ORIGIN	BEAR. & DIST.
1	RMDH & WIN KB	PLACED	90° 53' - 7.475
2	RMDH & WIN KB	PLACED	152° 30' - 3.805
3	RMDH & WIN KB	PLACED	162° 24' - 3.545
4	RMDH & WIN KB	PLACED	197° 51' - 6.655



SURVEY PRACTICE REGULATION 1990 - CLAUSE 32 (2)

MARK	EASTING	NORTHING	R.L.	ZONE	ACC.
PM 10599	322 589 806	1254 207 091	85 760	56/1	2
PM 33802	322 520 166	1253 961 955	76 609	56/1	2
PM 35814	322 326 621	1253 987 407	76 6	56/1	2 (H)
SSM 20465	322 264 907	1253 891 095	79 809	56/1	2
SSM 20466	322 410	1253 990	76 840	56/1	2 (H)
SSM 20466	322 410	1253 990	76 840	56/1	2 (H)

SOURCE: SURVEY CONTROL INFORMATION MANAGEMENT SYSTEM
14TH JULY 1992

OFFICE USE ONLY

DP 727103

Registered 12-12-1988

Purpose PUBLIC ROADS ACT, 1902

Ref. Map 1/1952-2/1/1/38

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

PUBLIC ROADS ACT, 1902
 PARISH WILLOUGHBY
 LAND DISTRICT METROPOLITAN SHIRE MUN. MOSMAN

PLAN OF PROPOSED ROAD
 COUNTY CUMBERLAND

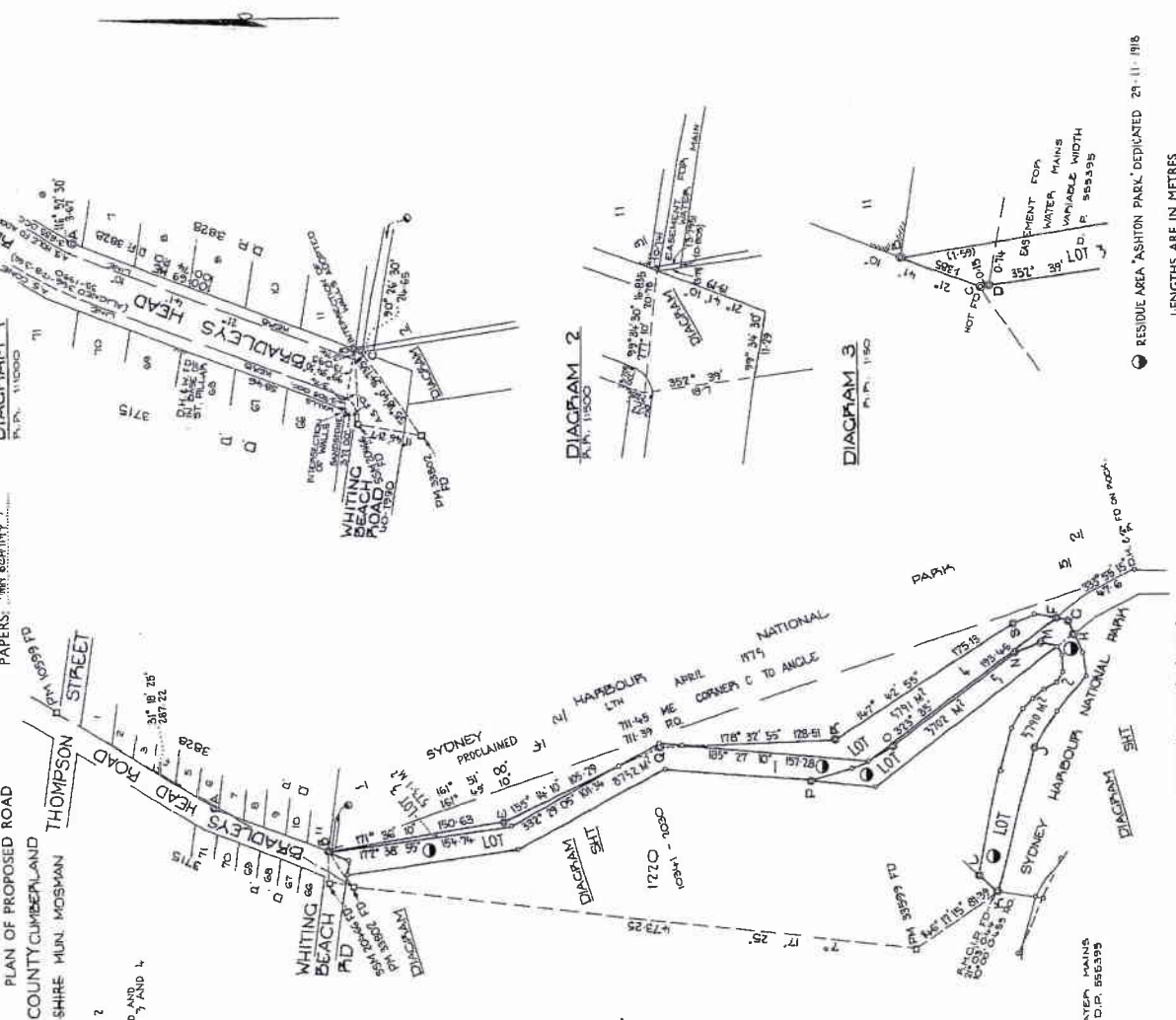
THOMPSON STREET
 BRADLEY'S HEAD ROAD
 WHITING BEACH ROAD

Width of Proposed Road/R.R., metres
 Length proposed to be retained in road - LOTS 1 AND 2
 Areas proposed to be established as public roads - LOTS 3 AND 4
 Areas proposed to be established as public roads - LOTS 7 AND 8

DIAGRAM 1
S.P. 1:1000

DIAGRAM 2
S.P. 1:1500

DIAGRAM 3
S.P. 1:1500



REFERENCE MARKS

CON. BEARING	FROM	METRES
A	108° 11'	116.005
B	108° 11'	116.005
C	108° 11'	116.005
D	108° 11'	116.005
E	108° 11'	116.005
F	108° 11'	116.005
G	108° 11'	116.005
H	108° 11'	116.005
I	108° 11'	116.005
J	108° 11'	116.005
K	108° 11'	116.005
L	108° 11'	116.005
M	108° 11'	116.005
N	108° 11'	116.005
O	108° 11'	116.005
P	108° 11'	116.005
Q	108° 11'	116.005
R	108° 11'	116.005
S	108° 11'	116.005

This is sheet 1 of my plan in 2 sheets (please if applicable)

ROBERT GEORGE MANNA of BRACKLETON
 a Surveyor registered under the Survey Act, 1914, 1917,
 and the Survey Act, 1920, hereby certifies that the
 above plan is a true and correct copy of the original
 plan of the same as deposited in his office on 12-12-1988.

ACCEPTED PLAN
 (NOT CHECKED IN THE OFFICE OF LANDS)
 SURVEYOR'S REFERENCE: MW82 H 115

RESIDUE AREA ASHTON PARK DEDICATED 25-11-1916

LENGTHS ARE IN METRES

REDUCTION RATIO 1:2500

AZIMUTH TAKEN FROM
 FIELD BOOKS SHEETS 51 TO 52

This negative is a photograph made as a permanent record of a document in the custody of the Registrar General this day 15th December, 1988.

10	20	30	40	50	60	70	80	90	100	110	120	130	140
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D P 727103

Registered 12-12-1988

This is sheet 2 of my plan in 2 sheets dated 24th MARCH, 1988.

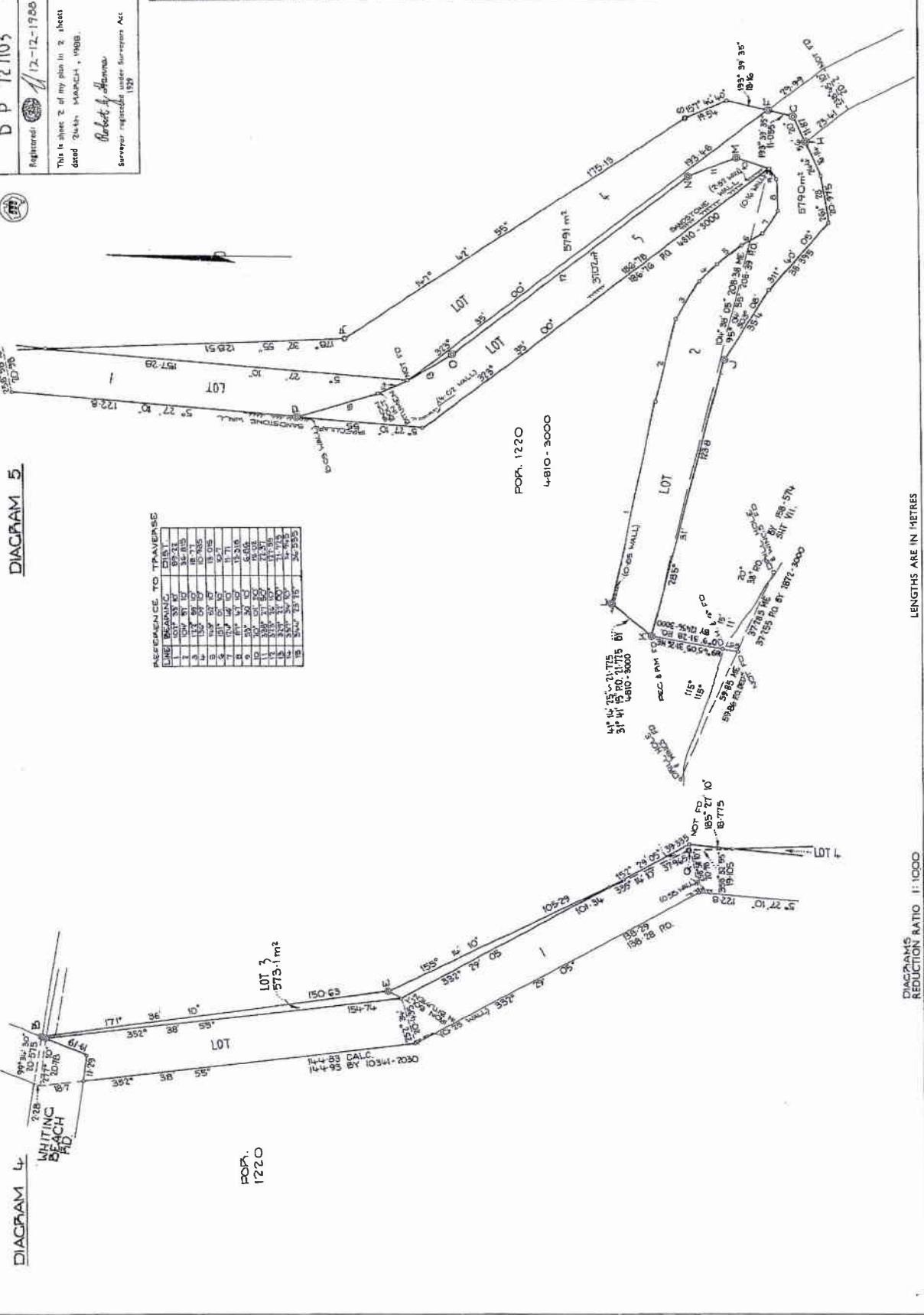
Robert J. Howard
 Surveyor registered under Surveys Act 1979

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

DIAGRAM 5

REFERENCE TO TRAVERSE

LINE	BEARING	DISTANCE
1	104° 51' 10"	3.6 81.5
2	113° 59' 10"	18.7 43.5
3	103° 50' 40"	18.0 41.5
4	101° 01' 10"	11.2 25.5
5	103° 50' 10"	6.0 14.0
6	104° 51' 10"	11.2 25.5
7	103° 50' 10"	11.2 25.5
8	103° 50' 10"	11.2 25.5
9	103° 50' 10"	11.2 25.5
10	103° 50' 10"	11.2 25.5
11	103° 50' 10"	11.2 25.5
12	103° 50' 10"	11.2 25.5
13	103° 50' 10"	11.2 25.5
14	103° 50' 10"	11.2 25.5
15	103° 50' 10"	11.2 25.5



POP. 1220
 4.810 - 3.000

POP. 1220

DIAGRAMS REDUCTION RATIO 1:10000

LENGTHS ARE IN METRES

SURVEYOR'S REFERENCE NUMBER 11195

This negative is a photograph made as a permanent record of a document in the custody of the Registrar General this day, 15th December, 1988.

10 20 30 40 50 60 70 80 90 100 110 120 130 140



D P 820325

Registered SH 26.9 1001

This is sheet 2 of my plan in 2 sheets

Surveyor registered under Surveyors Act 1929

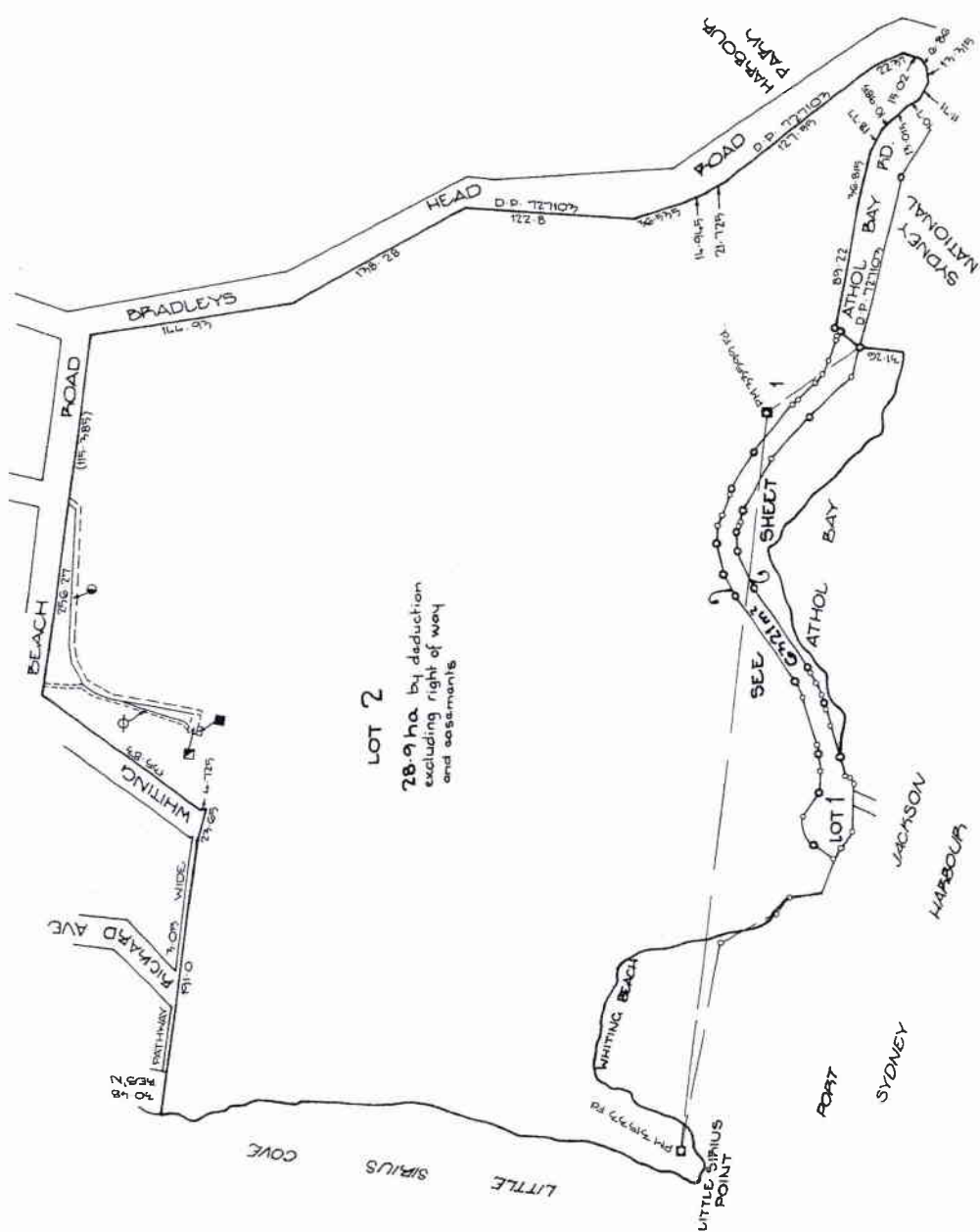
This is sheet of the plan of streets covered by the Certificate No. of

Surveyor's Clerk

For use where space is insufficient in any panel on Plan Form 2.

Reduction Ratio 1:

SURVEYOR'S REFERENCE



LOT 2
 28.9 ha by deduction
 excluding right of way
 and easements

AREA BY DEDUCTION

PORTION 1720	1.29 15 ha
PORTION 1720A	+ 0.1242 ha
LOT 5 D.P. 172107	+ 0.7702 ha
PROPOSED ROAD LOT 1	- 0.6721 ha
S.C.C. SUBSTATION PREMISES	- 0.0021 ha
RIGHT OF WAY	- 0.0889 ha
S.C.C. EASEMENT	- 0.0246 ha
TOTAL	28.9008 ha

- RIGHT OF WAY 3.65 WIDE 1. VARIABLE - D.P. 171982
- EASEMENT FOR ELECTRICITY PURPOSES 2.0 WIDE
- RIGHT OF WAY 1.5 EASEMENT FOR ELECTRICITY PURPOSES 1.5 WIDE
- LOT 1 D.P. 171982 - SUBSTATION PREMISES N.P. 171

REDUCTION RATIO : 1:2500

Plan Drawing only to appear in this space

DP 820725

Register: SH 26-9-1991

Title System: TORRENS

Purpose: PUBLIC ROADS ACT 1982

Ref. Map: U1852-84
U1852-83
U1852-84

Last Plan:

PLAN OF SUBDIVISION OF PORTION 1720 & PORTION 1209 & LOT 5 IN D.P. 721103

Lengths are in metres. Reduction Ratio 1:1000

Block/Name: MOSMAN

City: ATHOL BAY

Locality: WILLOUGHBY 3+4

Parish: CUMBERLAND

This is sheet 1 of my plan in 2 sheets

Surveyor: ROBERT GEORGE HANNA
of M.L.O. BRACATOWN

Surveyor registered under the Surveyors Act, 1926 as amended, hereby certify that the survey described in this plan, as appearing on this plan, was made by me or under my direct supervision and in accordance with the provisions of the Surveyors Act, 1926 as amended, and was completed on 28th July 1988.

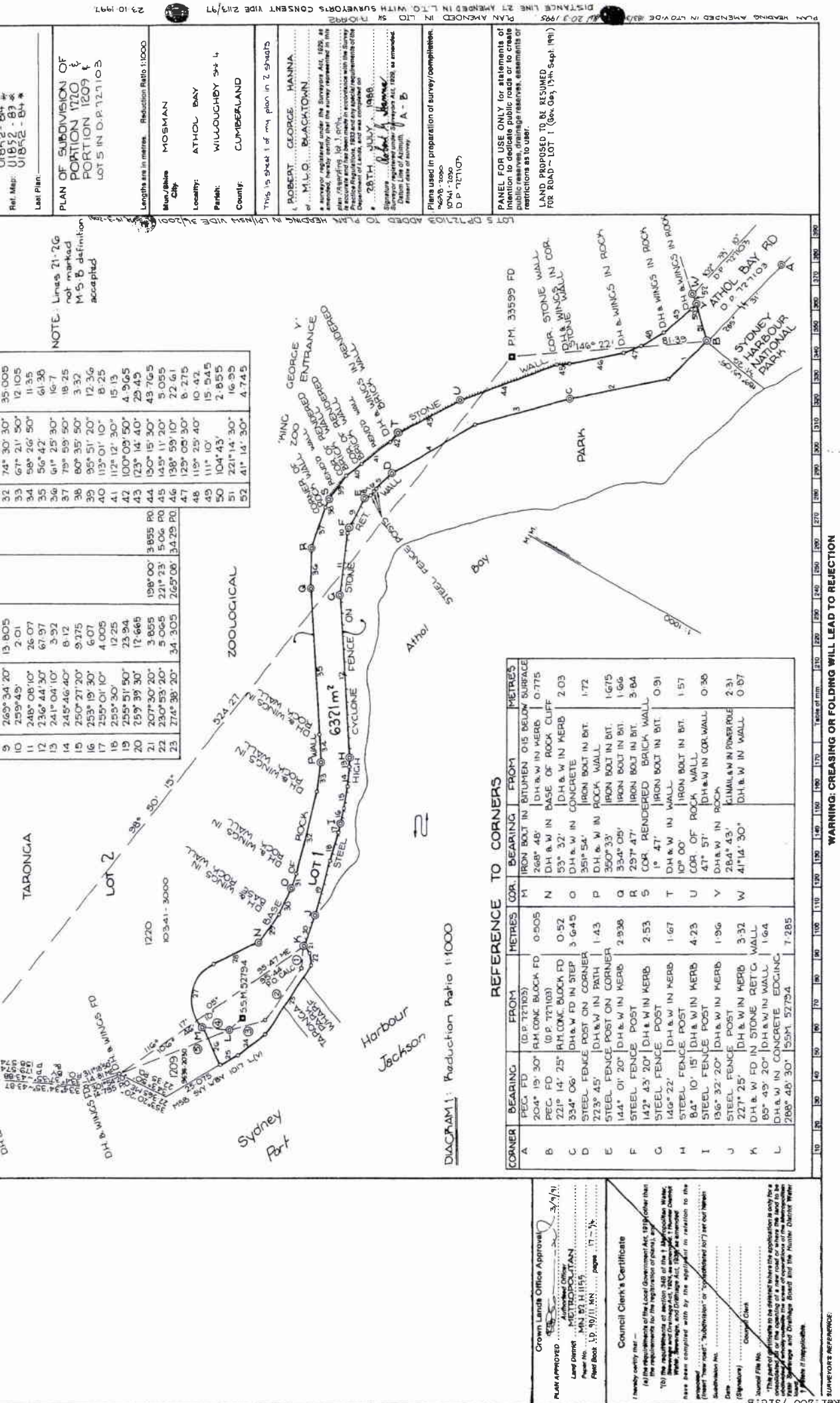
Signature: Robert George Hanna
Dated this 28th day of July 1988.

Surveyor registered under the Surveyors Act, 1926 as amended. (Division of Agriculture, Fisheries and Forestry, New South Wales)

Plans used in preparation of survey/completions:
- 820725
- 820726
- D.P. 721103
- D.P. 721107

PANEL FOR USE ONLY for statements of intention to dedicate public roads or to create public reserves, drainage reserves, easements or restrictions as to user.
LAND PROPOSED TO BE RESUMED FOR ROAD - LOT 1 (Gov. Gaz. 19th Sept. 1991)

REFERENCE TO TRAVERSE		REFERENCE TO BOUNDARIES			
N°	BEARING	DIST.	N°	BEARING	DISTANCE
1	285° 29'	22.68	24	293° 42'	14.43
2	316° 45' 30"	40.895	25	30° 12' 20"	9.87
3	315° 10'	41.51	26	34° 51'	16.93
4	300° 44' 20"	40.7	27	71° 21' 10"	41.6655
5	285° 20' 50"	9.525	28	125° 06' 10"	20.935
6	264° 33' 20"	0.4	29	56° 24' 30"	14.56
7	287° 34' 10"	2.875	30	84° 53' 30"	6.225
8	307° 45'	2.72	31	87° 43' 30"	12.34
9	263° 34' 20"	13.805	32	74° 30' 30"	35.005
10	259° 45'	2.01	33	67° 21' 50"	12.105
11	248° 08' 10"	26.07	34	58° 26' 50"	11.35
12	236° 44' 30"	67.97	35	56° 42'	61.36
13	241° 04' 10"	3.92	36	41° 25' 30"	16.7
14	245° 46' 40"	8.12	37	79° 59' 50"	18.25
15	250° 27' 20"	9.725	38	60° 35' 50"	3.32
16	253° 19' 30"	6.07	39	95° 51' 20"	12.36
17	255° 01' 10"	4.005	40	113° 01' 10"	8.25
18	253° 30'	12.25	41	112° 12' 30"	15.13
19	255° 51' 50"	23.94	42	100° 03' 50"	4.965
20	257° 39' 30"	12.665	43	123° 14' 40"	29.45
21	207° 30' 20"	3.855	44	150° 15' 30"	43.765
22	230° 53' 20"	5.065	45	145° 11' 20"	5.055
23	274° 38' 20"	34.305	46	138° 59' 10"	22.61
			47	129° 03' 30"	8.275
			48	118° 25' 40"	10.42
			49	111° 10'	15.545
			50	104° 43'	2.855
			51	221° 14' 30"	16.95
			52	41° 14' 30"	4.745



N°	BEARING	DISTANCE
1	285° 29'	22.68
2	316° 45' 30"	40.895
3	315° 10'	41.51
4	300° 44' 20"	40.7
5	285° 20' 50"	9.525
6	264° 33' 20"	0.4
7	287° 34' 10"	2.875
8	307° 45'	2.72
9	263° 34' 20"	13.805
10	259° 45'	2.01
11	248° 08' 10"	26.07
12	236° 44' 30"	67.97
13	241° 04' 10"	3.92
14	245° 46' 40"	8.12
15	250° 27' 20"	9.725
16	253° 19' 30"	6.07
17	255° 01' 10"	4.005
18	253° 30'	12.25
19	255° 51' 50"	23.94
20	257° 39' 30"	12.665
21	207° 30' 20"	3.855
22	230° 53' 20"	5.065
23	274° 38' 20"	34.305

N°	BEARING	DIST.
1	251° 18' 20"	10.66
2	276° 44' 40"	26.51
3	315° 10'	15.46
4	336° 22' 50"	11.305
5	309° 33' 40"	49.645

CORNER	BEARING	FROM	METRES	TO	BEARING	FROM	METRES	TO	BEARING	FROM	METRES
A	204° 19' 30"	RH CONC BLOCK FD	0.505	M	268° 48'	IRON BOLT IN BITUMEN O/S BELOW SURFACE	0.775				
B	221° 14' 25"	RH CONC BLOCK FD	0.52	N	93° 32'	D.H.&W IN BASE OF ROCK CLIFF	2.03				
C	334° 06'	D.H.&W IN STEP	3.645	O	395° 54'	D.H.&W IN CONCRETE	1.72				
D	223° 45'	D.H.&W IN PATH	1.43	P	300° 33'	IRON BOLT IN BIT.	1.675				
E	144° 01' 20"	D.H.&W IN KERB	2.936	Q	354° 05'	IRON BOLT IN BIT.	1.66				
F	142° 43' 20"	D.H.&W IN KERB	2.53	R	257° 47'	IRON BOLT IN BIT.	3.84				
G	146° 22'	D.H.&W IN KERB	1.67	S	1° 47'	COR. RENDEROED BRICK WALL	0.91				
H	84° 10' 15"	D.H.&W IN KERB	4.23	T	109° 00'	D.H.&W IN WALL	1.57				
I	136° 32' 20"	D.H.&W IN KERB	1.96	U	47° 57'	COR. OF ROCK WALL	0.38				
J	227° 25'	D.H.&W IN KERB	3.32	V	284° 43'	D.H.&W IN POWER POLE	2.31				
K	65° 49' 20"	D.H.&W IN STONE RETC. WALL	1.64	W	41° 14' 30"	D.H.&W IN WALL	0.87				
L	286° 48' 30"	CONCRETE EDGING	7.285								

DIAGRAM 1: Reduction Ratio 1:1000

PLAN HEADINGS MENDED IN COVER 82/75
PLAN AMENDED IN LTD 5K 710/828
DISTANCE LINE 27 MENDED IN LTD WITH SURVEYORS CONSENT WIDE 21/3/97
23/10/1997

PLAN FORM 2 SIGNATURE AND SEALS ONLY

PLAN AMENDED IN LTD 5K 710/828DISTANCE LINE 27 MENDED IN LTD WITH SURVEYORS CONSENT WIDE 21/3/97

PLAN FORM 2 SIGNATURE AND SEALS ONLY

PLAN AMENDED IN LTD 5K 710/828DISTANCE LINE 27 MENDED IN LTD WITH SURVEYORS CONSENT WIDE 21/3/97

PLAN FORM 2 SIGNATURE AND SEALS ONLY

PLAN AMENDED IN LTD 5K 710/828DISTANCE LINE 27 MENDED IN LTD WITH SURVEYORS CONSENT WIDE 21/3/97

LegalStream Australia Pty Ltd

ABN: 80 002 801 498

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Phone: (02) 9231 0122 Fax: (02) 9233 6411 www.legalstream.com.au

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LPI NSW
Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

10/11/2004 8:46PM

FOLIO: 5/727103

First Title(s): 5/727103
Prior Title(s): CROWN LAND

Recorded	Number	Type of Instrument	C.T. Issue
21/9/1992	DP822431	DEPOSITED PLAN	LOT RECORDED FOLIO NOT CREATED
25/9/1992	DP727103	DEPOSITED PLAN	FOLIO CREATED CT NOT ISSUED
27/10/1992	E850966	TRANSFER	EDITION 1
14/3/2001	7474587	DEPARTMENTAL DEALING	FOLIO CANCELLED

*** END OF SEARCH ***

Johnson
Registrar General



GRANT OF LAND

(UNDER THE ZOOLOGICAL PARKS BOARD ACT, 1973)

ELIZABETH the SECOND, by the Grace of God of the United Kingdom, Australia and Her other Realms and Territories Queen, Head of the Commonwealth, Defender of the Faith:-

TO ALL to whom these Presents shall come, Greeting:-

WHEREAS by the Zoological Parks Board Act, 1973 it is provided (inter alia) that notwithstanding anything in the Crown Lands Consolidation Act, 1913 the Governor of Our State of New South Wales may grant any of the lands described in Schedules 3 and 4 to the said Zoological Parks Board Act, 1973 (being the lands hereinafter described and intended to be hereby granted) to the ZOOLOGICAL PARKS BOARD OF NEW SOUTH WALES the body corporate constituted under the said Zoological Parks Board Act, 1973 (hereinafter called the GRANTEE) for an estate in fee simple subject to such exceptions reservations and conditions as are specified in the Grant AND WHEREAS the said Zoological Parks Board Act, 1973 came into force on the fourth day of June 1973 NOW KNOW YE that in pursuance of the said Zoological Parks Board Act, 1973 WE HAVE GRANTED and for Us Our Heirs and Successors DO HEREBY GRANT unto the GRANTEE and its Assigns subject to the provisions of the said Zoological Parks Board Act, 1973 and to the exceptions reservations and conditions hereinafter contained ALL THAT parcel of land in Our said State containing by admeasurement twenty nine point one five hectares be the same more or less situated in the County of Cumberland Parish of Willoughby at Mosman Being Portion 1220 as shown in plan catalogued No. C.10341-2030 in the Department of Lands ALSO ALL THAT parcel of land containing by admeasurement one thousand two hundred and thirty nine square metres be the same more or less situated as aforesaid Being Portion 1209 as shown in plan catalogued No. C.9638-2030 in the Department of Lands As per plan on page 3 hereof with all Rights and Appurtenances whatsoever thereto belonging TO HOLD unto the GRANTEE and its Assigns for ever for the purposes of the said Zoological Parks Board Act, 1973 PROVIDED NEVERTHELESS AND WE DO HEREBY RESERVE AND EXCEPT unto Us Our Heirs and Successors all minerals which the said lands contain with full power and authority for Us Our Heirs and Successors and such person

12162 Fol. 4

(Page 1) Vol.

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

or persons as shall from time to time be authorised by Us or Them to enter upon the said lands and to search for mine dig and remove the said minerals AND ALSO all such parts and so much of the said lands as may hereafter be required for publicways in over and through the same to be set out by Our Governor for the time being of Our said State or some person by him authorised in that respect with full power for Us Our Heirs and Successors and for Our Governor as aforesaid by such person or persons as shall be by Us Them or him authorised in that behalf to make and conduct all such public ways and the right of full and free ingress egress and regress into out of and upon the said lands for the several purposes aforesaid or any of them IN TESTIMONY WHEREOF We have caused this Our Grant to be Sealed with the Seal of Our said State

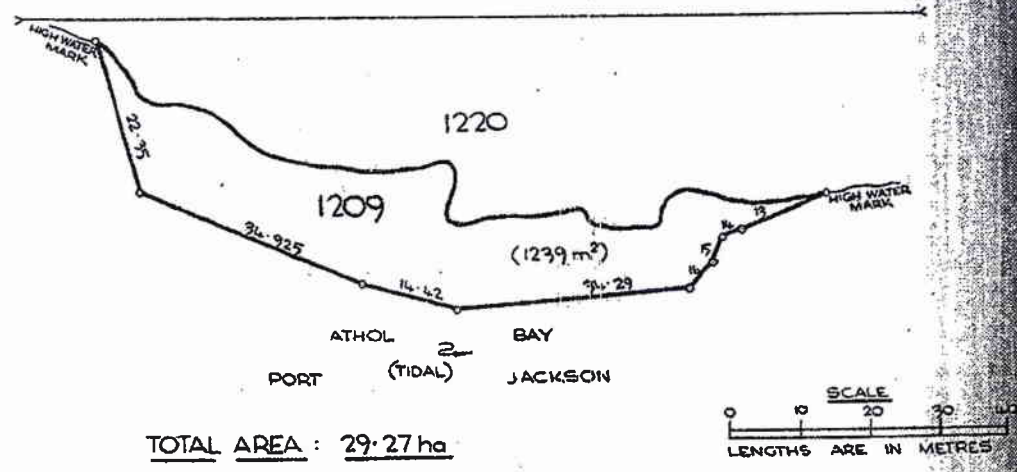
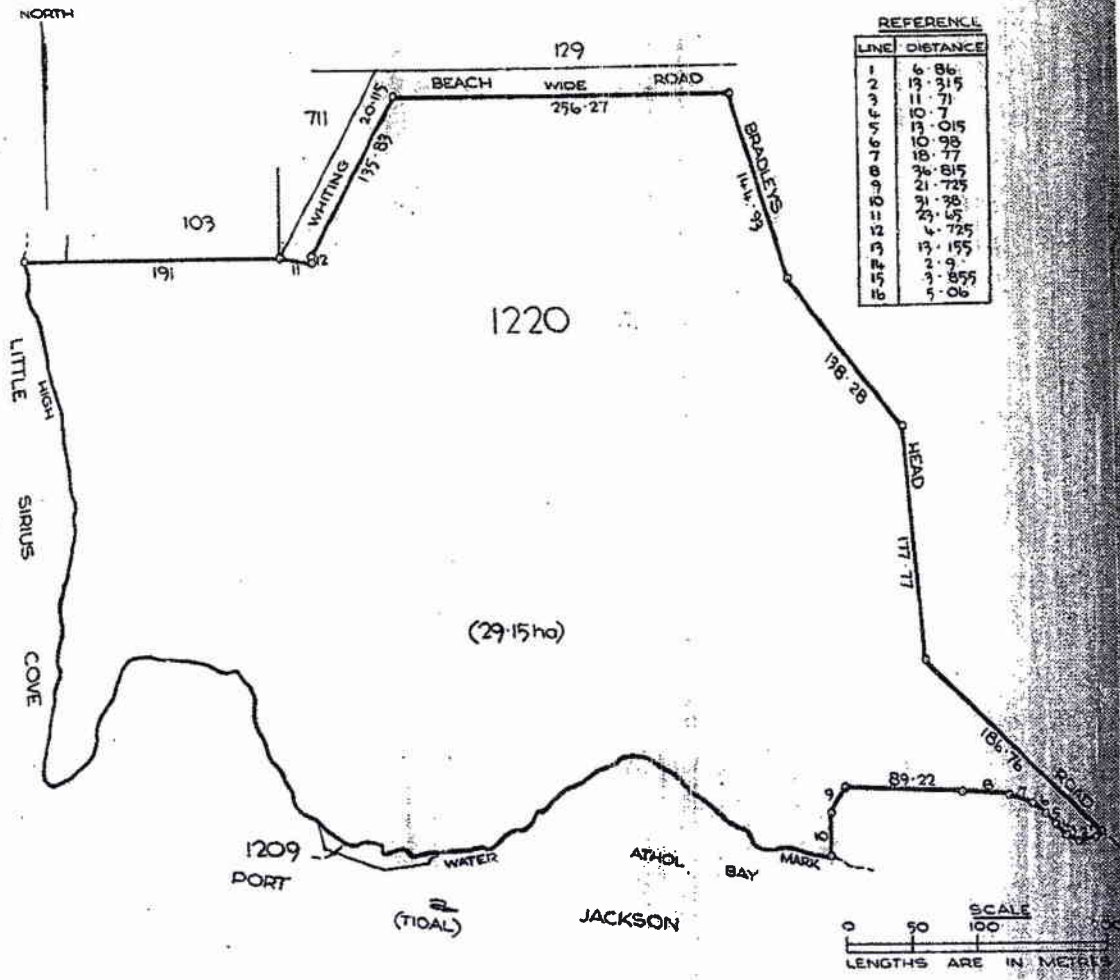
Robertson
WITNESS Our Governor of Our State of New South Wales and its Dependencies in the Commonwealth of Australia, at Sydney in Our said State, this sixth day of July in the twenty second year of Our Reign and in the year of Our Lord one thousand nine hundred and seventy three

A. A. Beetles

Governor.

Vh. 12/62 Vol. 4

PLAN REFERRED TO



TOTAL AREA : 29.27 ha

LegalStream Australia Pty Ltd

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Level 10, 135 King Street, SYDNEY, NSW 2000, AUSTRALIA * DX 654 Sydney
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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

10/11/2004 8:46PM

FOLIO: 2/820325

First Title(s): VOL 12162 FOL 4

Prior Title(s): VOL 12162 FOL 4

Recorded	Number	Type of Instrument	C.T. Issue
-----	-----	-----	-----
26/9/1991	DP820325	DEPOSITED PLAN	LOT RECORDED FOLIO NOT CREATED
15/3/1995	075284	APPLICATION	FOLIO CREATED CT NOT ISSUED
8/5/1995	062051	DEPARTMENTAL DEALING	FOLIO CANCELLED
18/9/1997	3423995	DEPARTMENTAL DEALING	FOLIO CANCELLED
23/12/1999	6451883	DEPARTMENTAL DEALING	

*** END OF SEARCH ***

zoo

PRINTED ON 10/11/2004

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

10/11/2004 8:46PM

FOLIO: 22/843294

First Title(s) : VOL 12162 FOL 4
Prior Title(s) : 2/820325

Recorded	Number	Type of Instrument	C.T. Issue
6/12/1994	DP843294	DEPOSITED PLAN	LOT RECORDED FOLIO NOT CREATED
8/5/1995	062051	APPLICATION	FOLIO CREATED CT NOT ISSUED
18/9/1997	3423995	DEPARTMENTAL DEALING	
PRIOR TITLES(S) AS AMENDED: 2/820325, 5/727103.			
14/3/2001	7474590	DEPARTMENTAL DEALING	

*** END OF SEARCH ***

LegalStream Australia Pty Ltd

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Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 22/843294

SEARCH DATE	TIME	EDITION NO	DATE
10/11/2004	8:45 PM	-	-

CERTIFICATE OF TITLE HAS NOT ISSUED

LAND

LOT 22 IN DEPOSITED PLAN 843294

AT ATHOL BAY

LOCAL GOVERNMENT AREA: MOSMAN

PARISH OF WILLOUGHBY COUNTY OF CUMBERLAND

TITLE DIAGRAM: DP843294

FIRST SCHEDULE

ZOOLOGICAL PARKS BOARD OF NEW SOUTH WALES

SECOND SCHEDULE (2 NOTIFICATIONS)

1. LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN - SEE CROWN GRANT(S)
- * 2. R168149 LEASE TO SYDNEY COUNTY COUNCIL OF SUBSTATION PREMISES NO. 4131 SHOWN IN DP451982. TOGETHER WITH A RIGHT OF WAY & EASEMENT FOR ELECTRICITY PURPOSES OVER ANOTHER PART OF THE LAND ABOVE DESCRIBED. EXPIRES 26.12.2024

NOTATIONS

NOTE: LODGED DEALINGS SHOULD BE ACCOMPANIED BY PRIOR CERTIFICATE OF TITLES VOL 12162 FOL 4 & 5/727103

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

ZOO

PRINTED ON 10/11/2004

LEGALSTREAM AUSTRALIA hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with Section 96B(2) of the Real Property Act, 1900.

*ANY ENTRIES PRECEDED BY AN ASTERIX DO NOT APPEAR ON THE CURRENT EDITION OF THE CERTIFICATE OF TITLE
WARNING: THE INFORMATION APPEARING UNDER NOTATIONS HAS NOT BEEN FORMALLY RECORDED IN THE REGISTER

Appendix D

Site Photographs



Photo 1 - Road outside existing tiger exhibit (looking west)



Photo 2 - Entry to existing lion/tiger exhibit (looking north)



Site Photographs
Sumatran Tiger PSI
Taronga Zoo

CLIENT: Taronga Conservation Soc.

PROJECT: 73809.01

PLATE No: Site 1

REV: 0

DATE: 28-Apr-15



Photo 3 - Middle road approaching western end of redevelopment area



Photo 4 - Existing bird aviary



Site Photographs

Sumatran Tiger PSI

Taronga Zoo

CLIENT: Taronga Conservation Soc.

PROJECT: 73809.01


PLATE No: Site 2

REV: 0

DATE: 28-Apr-15



Photo 5 - Western entrance to snow leopard exhibit

	Site Photographs	PROJECT: 73809.01
	Sumatran Tiger PSI	PLATE No: Site 3
	Taronga Zoo	REV: 0
	CLIENT: Taronga Conservation Soc.	DATE: 28-Apr-15