

R0001/05

DENIS LEECH AND ASSOCIATES PTY LIMITED ARCHITECTS

TO: PITTWATER COUNCIL
ATTENTION: NEIL O'DONNELL
FROM: DENIS
DATE: 18 JULY 2006
BY: HAND

RE: SECTOR 5 – REZONING APPLICATION
WARRIEWOOD VALLEY

NEIL

ATTACHED, PLEASE FIND THE FOLLOWING:

6 X ROSE ATKINS RIMMER (INFRASTRUCTURE) PTY LTD SERVICES AVAILABILITY REPORT.

6 X HOT-ECO BUSHFIRE PLANNING FOR PROTECTION REPORT.

REGARDS
DENIS

DENIS LEECH AND ASSOCIATES PTY LIMITED
INCORPORATED IN NSW ACN 002 517 815
DENIS LEECH B.Sc (ARCH), B. ARCH (HONS) UNIVERSITY OF NSW
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DOCUMENT TRANSMITTAL



**ROSE ATKINS RIMMER
(Infrastructure) Pty Ltd**

WATER RELATED INFRASTRUCTURE
DESIGN AND MANAGEMENT
LICENSED WATER SERVICING CO-ORDINATOR

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ABN 64 094 707 276

July 5, 2006

Thomsonkane Pty Ltd
281 Pacific Hwy
NORTH SYDNEY NSW 2060

Our Ref No. 98/20716

Attention: Allan Thomson

Dear Sir,

SERVICES AVAILABILITY
5 WARRIEWOOD VALLEY, WARRIEWOOD

The following services report is provided as requested.

Water:- A DN100 watermain is located within the northern footway of Forest Rd and the eastern footway of Jubilee Av. Sydney Water's advice dated June 2005 was that the existing system had sufficient capacity to service the development. The actual provision of water facilities is dependent upon the type of development proposed. Should the subdivision be under community title, it would be possible to provide a Sydney Water owned and operated reticulated water system. An application for a Subdivider Compliance Certificate (Section 73) will be required once the D.A. is approved.

Sewer:- Sydney Water's advice dated June 2005 was that the existing system had sufficient capacity to service the development. The development would need to connect to the DN375 sewer located at the corner of Jubilee Av. An application for a Subdivider Compliance Certificate (Section 73) will be required once the D.A. is approved.

Yours faithfully
RAR (INFRASTRUCTURE) PTY LTD


Steve Rimmer
INFRASTRUCTURE MANAGER



AS/NZ ISO 9001:2000
Cert Lic Number QEC 20353



COMPANY
DENIS LEECH AND ASSOCIATES PTY
CC THOMSONKANE

ATTENTION
DENIS LEECH
ALLAN THOMSON

FAX NUMBER
02 9997 3169
02 9954 5532

SENDER
JANET COHEN

PAGES INCLUDING THIS FORM
EIGHT

DATE
4 JULY 2006

REFERENCE	WARRIEWOOD RESIDENTIAL DEVELOPMENT - POWER SUPPLY	PROJECT NO	F974A
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Dear Dennis

Further to your telephone conversation with Les Mikolajczyk today, please find attached copy of letter of approval from Energy Australia previously faxed to your office on 20 March 2006.

If you require any further information, please let us know.

Yours faithfully
Webb Australia Group (NSW) Pty Ltd

Janet Cohen
per Janet Cohen

ORIGINAL SENT BY MAIL

F974AFaxC08

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CONSULTING ENGINEERS ELECTRICAL LIGHTING MECHANICAL SECURITY COMMUNICATIONS AUDIO VISUAL
BRISBANE CANBERRA GOLD COAST MELBOURNE SUNSHINE COAST SYDNEY



COMPANY
THOMSONKANE
CC DENIS LEECH AND ASSOCIATES PTY

ATTENTION
ALLAN THOMSON
DENIS LEECH

FAX NUMBER
02 9954 5532
02 9997 3169

SENDER
MAJA NAUMOVSKA

PAGES INCLUDING THIS FORM
5

DATE
20 MARCH 2006

REFERENCE	WARRIEWOOD RESIDENTIAL DEVELOPMENT - POWER SUPPLY	PROJECT NO	F974A
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Dear Allan

Further to our previous fax (15th of March 2006), please find attached copy of letter from Energy Australia confirming that their substation design package issued in August 2004 for the above mentioned development is still valid. Attached to this letter are minor changes that occurred in Energy Australia HV network which should be incorporated into the Level 3 design.

Yours faithfully
Webb Australia Group (NSW) Pty Ltd

M. Naumovska

Per Maja Naumovska

FAXED

ORIGINAL SENT BY MAIL

F974AFax008

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WEBB AUSTRALIA EPL-SNE/NSA		
No	ADD	DATE
86437	ADD	0
Date Recd 20 MAR 2005		
ID	NOTE	ACTION



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 Sydney NSW 2000
 Telephone 13 1525
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 Facsimile (02) 9269 2830
www.energy.com.au
 Address all mail to
 GPO Box 4009
 Sydney NSW 2001
 Australia

March 15, 2006

Maja Naumovska
 Webb Australia
 Level 4, 828 Pacific Highway
 Gordon NSW 2072

Dear Maja

Thank you for your letter of 14th March 06 concerning the proposed residential development at Forest Road Warriewood.

The Design Information I sent you on 16th August 2004 still applies to this project. However I am forwarding with this letter an amended "existing HV" geographic plan and an amended "proposed HV geographic" plan. The latter shows the point of connection of the substation proposed for this project. This plan differs from the one sent with the Design Information as it shows new work which has taken place (or is about to take place) in the vicinity of your project.

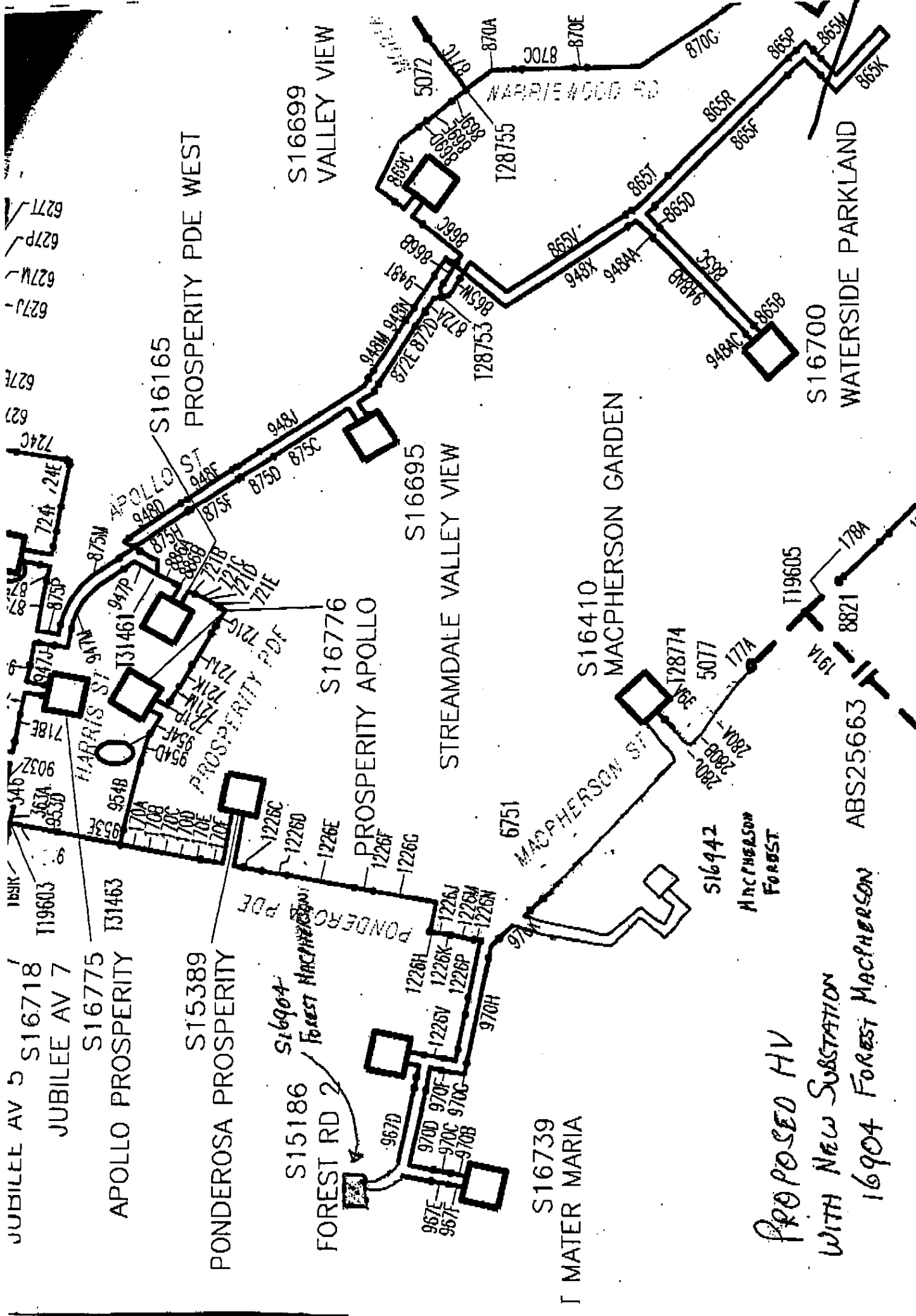
In addition could you also incorporate the following in the design information.
 The tap setting of the transformer 10340/433 is also to be described as tap 8.
 The proposed kiosk EA contract number is 176838

Neil Austen
 Engineer Planning – Network Customer Supply North (Northern Beaches)

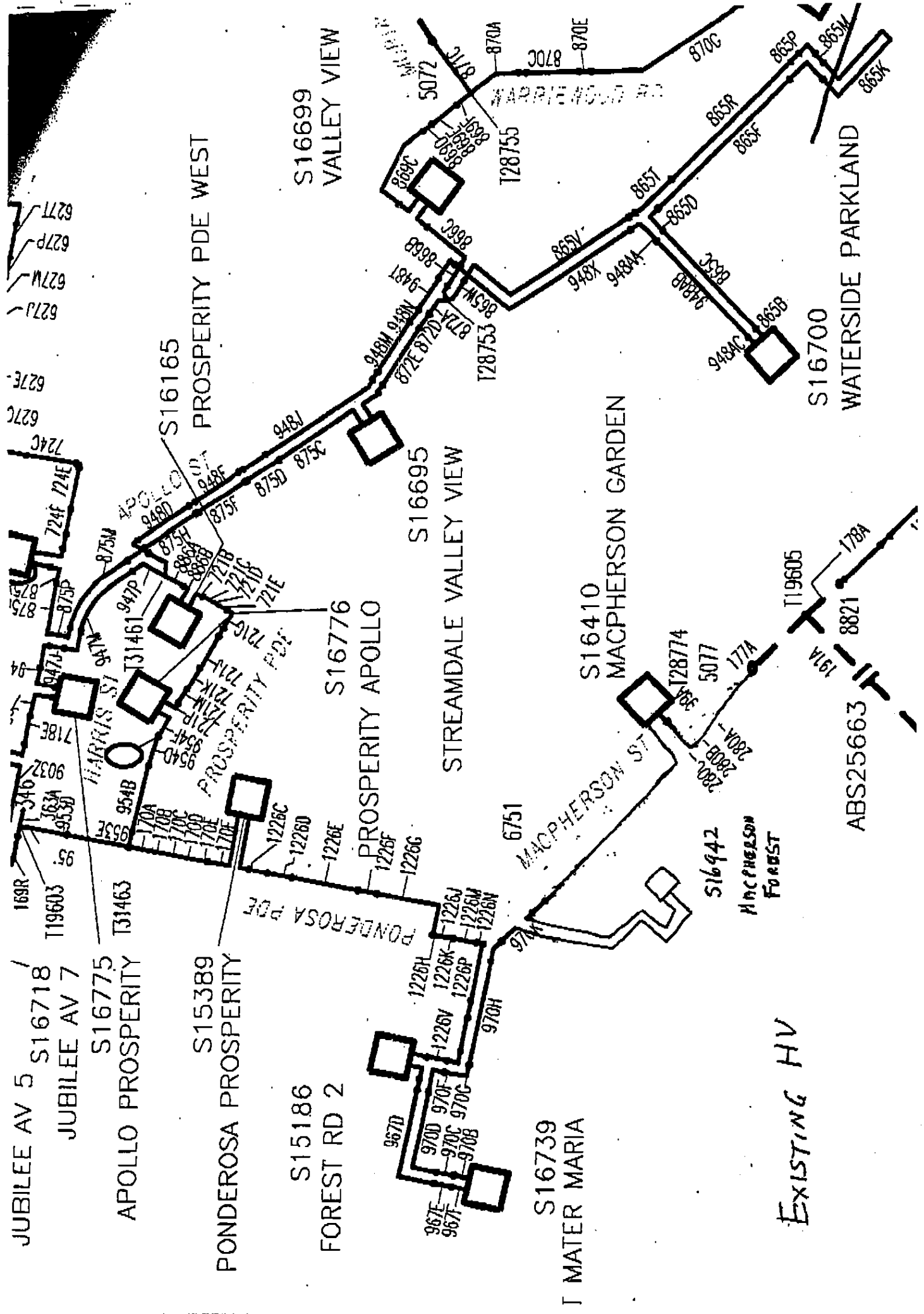
Attach/



Partner



PROPOSED HV
WITH NEW SUBSTATION
16904 Forest MacPHERSON





Hot-Eco
19 Redman Street, Seaforth NSW 2092
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A.B.N 41 092 096 146

**Bushfire Planning for
Protection Report on Drawing
No. 5986/1 rev. 9.
Sector 5 Warriewood Valley
Land Release**

Prepared by Robert Sawyer B.Sc.Hon
13 March 2001

Hot-Eco - Bushfire & Ecological Consultants

**Bushfire Planning for Protection Report on
Drawing No. 5986/1 rev. 9.
Sector 5 Warriewood Valley Land Release**

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Disclaimer

The measures for mitigating the bushfire hazard in this development are totally dependent on the whole package being adopted and the required maintenance being carried out with the regularity specified in each section. The impact of an extreme bushfire event cannot be predicted sufficiently to guarantee the survivorship or safety of any particular building or its occupants.

Hot-Eco has been engaged to evaluate and advise on the bushfire protection measures for drawing no. 5986/1 rev. 9.

Summary

The proposed development has vehicle access to all perimeter areas via two road sections and a short linking fire trail.

The road and trail areas are located within a 20m wide fuel free zone. There is a fuel reduced zone 10m wide on the bushland side of the fuel free zone. This provides a total Fire Protection Zone width of 30m which is in accordance with circular C10 and Planning for Bushfire Protection.

These treatments are achieved with a minimal potential environmental impact. The fuel management procedures are linked to the bushland management plan in the biodiversity report.

Site Description

The site is composed from part of both DP5055 Lot 1 and DP370222 Lot B. The residential development is bounded to the south, southwest and west, by open forest and tall open forest. These areas rise steeply away from the development boundary. The slope exceeds 20° in these areas which are to be retained as bushland.

To the north, the site is bounded by Narrabeen Creek. The land on the northern side of the creek is zoned for industrial development.

The eastern boundary's adjoined existing medium density residential developments.

Scope

Hot-Eco has advised on and evaluated the limits and boundary treatments for this subdivision. Details of lot sizes, shape and title allocation are not available.

The site treatments are designed to work regardless of lot size.

Objectives

To provide a sustainable system of bushfire mitigation measures which:

- Reduces radiated heat transmission to buildings and fire fighters.
- Reduces the quantity of available fuel adjacent to the housing, so that ember showers and general fire intensity are reduced.
- Provide safe and maintainable access to the urban bushland interface, for bushfire fighters and fire management practices.

Regulatory and Advisory Documents

- Circular C10 Department of Planning.
- Planning for Bushfire Protection (1991) Department of Bush Fire Services NSW.
- Bushfire Hazard Evaluation Ingleside/Warriewood Urban Land Release. Pittwater Council prepared by Quality Environmental Management Pty Ltd (1995).
- AS3959 - 1999 Construction of buildings in bushfire prone areas.
- SAAHB36 - 1993 Building in Bushfire Prone Areas CSIRO.

The critical factors are the establishment of adequate fire protection zones around the subdivision. These need to comprise a fuel reduced zone 6-8 t/ha and a fuel fire zone <4 t/ha.

An access way for fire fighting and fire mitigation personnel and equipment to all parts of the boundary.

Addressing the requirements

This development proposal includes a fuel free zone of 20m and a fuel reduced zone of 10m. These are based on "Planning for Bushfire Protections, 1991." Where the hazard lies upslope of a development the fire protection zone dimensions for 0° slope apply.

The majority of the access-way is provided as a perimeter road in two parts. One part enters from the north east and skirts the northern, western and south western flanks of the subdivision.

The second enters from the south east and covers the south eastern flank. These two road sections are linked by a short section of fire trail.

As the bulk of the fire trail is being constructed as a perimeter road it is not practical to locate it on the boundary of the fuel free and fuel reduced zones.

It will be placed within the fuel free zone with buildings set back by the minimum distance allowable for medium density. The position of the FPZ elements together with perimeter roads and trail are shown on drawing no. 5986/1 rev. 9.

There is a real need to optimise housing yield in the subdivision. Long setbacks from the perimeter road wouldn't achieve this outcome.

Separation Of Fuel Free and Fuel Reduced Zones

From a management perspective, it is necessary to physically delineate the two zones.

The methods of maintenance will differ and a physical divider will assist in preventing encroachment of more destructive practices into the bushland margins. Conversely it will identify fuel and vegetation accumulations that need attention in the fuel free zone.

Such a separator will also improve the accuracy of fuel reduction practices in the fuel reduced zone. A close fixed point of reference will enable monitoring of progress in fuel reduction work. This

should further protect the bushland from unnecessary encroachments.

Methods Of Fuel Management

The methods used to manage fuel loads will include mechanised removal, hand removal and prescribed burning. The techniques used will vary between the Fuel Free Zone and the Fuel Reduced Zone.

Fuel Free Zone

Initial Establishment

Rough barked trees of the genera *Eucalyptus*, *Corymbia* and *Angophora* need to be removed.

Smooth barked trees of these genera can be retained. Note that tree canopies should not be a continuous cover or contiguous with the bushland. Half bark trees need to be maintained so that ribbons or candles of bark do not build up in or close to the canopy.

Understory vegetation should be partially cleared but retain small patches of small trees or shrubs.

The areas devoid of tree and shrub cover should be oversown with native grasses.

A physical delineation between the FFZ and FRZ should be made. Hot-Eco recommends small diameter natural or treated logs 200 - 4000mm diameter. Some suitable logs will be derived from the under scrubbing and clearing process.

The logs should be laid end to end to form a mowing edge. The clumps of retained or planted small trees and shrubs should also have similar mowing barriers.

Weed and native vegetation currently within this zone should be cut, stacked and burnt *in-situ* to volatilize nitrogen (N) reserves. This should enhance the competitive advantage for native C4 grasses.

Fertilising should be avoided to keep soil N down.

Maintenance

The grass area should be mown to provide a protected parkland environment (clumps of small trees and shrubs should have fire fuels raked and hand picked out to keep fuel levels down).

Periodic canopy pruning may be required. Tree crowns should not be permitted to form continuous canopies.

Fuel Reduced Zone

The object in a fuel reduced zone is to establish and maintain fine fuel loads <8 t/ha. Hot-Eco recommends an initial post treatment fuel load of <6 t/ha.

Establishment

There will be under scrubbing required to reduce the under storey density of shrubs and small trees. Dense stands of *Allocasuarina spp.* will need to be reduced in area so that smaller isolated clumps remain. Ground fuels and suspended fine fuels should be raked out by hand. This should be done in conjunction with the bushland management program.

A thin litter layer should be maintained to guard against excessive soil erosion.

Maintenance

Fuel loads should be assessed between each fire season. Hand removal of excessive fuel should be the primary mechanism. Prescribed fire or running fire will periodically be a factor in the bushland management. Where prescribed fire would be used as part of ecological management, it should also be utilised for fuel reduction in the FRZ.

Links To Bushland Management Plan

The bushland management plan which is part of the biodiversity reports for this development, indicates plants which can be included in the fuel free zone. It also has a weed management strategy and the fuel management strategy. All these works should be supervised by an ecologist with fire management experience.

Road and Fire Trail Construction

Roads will be constructed to the appropriate standard for roads in Pittwater Councils LGA. The trail section will be of construction as per Pittwater Councils requirements.

Building Construction

Buildings on the perimeter of the subdivision should be designed in accordance with AS3959 in all respects (level 2). Those buildings away from the bushland margins should still have designs that minimise the potential impact of ember showers (level 1).

Conclusion

The plans and content of this report, indicate a subdivision that can comply with the requirements of "Planning for Bushfire Protection" and Pittwater "Bushfire Hazard Evaluation" Ingleside and Warriewood. The treatments recommended will provide the specified level of protection, while minimal environmental impact will result.