Our Ref: J100145

6 April 2010

VIC LILLI
&PARTNERS

Manly Council
DX 9205
MANLY

Attention: Customer Service

Dear Sir/Madam,

Subject: **Construction Certificate J100145**
Development Consent Permit 109/08
24 Montpelier Place Manly

Reference is made to the application for a Construction Certificate in respect of the above property. In that regard we confirm that a Construction Certificate No J100145 was issued on 6 April 2010 pursuant to Development Consent 109/08.

Please find enclosed a copy of the Construction Certificate issued including all documentation assessed in the determination of the application.

You are advised the Construction Certificate attached is only for Bulk Excavation works only. This Construction Certificate excludes the following items,

a) The Home Owners Warranty - The bulk excavation is being carried out by a Civil Contractor under the direction of Lend Lease. The detailed excavation and the building works will be carried out once a licensed builder has been appointed and home owners warranty will be gained prior to the release of the next Construction Certificate.

b) The Notice to Commence Building Works and Appointment of Principal Certifying Authority will be issued once a builder has been has been appointed and prior to the release of the next Construction Certificate.

Also please find enclosed a cheque for $30.00 being the registration fee for the above. It would be appreciated if a receipt in this regard could be forwarded to our firm as soon as possible.

Should you require any further information please contact the undersigned.

Yours faithfully,

Paul Ladogna
for **Vic Lilli & Partners**

$30.00
R/N 684628
DS 12/4/2010

Cc: Lend Lease Development Pty Ltd
Level 4, 30 The Bond, 30 Hickson Road
MILLERS POINT NSW 2000

Encl.

Our Ref: J100145

6 April 2010

VIC LILLI
&PARTNERS

Lend Lease Development Pty Ltd
Level 4, 30 The Bond, 30 Hickson Road
MILLERS POINT NSW 2000

Attention: Peter Nash

Dear Peter,

Subject: **Construction Certificate J100145**
Development Consent Permit 109/08
24 Montpelier Place Manly

We refer to our engagement in respect of the above and enclose the Construction Certificate for such works.

Mandatory inspection of works

The Environmental Planning and Assessment Act 1979 require that the inspections detailed below, known as Critical Stage Inspections, be carried out by the Principal Certifying Authority (PCA).

The provision of certificates in lieu of mandatory inspections (i.e. Engineer's or waterproofing certificates) is not acceptable at any time.

It is necessary for the following inspections to be carried out in relation to the proposed works.

Class 1 & 10 buildings

- After excavation for, and prior to the placement of, any footings, and
- Prior to pouring any in-situ reinforced concrete building element, and
- Prior to covering of the framework for any floor, wall, roof or other building element, and
- Prior to covering waterproofing in any wet areas, and
- Prior to covering stormwater drainage connections, and
- in the case of a swimming pool, after the construction of the swimming pool is completed and the barrier (if one is required under the *Swimming Pools Act 1992*) has been erected and before the pool is filled with water

After the building work has been completed and prior to any occupation certificate being issued in relation to the buildings.

VIC LILLI
&PARTNERS

Builder to Arrange Critical Stage Inspections

The Principal Contractor for the building site is responsible for ensuring that the Principal Certifying Authority is given notice of at least **at least 48 hours** if a Critical Stage Inspection is required.

Should you require any further information please contact the undersigned.

Yours faithfully,

Paul Ladogna
for **Vic Lilli & Partners**

Encl.

VIC LILLI & PARTNERS - Accredited Building Certifiers

T 02 9715 2555 E info@viclilli.com.au Locked Bag 3013 Burwood NSW 1805. DX 8505
F 02 9715 2333 W www.viclilli.com.au Suite 1. Level 5. 56 Railway Parade Burwood NSW 2134
A division of Mondan Management Pty Ltd ABN 60 119 432 094

VIC LILLI
&PARTNERS

CONSTRUCTION CERTIFICATE
NO. J100145

FOR

LEND LEASE DEVELOPMENT PTY LTD

PREMISES

24 MONTPELIER PLACE MANLY

Date: 6 APRIL 2010

Ref: J100145

CONSTRUCTION CERTIFICATE No J100145

CONSTRUCTION CERTIFICATE

Issued under the Environmental Planning and Assessment Act 1979
Section 109C(1), 81A(2) AND 81a(4)

VIC LILLI
&PARTNERS

Property to which this certificate relates

Address	24 Montpelier Place Manly NSW 2095		
Lot No	24	DP/SP	1105469

Applicant

Name	Lend Lease Development Pty Ltd
Address	Level 4, 30 The Bond, 30 Hickson Road Millers Point NSW 2000

Description of Development

This certificate is limited to the bulk excavation works only, associated with the construction of the dwelling house, basement parking and swimming pool as approved pursuant to Development Consent 109/08 issued by Manly Council on 4 August 2008.

Consent details

Development Consent No	109/08
Date of determination	4 August 2008
Consent authority	Manly Council

Building classification **1a & 10b**

Certification

I ***Paul Ladogna*** certify that work completed in accordance with the documentation contained in the annexures (with such modifications verified by me as may be shown on the documentation) will comply with the requirements of the Environmental Planning & Assessment Regulation 2000 as referred to in Section 81A(5) of the Environmental Planning & Assessment Act 1979.

Certificate Number	J100145
Date of endorsement	6 April 2010
Signature	
Accredited Certifier	*Paul Ladogna*
Accredited Body	Building Professionals Board
Registration No	*BPB0219*

VIC LILLI & PARTNERS - Accredited Building Certifiers

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A division of Mondan Management Pty Ltd ABN 60 119 432 094

CONSTRUCTION CERTIFICATE No J100145

VIC LILLI

Documentation assessed in the determination of Construction Certificate Application J100145

Annexure 1 - Plans and Specification that form part of Construction Certificate 1 page

Annexure 2 – Supporting Documentation

Construction Certificate Application
Construction Certificate Application 4 pages

Other Supporting Documentation
Insurance Details
Miller & Associates
Dated 8 December 2008 2 pages

Planning Agreement
Manly Council
Dated 15 December 2006 17 pages

Geotechnical Report
Douglas Partners
Dated November 1999 41 pages

Translocation Plan
Total Earth Care Pty Ltd
Dated November 2006 71 pages

Construction Environmental Management Plan
HLA- Envirosciences Pty ltd
Dated 5 April 2007 82 pages

Evidence of payment of Council Fees
Long service levy payment
Council Security Deposits and Contributions 2 pages

VIC LILLI

ANNEXURE 1

Plans and Specification that form part of Construction Certificate

VIC LILLI

PLANS AND SPECIFICATION THAT FORM PART OF THIS CERTIFICATE:

Bulk Excavation documentation & specification as prepared by **Hughes Trueman Consulting Engineers Planners & Managers**

Drawing No.	Revision	Title	Date
C200	0	Bulk Earthworks Plan	26.03.10

Erosion and Sediment Control documentation & specification as prepared by **Hughes Trueman Consulting Engineers Planners & Managers**

Drawing No.	Revision	Title	Date
DAC40	B	Erosion and Sediment Concept Control Plan, Notes and Details	16.12.07

Driveway Sections documentation & specification as prepared by **Hughes Trueman Consulting Engineers Planners & Managers**

Drawing No.	Revision	Title	Date
DAC42	A	Driveway Plan and Long Section Lots 24	14.03.08

VIC LILLI

ANNEXURE 2

Supporting Documentation

CONSTRUCTION CERTIFICATE APPLICATION FORM

RECEIVED
01 APR 2010
BY:.....

In accordance with Clause 139, Part 8, Division 2 of the Environmental Planning and Assessment Regulation 2000

VIC LILLI &PARTNERS

I/we hereby make application to Vic Lilli & Partners for a Construction Certificate relating to the following:

Description of property to which this application relates

Address: 24 Montpelier Place, MANLY, NSW 2095

Title details: Lot No./s 24 DP 1105469

Applicant

Applicant Name: Lend Lease Development Pty Ltd

Address: Level 4, 30 The Bond, 30 Hickson Road, MILLERS POINT, NSW 2000

Contact Numbers: Phone 9236 6111 Fax 9383 8259

E-mail Peter.nash@lendlease.com.au Mobile 0421 572 289

Owner

Owner Name: Trustees of the Roman Catholic Church for the Archdiocese of Sydney

Address: Level 16, Polding Centre, 133 Liverpool St, SYDNEY NSW 2000

Contact Numbers: Phone 02 9390 5186 Fax 02 9261 8312

E-mail Michael@ado.syd.catholic.org.au Mobile 0408 975 139

Description of Development

Construction of a two (2) storey dwelling with basement parking and swimming pool (This Construction Certificate applies for Bulk Excavation works only)

BCA Classification 1a & 10b

Consent Details

Development Consent No. 109/08 Date of Determination 4/8/08

Consent Authority: Manly Council

Value of Building Works $1,200,000.00

VIC LILLI & PARTNERS - Accredited Building Certifiers
T 02 9715 2555 E info@viclilli.com.au Locked Bag 3013 Burwood NSW 1805. DX 8505
F 02 9715 2333 W www.viclilli.com.au Suite 1, Level 5, 56 Railway Parade Burwood NSW 2134
A division of Mondan Management Pty Ltd ABN 60 119 432 094

CONSTRUCTION CERTIFICATE APPLICATION FORM

VIC LILLI

In accordance with Clause 139, Part 8, Division 2 of the Environmental Planning and Assessment Regulation 2000

Builder Details

Builders Name	Ford Civil Contracting Pty Ltd			
Address	9 Hattersley Street			
	ARNCLIFFE, NSW 2205			
Contact numbers	Phone	02 9597 4122	Fax	02 9597 4966
	E-mail	mmoult@fordcivil.com.au	Mobile	0416 133 939

As owner(s) of the land to which the application relates, I/we consent to the making of this application. I/we also give consent for officers/certifiers of Vic Lilli & Partners to enter the land to carry out inspections relating to this application. We confirm that building works have not commenced upon the subject site.

SECRETARY OF THE TRUSTEES
ARCHDIOCESE OF SYDNEY
THE ROMAN CATHOLIC CHURCH

1/4/10

Owner's Signature **Date**

Trustees of the Roman Catholic Church for the Archdiocese of Sydney

Owner's Name

If signed on behalf of a Body Corporate or company, the common seal must be stamped on this section where appropriate.

SIGNED BY THE APPLICANT

I apply for approval to carry out the development or works described in this application. I declare that all information I have provided is true and correct.

31/3/10

Applicant's Signature **Date**

Andrew Tobin - Land Lease Development

Applicant's Name

CONSTRUCTION CERTIFICATE APPLICATION FORM

VIC LILLI

In accordance with Clause 139, Part 8, Division 2 of the Environmental Planning and Assessment Regulation 2000

The following Schedule is required to be completed for the purposes of providing information to the Australian Bureau of Statistics – Residential Use Only.

PART A

Particulars of development

Area of land	550sqm	Gross floor area of building	214sqm

Current use of all or parts of the building (s)/land (if vacant state 'vacant')?

Location	Use VACANT
•	•
•	•
Does the site contain a dual occupancy?	
Gross floor area of addition of new building?	

What are the proposed uses of all parts of the building(s)/land?

Location	**Use** RESIDENTIAL
•	•
•	•
No. of pre-existing dwellings	-
No. of dwellings to be demolished	-
How many dwellings are proposed?	1
How many storeys will the building consist of?	2

PART B

Materials to be used - (place a tick in the ( ) which best describes the materials the new work will be constructed of).

Walls		**Code**	**Roof**		**Code**
Brick veneer	( )	12	Aluminium	( )	70
Full brick	✓	11	Concrete	( )	20
Single brick	( )	11	Concrete tiles	( )	10
Concrete block	( )	11	Fibrous cement	( )	30
Concrete/masonry	( )	20	Fibreglass	( )	80
Concrete	( )	20	Masonry/terra cotta shingle tile	( )	10
Steel	( )	60	Slate	( )	20
Fibrous cement	( )	30	Steel	✓	60
Hardiplank	( )	30	Terra cotta tile	( )	10
Timber/weatherboard	( )	40	Other	( )	80
Cladding-aluminium	( )	70	Unknown	( )	90
Curtin glass	( )	50			
Other	( )	80			
Unknown	( )	90			
Floor			**Frame**		
Concrete	✓	20	Timber	( )	40

CONSTRUCTION CERTIFICATE APPLICATION FORM

VIC LILLI

In accordance with Clause 139, Part 8, Division 2 of the Environmental Planning and Assessment Regulation 2000

Timber	( )	10	Steel	✓	60
Other	( )	80	Other	( )	80
Unknown	( )	90	Unknown	( )	90

Miller & Associates
Insurance Broking Pty Limited
ABN 57 089 245 465

Level 16, 383 Kent Street
Sydney
NSW 2000
Telephone: (02) 9262 5555
Facsimile: (02) 9262 2811

TO WHOM IT MAY CONCERN

CONFIRMATION OF INSURANCE

This document serves to confirm the currency of the insurance detailed below and confers no rights upon the holder: It does not amend, extend or alter the coverage afforded by the policy listed below.

INSURED	Ford Civil Contracting Pty Limited, FCC Holdings Pty Limited and all subsidiary and/or related companies plus others as defined within the Policy.
POLICY TYPE	Third Party Public & Products Liability
POLICY NO	08GCOM0417
INSURER	Lloyds of London
PERIOD	From 30 November 2008 at 4.00pm AEST To 31 May 2010 at 4.00pm AEST
SUM INSURED	Public Liability: $20,000,000 any one occurrence/unlimited in the aggregate and Products Liability: $20,000,000 any one occurrence and in the aggregate.
SITUATION	Anywhere in Australia
SIGNED	Quevardo
DATED	8 December 2008

An independent company working in association with Miller

CERTIFICATE OF CURRENCY

CGU

FORD CIVIL CONTRACTING PTY LTD
PO Box 26
ARNCLIFFE NSW 2205

Dear Sir/Madam,

1. STATEMENT OF COVERAGE

The following policy of insurance covers the full amount of the employer's liability under the Workers Compensation Act 1987.

This Certificate is valid from 6/7/2009 to 30/6/2010.

The information provided in this Certificate of Currency is correct at: 06/07/2009.

2. EMPLOYERS INFORMATION

POLICY NUMBER	WGB020720346122
LEGAL NAME	FORD CIVIL CONTRACTING PTY LTD
TRADING NAME	
ABN	24002542814
ACN/ARBN	002542814

WorkCover Industry Classification Number (WIC)	Industry	Numbers of Workers*	Wages**
412100	Road and Bridge Construction	73	$6,540,000.00

* Number of workers includes contractors/deemed workers
**Total wages estimated for the current period

3. IMPORTANT INFORMATION

Principals relying on this certificate should ensure it is accompanied by a statement under section 175B of the Workers Compensation Act 1987. Principals should also check and satisfy themselves that the information is correct and ensure that the proper workers compensation insurance is in place, ie. compare the number of employees on site to the average number of employees estimated; ensure that the wages are reasonable to cover the labour component of the work being performed; and confirm that the description of the industry/industries noted is appropriate.

A principal contractor may become liable for an outstanding premium of the sub contractor if the principal has failed to obtain a statement or has accepted a statement where there was reason to believe it was false.

Yours Faithfully

NSW WorkCover Scheme

LESLIE MCGREGOR

CGU Workers Compensation (NSW) Ltd - Agent for the NSW WorkCover Scheme
ABN 83 564 379 108/007
Phone: 1300 666 506 Fax: 1800 240 387

Manly Council

MP- Section 94 Contributions

Council Offices
1 Belgrave Street
Manly NSW 2095

Correspondence to
General Manager
PO Box 82
Manly NSW 1655

DX 9205 Manly

Telephone 02 9976 1500
Facsimile 02 9976 1400

www.manly.nsw.gov.au
records@manly.nsw.gov.au

ABN 43 662 868 065

Reference: 151206 EA:LB
Enquiries: Environmental Services

David Rolls
Lend Lease Development
The Bond
30 Hickson Road
MILLERS POINT NSW 2000

Dear Sir,

RE: St Patrick's Estate Planning Agreement

I refer to your letter of 13 December, 2006, requesting Council execute the Sec 93F Planning Agreement for the St Patrick's Estate, Darley Road, Manly. Attached is a copy of the Agreement executed as requested.

The signing of the Agreement by Lend Lease and the Council results in all of the contributions required to be made towards the provision of public facilities and services being governed by the terms of the agreement in respect of the development of Precincts 1, 3, 5, 6, 10, 12 & 13 of the St Patrick's Estate. The Agreement takes the place of any contribution which might be sought under Council Sec 94 Contributions Plan 2004 for those Precincts.

As a consequence of the above where Council imposed a condition requiring the payment of a Sec 94 Contribution in consents for development within those precincts, it can be taken that the S93F Planning Agreement will satisfy that condition. This applies to the following Applications

(i) Precincts 1 & 13 – DA277/04, DA278/04, DA279/04, DA280/04, DA 281/04, DA 282/04, DA283/04, DA284/04,
(ii) Precincts 3 & 12 – DA 62/04.

The development of Precincts 5, 6, and 10 is governed by condition No 296 of the consent to DA482/04 which directly refers to the Planning Agreement.

Council suggests that a copy of this letter be provided to the PCA for the above consents in order to ensure that it is clear to all parties the manner in which the obligations of Lend Lease Development P/L to contribute to the provision of public services and facilities will be met.

Yours faithfully,

Date: 15.12.06.

4/9/07
Actions:
Pay $143,676 Tues 08 and apply for refund of BG.

Stephen Clements
Executive Manager
Environmental Services

MAKINSON & d'APICE

LAWYERS

Planning Agreement

MANLY COUNCIL
(Council)

LEND LEASE DEVELOPMENT PTY LIMITED
(LLD)

MAKINSON & d'APICE
Level 12
135 King Street
SYDNEY NSW 2000

DX: 296 SYDNEY
Tel: (02) 9233 7788
Fax: (02) 9233 1550
Email: mail@makdap.com.au
Ref: WDA:50530

Version 7
22138_7:WDA:WDA

Table of Contents

THIS AGREEMENT dated 2006

PARTIES

MANLY COUNCIL ABN 43 662 868 065 of 1 Belgrave Street, Manly NSW 2095 **(Council)**

LEND LEASE DEVELOPMENT PTY LIMITED ABN 33 000 311 277 of 30 The Bond, 30 Hickson Road, Millers Point NSW 2000 **(LLD)**

INTRODUCTION

A. St Patricks Estate has been the subject of various development proposals since the mid 1980s.

B. LLD has made and will make Development Applications to the Council for Development Consent to carry out the Development on St Patrick's Estate.

C. Development Consent has been granted in respect of Development on some precincts but Development Applications have yet to be lodged and Development Consent is yet to issue in respect of Development on other Precincts or part of Precincts.

D. Development Consent has been granted for the Precinct 2 Development. The Precinct 2 Development has been completed and there are no further Development Contributions required in respect of that Development.

E. Council adopted the Contributions Plan in 2005.

F. LLD offered to enter into this Agreement to make Development Contributions to Council upon the terms of this Agreement.

OPERATIVE PROVISIONS

1. DEFINITIONS AND INTERPRETATION

1.1 Definitions

In this document, unless otherwise indicated by the context:

Act means the *Environmental Planning and Assessment Act* 1979 (NSW).

Agreed Value means that this value is agreed between the parties and is not subject to proof of value or expenditure.

Business Day means a day on which banks are open for business in Sydney.

Cerretti Precinct means Precincts 3 and 12.

College Street Oval means the area hatched as view corridor in Sheet 4 of 5 of Amendment No. 24 to the LEP.

Contributions Plan means the Manly Section 94 Contributions Plan effective from 16 April 2005.

Development means and includes the following proposed development upon the following Precincts:

(a) Cerretti Precinct: 60 apartments;

(b) Montpelier Precinct: 26 dwellinghouses; and

(c) Spring Cove Precinct: 22 dwellinghouses and 16 apartments.

Development Application has the same meaning as in the Act.

Development Consent has the same meaning as in the Act.

Development Contribution means a monetary contribution, the dedication of land free of cost or the provision of a material public benefit.

Development Precinct means Cerretti Precinct, Montpelier Precinct and/or Spring Cove Precinct as the context permits.

LEP means the Manly Local Environmental Plan 1988 as amended.

Material Public Benefit means:

(a) public pathways and walkways at a Works Value of $1,616,814;

(b) pedestrian access to the College Street Oval at an Agreed Value of $500,000;

(c) bush regeneration – national park to a Works Value of $290,987;

(d) endangered species management and amelioration – long nosed bandicoot at a Works Value of $326,838.

Montpelier Precinct means Precincts 1 and 13.

Plan means the plan being Sheet 1 of 5 incorporated in Amendment No. 24 of the LEP.

Precinct means the precincts as identified in the Plan and the numbering of precincts shall mean and relate to the numbering of precincts on the Plan.

Precinct 2 Development means the attached dwellings and apartments constructed on Precinct 2.

Quantity Surveyor means the person appointed by LLD under clause 6(c).

Scope of Works means the scope of works outlined in the attached Appendix 1 that describes the extent of works to be undertaken to fulfil the items of Material Public Benefit (excluding pedestrian access to the College Street oval)

Spring Cove Precinct means Precincts 5, 6 and 10.

St Patrick's Estate means (for the purpose of this Agreement only) the area edged in black on the Plan.

Works Value means the value of items of Material Public Benefit other than the College Street Oval as assessed by the Quantity Surveyor in accordance with clause 6.

1.2 Interpretation

In this document, unless otherwise indicated by the context:

(a) words importing the singular include the plural and vice versa;

(b) headings are for convenience only and do not affect interpretation of this document;

(c) a reference to a clause, paragraph, schedule or annexure is a reference to a clause, paragraph or schedule of or annexure to this document;

(d) a reference to "$" is to Australian dollars;

(e) an expression importing a natural person includes a body corporate, partnership, joint venture or association;

(f) a reference to a statute or regulation includes all amendments, consolidations or replacements thereof;

(g) a reference to a party to a document includes that party's successors and permitted assigns;

(h) no rule of construction applies to the disadvantage of a party because that party was responsible for the preparation of this document;

(i) a covenant, agreement, representation or warranty on the part of or in favour of two or more persons binds them or is for the benefit of jointly and severally;

(j) if an event must occur on a stipulated day which is not a Business Day, then the stipulated day will be taken to be the next Business Day; and

(k) a reference to a body, whether statutory or not:

(i) which ceases to exist; or

(ii) whose powers or functions are transferred to another body,

is a reference to the body which replaces it or which substantially succeeds to its powers or functions.

2. PLANNING AGREEMENT UNDER THE ACT

The parties agree that this Agreement is a planning agreement governed by Subdivision 2 of Division 6 of Part 4 of the Act.

3. APPLICATION OF THIS AGREEMENT

This Agreement applies to the Development on Cerretti Precinct, Montpelier Precinct and Spring Cove Precinct.

4. OPERATION OF THIS AGREEMENT

This Agreement shall take effect on and from the date of execution of the Agreement.

5. DEVELOPMENT CONTRIBUTIONS

LLD shall pay Development Contributions of $4,171,000.00 in the following manner:

(a)	Cash component at the times provided herein	$1,436,362.00
(b)	Material Public Benefit	$2,734,638.00

6. PROVISION OF MATERIAL PUBLIC BENEFIT

(a) The parties acknowledge that LLD has arranged for pedestrian access to the College Street Oval (Refer DP1032990 88B registered on 1 February 2002).

(b) LLD has in part provided items of Material Public Benefit to date. The balance of the items of Material Public Benefit will be provided progressively with the completion of the associated development phases.

(c) Completion of the Scope of Works by LLD as certified by the Quantity Surveyor will satisfy the obligations of LLD under **clause 6(b)** of this agreement.

(d) In the event that the extent of works undertaken (excluding College Street Oval) is less than that outlined in the Scope of Works, upon completion of the Development, LLD will make a cash payment forthwith at that time to Council for the amount of any shortfall as assessed in value by the Quantity Surveyor.

(e) Notwithstanding **clause 6(c)** but subject to **clause 6(d)**, the cash component is fixed at the amount described in **clause 5(a)**.

7. CASH COMPONENT OF DEVELOPMENT CONTRIBUTIONS

(a) It is agreed between the parties that the cash component of the Development Contributions for each of the Development Precincts are as follows:

Cerretti Precinct	$718,181.00
Montpelier Precinct	$287,272.00

Spring Cove Precinct $430,909.00

(b) Notwithstanding anything herein to the contrary, it is agreed that if Development Consent issues for any of the Development Precincts which results in a reduced number of dwellings or apartments, the cash component will reduce in respect of each dwelling or apartment by the sum of $11,339.70 for Spring Cove Precinct and $11,048.90 for Montpelier Precinct and $11,969.68 in respect of Cerretti Precinct.

(c) Cash components of the Development Contributions will be payable in respect of each Development Precinct in the following amounts at the following times:

Paid $143,636.80. 12/06.

(i) 50% of the cash component for that Development Precinct upon the issue of an occupation certificate for the first dwelling in that Development Precinct;

(ii) the balance of the cash component for that Development Precinct to be paid on or before a date 18 months after the date of payment of the first contribution.

$143,636.00. Due June '08

8. BANK GUARANTEE

(a) LLD shall provide an unconditional and irrevocable bank guarantee to Council for the amount outstanding from time to time of the cash component in respect of each Development Precinct at the later of:

(i) 30 days after the date of this Agreement; and

(ii) the issue of the first construction certificate following Development Consent being granted by the Council in respect of that Development Precinct.

(b) Council agrees to release each bank guarantee to an amount equal to the outstanding cash component at any time upon request by LLD. Council can only draw down against a bank guarantee if the cash component has not been paid in full as at the date of the issue of the occupation certificate of the last dwelling in St Patricks Estate and then only to the amount then outstanding by way of cash contribution.

(c) Council will apply the cash component of the Development Contributions in accordance with the Contributions Plan.

(d) LLD shall provide an unconditional and irrevocable bank guarantee to Council for the amount outstanding of the Material Public Benefit component from time to time. The parties acknowledge that the pedestrian access to the College Street Oval component of Material Public Benefit has been fully provided. The initial bank guarantee will be for that part of the Material Public Benefit certified by the Quantity Surveyor to be then outstanding. This bank guarantee will be provided within 30 days from the date of this Agreement.

(e) Council agrees to release the bank guarantee by the amount certified by the Quantity Surveyor as having been subsequently completed for each of the

components of Material Public Benefit at any time upon request by LLD. Council can only draw down against a bank guarantee if the Material Public Benefit has not been provided in full

(i) as at the date of the issue of the occupation certificate of the last dwelling in St Patricks Estate in respect of the public pathways and walkways component; and

(ii) as at 31 December 2010 in respect of the bush regeneration and endangered species components

and then only to the amount outstanding at that time by way of Material Public Benefit.

(f) LLD may provide separate bank guarantees or one bank guarantee to satisfy its obligations under this clause.

9. APPLICATION OF SECTION 94 AND SECTION 94A OF THE ACT

(a) The parties agree that the Development Contributions represent the total amount payable by LLD to Council under the Contributions Plan in respect of the Development.

(b) This Agreement excludes wholly the application of section 94 and section 94A of the Act to the Development.

(c) Development Contributions under this agreement shall satisfy the conditions of Development Consent that have already been granted by Council in respect of parts of the Development.

10. DISPUTE RESOLUTION

(a) This Agreement is entered into voluntarily between the parties and there is no right of appeal by LLD in respect of the Development Contributions agreed to in this Agreement or the Contributions Plan.

(b) If any other dispute arises between the parties arising out of or relating to this Agreement (**the Dispute**), any party seeking to resolve the Dispute must do so strictly in accordance with the provisions of this clause. Compliance with the provisions of this clause is a condition precedent to seeking relief in any court or tribunal in respect of the Dispute.

(c) A party seeking to resolve a dispute must notify the existence and nature of the dispute to the other party (**Notification**). Upon receipt of a Notification, the parties must refer resolution of the Dispute to their respective directors or their nominees.

(d) If the Dispute has not been resolved within thirty (30) days of receipt of the Notification, then either party may refer the dispute to mediation and must do so before initiating proceedings in a court to resolve the dispute. Any Dispute which is referred to mediation must be referred to the Australian Commercial

Dispute Centre Limited (**ACDC**) and be conducted in accordance with the conciliation rules of ACDC in force at the time of the Notification. If the dispute has not been resolved within sixty (60) days of referral to ACDC, either party is free to initiate proceedings in a court.

(e) Nothing in this clause shall prevent a party from seeking interlocutory relief through the courts of appropriate jurisdiction.

(f) This clause shall survive termination or expiration of the Agreement.

11. COSTS

Each party shall attend to payment of its own costs of negotiating, preparing, executing and stamping (if necessary) this Agreement.

12. NO FETTER

Nothing in this Agreement shall be construed as requiring Council to do anything that would cause it to be in breach of any of its obligations at law and, without limitation, nothing shall be construed as limiting or fettering in any way the exercise of any statutory discretion or duty.

13. NOTICES

13.1 Service of Notices

A notice or other communication required or permitted to be given by one party to another must be in writing and:

(a) delivered personally;

(b) left or sent by pre-paid mail to:

(i) the address of the addressee specified in this document; or

(ii) the registered office of any party to be served which is a company; or

(c) sent by facsimile transmission to the facsimile number of the addressee.

13.2 Addresses for Service

The address and facsimile number of each party for the purpose of service of notices is:

Council

Address: 1 Belgrave Street, Manly NSW 2095

Facsimile: 9976 1400

LLD

Address: David Rolls, Lend Lease Development Pty Limited, Level 4, 30 The Bond, 30 Hickson Road, Millers Point NSW 2000

Facsimile: 9236 6096

13.3 Timing

A notice or other communication is taken to have been given (unless otherwise proved):

(a) if mailed, on the third Business Day after posting; or

(b) if sent by facsimile before 4.00 pm on a Business Day at the place of receipt when the transmission is completed on the day it is sent and otherwise at 9.00 am on the next Business Day at the place of receipt, upon production of a transmission report by the sender which confirms that the facsimile was sent in its entirety to the facsimile number of the addressee.

13.4 Change of Address for Service

A party may change its address for service by giving notice of that change in writing to the other parties.

14. GENERAL PROVISIONS

14.1 Severability

(a) If any clause or part of a clause of this document is invalid, illegal, unlawful or otherwise being incapable of enforcement, that clause or part of a clause will be deemed to be severed from this document and of no force and effect but all other clauses and parts of clauses of this document will nevertheless prevail and remain in full force and effect and be valid and fully enforceable.

(b) No clause or part of a clause of this document will be construed to be dependent upon any other clause or part of a clause unless so expressed.

14.2 Governing Law and Jurisdiction

(a) This document is governed by the laws of New South Wales.

(b) Each party irrevocably submits to the non-exclusive jurisdiction of the courts of New South Wales.

14.3 Further Assurance

Each party will from time to time do all things (including executing all documents) necessary or desirable to give full effect to this document.

14.4 Counterparts

This document may be executed in any number of counterparts each of which will be an original but such counterparts together will constitute one and the same instrument and the date of the document will be the date on which it is executed by the last party.

14.5 Amendments

This document may not be varied except in writing signed by all of the parties.

14.6 Whole Agreement

(a) This document embodies the whole agreement between the parties relating to the subject matter of this document and supersedes any and all oral and written negotiations and communications by or on behalf of any of them.

(b) The parties have not, in entering into this document, relied upon any warranty representation or statement, whether oral or written, made or published by any other party or any person on behalf of any other party or otherwise in connection howsoever with the subject matter of this document, except such as are expressly provided herein and subject thereto have relied entirely upon their own enquiries relating to the subject matter of this document.

(c) The parties agree that to the extent that each of them may exclude any warranties or conditions which might otherwise be implied in connection with this document or the subject matter of this document by any competent legislation, then each party expressly excludes from application all such implied warranties and conditions.

14.7 Rights Not Affected by Failure to Enforce

The failure of either party at any time to enforce any of the provisions of this document or any rights in respect hereto or to exercise any election herein provided will not be a waiver of such provisions, rights or elections or affect the validity of this document.

EXECUTED as an agreement.

[Execution clause for Manly Council]

SIGNED for and on behalf of **LEND LEASE DEVELOPMENT PTY LIMITED** in accordance ~~with section~~ 127 of the *Corporations Act* 2001:

~~Director~~/Secretary

Print Name

Director

Print Name

EXECUTED for and on behalf of **MANLY COUNCIL** by its duly authorised officers:

Signature

Print Name

Signature

Henry I. Wong
General Manager

Print Name

Appendix 1 Scope of Works

1.1 PROPOSED PUBLIC PATHWAY AND WALKWAY

1.1.1 General

The proposal involves various works in open space areas across the northern portions of St Patrick's Estate with a view to establishing appropriate defined public access routes through the estate. The works involve the installation of a public interpretative route and associated upgrades to various existing landscape elements. The proposed route will link to other recognised or planned walks in the Eastern Hill area including:
The Manly Scenic Walkway
The Manly Wharf to North Head Walk
Proposed walking tracks in Sydney Harbour National Park

1.1.2 Public Access Points

Public access points will occur at the following locations
via the existing ceremonial gate on Darley Road
via the recently created entry from Reddall/College Streets
via a new entry from the National Park through the stone wall to the south east of the convent.

1.1.3 Surface Treatments

A range of walking surfaces are proposed along the route to reflect the changing character of the landscape. Treatments proposed include
boardwalks at environmentally sensitive locations
continuous sealed paths
sealed path segments across open grass areas
stairs to negotiate changes in level
retention and upgrading of existing gravel and grass pathways when appropriate.

1.1.4 Signage and markers

A range of signage types and members are proposed along the route. Directional, prohibitive and interpretive signage will guide, inform and direct visitors. Interpretive signage will address a range of issues including:
historic landscapes and buildings
habitat and environment
scenic outlooks

Directional and prohibitive signage will provide guidance to visitors while protecting the privacy of occupants of the estate and its neighbours.

1.1.5 Nodes

At a number of key locations information nodes will be established. These include:

a new lookout point on the edge of the grass plateau to the north east of the college buildings.
an interpretive area in close proximity to Moran House and the historic terraces
a lookout and interpretive node above the gully leading to Bower Street in the eastern portion of the site.
In the historic Grotto.

Other interpretation opportunities will be provided intermittently along the route.

1.1.6 Upgrading of Landscape Features

Various landscape features will be rejuvenated including:
The Grotto plantings, pavements, walls and water features
Repairs to the Fairy Bower Road and the Ceremonial Entry Gates
Repairs to walls and pavements below the northern terraces
Improvements to the ditch/swale formation adjacent the Precinct 2 'oval' area to better control overland flows.

Refer to Knox & Partners Landscape Architects drawing L-SK-01 Revision A for a description of the proposed public access route and associated works.

1.2 Endangered species management and amelioration – Long Nosed Bandicoot

The Joint Venture has co-operated with its neighbour the National Parks and Wild Life Service (NPWS); (specifically the Endangered Species Unit), on a series of programmes to enhance the quality of bandicoot habitat on the Estate in attempt to improve numbers. There is ample evidence that Bandicoots move freely between the National Park and the Estate, so there is a need for the parties to work together, exchange data, information and coordinate monitoring.

The current programme of scientific study which commenced in 2002 will not complete until at 2010. Monitoring is undertaken on a quarterly basis and the associated compilation, analysis and reporting of these results all contributes to the general body of knowledge on this endangered population in the Manly area and provides a significant public benefit.

The programme is divided into two components as follows:

1.2.1 Monitoring & Reporting

This work is currently being undertaken by EcoSense Consulting and comprises four quarterly studies and reports of the findings and an annual "Trends" report which compares the results with previous years. The monitoring involves walking a series of transects around the Estate and recording numbers of fresh diggings and spotlighting to

count Bandicoots sighted. The data is exchanged with the NPWS who also trap and tag Bandicoots to monitor their movement.

1.2.2 Financial Contribution to the National Parks & Wildlife Service

In order to assist NPWS with funding of their own research programme, the Joint venture has agreed to contribute $50,000.00 in five equal annual payments of $10,000.00. One of these payments has been made and the remainder will be paid annually.

1.3 PROPOSED LANDSCAPE REHABILITATION AND BUSH REGENERATION WORKS

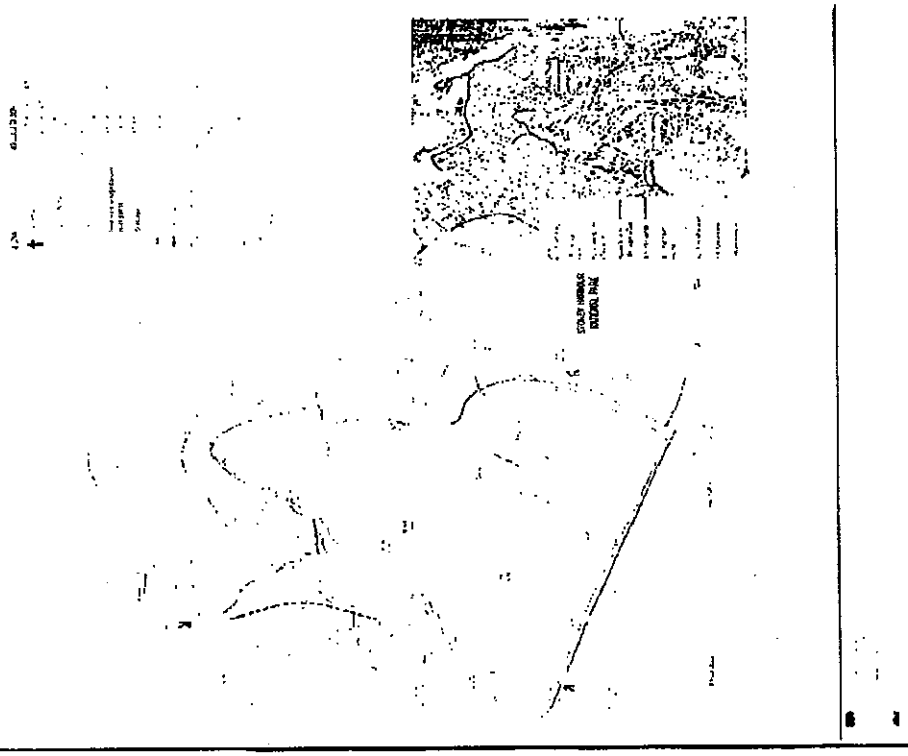
1.3.1 General

Bush regeneration and landscape rejuvenation works are proposed to the following areas of existing vegetation on or in the vicinity of the estate:

A one hectare portion of Sydney Harbour National Park adjacent Spring Cove – bush regeneration works
The existing Council owned reserve between St Patrick's Estate and Spring Cove – landscape rejuvenation works
The gully area leading to Bower Street in the eastern portion of the Darley North part of the estate – bush regeneration works
The existing bush land between the Bower Street gully and the adjacent wall on the National Park boundary – bush regeneration works

Typically the works include:
Primary and secondary weeding activities
Infill planting and mulching
Ongoing maintenance

All works to be undertaken by a specialist bush regeneration contractor. Refer to Knox & Partners Landscape Architects drawing L-SK-01 Revision A for the location and extent of each area.



PRECINCT 2

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Integrated Practical Solutions

REPORT ON GEOTECHNICAL INVESTIGATION

PRECINCTS 1 AND 2 ST PATRICK'S ESTATE MANLY

Prepared for
HUGHES TRUEMAN REINHOLD

Project 28058A
November 1999

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Douglas Partners

Geotechnics · Environment · Groundwater

REPORT
ON
GEOTECHNICAL INVESTIGATION

PRECINCTS 1 AND 2
ST PATRICK'S ESTATE
MANLY

Prepared for
HUGHES TRUEMAN REINHOLD

Project 28058A
November 1999

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MJT:lp
Project 28058A
18 November 1999

GEOTECHNICAL INVESTIGATION
PRECINCTS 1 AND 2
ST PATRICK'S ESTATE
MANLY

1. INTRODUCTION

This report details the results of a geotechnical investigation carried out for a proposed housing development at St Patrick's Estate in Darley Road, Manly. The work was undertaken on behalf of Hughes Trueman Reinhold Pty Ltd, Consulting Engineers for Lend Lease Developments, Project Managers.

The construction of Precincts 1 and 2 for a large housing development is proposed on the north-western side of the St Patrick's Estate. Precinct 1 will comprise detached housing on individual allotments whereas Precinct 2 will comprise an apartment block on portion of the site and townhouses adjacent to the existing houses facing Fairybower Road. Geotechnical investigation was carried out to provide information on the subsurface conditions so that advice could be provided on the design of foundations, retaining structures and pavements and the potential of the soils to undergo movement caused by settlement and shrink/swell behaviour.

The investigation comprised dynamic cone penetrometers and mapping of rock outcrops for Precinct 1 and drilling of test bores in Precinct 2. Details are given in the report together with comments on design and construction practices.

2. SITE DESCRIPTION AND GEOLOGY

Precincts 1 and 2 are located within the grounds of the former St Patrick's Catholic Seminary and are situated on the north-western side of the estate adjacent to existing housing. Precinct 1 is behind existing houses on Fairybower Road whereas Precinct 2 is in College Street in an area which was partly used as a sports field for the former Catholic College.

At the time of the investigation Precinct 1 was covered by dense vegetation over most of the area proposed for development. Precinct 2 was mostly cleared and grass covered apart from along the College Street frontage where some remnants of the native vegetation still remain.

Reference to 1:100 000 Series Geological Map for Sydney indicates that the site is underlain by Hawkesbury Sandstone which typically comprises medium to coarse grained quartz sandstone. This was confirmed by inspection of sandstone outcrops in both Precinct 1 and Precinct 2 and is consistent with investigations undertaken in the area on previous occasions.

3. FIELD INVESTIGATION

3.1 Methods

The field investigation for Precinct 1 comprised mapping of the sandstone outcrops and dynamic cone penetrometer testing at 15 locations to determine the depth of sandstone bedrock.

In Precinct 2 the investigation comprised 10 test bores drilled with a truck-mounted auger/rotary drilling rig. The bores were drilled to depths of about 1 to 3 metres using spiral flight augers with standard penetration tests carried out where appropriate to determine the engineering properties of the near surface soils. In selected bores coring of the bedrock took place below the level of auger drilling.

The location of the test bores and dynamic penetrometer tests are given on Drawings 1 and 2 in Appendix A.

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3.2 Results

Details of the conditions encountered on the site are given in Appendix B together with notes defining the terms used to classify the strata. A general description of the results of the insitu testing is given below.

a) Precinct 1

The mapping and dynamic cone penetrometer tests indicate the presence of shallow sandstone over the entire area of Precinct 1. In general refusal in the dynamic penetrometer tests occurred at depths ranging from 0.15 to 1.05 m. The exception occurred in DCP 9 where the testing was discontinued at a depth of 1.2 m without refusal even though the penetration resistance was in excess of 10 blows/150 mm indicating the possible presence of weathered rock.

The results indicate some variable conditions over the site with sandstone outcrops occurring within a short distance of where the penetrometer was able to penetrate to depths in excess of 0.5 m. For example, DCP 6, 7 and 8 were conducted towards the rear of the Precinct 1 in an area where sandstone occurred at surface level. DCP 8 penetrated to a depth of 0.6 m prior to refusal indicating some difference in the depth of weathering. Similar results were obtained with DCP 14 and 15 within a short distance of a rock outcrop with DCP 14 refusing at a depth in excess of 1 m.

b) Precinct 2

The conditions encountered in the bores drilled in Precinct 2 are summarised in terms of rock levels in Table 1 below.

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Table 1 - Summary of Rock Levels

	Bores	Surface Level (m)	Depth to Rock (m)	Rock Level (m)
Precinct 2 Apartment Building	201	27.99	2.1	25.89
	202	25.18	0.95	24.23
	203	26.33	0.75	25.58
	204	27.66	1.70	25.96
	205	26.44	0.80	25.64
Precinct 2 Attached Houses	206	33.96	0.7	33.26
	207	31.49	0.4	31.94
	208	32.56	0.3	32.26
	209	32.42	0.3	32.12
	210	34.04	0.6	33.44

These results indicate that rock in the area to be developed for the apartment buildings was first encountered at about RL 24 to 26. In some bores the rock was extremely low to low strength from the surface and continued as such to the full depth of drilling (e.g. Bore 203) whereas in other bores the rock strength improved with depth. The variability in the depth to the surface of the rock and the significant variability in the strength will have to be taken into consideration in the design as indicated below.

In the area of the attached houses the level at which rock was first encountered again was variable ranging from RL 31 to about RL 33.5. Similarly to the area of the apartment block the strength of the sandstone bedrock varied considerably with substantial core loss occurring due to the friable nature of the bedrock resulting from weathering.

No free groundwater was observed while augering in Bores 206 to 210 for the attached housing and water was observed in Bore 201 only in the area of the apartment. Site observations, however, indicate that the near surface soils were saturated when the investigation was undertaken and this, combined with the shallow depth of bedrock, would tend to indicate a potential seepage problem during construction. Further comments on groundwater seepage and its effect on the building development in both Precincts are given below.

4. PROPOSED DEVELOPMENT

It is understood that the proposed development will comprise:-

- Precinct 1 - two storey detached houses. The exact details are not known at this stage but presumably they would be two storey brick and tile structures built at the existing surface level with only minimal cutting and filling;
- Precinct 2 comprises an apartment block in the northern corner and attached houses on the southern side of the existing playing field. The apartment block will be a three storey structure with one level of basement parking. The attached dwellings will comprise two levels of residential accommodation and one basement parking level.

5. COMMENTS

5.1 Excavation Conditions

The investigation indicates that both Precincts 1 and 2 are underlain by shallow sandstone for which moderate to heavy ripping may be required in carrying out excavations. Drilling in Precinct 2 encountered mostly extremely low sandstone, however, in several bores low or medium strength rock was present. Excavation conditions will therefore be variable but observations indicate that some heavy ripping may be required.

In Precinct 1 outcrops of low and medium strength rock were observed throughout the site and this could necessitate the use of hydraulic rock breakers to facilitate excavation at acceptable productivity rates.

5.2 Excavation Support

Temporary and permanent support for excavations within soil and highly weathered sandstone can be provided by retaining walls, designed for a pressure distribution calculated using an active earth pressure coefficient of 0.3 together with a soil unit weight of 18 kN/m^3. A triangular pressure distribution can be assumed provided there are no superimposed loads and effective drainage results in negligible hydrostatic pressure behind the retaining walls.

Where space allows it may be advantageous to batter the temporary slopes at maximum angles of 1V:1½H. Otherwise some form of shoring such as soldier piles and shotcrete infilling or contiguous bored pile walls will be needed.

If cut batters are to be permanent it may be prudent to flatten the slope to 1V:4H to prevent erosion of the sandy material and to assist in long term maintenance by planting of grass. Some form of temporary erosion protection will be necessary until a grassed bank is properly established.

5.3 Foundations

The type of foundations which will be suitable for Precincts 1 and 2 will depend largely upon the levels chosen for the individual houses or apartment blocks. The investigation indicates that very low strength rock or better will probably be present at excavation levels over both precincts and accordingly it is suggested that a design bearing pressure of 1500 kPa could be utilised. As indicated above there are some indications of low and medium strength rock over the site for which an allowable bearing pressure of up to 3500 MPa would be applicable. However, if this higher pressure was to be adopted it would be necessary to carry out regular verification of the founding material because of the variability encountered in the bores.

For the conditions encountered in both Precincts 1 and 2 it is envisaged that strip or pad footings or raft slabs would be suitable. Regardless of which foundation type is eventually selected it is recommended that an inspection take place on each structure prior to pouring the footings to verify that the design bearing pressures are feasible for the conditions encountered on the site. In some instances it may be necessary to proof roll in the base of excavations to densify any material loosened by the excavation process or to identify materials which have been softened by groundwater flow and therefore may need to be replaced.

5.4 Pavements

Based on the conditions encountered on the site it is suggested that a CBR of 6% be adopted for the design of pavements supported by the sandy soils over most of Precincts 1 and 2. This CBR is relatively conservative but it takes into consideration the variability which is anticipated based on the results of the field investigation.

Some increase in subgrade CBR may be possible if conditions are found to uniformly comprise granular materials such as sand. To confirm this it would be advisable to carry out

an inspection during bulk earthworks. The inspection would also be advisable to decide on the location and depth of any subsoil drains which may be necessary to prevent seepage beneath the pavement.

5.5 Shrink/Swell Potential

The investigation indicates the presence of sandy soils and weathered sandstone over the entire site. The shrink/swell potential of these soils is low and hence it is suggested that a site classification of Class A or S would be applicable in accordance with Australian Standard AS2870 "Residential Slabs and Footings".

5.6 Groundwater

The investigation indicated that there was no significant groundwater flow in most of the bores and consequently it is expected that dewatering of the excavations would not be required during construction. However, the investigation indicates that sandstone bedrock is at shallow depth over both precincts and consequently it is anticipated that seepage could occur along the surface of the bedrock after periods of heavy rainfall. This possibility should be allowed for during excavations for basement construction and for service trenches. Furthermore it should be recognised that seepage may continue for a long period after rainfall because of the natural groundwater storage capacity of the sandy soils. It may therefore be prudent to construct a cut-off drain on the high side of each precinct to intercept any seepage flow and to channel it into the stormwater drainage system. This would help prevent any problems during construction.

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5.7 Earthquake Loading

The site is underlain by sandstone bedrock at shallow depth and hence a site factor of 1.0 is applicable in accordance with the Australian Standard AS1170.4 (Earthquake Loading). This site factor should be used in conjunction with a ground acceleration of 0.08g for Sydney.

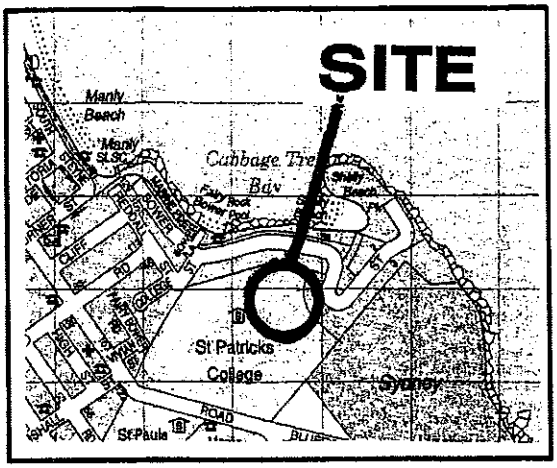
DOUGLAS PARTNERS PTY LTD

Reviewed by:

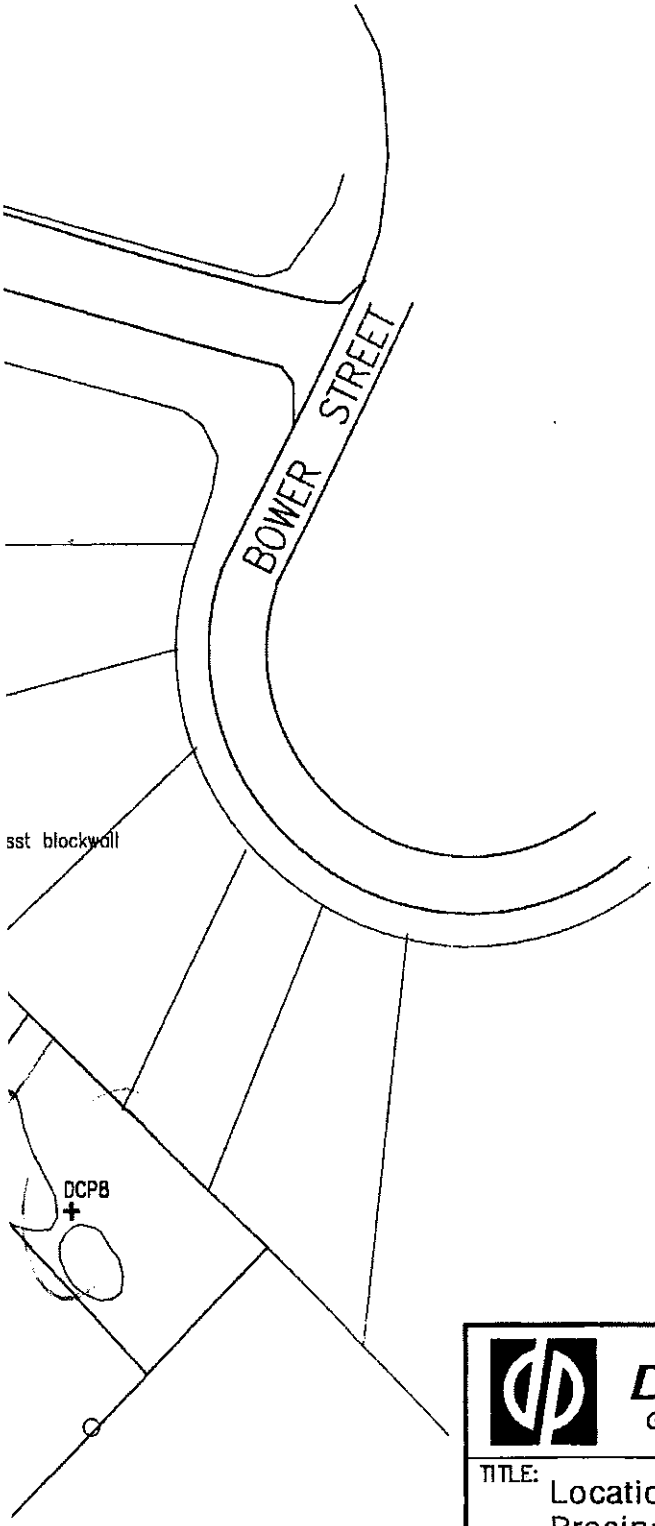
Michael J Thom
Principal

Fiona MacGregor
Senior Associate

APPENDIX A
Site Drawings



LOCALITY PLAN



LOCATION	LEVEL(m)
1	37.59
2	37.28
3	39.84
4	43.40
5	43.23
6	41.29
7	43.60
8	45.18
9	46.62
10	46.39
11	45.65
12	46.29
13	43.08
14	42.74
15	39.90

LEGEND

+ DYNAMIC CONE PENETROMETER TEST

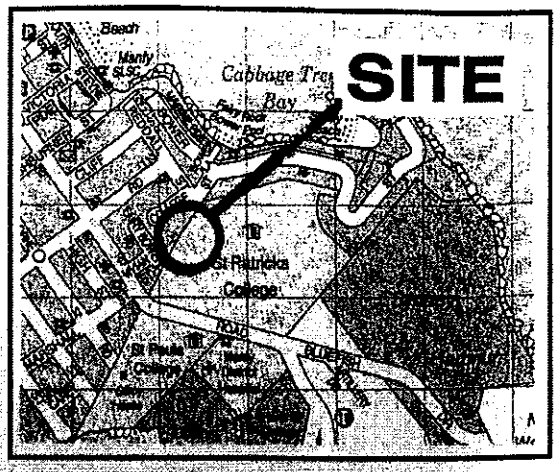
SANDSTONE OUTCROPS

Douglas Partners
Geotechnics, Environmental, Groundwater

Sydney, Newcastle, Brisbane, Melbourne, Perth, Darwin, Wyong, Singleton, Campbelltown, Townsville, Cairns, Wollongong

TITLE: Location of Field Tests
Precinct 1
St Patricks Estate
MANLY

CLIENT: Land Lease			
DRAWN BY: PSCH	SCALE: As shown	PROJECT No: 28058A	OFFICE: SYDNEY
APPROVED BY:		DATE: 8.11.1999	DRAWING No: 1



LOCALITY PLAN

BORE No.	LEVEL (m)
201	27.99
202	25.18
203	28.33
204	27.66
205	28.44
206	33.96
207	31.49
208	32.58
209	32.42
210	34.04

LEGEND

TEST BORE

SANDSTONE OUTCROPS

Douglas Partners
Geotechnics, Environmental, Groundwater

Sydney, Newcastle, Brisbane, Melbourne, Perth, Darwin, Wyong, Singleton, Campbelltown, Townsville, Cairns, Wollongong

TITLE: Location of Test Bores
Precinct 2
St Patricks Estate
MANLY

CLIENT: Lend Lease			
DRAWN BY: PSCH	SCALE: As shown	PROJECT No: 28058A	OFFICE: SYDNEY
APPROVED BY:		DATE: 8.11.1999	DRAWING No: 2

APPENDIX B
Field Test Results and Notes Relating to This Report

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NOTES RELATING TO THIS REPORT

Introduction

These notes have been provided to amplify the geotechnical report in regard to classification methods, specialist field procedures and certain matters relating to the Discussion and Comments section. Not all, of course, are necessarily relevant to all reports.

Geotechnical reports are based on information gained from limited subsurface test boring 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.

Description and Classification Methods

The methods of description and classification of soils and rocks used in this report are based on Australian Standard 1726, Geotechnical Site Investigations Code. In general, descriptions cover the following properties - strength or density, colour, structure, soil or rock type and inclusions.

Soil types are described according to the predominating particle size, qualified by the grading of other particles present (eg. sandy clay) on the following bases:

Soil Classification	Particle Size
Clay	less than 0.002 mm
Silt	0.002 to 0.06 mm
Sand	0.06 to 2.00 mm
Gravel	2.00 to 60.00 mm

Cohesive soils are classified on the basis of strength either by laboratory testing or engineering examination. The strength terms are defined as follows.

Classification	Undrained Shear Strength kPa
Very soft	less than 12
Soft	12—25
Firm	25—50
Stiff	50—100
Very stiff	100—200
Hard	Greater than 200

Non-cohesive soils are classified on the basis of relative density, generally from the results of standard penetration tests (SPT) or Dutch cone penetrometer tests (CPT) as below:

Relative Density	SPT "N" Value (blows/300 mm)	CPT Cone Value (q_c — MPa)
Very loose	less than 5	less than 2
Loose	5—10	2—5
Medium dense	10—30	5—15
Dense	30—50	15—25
Very dense	greater than 50	greater than 25

Rock types are classified by their geological names. Where relevant, further information regarding rock classification is given on the following sheet.

Sampling

Sampling is carried out during drilling to allow engineering examination (and laboratory testing where required) of the soil or rock.

Disturbed samples taken during drilling provide information on colour, type, inclusions and, depending upon the degree of disturbance, some information on strength and structure.

Undisturbed samples are taken by pushing a thin-walled sample tube into the soil and withdrawing with a sample of the soil in a relatively undisturbed state. Such samples yield information on structure and strength, and are necessary for laboratory determination of shear strength and compressibility. Undisturbed sampling is generally effective only in cohesive soils.

Details of the type and method of sampling are given in the report.

Drilling Methods.

The following is a brief summary of drilling methods currently adopted by the Company and some comments on their use and application.

Test Pits — these are excavated with a backhoe or a tracked excavator, allowing close examination of the in-situ soils if it is safe to descent into the pit. The depth of penetration is limited to about 3 m for a backhoe and up to 6 m for an excavator. A potential disadvantage is the disturbance caused by the excavation.

Large Diameter Auger (eg. Pengo) — the hole is advanced by a rotating plate or short spiral auger, generally 300 mm or larger in diameter. The cuttings are returned to the surface at intervals (generally of not more than 0.5 m) and are disturbed but usually unchanged in moisture content. Identification of soil strata is generally much more reliable than with continuous spiral flight augers, and is usually supplemented by occasional undisturbed tube sampling.

Continuous Sample Drilling — the hole is advanced by pushing a 100 mm diameter socket into the ground and withdrawing it at intervals to extrude the sample. This is the most reliable method of drilling in soils, since moisture content is unchanged and soil structure, strength, etc. is only marginally affected.

Continuous Spiral Flight Augers — the hole is advanced using 90—115 mm diameter continuous spiral flight augers which are withdrawn at intervals to allow sampling or in-situ testing. This is a relatively economical means of drilling in

clays and in sands above the water table. Samples are returned to the surface, or may be collected after withdrawal of the auger flights, but they are very disturbed and may be contaminated. Information from the drilling (as distinct from specific sampling by SPTs or undisturbed samples) is of relatively lower reliability, due to remoulding, contamination or softening of samples by ground water.

Non-core Rotary Drilling — the hole is advanced by a rotary bit, with water being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be determined from the cuttings, together with some information from 'feel' and rate of penetration.

Rotary Mud Drilling — similar to rotary drilling, but using drilling mud as a circulating fluid. The mud tends to mask the cuttings and reliable identification is again only possible from separate intact sampling (eg. from SPT).

Continuous Core Drilling — a continuous core sample is obtained using a diamond-tipped core barrel, usually 50 mm internal diameter. Provided full core recovery is achieved (which is not always possible in very weak rocks and granular soils), this technique provides a very reliable (but relatively expensive) method of investigation.

Standard Penetration Tests

Standard penetration tests (abbreviated as SPT) are used mainly in non-cohesive soils, but occasionally also in cohesive soils as a means of determining density or strength and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289, "Methods of Testing Soils for Engineering Purposes" — Test 6.3.1.

The test is carried out in a borehole by driving a 50 mm diameter split sample tube under the impact of a 63 kg hammer with a free fall of 760 mm. It is normal for the tube to be driven in three successive 150 mm increments and the 'N' value is taken as the number of blows for the last 300 mm. In dense sands, very hard clays or weak rock, the full 450 mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form.

- In the case where full penetration is obtained with successive blow counts for each 150 mm of say 4, 6 and 7

  as 4, 6, 7
  N = 13

- In the case where the test is discontinued short of full penetration, say after 15 blows for the first 150 mm and 30 blows for the next 40 mm

  as 15, 30/40 mm.

The results of the tests can be related empirically to the engineering properties of the soil.

Occasionally, the test method is used to obtain samples in 50 mm diameter thin walled sample tubes in clays. In such circumstances, the test results are shown on the borelogs in brackets.

Cone Penetrometer Testing and Interpretation

Cone penetrometer testing (sometimes referred to as Dutch cone — abbreviated as CPT) described in this report has been carried out using an electrical friction cone penetrometer. The test is described in Australian Standard 1289, Test 6.4.1.

In the tests, a 35 mm diameter rod with a cone-tipped end is pushed continuously into the soil, the reaction being provided by a specially designed truck or rig which is fitted with an hydraulic ram system. Measurements are made of the end bearing resistance on the cone and the friction resistance on a separate 130 mm long sleeve, immediately behind the cone. Transducers in the tip of the assembly are connected by electrical wires passing through the centre of the push rods to an amplifier and recorder unit mounted on the control truck.

As penetration occurs (at a rate of approximately 20 mm per second) the information is plotted on a computer screen and at the end of the test is stored on the computer for later plotting of the results.

The information provided on the plotted results comprises: —

- Cone resistance — the actual end bearing force divided by the cross sectional area of the cone — expressed in MPa.
- Sleeve friction — the frictional force on the sleeve divided by the surface area — expressed in kPa.
- Friction ratio — the ratio of sleeve friction to cone resistance, expressed in percent.

There are two scales available for measurement of cone resistance. The lower scale (0—5 MPa) is used in very soft soils where increased sensitivity is required and is shown in the graphs as a dotted line. The main scale (0—50 MPa) is less sensitive and is shown as a full line.

The ratios of the sleeve friction to cone resistance will vary with the type of soil encountered, with higher relative friction in clays than in sands. Friction ratios of 1%—2% are commonly encountered in sands and very soft clays rising to 4%—10% in stiff clays.

In sands, the relationship between cone resistance and SPT value is commonly in the range:—

q_c (MPa) = (0.4 to 0.6) N (blows per 300 mm)

In clays, the relationship between undrained shear strength and cone resistance is commonly in the range:—

q_c = (12 to 18) c_u

Interpretation of CPT values can also be made to allow estimation of modulus or compressibility values to allow calculation of foundation settlements.

Inferred stratification as shown on the attached reports is assessed from the cone and friction traces and from experience and information from nearby boreholes, etc. This information is presented for general guidance, but must be regarded as being to some extent interpretive. The test method provides a continuous profile of engineering properties, and where precise information on soil classification is required, direct drilling and sampling may be preferable.

Hand Penetrometers

Hand penetrometer tests are carried out by driving a rod into the ground with a falling weight hammer and measuring the blows for successive 150 mm increments of penetration. Normally, there is a depth limitation of 1.2 m but this may be extended in certain conditions by the use of extension rods.

Two relatively similar tests are used.

- Perth sand penetrometer — a 16 mm diameter flat-ended rod is driven with a 9 kg hammer, dropping 600 mm (AS 1289, Test 6.3.3). This test was developed for testing the density of sands (originating in Perth) and is mainly used in granular soils and filling.
- Cone penetrometer (sometimes known as, the Scala Penetrometer) — a 16 mm rod with a 20 mm diameter cone end is driven with a 9 kg hammer dropping 510 mm (AS 1289, Test 6.3.2). The test was developed initially for pavement subgrade investigations, and published correlations of the test results with California bearing ratio have been published by various Road Authorities.

Laboratory Testing

Laboratory testing is carried out in accordance with Australian Standard 1289 "Methods of Testing Soil for Engineering Purposes". Details of the test procedure used are given on the individual report forms.

Bore Logs

The bore logs presented herein 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. 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 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, the frequency of sampling and the possibility of other than 'straight line' variations between the boreholes.

Ground Water

Where ground water levels are measured in boreholes, there are several potential problems;

- In low permeability soils, ground water although present, may enter the hole slowly or perhaps not at all during the time it 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.
- The use of water or mud as a drilling fluid will mask any ground water inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water observations 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.

Engineering Reports

Engineering reports are prepared by qualified personnel and are based on the information obtained and on current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal (eg. a three storey building), the information and interpretation may not be relevant if the design proposal is changed (eg. to a twenty storey building). If this happens, the Company 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 condition, discussion of geotechnical aspects and recommendations or suggestions for design and construction. However, the Company cannot always anticipate or assume responsibility for:

- unexpected variations in ground conditions — the potential for this will depend partly on bore spacing and sampling frequency
- changes in policy or interpretation of policy by statutory authorities
- the actions of contractors responding to commercial pressures.

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

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, the Company requests that it immediately be notified. Most problems are much more readily resolved when conditions are exposed than at some later stage, well after the event.

Reproduction of Information for Contractual Purposes

Attention is drawn to the document "Guidelines for the Provision of Geotechnical Information in Tender Documents", published by the Institution of Engineers, Australia. Where information obtained from this investigation 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. The Company 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 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.

GRAPHIC SYMBOLS FOR SOIL & ROCK

SOIL

BITUMINOUS CONCRETE

CONCRETE

TOPSOIL

FILLING

PEAT

CLAY

SILTY CLAY

SANDY CLAY

GRAVELLY CLAY

SHALY CLAY

SILT

CLAYEY SILT

SANDY SILT

SAND

CLAYEY SAND

SILTY SAND

GRAVEL

SANDY GRAVEL

COBBLES/BOULDERS

TALUS

SEDIMENTARY ROCK

BOULDER CONGLOMERATE

CONGLOMERATE

CONGLOMERATIC SANDSTONE

SANDSTONE FINE GRAINED

SANDSTONE COARSE GRAINED

SILTSTONE

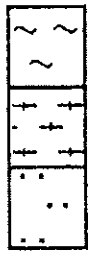
LAMINITE

MUDSTONE, CLAYSTONE, SHALE

COAL

LIMESTONE

METAMORPHIC ROCK

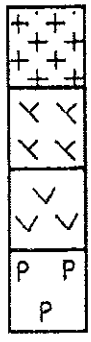


SLATE, PHYLLITE, SCHIST

GNEISS

QUARTZITE

IGNEOUS ROCK



GRANITE

DOLERITE, BASALT

TUFF

PORPHYRY

SEAMS

SEAM
> 10 mm

SEAM
< 10 mm

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AN ENGINEERING CLASSIFICATION OF SEDIMENTARY ROCKS IN THE SYDNEY AREA

This classification system provides a standardised terminology for the engineering description of the sandstone and shales in the Sydney area, but the terms and definitions may be used elsewhere when applicable.

Under this system rocks are classified by Rock Type, Degree of Weathering, Strength, Stratification Spacing, and Degree of Fracturing. These terms do not cover the full range of engineering properties. Descriptions of rock may also need to refer to other properties (e.g. durability, abrasiveness, etc.) where these are relevant.

ROCK TYPE DEFINITIONS

Rock Type	Definition
Conglomerate:	More than 50% of the rock consists of gravel sized (greater than 2 mm) fragments.
Sandstone:	More than 50% of the rock consists of sand sized (.06 to 2 mm) grains.
Siltstone:	More than 50% of the rock consists of silt sized (less than .06 mm) granular particles and the rock is not laminated.
Claystone:	More than 50% of the rock consists of clay or sericitic material and the rock is not laminated.
Shale:	More than 50% of the rock consists of silt or clay sized particles and the rock is laminated.

Rocks possessing characteristics of two groups are described by their predominant particle size with reference also to the minor constituents, e.g. clayey sandstone, sandy shale.

DEGREE OF WEATHERING

Term	Symbol	Definition
Extremely Weathered	EW	Rock substance affected by weathering to the extent that the rock exhibits soil properties - i.e. it can be remoulded and can be classified according to the Unified Classification System, but the texture of the original rock is still evident.
Highly Weathered	HW	Rock substance affected by weathering to the extent that limonite staining or bleaching affects the whole of the rock substance and other signs of chemical or physical decomposition are evident. Porosity and strength may be increased or decreased compared to the fresh rock usually as a result of iron leaching or deposition. The colour and strength of the original fresh rock substance is no longer recognisable.
Moderately Weathered	MW	Rock substance affected by weathering to the extent that staining extends throughout the whole of the rock substance and the original colour of the fresh rock is no longer recognisable.
Slightly Weathered	SW	Rock substance affected by weathering to the extent that partial staining or discolouration of the rock substance usually by limonite has taken place. The colour and texture of the fresh rock is recognisable.
Fresh	Fr	Rock substance unaffected by weathering.

STRATIFICATION SPACING

Term	Separation of Stratification Planes
Thinly laminated	<6 mm
Laminated	6 mm to 20 mm
Very thinly bedded	20 mm to 60 mm
Thinly bedded	60 mm to 0.2 m
Medium bedded	0.2 m to 0.6 m
Thickly bedded	0.6 m to 2 m
Very thickly bedded	>2 m

ROCK STRENGTH

Rock strength is defined by the Point Load Strength Index (Is 50) and refers to the strength of the rock substance in the direction normal to the bedding. The test procedure is described by the International Society of Rock Mechanics (Reference).

Strength Term	Is(50) MPa	Field Guide	Approx. qu MPa*
Extremely Low:	0.03	Easily remoulded by hand to a material with soil properties.	0.7
Very Low:	0.1	May be crumbled in the hand. Sandstone is "sugary" and friable.	2.4
Low:	0.3	A piece of core 150 mm long x 50 mm dia. may be broken by hand and easily scored with a knife. Sharp edges of core may be friable and break during handling.	7
Medium:	1	A piece of core 150 mm long x 50 mm dia. can be broken by hand with considerable difficulty. Readily scored with knife.	24
High:	3	A piece of core 150 mm long x 50 mm dia. core cannot be broken by unaided hands, can be slightly scratched or scored with knife.	70
Very High:	10	A piece of core 150 mm long x 50 mm dia. may be broken readily with hand held hammer. Cannot be scratched with pen knife.	240
Extremely High:		A piece of core 150 mm long x 50 mm dia. is difficult to break with hand held hammer. Rings when struck with a hammer	

* The approximate unconfined compressive strength (qu) shown in the table is based on an assumed ratio to the point load index of 24:1. This ratio may vary widely.

DEGREE OF FRACTURING

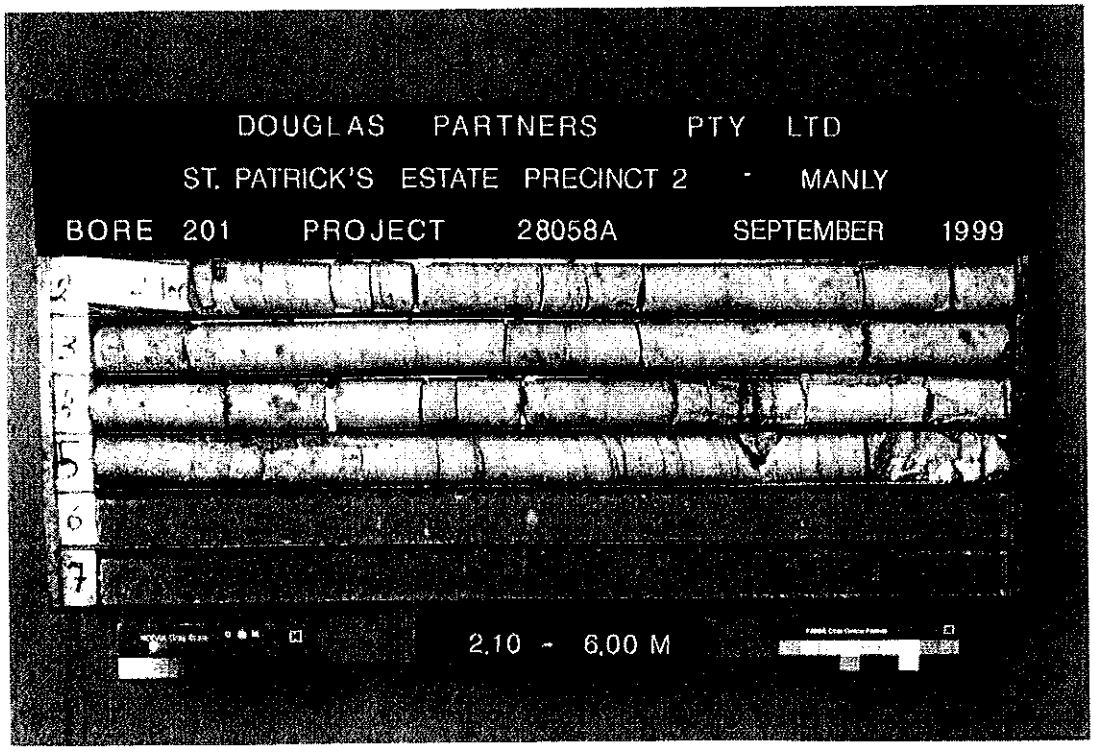
This classification applies to diamond drill cores and refers to the spacing of all types of natural fractures along which the core is discontinuous. These include bedding plane partings, joints and other rock defects, but exclude known artificial fractures such as drilling breaks.

Term	Description
Fragmented:	The core is comprised primarily of fragments of length less than 20 mm, and mostly of width less than the core diameter.
Highly Fractured:	Core lengths are generally less than 20 mm - 40 mm with occasional fragments.
Fractured:	Core lengths are mainly 30 mm - 100 mm with occasional shorter and longer sections.
Slightly Fractured:	Core lengths are generally 300 mm - 1000 mm with occasional longer sections and occasional sections of 100 mm - 300 mm
Unbroken:	The core does not contain any fracture.

REFERENCE

International Society of Rock Mechanics, Commission on Standardisation of Laboratory and Field Tests, Suggested Methods for Determining the Uniaxial Compressive Strength of Rock Materials and the Point Load Strength Index, Committee on Laboratory Tests Document No. 1. Final Draft October 1972.

Prepared by the Sydney Group of the Australian Geomechanics Society, January, 1975.


DOUGLAS PARTNERS PTY LTD
ST. PATRICK'S ESTATE PRECINCT 2 - MANLY
BORE 201 PROJECT 28058A SEPTEMBER 1999
2.10 - 6.00 M

TEST BORE REPORT

BORE No: 201
DATE: 30/9/99
SHEET 1 OF 1
AZIMUTH:

CLIENT: HUGHES TRUEMAN REINHOLD
PROJECT: PRECINCT 2: ST PATRICK'S ESTATE
LOCATION: DARLEY ROAD, MANLY

PROJECT No: 28058A
SURFACE LEVEL: 27.99
DIP OF HOLE: 90°

Depth (m)	Description of Strata	Graphic Log	Soil: Cohesive (Very Soft, Soft, Firm, Stiff, Very Stiff, Hard)	Soil: Non-Cohesive (Very Loose, Loose, Med. Dense, Dense, Very Dense)	Rock Strength (Ex. Low, Very Low, Low, Medium, High, Very High, Ex. High)	Sample Type	Core Rec. %	RQD %	Test Results & Comments
0	SAND - light brown sand								
0.8	CLAYEY SAND - very stiff, brown grey clayey sand		Stiff			S			3,5,13 N=18
1	- 1.3m - light brown								
2									
2.8	SANDSTONE - low and extremely low strength, slightly weathered, fractured to slightly fractured, off white, coarse grained gravelly sandstone with extremely low and very low and medium strength bands				Ex. Low / Very Low / Low / Medium	C	100	88	PL (A)=0.2MPa PL (A)=0.5MPa
3									
4									
4.76	- 4.76m:J 80° -85° smooth planar					C	100	74	PL (A)=0.5MPa
5	- 5.19m:J 80° -85° smooth planar								
5.68	- 5.68m:J 40° -45° rough planar								PL (A)=0.3MPa
6									
6.0	TEST BORE DISCONTINUED AT 6.0 METRES								
7									
8									
9									
10									

RIG: SCOUT **DRILLER:** COOPER **LOGGED:** PARMAR **CASING:** GL TO 2.1m

TYPE OF BORING: SFA TO 2.1m, NMLC CORING TO 6.0m

WATER OBSERVATIONS: FREE GROUNDWATER OBSERVED AT 1.7m WHILST AUGERING

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A auger sample	PL point load strength I_S (50)MPa
B bulk sample	S standard penetration test
C core drilling	Ux x mm dia. tube
pp pocket penetrometer (kPa)	V Shear Vane (kPa)

CHECKED:
Initials:
Date: 1/8/11

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TEST BORE REPORT

BORE No: 202
CLIENT: HUGHES TRUEMAN REINHOLD
PROJECT No: 28058A
DATE: 30/9/99
PROJECT: PRECINCT 2: ST PATRICK'S ESTATE
SURFACE LEVEL: 25.18
SHEET 1 OF 1
LOCATION: DARLEY ROAD, MANLY
DIP OF HOLE: 90°
AZIMUTH:

Depth (m)	Description of Strata	Graphic Log	Soil: Cohesive (Very Soft, Soft, Firm, Stiff, Very Stiff, Hard)	Soil: Non-Cohesive (Very Loose, Loose, Med. Dense, Dense, Very Dense)	Rock Strength (Ex. Low, Very Low, Low, Medium, High, Very High, Ex. High)	Sampling & In Situ Testing: Sample Type	Core Rec. %	RQD %	Test Results & Comments
0	SANDY CLAY - dark grey sandy clay								
0.35	SAND - light grey sand								
0.55	SANDSTONE - extremely low strength, extremely weathered, light grey sandstone								
1.0	- 0.85m - very low strength					A			
	TEST BORE DISCONTINUED AT 1.0 METRES								
2									
3									
4									
5									
6									
7									
8									
9									
10									

RIG: SCOUT **DRILLER:** COOPER **LOGGED:** PARMAR **CASING:** UNCASED

TYPE OF BORING: SFA TO 1.0m

WATER OBSERVATIONS: NO FREE GROUNDWATER OBSERVED WHILST AUGERING

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A auger sample	PL point load strength I_S (50)MPa
B bulk sample	S standard penetration test
C core drilling	Ux x mm dia. tube
pp pocket penetrometer (kPa)	V Shear Vane (kPa)

CHECKED:
Initials:
Date: 18/11

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TEST BORE REPORT

CLIENT: HUGHES TRUEMAN REINHOLD
PROJECT: PRECINCT 2: ST PATRICK'S ESTATE
LOCATION: DARLEY ROAD, MANLY

PROJECT No: 28058A
SURFACE LEVEL: 26.33
DIP OF HOLE: 90°

BORE No: 203
DATE: 30/9/99
SHEET 1 **OF** 1
AZIMUTH:

Depth (m)	Description of Strata	Graphic Log	Soil: Cohesive (Very Soft, Soft, Firm, Stiff, Very Stiff, Hard)	Soil: Non-Cohesive (Very Loose, Loose, Med. Dense, Dense, Very Dense)	Rock Strength (Ex. Low, Very Low, Low, Medium, High, Very High, Ex. High)	Sampling & In Situ Testing: Sample Type	Core Rec. %	RQD %	Test Results & Comments
0	SANDY CLAY - dark grey sandy clay								
0.4	SAND - dark brown sand								
0.75	SANDSTONE - extremely to very low strength, extremely weathered, off white grey sandstone								
	-1.8m to 2.2m - extremely low strength								25/50mm ref
3.0	TEST BORE DISCONTINUED AT 3.0 METRES								~~10/20mm~~ ref

RIG: SCOUT **DRILLER:** COOPER **LOGGED:** PARMAR **CASING:** UNCASED
TYPE OF BORING: SFA TO 3.0m
WATER OBSERVATIONS: NO FREE GROUNDWATER OBSERVED WHILST AUGERING
REMARKS:

SAMPLING & IN SITU TESTING LEGEND	
A auger sample	PL point load strength I_s (50)MPa
B bulk sample	S standard penetration test
C core drilling	Ux x mm dia. tube
pp pocket penetrometer (kPa)	V Shear Vane (kPa)

CHECKED:
Initials:
Date: 18/11

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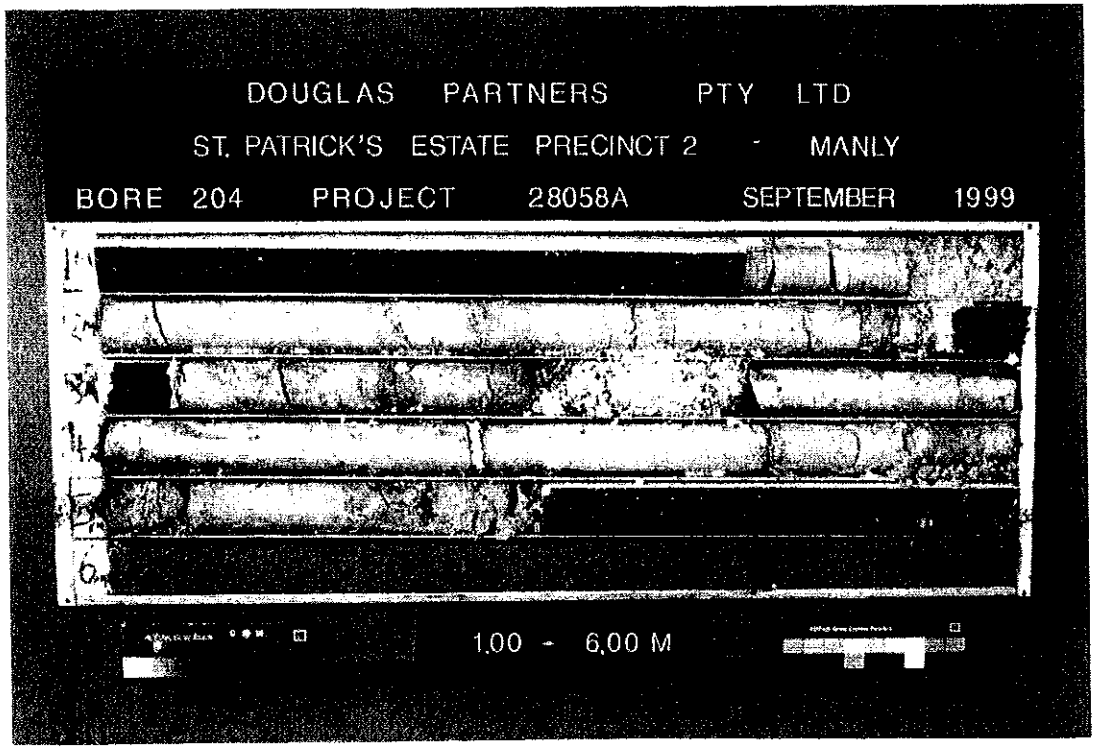
DOUGLAS PARTNERS PTY LTD
ST. PATRICK'S ESTATE PRECINCT 2 - MANLY
BORE 204 PROJECT 28058A SEPTEMBER 1999
1.00 - 6.00 M

TEST BORE REPORT

CLIENT: HUGHES TRUEMAN REINHOLD
PROJECT: PRECINCT 2: ST PATRICK'S ESTATE
LOCATION: DARLEY ROAD, MANLY

PROJECT No: 28058A
SURFACE LEVEL: 27.66
DIP OF HOLE: 90°

BORE No: 204
DATE: 30/9/99
SHEET 1 OF 1
AZIMUTH:

Depth (m)	Description of Strata	Graphic Log	Soil: Cohesive (Very Soft, Soft, Firm, Stiff, Very Stiff, Hard)	Soil: Non-Cohesive (Very Loose, Loose, Med. Dense, Dense, Very Dense)	Rock Strength (Ex. Low, Very Low, Low, Medium, High, Very High, Ex. High)	Sample Type	Core Rec. %	RQD %	Test Results & Comments
0	SAND - grey sand								
0.45	SANDSTONE - extremely low strength sandstone								
1.0	- 1.0m - 700mm Core loss								
1.7	SANDSTONE - very low to low strength, slightly weathered, fractured to slightly fractured, light yellow to off white, coarse grained sandstone					C	22	0	PL (A)=0.1MPa
2									PL (A)=0.1MPa
2.9	- 2.9m - 150mm Core loss								
3.05						C	94	66	PL (A)=0.06MPa
3.65	SANDSTONE - low to medium and low strength, slightly and highly weathered, slightly fractured, off white, coarse grained gravelly sandstone								PL (A)=0.3MPa
4									
5									PL (A)=0.3MPa
5.45	- 5.45m - 550mm Core loss					C	88	41	PL (A)=0.2MPa
6.0	TEST BORE DISCONTINUED AT 6.0 METRES								
7									
8									
9									
10									

RIG: SCOUT **DRILLER:** COOPER **LOGGED:** PARMAR **CASING:** GL TO 1.0m

TYPE OF BORING: SFA TO 1.0m, NMLC CORING TO 6.0m

WATER OBSERVATIONS: NO FREE GROUNDWATER OBSERVED WHILST AUGERING

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A auger sample	PL point load strength I_s (50)MPa
B bulk sample	S standard penetration test
C core drilling	Ux x mm dia. tube
pp pocket penetrometer (kPa)	V Shear Vane (kPa)

CHECKED:
Initials:
Date: 18/11

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TEST BORE REPORT

BORE No: 205
DATE: 30/9/99
SHEET 1 OF 1
AZIMUTH:

CLIENT: HUGHES TRUEMAN REINHOLD
PROJECT: PRECINCT 2: ST PATRICK'S ESTATE
LOCATION: DARLEY ROAD, MANLY

PROJECT No: 28058A
SURFACE LEVEL: 26.44
DIP OF HOLE: 90°

Depth (m)	Description of Strata	Graphic Log	Soil: Cohesive (Very Soft, Soft, Firm, Stiff, Very Stiff, Hard)	Soil: Non-Cohesive (Very Loose, Loose, Med. Dense, Dense, Very Dense)	Rock Strength (Ex. Low, Very Low, Low, Medium, High, Very High, Ex. High)	Sampling & In Situ Testing: Sample Type	Core Rec. %	RQD %	Test Results & Comments
0	SAND - dark grey sand								
	- 0.45m to 0.67m - light brown								
0.67	SANDSTONE - extremely low strength, extremely weathered, light grey yellow sandstone					A			
0.8	TEST BORE DISCONTINUED AT 0.8 METRES								
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									

RIG: SCOUT
DRILLER: COOPER
LOGGED: PARMAR
CASING: UNCASED

TYPE OF BORING: SFA TO 0.8m
WATER OBSERVATIONS: NO FREE GROUNDWATER OBSERVED WHILST AUGERING
REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A auger sample	PL point load strength I_s (50)MPa
B bulk sample	S standard penetration test
C core drilling	Ux x /mm dia. tube
pp pocket penetrometer (kPa)	V Shear Vane (kPa)

CHECKED:
Initials:
Date: 18/11

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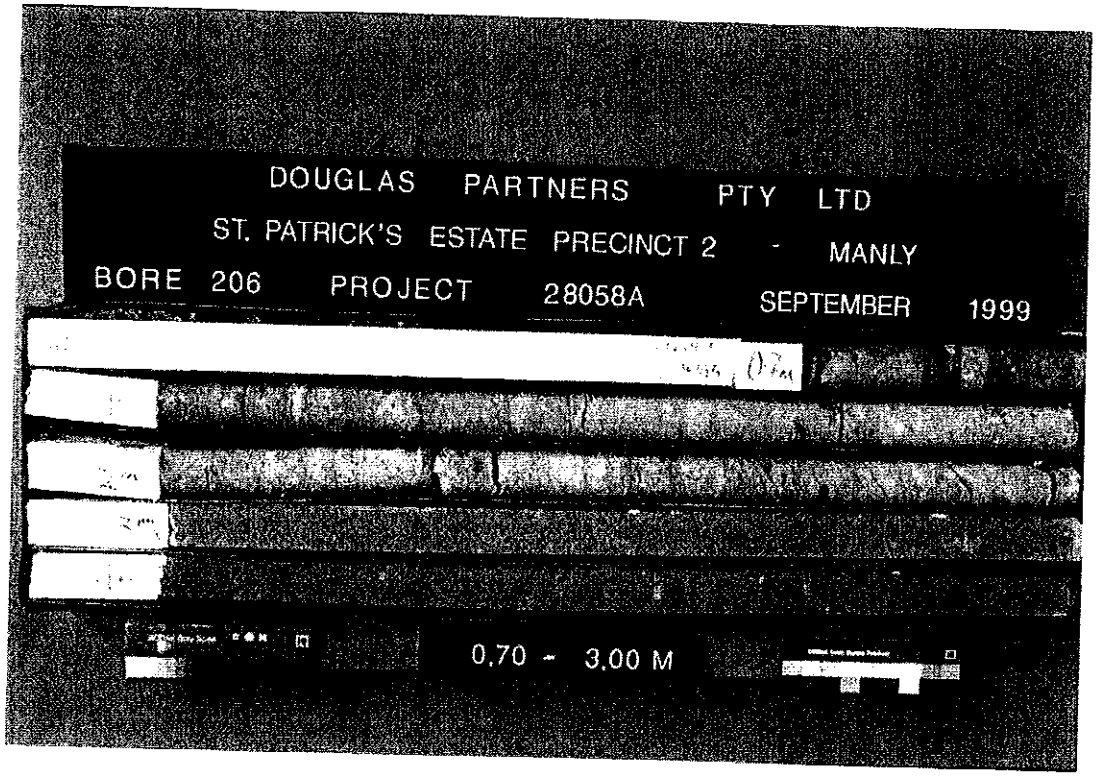
DOUGLAS PARTNERS PTY LTD
ST. PATRICK'S ESTATE PRECINCT 2 - MANLY
BORE 206 PROJECT 28058A SEPTEMBER 1999
0.70 - 3.00 M

TEST BORE REPORT

BORE No: 206
DATE: 29/9/99
SHEET 1 OF 1
AZIMUTH:

CLIENT: HUGHES TRUEMAN REINHOLD
PROJECT: PRECINCT 2: ST PATRICK'S ESTATE
LOCATION: DARLEY ROAD, MANLY

PROJECT No: 28058A
SURFACE LEVEL: 33.96
DIP OF HOLE: 90°

Depth (m)	Description of Strata	Graphic Log	Soil: Cohesive (Very Soft, Soft, Firm, Stiff, Very Stiff, Hard)	Soil: Non-Cohesive (Very Loose, Loose, Med. Dense, Dense, Very Dense)	Rock Strength (Ex. Low, Very Low, Low, Medium, High, Very High, Ex. High)	Sample Type	Core Rec. %	RQD %	Test Results & Comments
0	TOPSOIL								
0.4	SAND - brown sand								
0.7	SANDSTONE - low to medium and medium strength, moderately weathered, slightly fractured to unbroken, off white yellow, coarse grained gravelly sandstone					C	100	82	PL (A)=0.3MPa PL (A)=0.5MPa PL (A)=0.4MPa PL (A)=0.2MPa
3.0	TEST BORE DISCONTINUED AT 3.0 METRES								

RIG: SCOUT **DRILLER:** COOPER **LOGGED:** PARMAR **CASING:** GL TO 0.7m

TYPE OF BORING: SFA TO 0.7m, NMLC CORING TO 3.0m

WATER OBSERVATIONS: NO FREE GROUNDWATER OBSERVED WHILST AUGERING

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A auger sample	PL point load strength I_s (50)MPa
B bulk sample	S standard penetration test
C core drilling	Ux x mm dia. tube
pp pocket penetrometer (kPa)	V Shear Vane (kPa)

CHECKED:
Initials:
Date: 18/4

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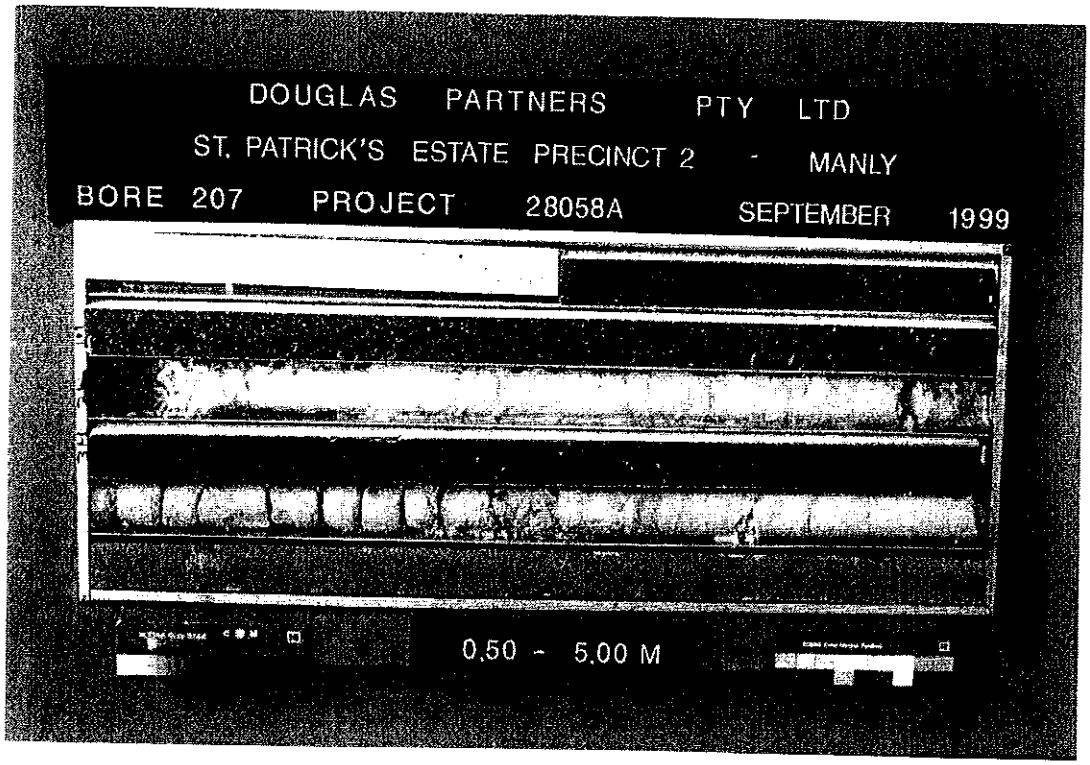
DOUGLAS PARTNERS PTY LTD
ST. PATRICK'S ESTATE PRECINCT 2 - MANLY
BORE 207 PROJECT 28058A SEPTEMBER 1999
0,50 - 5,00 M

TEST BORE REPORT

BORE No: 207
DATE: 29/9/99
SHEET 1 OF 1

CLIENT: HUGHES TRUEMAN REINHOLD
PROJECT: PRECINCT 2: ST PATRICK'S ESTATE
LOCATION: DARLEY ROAD, MANLY

PROJECT No: 28058A
SURFACE LEVEL: 31.49
DIP OF HOLE: 90°
AZIMUTH:

Depth (m)	Description of Strata	Graphic Log	Soil: Cohesive (Very Soft, Soft, Firm, Stiff, Very Stiff, Hard)	Soil: Non-Cohesive (Very Loose, Loose, Med. Dense, Dense, Very Dense)	Rock Strength (Ex. Low, Very Low, Low, Medium, High, Very High, Ex. High)	Sample Type	Core Rec. %	RQD %	Test Results & Comments
0	SAND - brown sand								
0.4									
0.5	SANDSTONE - extremely low strength sandstone								
	- 0.5m - 1500mm Core loss					C	40	33	
2.0									
2.13	SANDSTONE - very low to low strength, slightly weathered, slightly fractured to fractured, off white, coarse grained sugary sandstone with quartz gravel								PL (A)=0.1MPa PL (A)=0.1MPa
3.0	- 3.0m - 1000mm Core loss possible due to sugary and friable sandstone								
4.0						C	50	23	PL (A)=0.1MPa
5.0	TEST BORE DISCONTINUED AT 5.0 METRES								PL (A)=0.1MPa

RIG: SCOUT **DRILLER:** COOPER **LOGGED:** PARMAR **CASING:** GL TO 0.6m

TYPE OF BORING: SFA TO 0.5m, NMLC CORING TO 5.0m

WATER OBSERVATIONS: NO FREE GROUNDWATER OBSERVED WHILST AUGERING

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A auger sample	PL point load strength I_S (50)MPa
B bulk sample	S standard penetration test
C core drilling	Ux x mm dia. tube
pp pocket penetrometer (kPa)	V Shear Vane (kPa)

CHECKED:
Initials:
Date: 13/11

Douglas Partners
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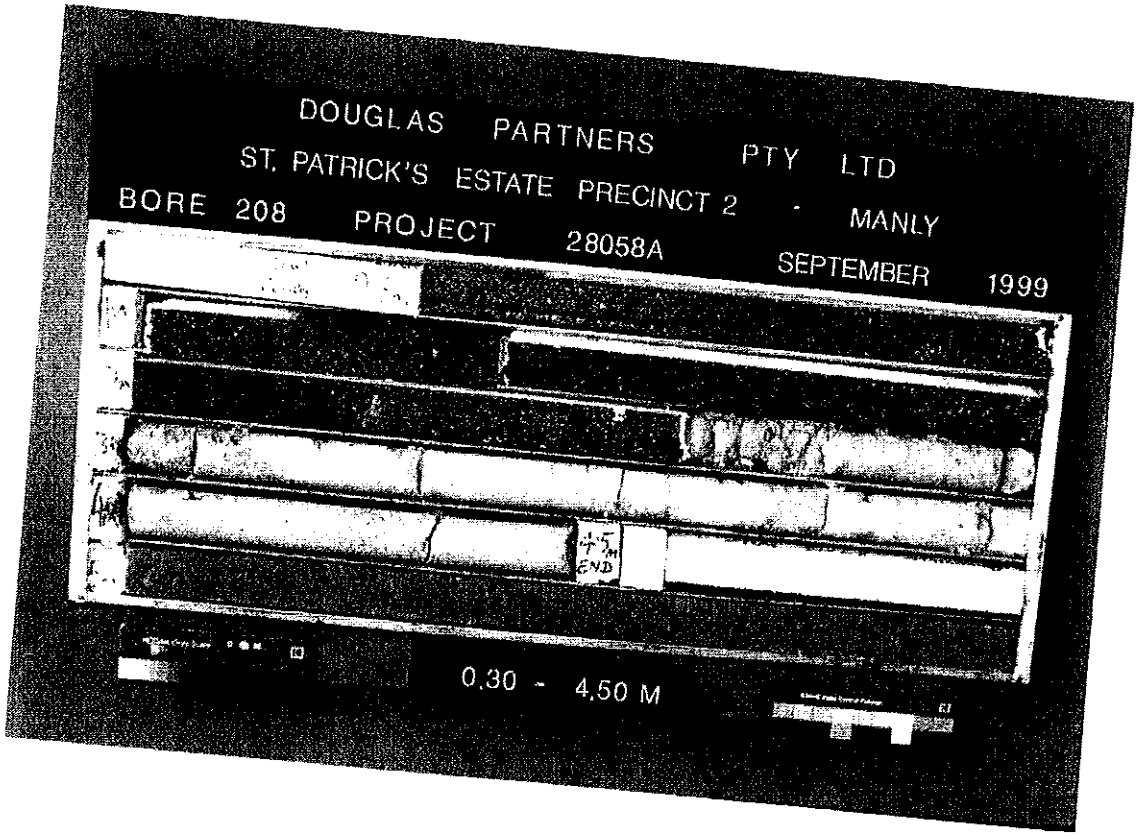
DOUGLAS PARTNERS PTY LTD
ST. PATRICK'S ESTATE PRECINCT 2 - MANLY
BORE 208 PROJECT 28058A SEPTEMBER 1999
4.5m END
0.30 - 4.50 M

TEST BORE REPORT

BORE No: 208
DATE: 29/9/99
SHEET 1 OF 1

CLIENT: HUGHES TRUEMAN REINHOLD
PROJECT: PRECINCT 2: ST PATRICK'S ESTATE
LOCATION: DARLEY ROAD, MANLY

PROJECT No: 28058A
SURFACE LEVEL: 32.56
DIP OF HOLE: 90°
AZIMUTH:

Depth (m)	Description of Strata	Graphic Log	Soil: Cohesive (Very Soft, Soft, Firm, Stiff, Very Stiff, Hard)	Soil: Non-Cohesive (Very Loose, Loose, Med. Dense, Dense, Very Dense)	Rock Strength (Ex. Low, Very Low, Low, Medium, High, Very High, Ex. High)	Sampling & In Situ Testing: Sample Type	Core Rec. %	RQD %	Test Results & Comments
0	SAND - brown sand								
0.3	CORE LOSS 225Omm - possibly due to extremely low strength, sugary and friable sandstone					C	17	9	
2.55	SANDSTONE - very low strength, slightly weathered, fractured, off white, coarse grained, sugary sandstone								PL (A)=0.2MPa
2.75	SANDSTONE - low then low to medium strength, slightly weathered, slightly fractured, off white, coarse grained gravelly sandstone					C	100	99	PL (A)=0.2MPa PL (A)=0.3MPa
4.5	TEST BORE DISCONTINUED AT 4.5 METRES								

RIG: SCOUT
DRILLER: COOPER
LOGGED: PARMAR
CASING: GL TO 0.3m

TYPE OF BORING: SFA TO 0.3m, NMLC CORING TO 4.6m
WATER OBSERVATIONS: NO FREE GROUNDWATER OBSERVED WHILST AUGERING
REMARKS: R = ROTARY

SAMPLING & IN SITU TESTING LEGEND

A auger sample	PL point load strength I_s (50)MPa
B bulk sample	S standard penetration test
C core drilling	Ux x mm dia. tube
pp pocket penetrometer (kPa)	V Shear Vane (kPa)

CHECKED:
Initials:
Date: 18/11

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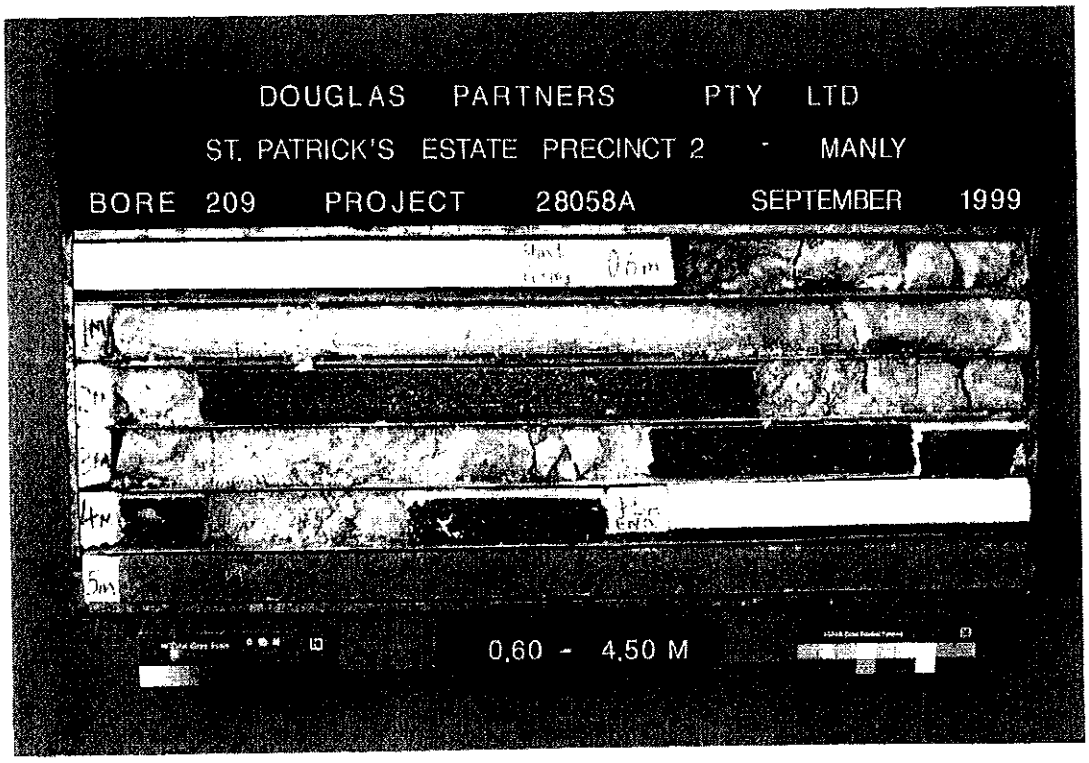
DOUGLAS PARTNERS PTY LTD
ST. PATRICK'S ESTATE PRECINCT 2 - MANLY
BORE 209 PROJECT 28058A SEPTEMBER 1999
0,60 - 4,50 M

TEST BORE REPORT

BORE No: 209
DATE: 29/9/99
SHEET 1 OF 1
AZIMUTH:

CLIENT: HUGHES TRUEMAN REINHOLD
PROJECT: PRECINCT 2: ST PATRICK'S ESTATE
LOCATION: DARLEY ROAD, MANLY

PROJECT No: 28058A
SURFACE LEVEL: 32.42
DIP OF HOLE: 90°

Depth (m)	Description of Strata	Graphic Log	Soil: Cohesive (Very Soft, Soft, Firm, Stiff, Very Stiff, Hard)	Soil: Non-Cohesive (Very Loose, Loose, Med. Dense, Dense, Very Dense)	Rock Strength (Ex. Low, Very Low, Low, Medium, High, Very High, Ex. High)	Sampling & In Situ Testing: Sample Type	Core Rec. %	RQD %	Test Results & Comments
0	SAND - dark brown sand								
0.3	SANDSTONE - extremely low strength, light yellow to off white, medium to coarse grained sandstone								
0.6	SANDSTONE - extremely low to very low strength, slightly weathered, slightly fractured, light yellow to off white grey, coarse grained sugary and friable sandstone with quartz gravel					C	67	0	PL (A)=0.04MPa PL (A)=0.04MPa
2.0	- 2.0m - 700mm Core loss								
2.7						C	50	0	
3.4	- 3.4m - 700mm Core loss								
4.1						C	50	0	
4.3	- 4.3m - 200mm Core loss								
4.5	TEST BORE DISCONTINUED AT 4.5 METRES								

RIG: SCOUT
DRILLER: COOPER
LOGGED: PARMAR
CASING: GL TO 0.6m

TYPE OF BORING: SFA TO 0.6m, NMLC CORING TO 4.5m

WATER OBSERVATIONS: NO FREE GROUNDWATER OBSERVED WHILST AUGERING

REMARKS: CORE LOSS POSSIBLE DUE TO FRIABLE SANDSTONE

SAMPLING & IN SITU TESTING LEGEND

A auger sample	PL point load strength I_s (50)MPa
B bulk sample	S standard penetration test
C core drilling	Ux x mm dia. tube
pp pocket penetrometer (kPa)	V Shear Vane (kPa)

CHECKED:
Initials:
Date: 18/11

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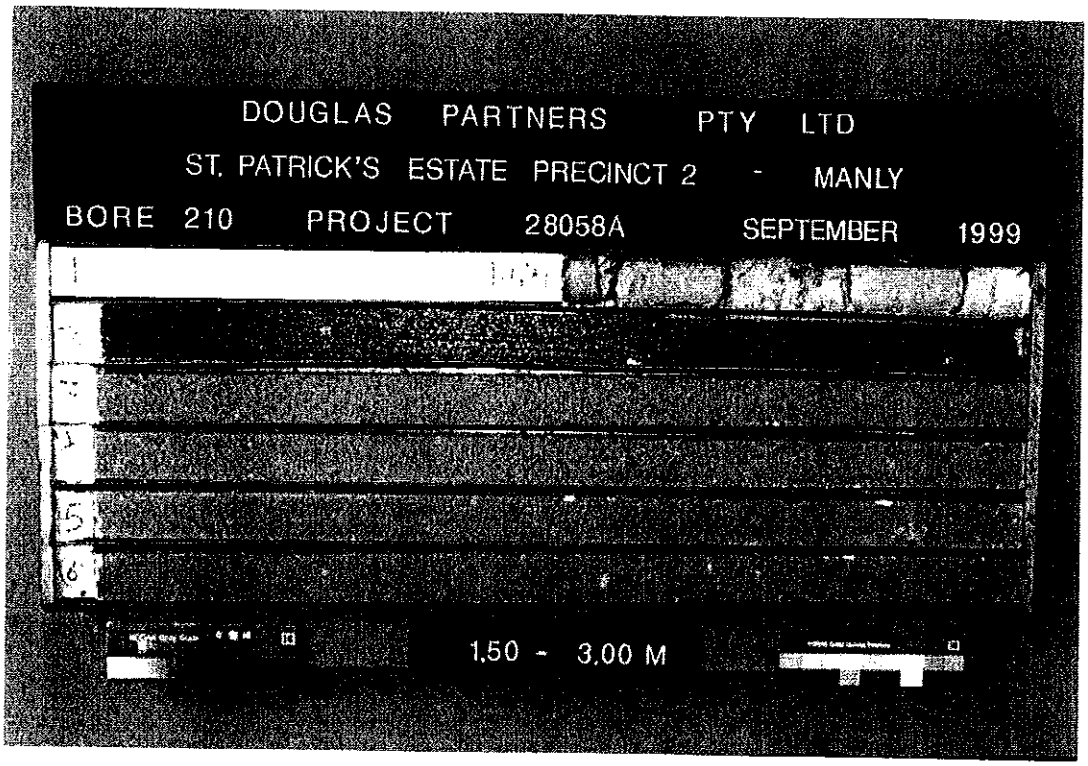
DOUGLAS PARTNERS PTY LTD
ST. PATRICK'S ESTATE PRECINCT 2 - MANLY
BORE 210 PROJECT 28058A SEPTEMBER 1999
1.50 - 3.00 M

TEST BORE REPORT

BORE No: 210
DATE: 29/9/99
SHEET 1 OF 1
AZIMUTH:

CLIENT: HUGHES TRUEMAN REINHOLD
PROJECT: PRECINCT 2: ST PATRICK'S ESTATE
LOCATION: DARLEY ROAD, MANLY

PROJECT No: 28058A
SURFACE LEVEL: 34.04
DIP OF HOLE: 90°

Depth (m)	Description of Strate	Graphic Log	Soil: Cohesive (Very Soft, Soft, Firm, Stiff, Very Stiff, Hard) / Non-Cohesive (Very Loose, Loose, Med. Dense, Dense, Very Dense)	Rock Strength (Ex. Low, Very Low, Low, Medium, High, Very High, Ex. High)	Sampling & In Situ Testing: Sample Type	Core Rec. %	RQD %	Test Results & Comments
0	SAND - dark brown sand							
0.6	SANDSTONE - extremely low to very low strength, highly weathered, off white yellow, medium to coarse grained sugary and friable sandstone							
1.9								pp=50kPa
2.0	CLAY - firm to stiff, light grey clay (possible extremely weathered siltstone?)				C	33	0	
	- 2.0m - 1000mm Core loss possible due to sugary and friable sandstone							
3.0	TEST BORE DISCONTINUED AT 3.0 METRES							
4								
5								
6								
7								
8								
9								
10								

RIG: SCOUT **DRILLER:** COOPER **LOGGED:** PARMAR **CASING:** GL TO 1.5m

TYPE OF BORING: SFA TO 1.5m, NMLC CORING TO 3.0m

WATER OBSERVATIONS: NO FREE GROUNDWATER OBSERVED WHILST AUGERING

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A auger sample	PL point load strength I_s (50)MPa
B bulk sample	S standard penetration test
C core drilling	Ux x mm dia. tube
pp pocket penetrometer (kPa)	V Shear Vane (kPa)

CHECKED:
Initials:
Date: 18/11

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RESULTS OF DYNAMIC PENETROMETER TESTS

CLIENT	HTL REINHOLD PTY LTD	DATE	28-9-99
PROJECT	ST PATRICKS ESTATE MANLY, PRECINCT 1	PROJECT NO	28058A
LOCATION	ST PATRICKS COLLEGE, MANLY	PAGE NO	1 of 2

TEST LOCATIONS	1	2	3	4	5	6	7	8	9	10
RL OF TEST	38.4	42.0	40.4	42.5	42.0	40.6	38.8	38.0	43.3	44.5
DEPTH m	PENETRATION RESISTANCE BLOWS/150mm									
0.00 - 0.15	1	6/80mm	outcrop	3	2	1	1	2	0	0
0.15 - 0.30	5	ref		8	7/130mm	2/100mm	3/130mm	3	1	2
0.30 - 0.45	11	bounce		10	ref	ref	ref	5	4	2
0.45 - 0.60	ref			10	bounce	bounce	bounce	7	4	4
0.60 - 0.75	bounce			4/10mm				9/50mm	7	8/100mm
0.75 - 0.90				ref				ref	7	ref
0.90 - 1.05				bounce				bounce	11	bounce
1.05 - 1.20									11	
1.20 - 1.35										
1.35 - 1.50										
1.50 - 1.65										
1.65 - 1.80										
1.80 - 1.95										
1.95 - 2.10										
2.10 - 2.25										
2.25 - 2.40										
2.40 - 2.55										
2.55 - 2.70										
2.70 - 2.85										
2.85 - 3.00										

TEST METHOD AS 1289.6.3.2, CONE PENETROMETER ✓
AS 1289.6.3.3, FLAT END PENETROMETER O

TESTED BY: MS
CHECKED BY:

Douglas Partners
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RESULTS OF DYNAMIC PENETROMETER TESTS

CLIENT	HTL REINHOLD PTY LTD	DATE	28-9-99
PROJECT	ST PATRICKS ESTATE MANLY, PRECINCT 1	PROJECT NO	28058A
LOCATION	ST PATRICKS COLLEGE, MANLY	PAGE NO	2 of 2

TEST LOCATIONS	11	12	13	14	15					
RL OF TEST	44.9	44.7	44.3	42.4	41.0					
DEPTH m	PENETRATION RESISTANCE BLOWS/150mm									
0.00 - 0.15	0	1	1		1					
0.15 - 0.30	2	3/100mm	2	8	3					
0.30 - 0.45	5	ref	5	10	6/75mm					
0.45 - 0.60	15	bounce	2/90mm	5	ref					
0.60 - 0.75	20/90mm		ref	3	bounce					
0.75 - 0.90	ref		bounce	3						
0.90 - 1.05	bounce			3						
1.05 - 1.20				3/75mm						
1.20 - 1.35				ref						
1.35 - 1.50				bounce						
1.50 - 1.65										
1.65 - 1.80										
1.80 - 1.95										
1.95 - 2.10										
2.10 - 2.25										
2.25 - 2.40										
2.40 - 2.55										
2.55 - 2.70										
2.70 - 2.85										
2.85 - 3.00										

TEST METHOD AS 1289.6.3.2, CONE PENETROMETER ✓
AS 1289.6.3.3, FLAT END PENETROMETER O

TESTED BY: MS
CHECKED BY:

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Levy Online Payment Receipt

LONG SERVICE BUILDING & CONSTRUCTION

Thank you for using our Levy Online payment system. Your payment for this building application has been processed.

Applicant Name:	LEND LEASE DEVELOPMENT
Levy Application Reference:	5004654
Application Type:	DA
Application No.:	109/08
Local Government Area/Government Authority:	MANLY COUNCIL
Site Address:	24 MONTPELIER PLACE
	MANLY
	NSW
	2095
Value Of Work:	$1,200,000
Levy Due:	$4,200
Levy Payment:	$4,200
Online Payment Ref.:	587413309
Payment Date:	31/03/2010 4:13:44 PM

Lend Lease
MANAGEMENT SERVICES

ABN [illegible]
Manly Council
PO Box 82
MANLY NSW 1655
Ph 9976 1500 Fax 9976 1400
Email [illegible]
Website www.manly.nsw.gov.au

Lend Lease
Management Services
Limited
ACN 359 923 465

Level 4
30 The Bond
30 Hickson Road
Millers Point
NSW 2000
Australia
Telephone
(02) 9277 2488
Facsimile
(02) 9237 5599

19

Date 06/04/2010 17:09
Receipt 00026161:0001 Terminal 2:1327
Lend Lease Development Pty Ltd
Level 4
30 The Bond
30 Hickson Road

and remittance

Details Amount

Builders Deposits - 10000.00
"10.2008.00000109.001
24 Montpelier

Total Values 10000.00
Tendered
Cheque 10000.00
Change 0.00

Thank you for Prompt Payment

	Other Comment	Entity Invoiced	Amt Paid
	RTN CHQ TO J ABOOD LVL 5/ 26 M	DEV	10,000.00
			$10,000.00

Entity Invoiced - See back for full name.