BLACKTOWN CITY COUNCIL
("Council")

FITZPATRICK INVESTMENTS PTY LIMITED
ABN 42 001 662 862
("Developer")

PLANNING AGREEMENT

CLARK McNAMARA
LAWYERS
Level 17 • 1 Market Street • Sydney NSW 2000
GPO Box 835 • Sydney NSW 2001
Telephone (61 2) 9299 2223 • Facsimile (61 2) 9299 2224
Our Ref:PAC:CXC:25124
www.cml.com.au

INDEX

Section 93F checklist

	Section 93F provision	**Clause in Planning Agreement**
s.93F(1)	Parties	
	Developer	Fitzpatrick Investments Pty Ltd
	Planning Authorities	Blacktown City Council
	Developer has:	
	(a) sought a change to an planning instrument;	No
	(b) made, or proposes to make, a development application;	Yes - DA-07-1856
	(c) entered into an agreement with, or is otherwise associated with, a person to whom paragraph (a) or (b) applies.	No
s.93F(3)(a)	Land affected by this planning agreement.	cl.1 - Developer's Reserve Land
s.93F(3)(b)	Description of:	
	(i) planning instrument affected by planning agreement -	Not applicable
	(ii) development affected by planning agreement	cl.1 - Development under DA-07-1856
s.93F(3)(c)	Nature and extent of provisions made by developer and timing	cl.5 - Developer's Obligations cl.8 - Plan of Management
s.93F(3)(d)(e)	Application of s.94, s.94A or s.94EF, and whether benefits are to be taken into consideration in determining a development contribution under s.94	cl.4 - Application of s.94, s.94A
s.93F(3)(f)	Dispute resolution	cl.12 - Dispute resolution
s.93F(3)(g)	Enforcement mechanism	cl.6 - Caveat

This **AGREEMENT** is made the day of 2010

BETWEEN:

BLACKTOWN CITY COUNCIL (insert ABN) of 62 Flushcombe Road, Blacktown NSW 2148 ("Council")

AND:

FITZPATRICK INVESTMENTS PTY LIMITED ABN 42 001 662 862 of Suite 2501, 44 Market St, Sydney NSW 2000 ("Developer")

RECITALS:

A The Developer owns the Land.

B. The Developer has lodged with the Council Development Application DA-07-1856 relating to Lot 101 DP 863828 for a 26 residential allotment community title subdivision. The Development Application also identifies building footprints for the subject development site, which have been located so as to retain vegetation on the subject land.

The Development Application proposes the dedication of 1.54 hectares of land to Council.

On 24 December 2008 the Land and Environment Court determined an appeal made pursuant to s.97 of the Environmental Planning and Assessment Act against the Council's deemed refusal of the Development Application by upholding that appeal subject to the Condition of Consent.

C. Pursuant to paragraph E of Part A of the Conditions of Consent the Developer and Council have agreed to enter into this Planning Agreement ("the Agreement").

D. The planning purpose served by this Agreement is to expand the Timbertop Reserve by dedication to Council of the Developer's Reserve Land and to secure monetary contributions towards the care and maintenance of the Timbertop Reserve which could not otherwise be required in relation to the Development.

E. This Agreement promotes the public interest by securing contributions towards a public purpose which serves both the Development, surrounding development and the community at large.

OPERATIVE PROVISIONS

1. INTERPRETATION

1.1. Definitions

The following definitions apply in this Agreement:

Application means any application for any necessary approval from a relevant Authority.

Authorised Representative means those persons listed in Schedule 3.

Authority means a government, semi-government, local government, statutory, public, Council, civil, administrative, fiscal or judicial body or other authority or body.

Business Day means a day other than a Saturday, Sunday or public holiday in NSW and specifically excluding 25, 26, 27, 28, 29, 30 and 31 December.

CLM Act means the Contaminated Land Management Act 1997 (NSW) (as amended).

Conditions of Consent means the conditions located at Annexure A to the Development Consent.

Confidential Information means any information and all other knowledge at any time disclosed (whether in writing or orally) by the parties to each other, or acquired by the parties in relation to the other's activities or services which is not already in the public domain and which:

(i) is by its nature confidential;

(ii) is designated, or marked, or stipulated by either party as confidential (whether in writing or otherwise);

(iii) any party knows or ought to know is confidential; or

(iv) is information which may reasonably be considered to be of a confidential nature.

Costs means reasonable legal costs of negotiation of this Deed.

Council's Reserve Land means the land marked "COUNCIL RESERVE LAND" on the plan attached as Schedule 1.

Developer's Reserve Land means that part of the Land comprising approximately 1.54 hectares to be dedicated by the Developer to Council to form part of the Timbertop Reserve being the area approximately marked "DEVELOPER'S RESERVE LAND" on the plan attached as Schedule 1.

Development means development of the Land in accordance with the Development Consent.

Development Consent means the consent granted by the Land and Environment Court on 24 December 2008 in matter No. 10579 of 2008 in respect of Development Application DA-07-1856 lodged with the Council.

Effect the Transfer of Title means do all things necessary to cause the transfer of title of the Developer's Reserve Land to the Council free of any encumbrance (other than as are described on the Subdivision Plan) including without limit:

(a) preparing all necessary plans;

(b) making and diligently prosecuting all necessary Applications;

(c) fulfilling all necessary conditions to approvals;

(d) signing and executing all necessary documents;

(e) attending to registration of all necessary documents with Land & Property Information NSW;

(f) pay any application or lodgement fees in respect of the certification and/or registration of the subdivision plan and registration of the transfer of title.

EP&A Act means the Environmental Planning and Assessment Act 1979 (NSW) (as amended).

Environmental Certificate means the clearance certificate dated 21 April 2009, prepared by David Lane Associates a copy of which is attached as Schedule 4.

Land means Lot 101 DP 863828.

Maintenance means maintenance of the Timbertop Reserve in accordance with the Vegetation Management Plan.

Mediator means a person appointed as mediator under clause 15.5.

Plan of Translocation means the document annexed as Schedule 7.

Plan of Management means the document annexed as Schedule 5.

Subdivision Plan means a plan of subdivision of the Land in registrable form in accordance with plan annexed as Schedule 2.

Timbertop Reserve means the land so designated on the plan attached as Schedule 1 comprising the Council's Reserve Land and the Developer's Reserve Land.

Trust Fund means a trust fund to be established by the Council under clause 7.1 to be called the Timbertop Reserve Maintenance Trust.

Vegetation Management Plan means the document annexed as Schedule 6.

1.2. Interpretation of words and phrases

(a) Clause headings are for convenience only and will be ignored in the interpretation of the Agreement.

(b) References to a party include the successors and permitted assigns of that party.

(c) Words importing the singular include the plural and words importing the plural include the singular.

(d) Words importing a person include a corporation, firm or body corporate.

(e) Nothing contained in this Agreement will be deemed or construed as creating the relationship of partnership.

(f) References to a month mean a calendar month.

(g) References to any document include any permitted amendment, supplement to or replacement or novation of the document.

(h) References to any legislation or to any section or provision of any legislation includes any:

(i) statutory modification or re-enactment of or any statutory provision substituted for that legislation, section or provision.

(ii) ordinances, by-laws, regulations and other statutory provision substituted for that legislation, section or provision.

(i) No waiver of any breach of this Agreement or of any of its terms will be effective unless the waiver is in writing and signed by the party against whom the waiver is claimed, and no waiver of any breach will operate as a waiver of any other breach or subsequent breach.

(j) Other grammatical forms of defined words or expressions have corresponding meanings.

(k) 'Including' and similar expressions are not words of limitation.

(l) Any schedules and attachments form part of this Agreement.

(m) A reference in this Agreement to dollars or $ means Australian dollars and all amounts payable under this Agreement are payable in Australian dollars.

2. PLANNING AGREEMENT UNDER THE EP&A ACT

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

2.2. The parties acknowledge and agree that this Agreement is in the terms of paragraph E of Part A of the Conditions of Consent to the Development Consent.

3. APPLICATION OF THIS DEED

3.1. This Agreement applies to the Land and the Development.

4. APPLICATION OF S.94, S.94A AND S.94EF OF THE EP&A ACT

4.1. Section 94, section 94A and section 94EF of the EP&A Act apply to the Development of the Land. Benefits under this Agreement are not to be taken into consideration in determining any development contribution under section 94 of the EPA Act.

5. THE DEVELOPER'S OBLIGATIONS

5.1. As soon as practicable the Developer will lodge the original Subdivision Plan with Council for signature.

5.2. The Developer must at its cost forthwith after signature and release by the Council of the Subdivision Plan do all things necessary to Effect the Transfer of Title.

5.3. Within 5 Business Days after the later to occur of release by the Council of the Subdivision Plan and the receipt by the Developer of the notice in clause 7.1, the Developer will pay the sum of $175,000 as follows:

(i) $75,000 to Council to be invested in the Trust Fund to be established under clause 7; and

(ii) $100,000 to Council to be applied by Council specifically and only for Maintenance.

6. CAVEAT, COMPULSORY ACQUISITION AND REGISTRATION

6.1. The Developer agrees that from the date this Agreement is executed the Council has a caveatable interest in the Developer's Reserve Land.

7. TRUST FUND

7.1. The Council will within 28 days of the date of this Agreement establish the Trust Fund and notify the Developer in writing of its establishment.

7.2. The monies in the Trust Fund shall be invested by Council in an interest bearing deposit with an Australian Bank. The Council must use the net interest derived on investment of the deposit only for Maintenance and bushland regeneration in and of the Timbertop Reserve. Council must not under any circumstances access or use the capital except for reinvestment on expiry of term of the initial and each following interest bearing deposit. The capital must remain in the Trust Fund in perpetuity.

8. ENVIRONMENTAL CERTIFICATE

8.1. The parties acknowledge that:

(i) the Environmental Certificate is the clearance certificate required by Condition 7 of the Development Consent; and

(ii) the Developer's Reserve Land has been remediated.

9. PLAN OF MANAGEMENT

9.1. The parties agree and acknowledge that the Plan of Management has been prepared by or on behalf of the Developer in consultation with Council's Manager Open Space in compliance with the relevant provisions of the Development Consent. Council approves the Plan of Management.

10. VEGETATION MANAGEMENT PLAN

10.1. The parties agree and acknowledge that the Vegetation Management Plan has been prepared by or on behalf of the Developer and complies with the relevant provisions of the Development Consent. Council approves the Vegetation Management Plan.

11. PLAN OF TRANSLOCATION

11.1. The parties agree and acknowledge that the Plan of Translocation has been prepared by or on behalf of the Developer. Council approves and is satisfied with the Plan of Translocation.

12. MAINTENANCE

12.1. The Developer's contribution to maintenance of the Developer's Reserve Land is the payment to be made by the Developer under clause 5.3(ii).

12.2. Council shall, using the Developer's payment under clause 5.3(ii) and otherwise at Council's cost, carry out all Maintenance.

12.3. The Developer must for a period of 3 years provide to Council or cause Council to be provided with 6 monthly condition reports to advise on progress of the Maintenance works within the bushland areas on the Developer's Reserve Land. Council must as part of the Maintenance engage at its cost a suitably qualified person to prepare such reports for the Developer.

13. INSURANCE

13.1. The Council will ensure that any contractor it engages to carry out Maintenance on the Developer's Reserve Land will hold the following insurances, (until the Developer Effects the Transfer of Title:

(i) $20 million public liability; and

(ii) workers compensation as required by the law and including unlimited common law claims;

with the Developer noted on the policy as an interested party.

14. ASSIGNMENT OF LAND

14.1. The Developer must not transfer, lease, part with or share the possession of, grant any licence affecting, charge, mortgage, encumber or otherwise deal with or dispose of the Developer's Reserve Land except to Effect Transfer of Title.

15. DISPUTE RESOLUTION

15.1. If a party claims that a dispute has arisen under this Agreement (Claimant), it must give written notice to the other party (Respondent) stating the matters in dispute and designating as its representative a person to negotiate the dispute (Claim Notice).

15.2. Within 20 Business Days of receiving the Claim Notice, the Respondent must notify the Claimant of its representative to negotiate the dispute.

15.3. The nominated representatives must:

(i) meet to discuss the matter in good faith within 10 Business Days after service by the Respondent of notice of its representative; and

(ii) use reasonable endeavours to settle or resolve the dispute within 15 Business Days after they have met.

15.4. If the dispute is not resolved within 15 Business Days after the nominated representatives have met, either party may give to the other a written notice calling for determination of the dispute ("Dispute Notice").

15.5. The parties agree that a dispute shall be mediated if it is the subject of a Dispute Notice, in which case:

(i) the parties must agree the terms of reference of the mediation within 5 Business Days of the receipt of the Dispute Notice (the terms shall include a requirement that the mediation rules of the Institute of Arbitrators and Mediators Australia (NSW Chapter) apply);

(ii) the Mediator will be agreed between the parties, or failing agreement within 5 Business Days of receipt of the Dispute Notice, either party may request the President of the Institute of Arbitrators and Mediators Australia (NSW Chapter) apply to appoint a mediator;

(iii) the Mediator must:

(A) have reasonable qualifications and practical experience in the area of the dispute; and

(B) have no interest or duty which conflicts or may conflict with his function as mediator, he being required to fully disclose any such interest or duty before his appointment;

(iv) the Mediator shall be required to undertake to keep confidential all matters coming to his knowledge by reason of his appointment and performance of his duties;

(v) the parties must within 5 Business Days of receipt of the Dispute Notice notify each other of their representatives who will be involved in the mediation;

(vi) the parties agree to be bound by a mediation settlement and may only initiate judicial proceedings in respect of a dispute which is the subject of a mediation settlement for the purpose of enforcing that mediation settlement;

(vii) in relation to Costs and expenses:

(A) each party will bear their own professional and expert Costs incurred in connection with the mediation;

(B) the Costs of the Mediator will be shared equally by the parties unless the Mediator determines a party has engaged in vexatious or unconscionable behaviour in which case the Mediator may require the full Costs of the mediation to be borne by that party.

15.6. If the dispute is not finally resolved in accordance with clause 15, either party is at liberty to litigate the dispute.

15.7. Each party must continue to perform its obligations under this Agreement, notwithstanding the existence of a dispute.

16. COSTS

The Developer agrees to pay or reimburse the Costs of the Council in connection with the negotiation, preparation and execution of this Agreement, and any applicable advertising or exhibition fees payable associated with the Agreement within 15 Business Days after receipt of a tax invoice from the Council and an itemised account of fees and work undertaken which is included in those Costs.

17. GST

17.1. Consideration does not include GST

Any consideration for a supply made by a party under or in connection with this Agreement (unless specifically described in this Agreement as "GST inclusive") is GST exclusive ("GST exclusive consideration") and does not include any amount for GST.

17.2. GST Payable

If anything supplied by a party under or in connection with this Agreement constitutes a taxable supply, in addition to the supplier's entitlement to be paid the GST exclusive consideration, the supplier will, subject to first issuing a tax invoice, be entitled to recover from the recipient of the supply an amount on account of the GST payable in respect of that taxable supply ("GST Amount").

17.3. The GST Amount shall be:

(i) equal to the value of the taxable supply calculated in accordance with the GST Act multiplied by the prevailing GST rate; and

(ii) payable within fourteen days of written demand by the supplier to the recipient.

17.4. Adjustment Event

If in relation to a taxable supply under or in connection with this Agreement an adjustment event occurs that gives rise to an adjustment, then the GST Amount will be adjusted accordingly and where clause 17.2 applies to the taxable supply and a payment is necessary, a payment will be made to reflect the change in the GST Amount (by the recipient to the supplier in respect of an increase in the GST Amount and by the supplier to the recipient in respect of a decrease in the GST Amount). If a payment is required, it will be made within 10 business days of the issue of an adjustment note by the supplier who must issue an adjustment note immediately upon becoming aware of the adjustment event concerned.

17.5. Reimbursement

Notwithstanding any other provision of this Agreement, any amount payable under or in connection with this Agreement, which is calculated by reference to a cost, expense or amount

paid or incurred by a party to this Agreement, will be reduced by an amount equal to any input tax credit to which that party is entitled in respect of that cost, expense or amount.

17.6. Interpretation

In this clause 17:

(i) "GST Act" means A New Tax System (Goods and Services Tax) Act 1999 as amended or replaced from time to time and any associated legislation including without limitation delegated legislation;

(ii) "GST law" has the meaning given to that expression in the GST Act;

(iii) the words or expressions "adjustment", "adjustment event", "consideration", "GST", "recipient" "supplier", "recipient", "tax invoice", "taxable supply", and any other words or expressions used in this clause 17 that are defined in the GST Act shall have the same meaning as they have in GST law;

(iv) the expression "prevailing GST rate" shall mean 10% or such other rate of GST as is payable by the supplier under the GST law.

18. NO FETTER

18.1. This Agreement is not intended to operate to fetter, in any unlawful manner the exercise of any statutory power or discretion of the Council (referred to in this clause as a "Discretion").

18.2. If, contrary to the operation of this clause 18.2 any provision of this Agreement is held by a court of competent jurisdiction to constitute an unlawful fetter on any Discretion, the parties agree:

(i) they will take all practical steps, including the execution of any further documents to ensure the objective of this clause is substantially satisfied;

(ii) in the event that this clause cannot be achieved without giving rise to an unlawful fetter on a Discretion, the relevant provision is to be severed and the remainder of this Agreement has full force and effect; and

(iii) to endeavour to satisfy the common objectives of the parties in relation to the provision of this Agreement which is held to be an unlawful fetter to the extent that is possible having regard to the relevant court judgment.

19. GENERAL

19.1. Notices

(i) A party notifying or giving notice under this Agreement must do so in writing sent by prepaid registered post or facsimile and the original by post to the Authorised Representative at the address or facsimile number specified in Schedule 3.

(ii) A notice given in accordance with clause 19.1(i) will be deemed to have been given and received:

(A) if delivered, on receipt;

(B) if posted, 3 Business Days after posting;

(C) if sent by facsimile on confirmation of the correct transmission of the facsimile; and

(D) Any notice received after 5.00 pm or on a day not a Business Day shall be deemed to have been received at 9.00 am on the next Business Day.

19.2. Authorised Representatives

(i) The Authorised Representatives may perform any function of the respective parties under this Agreement.

(ii) A notice or communication given or made to an Authorised Representative is effective as if it had been given by the party they represent.

(iii) A party may substitute an Authorised Representative after first giving written notice to the other party.

19.3. Effect of Schedulised terms and conditions

The parties agree to comply with the terms and conditions contained in the Schedules as if those rights and obligations were expressly set out in full in the operative parts of this Agreement.

19.4. New Laws

If the Developer is obliged by a new legal requirement to do something or pay an amount which it is already contractually obliged to do or pay under this Agreement then, to the extent only that the relevant obligation is required under both the new legal requirement and this Agreement, compliance with the new legal requirement will constitute compliance with the relevant obligation under this Agreement.

19.5. Waiver

(i) The fact that a party fails to do, or delays in doing, something the party is entitled to do under this Agreement, does not amount to a waiver of any obligation of, or a breach of obligation by, another party.

(ii) A waiver by a party is only effective if it is in writing.

(iii) A written waiver by a party is only effective in relation to the particular obligation or breach in respect of which it is given. It is not to be taken as an implied waiver of any other obligation or breach or as an implied waiver of that obligation or breach in relation to any other occasion.

19.6. Governing Law

This Agreement is governed by New South Wales law.

19.7. Prior Agreements Superseded

This Agreement:

(i) wholly replaces and excludes all prior agreements, correspondence, negotiations, representations, explanations and statements between the parties covering or in connection with the matters covered by this Agreement; and

(ii) is the entire agreement between the parties in respect of the matters covered by this Agreement.

19.8. Modification of Agreement

No modification or alteration of any provision of this Agreement will be valid unless it is in writing and signed by all parties to this Agreement.

19.9. Representations and warranties

The parties represent and warrant that they have power to enter into this Agreement and comply with their obligations under the Agreement and that entry into this Agreement will not result in the breach of any law.

19.10. Severability

(i) The parties agree that to the extent permitted by Law, this Agreement prevails to the extent it is inconsistent with any Law.

(ii) If a clause or part of a clause of this Agreement can be read in a way that makes it illegal, unenforceable or invalid, but can also be read in a way that makes it legal, enforceable and valid, it must be read in the latter way.

(iii) If any clause or part of a clause is illegal, enforceable or invalid, that clause or part is to be treated as removed from this Agreement, but the rest of this Agreement is not affected.

19.11. Confidentiality, Media Releases and Enquiries

(i) The parties agree that the terms of this Agreement are not confidential and this Agreement may be treated as a public document and exhibited or reported without restriction by any party.

(ii) If requested by a party, the other party must:

(A) not issue, publish or authorise any media release or advertisement concerning this Agreement, without obtaining the other party's prior written approval; and

(B) obtain a similar obligation from their contractors.

(iii) The parties agree, and must procure that any Mediator agrees as a condition of their appointment:

(A) Confidential Information has been supplied to some or all of the parties in the negotiations leading up to the making of this Agreement; and

(B) the parties may disclose to each other further Confidential Information in connection with the subject matter of this Agreement; and

(C) subject to paragraph (D) below, to keep confidential all Confidential Information, disclosed to them during or in relation to the expert determination or mediation; and

(D) a party may disclose Confidential Information in the following circumstance:

(I) to a party or adviser who has signed a confidentiality undertaking to the same effect as this clause 19.11; or

(II) in order to comply with a Law, State Government policy, local government policy or the ASX Listing Rules; or

(III) for a purpose necessary in connection with an expert determination or mediation.

(iv) The parties must keep confidential and must not to disclose or rely upon or make the subject of a subpoena to give evidence or produce documents in any arbitral, judicial or other proceedings:

(A) views expressed or proposals or suggestions made by a party or the expert during the expert determination or mediation relating to a possible settlement of the dispute;

(B) admissions or concessions made by a party during the expert determination or mediation in relation to the dispute; or

(C) information, documents or other material, including Confidential Information concerning the dispute which are disclosed by a party during the expert determination or mediation unless such information, documents or facts will have been otherwise discoverable in judicial or arbitral proceedings.

19.12. No fiduciary relationship

Nothing in this Agreement will be construed or interpreted as constituting the relationship between the parties as that of a partnership, joint venture or any form of fiduciary relationship.

20. EXPLANATORY NOTE

20.1. The Appendix contains the Explanatory Note relating to this Agreement and required under Section 25E of the *Environmental Planning and Assessment Regulation 2000*.

20.2. The parties agree that the Explanatory Note is not to be used to assist in construing this Agreement.

EXECUTED AS A DEED

Signed sealed and delivered by **BLACKTOWN CITY COUNCIL**, by its attorney, , who states the he has no notice of the revocation of Power of Attorney Book Number pursuant to which this document has been executed:	)	
..... Signature of Witness	)	..... Signature of Attorney
..... Name of witness	)	..... Position

Executed by **FITZPATRICK INVESTMENTS PTY LIMITED** in accordance with section 127(1) of the Corporations Act 2001 (Cwlth) by authority of its directors:	)	
..... Signature of sole director/sole secretary	)	
Hunter Russell Cottle Name	)	

SCHEDULE 1
Timbertop Reserve Plan

NOTE:

1. ANY FEATURES CLOSE TO THE BOUNDARY HAVE BEEN LOCATED FOR PLOTTING ONLY, AND ARE NOT POSITIONED BY SURVEY.
2. CONTOURS ARE A GENERAL DEPICTION OF TOPOGRAPHY ONLY. INTERPOLATED LEVELS MUST BE VERIFIED BY MEASUREMENT ON SITE.
3. BOUNDARY DIMENSIONS SHOWN ARE AS PER THE ORIGINAL PLAN D.P. 863828 AND HAVE NOT BEEN CHECKED AS TO CADASTRAL ACCURACY.
4. ANY IMPROVEMENTS SHOWN ARE DIAGRAMMATIC ONLY.
5. SOLAR CONSIDERATIONS SHOULD TAKE INTO ACCOUNT THE AZIMUTH OF THE SURVEY.
6. THE DEPTH AND LOCATION OF UNDERGROUND SERVICES HAS ONLY BEEN VERIFIED WHERE THE POSITION OF PITS HAS BEEN SHOWN.
7. FOR CRITICAL DESIGN LEVELS, SERVICES SHOULD BE POTHOLED AND POSITIONED.

LEGEND:

- DENOTES DEVELOPERS'S RESERVE LAND
- DENOTES TOP OF BANK
- DENOTES BOTTOM OF BANK
- DENOTES STREET LIGHT POLE
- DENOTES POWER POLE
- DENOTES TELSTRA ACCESS PIT.
- DENOTES GRATED SAG INLET PIT WITH LINTEL
- DENOTES GRATED INLET PIT WITH LINTEL
- DENOTES VEHICLE CROSSING
- DENOTES HYDRANT
- DENOTES STOP VALVE

'U' EASEMENT TO DRAIN WATER 3 WIDE (D.P. 803457).
'Y' EASEMENT FOR TRANSMISSION LINE 15.24 WIDE (K536786).
'Z' EASEMENT TO DRAIN WATER 12 WIDE (D.P. 803853).
'T' EASEMENT TO DRAIN WATER VARIABLE WIDTH (D.P. 803457).

Revision	Amendment	Date

BTG

B T C

63 Waratah Street, Haberfield NSW 2045
PO Box 34 Haberfield
PH: (02) 9799 5100 FAX: (02) 9799 5200

Client

SURVEY - SITE AND SURROUNDS

1 of 1

REDUCTION RATIO
PLAN 1:1000 CROSS SECT. H..... V.....
LONG SECT. H..... V.....

1:1000 0 10 20 30 40 50 100 Metres

DATUM: AHD	DESIGN: N/A.	CHECKED: SA
AZIMUTH: ISG	DRAWN: RN	DATE: 11/7/06

SCHEDULE OF COMPUTER FILES

SURVEYOR:	GGH	ROADS:		CAD BASE:	N/A.
DATE OF SURVEY	JULY 06	LMK FILE:	5462-1	DWG FILE:	
				LAYOUT:	N/A.

ROSE ATKINS
consulting surveyors
142 SUNNYHOLT ROAD, BLACKTOWN
PO BOX 6745, BLACKTOWN 2148
PH: (02) 9853 0299 FAX: (02) 9671 7399
E-MAIL: mail@rcg.com.au

FOR:

FITZPATRICK INVESTMENTS

LOTS 100 & 101 IN D.P. 863828
HAMPTON CRES, PROSPECT

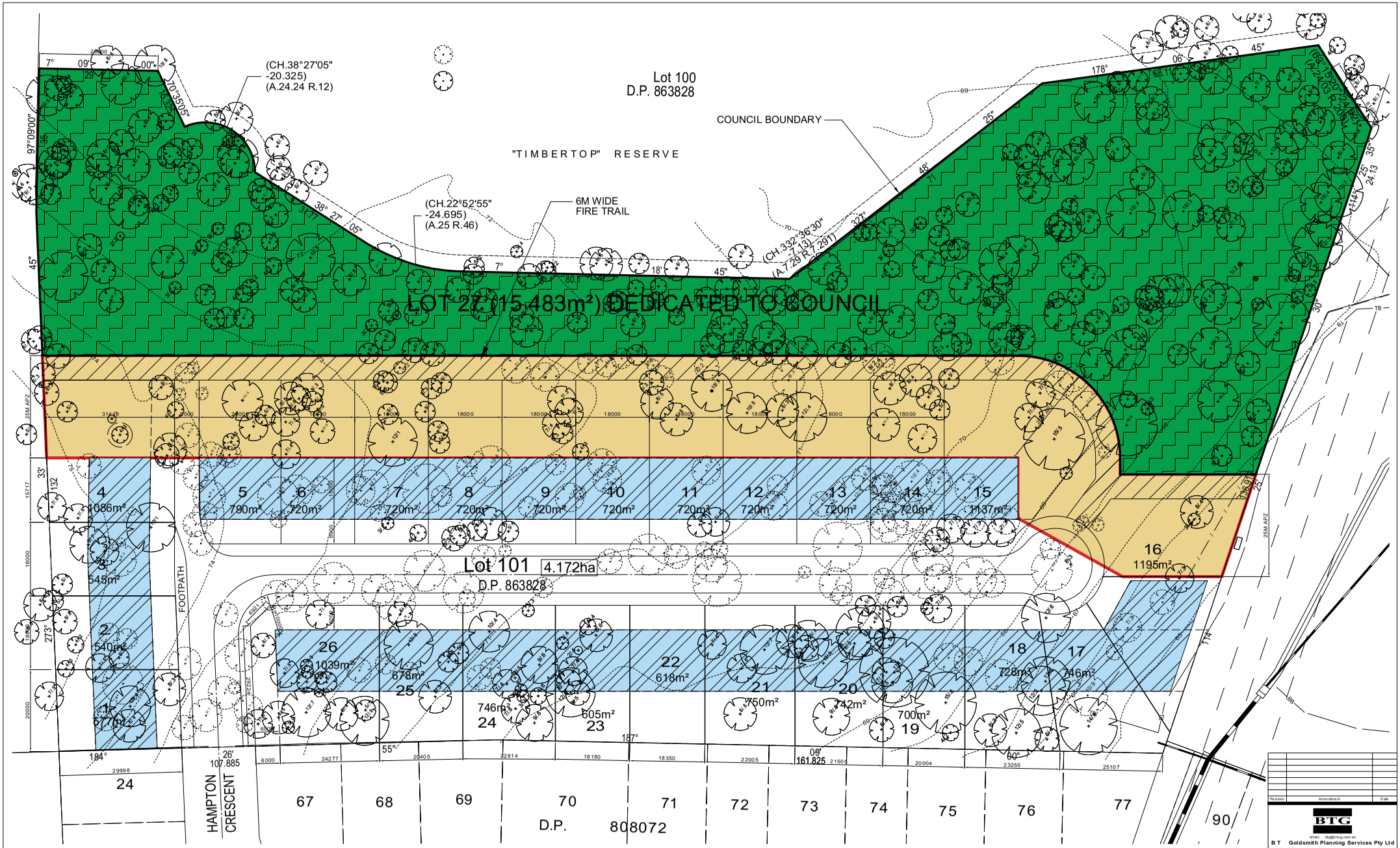
TIMBERTOP RESERVE PLAN

AMENDMENTS

REF. No. 5/3316-1

SHEET 1 OF 4 SHEETS

SCHEDULE 2
Subdivision Plan


Lot 100
D.P. 863828
"TIMBERTOP" RESERVE
COUNCIL BOUNDARY
6M WIDE
FIRE TRAIL
LOT 27 (15,483m²) DEDICATED TO COUNCIL
Lot 101
4.172ha
D.P. 863828
HAMPTON
CRESCENT
FOOTPATH
D.P. 808072
LEGEND:
CPW RETAINED AND DEDICATED TO COUNCIL
FIRE TRAIL
THEORETICAL BZ BUILDING ZONE
APZ
GRAPHIC SCALE
BTG
Goldsmith Planning Services Pty Ltd
FITZPATRICK INVESTMENTS PTY LTD
LOT 101 HAMPTON CRESCENT
PROSPECT
26 LOT SUBDIVISION PLAN

SCHEDULE 3
Authorised Representatives

Party	**Details**
Developer	Name: Jamie Stewart Address: 22-24 Junction St, Forest Lodge Fax: 9566 2922 Telephone: 9566 2800
Council	Name: Address: Fax: Telephone:

SCHEDULE 4
Environmental Certificate

Environmental
ABN 36 926 003 197

21st April 2009

DL2241

Mr Jamie Stewart
Fitzpatrick Investments Pty Ltd
22-24 Junction St, Forrest Lodge,
NSW 2037

Dear Sir

Re: Asbestos Clearance for Lot 101 Hampton Crescent, Prospect

David Lane Associates, at the request of Mr Jamie Stewart of Fitzpatrick Investments Pty Ltd, conducted an inspection of the site at Lot 101 Hampton Crescent, Prospect. The visual inspection was conducted on Thursday 16th April following the removal of approximately 5-7.5kg of previously identified bonded asbestos fragments. The bonded asbestos fragments had been identified predominantly along the dirt tracks crossing the area. The most likely cause being associated with "fly dumping" of building materials.

This investigation was conducted in accordance with Part 11; "Clearance to Reoccupy an Asbestos Work Area" of the NOHSC: 2002 *Code of Practice for the Safe Removal of Asbestos – 2nd Edition* 2005. The visual inspections were conducted in accordance with the NSW EPA *Contaminated Sites: Sampling Design Guidelines*, September 1995.

The Asbestos Contaminated Areas at the Prospect Site was subjected to a visual inspection on 16th April, which entailed walking all tracks and open areas on the site, including those where asbestos fragments had been identified on a previous inspection of the site. Results of the visual inspections are listed in **Table 1.**

Refer to **Figure 1** *Site Layout*

Table 1: Visual Inspection Details

Date	Location	Result
16th April 2009	P1-1	No visible Asbestos fragments
16th April 2009	P1-2	No visible Asbestos fragments
16th April 2009	P1-3	No visible Asbestos fragments
16th April 2009	P1-4	No visible Asbestos fragments
16th April 2009	P1-5	No visible Asbestos fragments
16th April 2009	P1-6	No visible Asbestos fragments
16th April 2009	P1-7	No visible Asbestos fragments
16th April 2009	P1-8	No visible Asbestos fragments
16th April 2009	P1-9	No visible Asbestos fragments

Conclusions

It is concluded that the asbestos fragment removal and subsequent detailing of the site has been successfully undertaken and has created a safe environment for both access and future works.

The clearance inspections are satisfactory and indicate that all asbestos containing materials identified in the previous inspections have been successfully removed from the Lot 101 Hampton Crescent, Prospect site. The Site can now be accessed without risk to health or the environment generally.

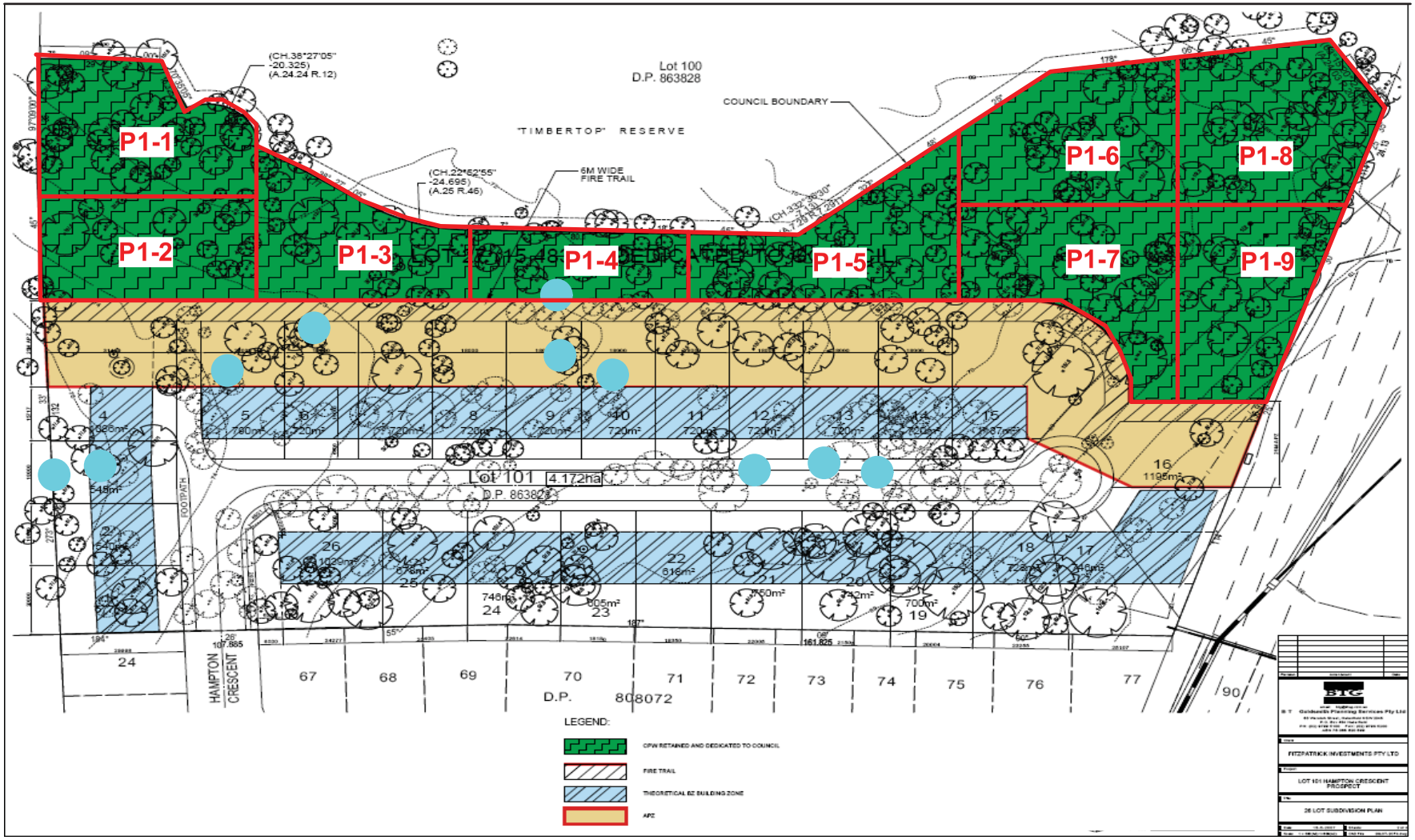
Due to the nature of material it is never possible to guarantee every fragment of asbestos containing material has been removed. In the unlikely event that soil disturbance uncovers a fragment of an asbestos containing material, given its bonded matrix and isolated nature, this event would not pose an unacceptable health risk or environmental concern for the property.

Yours Faithfully
DAVID LANE ASSOCIATES

David Lane
Director

Figure 1

Site Layout



Identified Asbestos Fragments

DAVID LANE ASSOCIATES	Site Layout - Fitzpatrick Investments Pty Ltd	Figure No: 1	Date:10/03/09
Newcastle Office Phone (02) 4949 3800 Fax (02) 4949 3811 / Sydney Office Phone (02) 9517 1153 Fax (02) 9517 3188	Scale	Sheet 1 of 1	Revision

SCHEDULE 5
Plan of Management

CLIENTS | PEOPLE | PERFORMANCE

Report for Blacktown City Council

Timbertop Reserve

Draft Plan of Management

June 2010

Revision 3

INFRASTRUCTURE | MINING & INDUSTRY | DEFENCE | PROPERTY & BUILDINGS | ENVIRONMENT

Acknowledgement

This draft Plan of Management has been prepared by GHD Pty Ltd

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Contents

Table Index

Appendices

1. Introduction

1.1 Background

This Plan of Management (PoM) for Timbertop Reserve, Prospect has been prepared by GHD Pty Ltd (GHD) on behalf of Fitzpatrick Investments for Blacktown City Council (BCC). The current Timbertop Reserve will have additional lands gazetted as part of the approval for the proposed Timbertop Residential Development. Conservation lands associated with the development (immediately adjacent to the existing reserve) will be donated to BCC thereby increasing the size of the reserve.

The reserve is a valuable local resource for biodiversity and community interaction. The reserve includes a significant 'patch' of Cumberland Plain Woodland (CPW) (see DECCW description contained as Appendix B) vegetation and provides the community with opportunities to interact with the natural environment.

A Draft PoM was prepared for the Timbertop Reserve in 2002 but was not adopted. A condition of consent for the proposed Timbertop Development included preparation of a Draft PoM for the lands to be gazetted to Council. It was considered unnecessary to have two PoM's for the site and, as such, GHD has prepared a draft PoM with the inclusion of all lands included in Timbertop Reserve to be adopted by BCC.

Lands referred to within this report have been the subject of a recent Land and Environment Court Case (Ref No. 08/10579) in regards to Timbertop Residential Development. As a result, this PoM has been prepared to satisfy Section D, Annexure A - Conditions of Consent (Appeal 10579 of 2008).

The PoM complies with the requirements of the Local Government (Community Land Management) Act 1998.

1.2 Land to Which this Plan Applies

This PoM refers to two adjoining portions of land located at Prospect, NSW:

- Timbertop Reserve (existing lands located on Lot/Deposited Plan - 10/259194, 11/259194, 50/253744, 10/628842, 4/564611, 203/612608, 26/259750, 20/258332, 25/259750, 501/815303, 104/620230, 6/259332, 106/801216, 105/801216, 89/747799, 21/595117, 22/595117, 592/587130, 591/587130, 58/250403, 100/863828, 90/803853, 100/863828, 91/803853.
- Dedicated lands (Part Lot 101 in DP 863828).

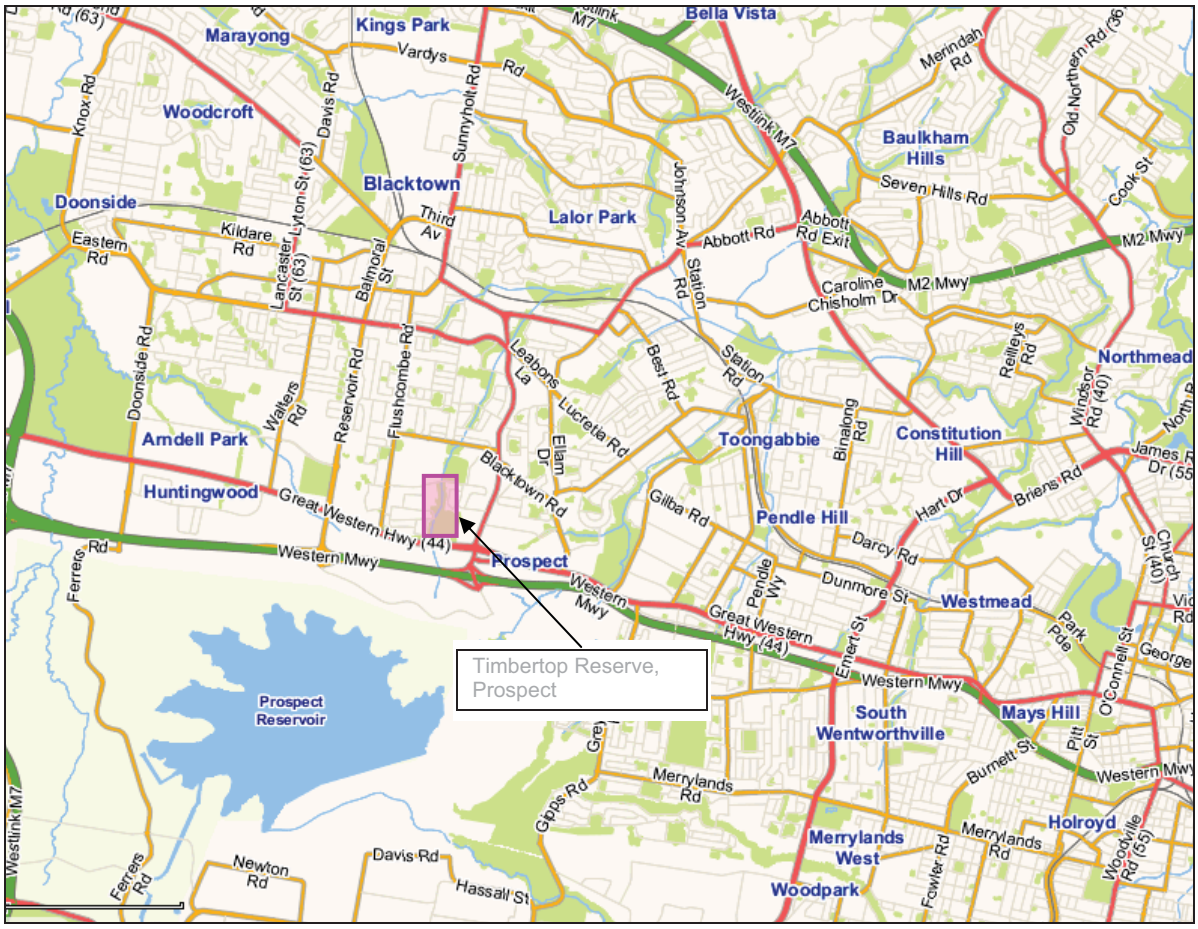

Figure 1 Site Location

1.3 Description of Key Terms

The following key terms are used throughout the PoM.

- ***Regeneration*** - Refers to natural regeneration of the vegetation community.
- ***Bush regeneration*** - Refers to techniques used to assist and promote natural regeneration without utilising plant material propagated in nurseries.
- ***Revegetation*** - Refers to the planting of tube stock or similar grown from local provenance seed to re-establish vegetation.
- ***Restoration*** - Refers to a combination of restoration activities and management techniques to restore native vegetation.
- ***Establishment*** - Refers to the minimum three year maintenance program applied to revegetation work to ensure plant establishment.

1.4 Study Process

1.4.1 Relevant Assessments

The PoM has been prepared following a review of the following information pertaining to the dedicated lands:

- Statement of Environmental Effects (BTG Planning, July 2007).
- Species Impact Statement (Kevin Mills & Associates, 2005).
- Bushfire Assessment Report (GHD, 2007).
- Snail Translocation Plan (GHD, October 2008).
- Draft Vegetation Management Plan (GHD, October 2008).
- Asbestos Clearance Certificate (DLA Environmental, April 2009).

Additionally for Timbertop Reserve, GHD have reviewed and incorporated information from the following document:

- Blacktown City Council, Timbertop Reserve Draft Plan of Management, 2002.

This PoM has taken into consideration the issues raised and outcomes in the above documents to provide an overall management framework for Timbertop Reserve, including the dedicated lands following gazettal.

1.4.2 Site Visit and Previous Studies

Dan Williams, Principal Environmental Consultant of GHD attended the site on 9th October 2009 to verify and update as necessary, the ecological information contained within the Timbertop Reserve Draft Plan of Management (BCC, 2002). Additionally, there have been numerous studies completed regarding Timbertop Reserve and the associated conservation lands during the approval process for the proposed development. The results of these investigations have also been used to prepare this PoM.

1.4.3 Mapping

Plans for the reserve have been prepared for the site in accordance with BCC PoM guidelines and include ecological information, land categories, management units and rehabilitation requirements.

1.5 Report Structure

The PoM is presented in Blacktown Council's standard format. The contents of each section are outlined in Table 1 below:

Table 1 Report Structure

Section	Time-frame for review	Contents
1.	5 years	*Background Information on Timbertop Reserve*
2.	5 years	*Planning Context* State Government legislation and Council planning context to provide the legal framework for the PoM to operate.
3.	5 years	*Site Description* Detailed through the Legal description, Cultural and historic description and Physical description.
4.	5 years	*Basis for Management* Provided by describing the objectives for open space management, community values and desired outcomes, vision statement, the role of the reserve and management objectives.
5.	5 years	*Management Strategies* This section identifies management strategies and an action plan for the reserve in a tabulated format.
6.	5 years	*Implementation and Review* Detailed through description of future use and development, leases and licenses, process for implementation and a timeframe for review of the PoM.

2. Planning Context

2.1 State Government Legislation

2.1.1 NSW Environmental Planning and Assessment Act 1979 and Regulation 2000

The main law regulating land use in NSW is the Environmental Planning and Assessment Act 1979 (EPA Act). The Act is administered by the NSW Department of Planning. The Minister responsible for the Act is the Minister for Planning (Planning Minister).

The EPA Act allows plans to be made (environmental planning) to guide the process of development and to regulate competing land uses.

The EPA Act, allows three different types of environmental plans to be made:

- Local environmental plans (LEPs).
- State Environment Planning Policies (SEPPs).

Collectively, these plans are called Environmental Planning Instruments (EPIs).

2.1.2 SEPP 19 – Bushland in Urban Areas

State Environmental Planning Policy No.19 - Bushland in Urban Areas (SEPP 19) aims to, amongst other things, “protect and preserve bushland” within the urban areas of Sydney (Department of Planning 1986). The policy applies where natural vegetation remains or vegetation representative of the structure and floristics of natural vegetation exists. The bushland contained within Timbertop Reserve must be managed in accordance with the aims and objectives of the SEPP.

2.1.3 SEPP 29 – Western Sydney Recreation Area

State Environmental Planning Policy No. 29 – Western Sydney Recreation Area aims to, amongst other things, “to enable the carrying out of development for recreational, sporting and cultural purposes within the Western Sydney Recreation Area (area of state significance)”.

The Timbertop Reserve PoM is consistent with the aims and objectives of the SEPP.

2.1.4 Local Government Act

The *NSW Local Government Act 1993* provides the legislative framework for Council’s day-to-day operation. The Act places emphasis on a council’s responsibility to actively manage land and to involve the community in developing a strategy for management. Section 26 of the Local Government Act requires all public land must be classified. In accordance with this, Timbertop Reserve is classified as Community Lands.

The Local Government Act requires all Community Lands to be covered by a PoM, which must identify:

- The category of the land (Section 2.1.2).
- Objectives and outcomes for the land (Section 4.1 - 4.4).

- The means by which Council proposes to achieve objectives and outcomes (Section 5).
- The way by which Council proposes to assess its performance (Section 6).

The nature and use of Community Land may not change without an adopted PoM.

Additionally, the requirements of the Act stipulate that a Draft PoM must be placed on public exhibition for a period of 28 days with a further 14 days allowed for public comment. The matter must then be reported back to Council incorporating feedback from the exhibition process (as appropriate) for final endorsement. AS part of the public exhibition process, the PoM will be distributed for public comment to BCC's Civic Centres; BBC's Libraries and webpage; within local newspapers; to local residents surrounding the reserve and to any identified stakeholder/s.

This plan is consistent with that required under the legislation and shall be completed in consultation with BCC and adopted following due process.

2.1.5 Local Government Regulation

All Council property classified as Community Land is required to be categorised in accordance with the guidelines for categorisation listed in the Local Government (General) Regulation, Section 102. The guidelines for categorisation as Natural Area are included below. There are several subcategories (Bushland, Wetland, Escarpment, Watercourse and Foreshore) with respective guidelines for categorisation.

Table 2 Guideline for Community Lands Classification Relevant to Timbertop

Category	Guidelines for Categorisation
Natural Area	The land (whether in an undisturbed state or not) possesses a significant geological feature, geomorphological feature, landform, representative system or other natural feature or attribute that would be sufficient to further categorise the land as bushland, wetland, escarpment, watercourse or foreshore.
Park	The land is used or proposed to be, improved by landscaping, gardens or the provision of non-sporting equipment and facilities, for use mainly for passive or active recreational, social, educational and cultural pursuits that do not unduly intrude on the peaceful enjoyment on the land by others

In accordance with the Local Government (General) Regulation 2005, the Plan of Management categorises the majority of Timbertop Reserve as a Natural Area – Bushland complying with the core objectives for management as stated in the Local Government Act 1993. A small area of the reserve is proposed for passive recreation (an area near the drainage line on the western boundary) and would be categorised as park (see Figure 3, Appendix A).

2.1.6 Threatened Species Conservation Act 1995

The objectives of the NSW *Threatened Species Conservation Act* (TSC Act) 1995 are:

- To conserve biological diversity and promote ecologically sustainable development.
- To prevent the extinction and promote the recovery of threatened species, populations and ecological communities.

- To protect the critical habitat of those threatened species, populations and ecological communities that are endangered.
- To eliminate or manage certain processes that threaten the survival or evolutionary development of threatened species, populations and ecological communities.
- To ensure that the impact of any action affecting threatened species, populations and ecological communities is properly assessed.
- To encourage the conservation of threatened species, populations and ecological communities by the adoption of measures involving co-operative management.

The TSC Act includes schedules that list threatened species, populations and ecological communities and key threatening processes.

2.2 Other Relevant Legislation

The following is a list of other relevant NSW legislation to the Timbertop Reserve:

- National Parks and Wildlife Act 1974.
- National Parks and Wildlife Wilderness Act 1987.
- Protection of the Environment Operations Act 1997.
- Contaminated Land Management Act 1997.
- Heritage Act 1977.
- Rural Fire Service Act Amended 2002.

2.3 Commonwealth Legislation

2.3.1 Environmental Protection and Biodiversity Conservation Act 1999

The Commonwealth *Environment Protection and Biodiversity Conservation Act* (EPBC Act) makes it an offence for a person to undertake an action that has the potential to significantly impact on a matter of 'national environmental significance' without first obtaining a permit from the Commonwealth Minister for Environment and Heritage. Matters of national environmental significance include: declared World Heritage areas; declared Ramsar wetlands; listed threatened species and ecological communities; listed migratory species; listed marine species; nuclear actions; and the environment of Commonwealth marine areas.

2.3.2 Disability Discrimination Act 1992

The objects of this Act are:

(a) To eliminate, as far as possible, discrimination against persons on the ground of disability in the areas of:

(i) Work, accommodation, education, access to premises, clubs and sport.

(ii) The provision of goods, facilities, services and land.

(iii) Existing laws.

(iv) The administration of Commonwealth laws and programs.

(b) To ensure, as far as practicable, that persons with disabilities have the same rights to equality before the law as the rest of the community.

(c) To promote recognition and acceptance within the community of the principle that persons with disabilities have the same fundamental rights as the rest of the community.

The Commonwealth Disability Discrimination Act 1992 allows for individuals to make comment if they believe they have been unfairly treated because of their disabilities.

Disability is a functional limitation within the individual caused by physical, intellectual, emotional or sensory impairments.

Council's aim is to make parks accessible through thoughtful design, including but not limited to park furnishings, public facilities, pathways and crossings. Passive infrastructure proposed for the reserve will consider this objective.

2.4 Local Planning Context

2.4.1 Council's corporate goals

Blacktown City Council's Vision and Mission Statements '*Blacktown City 2025 - Delivering the Vision Together'* underpin its strategic direction and influence all actions Council takes in providing the best possible living and working environment for the Blacktown community.

Vision Statement
To be a vibrant, healthy and safe City – A City of Excellence.

Mission Statement
To provide our community with the best living and working environment through commitment to service.

GHD has considered these aspirations in preparing the PoM.

2.4.2 Council's open space and recreation objectives

The following objectives in relation to the planning and provision of open space and recreational facilities throughout Blacktown are identified in BCC's 2007 - 2010 Management Plan; Bushland Revegetation and Regeneration Strategy; Open Space Maintenance Strategy and Recreation and Open Space Strategy, as follows:

- To provide recreational and community services that reflect the changing demographics and lifestyles of our residents.
- To provide public open spaces that meet the social and environmental needs of our City.

2.4.3 Community Values and Demographics

The local community has had the opportunity to interact with Timbertop Reserve over a long period of time. This integration has led to the community having 'intrinsic values' and appreciation for the amenity of Timbertop Reserve. The reserve has long provided an opportunity for people to interact with the natural environment. As such, Timbertop Reserve is viewed as an important feature on the regional landscape and these values must be respected in future planning and management.

Natural Values

Timbertop Reserve contains remnant Cumberland Plain Woodland (a listed Critically Endangered Ecological Community (CEEC) under both the TSC Act and the EPBC Act) vegetation and associated fauna habitat within a largely urban environment. The reserve is an important habitat resource for many birds and includes a diverse range of local flora species. The site also contains a population of the Cumberland Plain Land Snail, a species listed as vulnerable under the NSW Threatened Species Conservation Act 1995.

Educational Values

The sites ecology offers educational opportunities to the local community. The ecology of the reserve is typical of that found throughout Blacktown LGA and the broader Western Sydney. Maintaining the general publics interaction with the natural environment will assist in improving the community's understanding of the importance of biodiversity 'hot spots' such as Timbertop Reserve.

Recreational Values

Timbertop Reserve provides an important opportunity for the local community to interact with the natural environment. The site is regularly used by bushwalkers and the community operate a 'bush care' group, helping rehabilitate native vegetation. Integration of recreation and conservation allows people to develop a greater appreciation of the 'natural environment', creating a feeling of 'community stewardship'.

Demographics Summary

Blacktown City Council's Suburb Profile based on 2006 census data describes Blacktown as a suburb with high proportions of people who are born in a non-English speaking country (40% as opposed to the national average of 22%).

The Suburb Profile provides the following summary information for Blacktown in 2006:

- A population of 39,097 people, equivalent to a 3% increase on the 2001 census data.
- A relatively young population, with over 73% aged less than 50 years. A large proportion of the population resided in couple family households with children (48%).
- The population was of low middle-class background, with a high representation in middle-ranged weekly incomes, relatively low tertiary qualification achievements, a high proportion of dwellings being purchased, and high accessibility to private vehicles.

3. Description of Reserve

3.1 Legal Description

The planning and cadastral details of the subject site are provided below in Table 3 and shown on Figure 1.

Table 3 Legal Description

Timbertop Reserve	Existing lands	Dedicated lands
Title Information	The land parcels listed below under categorisation (Lot/DP No.) are within the existing boundaries of Timbertop Reserve.	Part Lot 101 in DP 863828
Ownership	Blacktown City Council	To be gazetted to Blacktown City Council.
Location	Norman Street, Prospect	Hampton Crescent, Prospect
Total Area	100,000 m^2	15,473 m^2
Zoning	Public Open Space (6)	Residential
Classification (LGA)	Community Land	N/A
Categorisation (LGA)	◗ 10/259194, 11/259194, 50/253744, 10/628842, 4/564611, 203/612608, 26/259750, 20/258332, 25/259750, 501/815303, 104/620230, 6/259332, 106/801216, 105/801216, 89/747799, 21/595117, 22/595117, 592/587130, 591/587130, 58/250403, 100/863828, 90/803853, 100/863828, 91/803853	Bushland

3.2 Land Use Zones

The following zones have been identified for the purpose of describing the future management and land use of different areas throughout the reserve. These terms are used throughout the PoM:

- ***Dedicated Lands*** – Refers to the conservation land associated with the Timbertop Development that will be gifted to BCC for addition to the existing Timbertop Reserve.
- ***Conservation Lands*** – Refers to those lands within the reserve including remnant Cumberland Plain Woodland vegetation.
- ***Revegetation Zone*** – Refers to those lands where CPW will be restored through revegetation works.
- ***Recreational Lands*** – Refers to the area of land supporting infrastructure encouraging community use (i.e. the cleared area next to the western drainage line and the network of walking tracks.
- ***Creek line*** – The riparian land associated with the small creek on the western boundary of the site.

The locations of each zone is shown in Figure 2, Appendix A

3.3 Cultural and Historic Description

The following information is drawn from the draft Timbertop Plan of Management (BCC, 2002).

The area was historically the eastern boundary of the Darug peoples homeland which extended across much of the Cumberland Plain lowlands and into the Blue Mountains and sandstone ridge plateaus to the north of the Hawkesbury River.

No records have been located that indicate any comprehensive archaeological survey being conducted on the site in the past and no records of Aboriginal sites being located on the reserve are listed with the DECCW.

This is not to mean however that the area does not contain evidence of Aboriginal use or occupation, rather that the site has not been investigated. The proximity of the site to the upper reaches of Blacktown Creek and its location on higher ground could indicate the area might have been used. The lack of rock shelters on the site indicates the area may have contained “open sites” (ie general base camps, wood working sites and hunting sites).

Given the range of activities that have occurred on the site in the recent past and the level of modification to the landscape, particularly along the creek line, it is likely that few if any undisturbed Aboriginal sites may remain.

The site has been identified as having potential conservation significance (BCC, 2002).

3.4 Physical Description

3.4.1 Climate

The Commonwealth Bureau of Meteorology website provides the following climatic information recorded and summarised from the Prospect Reservoir weather station. Mean monthly rainfall peaks in summer with mean rainfall being 872 mm per year. Mean maximum daily temperatures range from 27.8 °C in summer to 17.6°C in winter.

3.4.2 Landforms and Soils

Soil types of the Blacktown area are variable but dominated by Bringelly Shales of the Wianamatta Series formation. The basic soil type is dense, moist podsolic clay of varying colour. Limitations of the Blacktown soil types generally include high erodibility, strong acidity, hard setting, low moderate fertility, occurrence of aluminium toxicity and some localised salinity problems.

3.4.3 Vegetation

Three vegetation zones are present on Timbertop Reserve. These are;

- Remnant stands of Shale Plains Woodland (SPW) (a sub-community of Cumberland Plain Woodland) vegetation, listed as CEEC's under both the *TSC Act 1995* and the *EP&BC Act 1999*.
- A restored riparian zone, with revegetation works typical of a River Flat Eucalypt Forest community.
- A cleared zone, essentially exotic grassland with no shrub or canopy structure.

Noxious Weeds

The following weeds observed on site are declared as noxious within the Blacktown LGA. Treatment of these weeds throughout the reserve will be a priority of the management program. A complete list of weeds identified as noxious within the Blacktown LGA is included as Appendix E.

Table 4 Noxious Weeds at Timbertop Reserve

Botanical Name	Common Name	Category
Lycium ferocissimum	African boxthorn	C4
Olea europaea subsp. *africanus*	African olive	C4
Class 1 - State Prohibited Weed. Class 1 weeds are also notifiable weeds.		
Class 2 - Regionally Prohibited Weed. Class 2 weeds are also notifiable weeds.		
Class 3 - Regionally Controlled Weed.		
Class 4 - Locally Controlled Weed.		
Class 5 - Restricted Weed. Class 5 weeds are also notifiable weeds.		

3.4.4 Fauna

A range of fauna including birds, bats and the Cumberland Plain Land Snail (CPLS) (*Meridolum corneovirens*) are known to utilise the site. Most fauna recorded are transient as the vegetation is young and, as such, available habitat such as hollows and woody debris is limited. The most significant fauna species is the CPLS. This species is listed on the TSC Act and a potential viable population inhabits the site. Future management actions will seek to improve the available habitat for the snail and therefore, help maintain the viability of the population into the future.

3.4.5 Threatened Species

Timbertop Reserve includes several ecological species/communities listed under the TSC Act 1995, these include:

- Cumberland Plain Woodland (including the sub-community Shale Plains Woodland) – this vegetation community is listed as critically endangered under the Act with a preliminary determination proposing to 'raise' this listing to critically endangered.
- *Dillwynia juniperina* – this plant species is listed as 'vulnerable' under the Act.
- *Pultenea microphylla* – this plant species listed as 'vulnerable' under the Act.
- *Meridolum corneovirens* – this fauna species is listed as 'endangered' under the Act.

The presence of these ecological values adds to the conservation significance and, therefore, the focus of the management of Timbertop Reserve on conservation outcomes.

3.4.6 Built Environment

Timbertop Reserve is essentially a bushland reserve within a largely developed suburban residential area. Passive recreation facilities (i.e. bushwalking tracks) are presently the only permissible infrastructure located within the Reserve.

In the past, the site was largely used as an illegal dumping ground. While little evidence remains of this past practice, the Reserve is intersected by numerous unlawful vehicle tracks and access paths that continue to create environmental management problems.

Blacktown City Council maintains the cleared area of the reserve to allow passive recreation uses. The lands to the west, bounded by the Great Western Highway, are primarily road easements and are currently maintained by BCC.

3.4.7 Access and Surrounding Land Uses

Public access to the Reserve is via the unconstructed section on Norman Street road reserve. The boundaries of the existing Timbertop Reserve lands are secured by a chain link fence maintained by BCC.

Council has locked gates at either end of the Norman Street road reserve to prevent vehicle entry to the Reserve.

The dedicated lands on the northeast of the Reserve will be bounded via a fire trail boundary fence, with locked gates secured by the NSW Rural Fire Service.

3.4.8 Visual Character and Maintenance

Visually, the eastern portion of Timbertop Reserve and the dedicated lands are dominated by semi-mature woodland regrowth of Shale Plains Woodland. Limited bush regeneration works have been carried out within this area, due to the moderate to good quality of vegetation. The canopy is within the 10 to 25 metre range.

To the west of the site, regeneration and revegetation activities have been undertaken along Blacktown Creek to create a link between Timbertop Reserve and William Lawson Reserve wetland, these works have included the establishment of 'No Mow' areas and the planting of 8,000 trees, shrubs and grasses between the Great Western Highway and Myrtle St, Prospect. This area is subject to heavy weed infestation.

A cleared, grassed zone within the northwest portion of the site is currently being considered by council to be developed as an active recreation area.

4. Basis for Management

4.1 Local Government Act objectives for Open Space Management

The Local Government Act outlines a number of core objectives for management related to community lands. The objectives for Timbertop Reserve, under the Natural Area classification are described below:

- To conserve biodiversity and maintain ecosystem function in respect of the land, or the feature or habitat in respect of which the land is categorised as a natural area.
- To maintain the land, or that feature or habitat, in its natural state and setting.
- To provide for the restoration and regeneration of the land.
- To provide for community use of and access to the land in such a manner as will minimise and mitigate any disturbance caused by human intrusion.
- To assist in and facilitate the implementation of any provisions restricting the use and management of the land that are set out in a recovery plan or threat abatement plan prepared under the Threatened Species Conservation Act 1995 or the Fisheries Management Act 1994.

Further objectives for land categorised as bushland are:

- To ensure the ongoing ecological viability of the land by protecting the ecological biodiversity and habitat values of the land, the flora and fauna (including invertebrates, fungi and micro-organisms) of the land and other ecological values of the land.
- To protect the aesthetic, heritage, recreational, educational and scientific values of the land.
- To promote the management of the land in a manner that protects and enhances the values and quality of the land and facilitates public enjoyment of the land, and to implement measures directed to minimising or mitigating any disturbance caused by human intrusion.
- To restore degraded bushland.
- To protect existing landforms such as natural drainage lines, watercourses and foreshores.
- To retain bushland in parcels of a size and configuration that will enable the existing plant and animal communities to survive in the long term.
- To protect bushland as a natural stabiliser of the soil surface.

4.2 Council's Goals and Objectives for Open Space Management

Blacktown City Council's 2009 - 2012 Management Plan. 2025- Delivering the Vision Together. Bushland Revegetation and Regeneration Strategy. Open Space Maintenance Strategy and Recreation and Open Space Strategy identifies the following objectives in relation to the planning and provision of open space and recreational facilities throughout Blacktown generally:

- Manage and develop facilities to improve the function, safety and utilisation of parks and reserves for the benefit of residents and visitors.

- Provide recreational and community services that reflect the changing demographics and lifestyles of residents.
- Provide public open spaces that meet the social and environmental needs of our city.
- Specifically, for Timbertop Reserve the following objectives have been developed (BCC, 2002).
- To assist in the development of pro active land management strategies and policies for remnant Shale Plain Woodland vegetation communities.
- To establish strategies to assist in the protection, conservation, regeneration and/or restoration of those communities within Timbertop Reserve.
- To provide a means for the monitoring the environmental management of the reserve.
- To provide a means of managing Timbertop Reserve to retain the natural values inherent in the flora, fauna and landscape elements and their relationship to the local community.
- To establish a review for the Plan of Management within 5 years of Council adoption.

4.3 Inclusion of Carbon Trading

This Plan of Management permits the planting of carbon sinks and the accounting of carbon for the purposes of carbon trading. To this end, this Plan of Management authorises a lease, licence or other estate to be granted for this purpose in accordance with the requirements of the Local Government Act 1993. Furthermore, it authorises the following to be placed on the Reserve's land title, in respect of the specific carbon sink planting sites:

- Carbon Sequestration Rights.
- A restrictive covenant aimed at protecting the trees for 100 years.
- A lease, a licence or an easement providing access rights to the Carbon Pool Manager to maintain trees.

4.4 Further Objectives for Management

The following management objective for the CPLS (GHD, October 2008) is relevant to this PoM.

- To improve the receiving habitat for the CPLS and manage the current threatening processes within that receiving habitat to optimise the quality of habitat for the ultimate population within the ultimate woodland patch.

The following management objective from the Draft Vegetation Management Plan (VMP) for the dedicated lands (GHD, October 2008) are relevant to this PoM:

- To establish local vegetation characteristics.
- Provide recommendations for future management.

4.5 Community Desired Outcomes

The following community objectives for Timbertop Reserve have been drawn from public submissions in regards to the 'Timbertop Residential Development' development application process:

- Ongoing conservation and protection of the key environmental values of the Reserve.
- For condition improvement to be undertaken throughout degraded/vandalised areas of the Reserve.
- Continued access to the Reserve.
- The provision of passive infrastructure facilities and the maintenance of these amenities.

4.6 Vision or Management Statement

Timbertop Reserve will continue its current role of retaining the natural values inherent in the flora, fauna and landscape elements. The addition of the dedicated lands will increase the opportunity to achieve this aim. Regeneration activities will be undertaken (privately on the dedicated lands prior to transfer of ownership and by BCC on the remaining lands) in areas of disturbed vegetation to improve on these outcomes and also to provide greater certainty in terms of conservation of key vegetation communities and threatened species habitats'. In terms of community usage, infrastructure and ongoing maintenance, the aim is to provide a balance in management that considers conservation, access, passive and active recreation and managing the site for bushfire protection. Local community and school groups will be encouraged and supported to undertake bush regeneration and education programs within Timbertop Reserve.

4.7 Role of the Reserve

Timbertop Reserve will include a variety of land uses to perform necessary conservation, asset protection, public recreation and access functions. Land uses will comprise a mix of:

- Conservation – Existing remnant SPW vegetation.
- Regeneration – Existing remnant vegetation will be protected and rehabilitated in priority areas through bush regeneration activities.
- Revegetation – Revegetation works will be undertaken in priority areas of Timbertop Reserve to add valuable biodiversity.
- Access and Public Recreation – The implementation of the actions outlined within this PoM will improve the community usage, quality and amenity of the local environment.
- Asset Protection Zone (APZ) – This zone will be managed according to relevant guidelines.

4.8 Resourcing

Apply existing resource mechanisms to manage, maintain, promote and fund the management and maintenance of Timbertop Reserve including.

- Operational Budgets.
- Works Improvement Program.
- Capital Request Program.
- Grants Programs.
- Infrastructure Sinking Fund Program.
- Stormwater Levy.

5. Management Strategies and Action Plan

5.1 Management Strategies

The following table summarises the management issues and strategies that pertain to Timbertop Reserve.

Table 5 Management Strategies

Issue	Strategies
◗ CONSERVATION AND PROTECTION	
Presence of Shale Plains Woodland and associated key threatening processes	◗ Implement protective management regime that includes appropriate actions for SPW protection
Presence of Cumberland Plain Land Snail and associated key threatening processes	◗ Implement protective management regime that includes appropriate actions for CPLS protection
Biodiversity Conservation	Undertake regeneration activities at identified priority sites for biodiversity conservation
Fire Management for Conservation purposes	Implement appropriate fire regimes (in areas that do not conflict with asset protection) to allow build up of grass and litter layers
◗ MAINTENANCE AND MANAGEMENT	
Weeds and Exotic Species	◗ Reduce weed invasion through identification and regeneration works within priority sites
Uncontrolled Vehicle Access	Erect signage to educate users on illegal vehicle access, install and maintain appropriate fences and barriers to prevent unlawful access
Fire Management for Asset Protection purposes	Implement appropriate fire regimes in the peripheral asset protection zone to meet the required fuel standards for inner and outer protection areas in accordance with relevant bushfire protection legislation
Illegal Waste Dumping	◗ Encourage community vigilance, undertake regular water patrols and remove waste promptly
Removal of Foraging Habitat for Threatened Fauna	◗ Install appropriate structures (i.e. bollards) to prevent accidental slashing and removal of plant debris, except where required for fire management
Removal of Shelter for Threatened Fauna	◗ On-ground refuge consisting of rocks and logs, and wherever appropriate dense under-storey native vegetation should be retained where possible

Issue	Strategies
Illegal tree-felling activities	◗ Encourage community vigilance, undertake regular patrols and community awareness campaigns
Soil Erosion	◗ Implement strategies for reducing erosional features
◗ OPEN SPACE AND RECREATION	
Provision of Public Open Space and Recreational Facilities	◗ Determine appropriate facilities to meet community expectations and Council objectives for management and maintenance
Control of Pedestrian Movement	Install pedestrian barriers to guide movement within authorised pathways and limit movement in regenerating areas of the Reserve.

5.2 Action Plan

The management strategies and actions to resolve management issues are presented in the following tables. Table headings are explained as follows:

- Objective: related to objectives for the Reserve as defined in Section 4.
- Performance target: goal, objective or desired outcome for addressing issues, consistent with community value.
- Means to achieve: specific task or action required to achieve the performance target, consistent with the strategy.
- Priority: importance or urgency of the action, rated as:
  - Immediate
  - High
  - Medium
  - Low
- Assessment of performance: how Council intends to measure its performance in implementing and achieving the action.

Table 6 Action Plan

Objective	Performance Target	Means to Achieve	Priority	Assessment of Performance
CONSERVATION AND PROTECTION				
Biodiversity Conservation	To assist in the recovery, conservation and protection of rare and threatened species and communities, in particular SPW and CPLS.	To undertake regeneration/rehabilitation works within Timbertop Reserve	High	Regeneration at sites successfully underway was defined through a monitoring program (Section 6.4)
Habitat Conservation	The protection of existing wildlife habitat The recovery of habitat for native fauna and flora species	Implement habitat management program Regenerate / restore degraded habitat areas	High	Habitat areas stabilised Confirmation of native fauna and flora populations increasing
Rare, Threatened and Endangered Species or Communities	To improve the receiving habitat for the CPLS and manage the current threatening processes within that receiving habitat to optimise the quality of habitat for the population within the woodland patch.	Implementation of a protective management regime Enhancement of the litter layer and ground timber, soil profile, fallen timber and other shelter	High	Adoption and implementation of this Plan of Management

Objective	Performance Target	Means to Achieve	Priority	Assessment of Performance
	Protect Rare, Threatened and Endangered species/communities	Implement habitat restoration program	High	Habitat areas stabilised
Threatening Processes	Reduce/eliminate threatening processes at local level	Identify threatening processes at a local level	High	Ongoing reduction in threatening processes
Bushland regeneration	To assist in the ongoing recovery, conservation and protection of natural areas within the Reserve. The term refers to techniques used to assist and promote natural regeneration without utilising plant material propagated in nurseries.	Undertake bush regeneration in sites identified for priority protection and restoration	Medium	Success of regeneration within sites to be assessed via an audit process
MAINTENANCE AND MANAGEMENT				
Weed Control	Identification of weed species of concern in remnant bushland, including any native 'non endemic' species Target removal of high impact woody weed species	Undertake detailed weed survey throughout the Reserve Develop action plan for high priority species Undertake weed control on Reserve on a priority basis using appropriate techniques	High	Survey undertaken and results disseminated to relevant Council staff Action plan completed and incorporated into a maintenance program Reduced weed infestation to be assessed through an audit process

Objective	Performance Target	Means to Achieve	Priority	Assessment of Performance
	Controlled removal of perennial weed species from remnant bushland on priority basis with minimum disturbance to natural communities Reduce incidence of weed introductions to bushland through garden refuse, soil and waste materials	Develop education program for residents on importance of remnant bushland and proper disposal of garden refuse		Reduced incidence of weed invasion from adjoining properties and through dumping
Vegetation Management	To retain the natural values inherent in the flora and landscape elements of the site	No indigenous vegetation to be removed without investigation of its significance to the site	Medium	Structure and ecological integrity of vegetation maintained
Off Site Stormwater	Manage stormwater in accordance with council's Stormwater Management Plan and relevant legislation	Design and divert discharge flows of stormwater away from bushland areas No new direct discharge of road or property drainage into bushland areas Pipe discharges into bushland areas to have water dissipators designed to slow discharge velocity	Medium	Reduction in sediment and nutrient loads entering bushland sites Reduction in erosion stemming from discharge of stormwater to the Reserve

Objective	Performance Target	Means to Achieve	Priority	Assessment of Performance
Soil Erosion	On site soil erosion to be reduced through application of best practice controls on soil movement, transport and protection during any development works and increased vegetative cover	Retrofit existing discharge pipes with dissipation and stilling devices Implement sound sedimentation controls on off site developments Identify erosional features in the priority site for regeneration works	Medium	Reduction in erosion
Fire Management for asset protection	Suitable access for fire management and suppression purposes	For the existing lands within Timbertop Reserve, implement appropriate fire regimes in the peripheral asset protection zone (APZ) to meet the required fuel standards for inner and outer protection areas in accordance with relevant bushfire protection legislation For the dedicated lands, the APZ and fire trail to be managed in accordance with recommendations outlined in the Bushfire Assessment Report (GHD, 2007).	High	Fire management for asset protection to be implemented and managed in accordance with current standards for APZ's and in accordance with relevant approval processes.

Objective	Performance Target	Means to Achieve	Priority	Assessment of Performance
Collection of Seed and Other Plant Material	To eliminate the uncontrolled collection of plant material including seed, cuttings, and fruit in the Reserve	Prohibit collection of this material from the Reserve unless specifically authorised by, and with expressed permission of Council, and where necessary, DECCW license approval	Medium	
Collection of Firewood, Leaf Litter, Bushrock, Other Stone, Gravel and Soil	To prevent the removal of habitat material for native fauna species, in particular CPLS	Prohibit collection of on-ground refugia consisting of rocks and logs from the Reserve	Medium	
Illegal Waste Dumping	To reduce the incidence of illegal waste dumping, which reduces visual amenity, increases the potential for contamination and introduces weed species	Encourage community vigilance, undertake regular litter patrols and remove waste promptly	Medium	Reduction in litter and waste within the Reserve to be assessed via an audit process
Illegal tree-felling activities	◗ To reduce the incidence of unlawful tree-felling, which reduces available habitat, visual amenity and vegetation structure	Encourage community vigilance, undertake regular patrols and community awareness campaigns	High	Reduced incidence of unauthorised tree-felling and clearing activities of vegetation along within the Reserve and along property boundaries

Objective	Performance Target	Means to Achieve	Priority	Assessment of Performance
OPEN SPACE AND RECREATION				
Recreation Facilities	Provision of appropriate facilities (subject to site specific approvals dependent upon investigations to determine the level and nature of disturbance to the area)	Determine and develop appropriate facilities to meet community expectations and Council objectives for management and maintenance	High	Increase in community usage of the Reserve for lawful, active recreational activities
Walkways and Paths	Provision of walkways and pathways that have minimal disturbance on the vegetation, minimise runoff and erosion, provide a safe, durable walking surface and provide effective non vehicular access to all members of the community (suitable for disabled access).	Design and construct pathways to standard outlined in this PoM.	Medium	Increase in community usage of the Reserve for lawful, passive activities Decrease in damage to landscape and reduced incidence of vehicle vandalism Decrease in soil erosion
Gates and Fences	Provision of gates and fences that have minimal disturbance on the vegetation and provide an effective balance between efficient access suitable for all members of the community and security to the site.	Design gates and access points at a suitable number of key sites. Design and construct fences on reserve boundary to prohibit the entry of unauthorised vehicles from high quality vandal proof materials.	High	Increase in community usage of the Reserve for lawful activities Decrease in vandalism and unauthorised access. Reduction in vegetation damage and habitat loss

Objective	Performance Target	Means to Achieve	Priority	Assessment of Performance
		Undertake regular inspections of all fences and gates to ensure security.		Structure and ecological integrity of regeneration sites maintained
Signage	Provision of suitable signage throughout the Reserve to assist in the community awareness of environmental management and educate against unlawful activities.	Design and install clear contemporary signage at entry points and within reserve.	Medium	Increased awareness of areas natural heritage Positive feedback from the Community Decrease in unlawful use of the Reserve
Vehicle Access Including: Cars. Motorcycles. and Mountain bikes.	Vehicle use in the reserve is restricted to authorised users including Council staff or contractors on Council business, including APZ management Motorcycles are not permitted on land covered by this PoM	Install locked vandal resistant access gates at points on perimeter fence Investigation of appropriate recreational reserve usage.	High	Unauthorised vehicle use eliminated Reduction in vegetation damage, habitat loss and soil erosion

Objective	Performance Target	Means to Achieve	Priority		Assessment of Performance
Community Organisations	Community environment organisations such as local landcare groups to be encouraged to undertake regeneration and restoration works in the Reserve in partnership with Council The use of reserves is permitted for educational and scientific study purposes with express permission of Council, (and in accordance with any scientific licenses required)	Work with "Friends of Timbertop Reserve" landcare group to work within the Reserve Council to develop strategy to encourage local schools to use the Reserve for educational tasks	Medium		Bushcare group established Local schools and organisations undertaking education activities within the Reserve
INFRASTRUCTURE MAINTENANCE					
Easement maintenance	Continue mowing existing grassed areas on road easements.	Council to develop appropriate maintenance program. Ensure council staff is aware of easement boundaries.	Medium		

Objective	Performance Target	Means to Achieve	Priority		Assessment of Performance
Weed control	Identification of weed species of concern in easement, including any native 'non endemic' species Target removal of high impact woody weed species Controlled removal of perennial weed species from easement lots	Undertake weed control on easement on a priority basis using appropriate techniques Develop education program for residents on importance of remnant bushland and proper disposal of garden refuse	Medium		Reduced weed infestation to be assessed through an audit process Reduced incidence of weed invasion from adjoining properties and through dumping
Existing Tree Protection	Ensure existing trees are protected from any weed control measures and mowing	No indigenous vegetation to be removed without investigation of its significance to the site	High		

6. Implementation and Review

6.1 Future Use and Development

In the long term, the retention of pockets of native vegetation in urban parks/reserves will be critical to the ecological function of these landscapes and provide an important jumping point for the more mobile wildlife. As the surrounding locality is highly urbanised, the presence of open space areas becomes more valuable. Future landscaped facilities may need to be upgraded or changed to reflect the changing needs of local residents.

Cumberland Plain Woodland is an EEC and the conservation value of this vegetation is only likely to increase as remnant parcels become more fragmented within the local catchment. Additionally, the reserve contains a potentially viable population of the Cumberland Plain Land Snail, a listed species under the Threatened Species Conservation Act 1995.

To assist in the conservation of CPW and to maintain the snail population, no further development will occur surrounding the reserve.

6.2 Leases and Licenses

No lease, licence or other estate may be granted in respect of the land for portions of the reserve categorised as “natural – bushland”. For the purposes of section 46 (1) (b) (iii) of the Local Government Act 1993, the use or occupation of community land for the following events is prescribed as a purpose in respect of which a council may grant a licence in respect of community land on a short-term, casual basis:

(a) The playing of a musical instrument, or singing, for fee or reward.

(b) Engaging in a trade or business.

(c) The playing of a lawful game or sport.

(d) The delivery of a public address.

(e) Commercial photographic sessions.

(f) Picnics and private celebrations such as weddings and family gatherings.

(g) Filming sessions.

(h) The agistment of stock.

However the agistment of stock would be contrary to the protection and restoration of Shale Plain Woodland, and as such a licence application for this purpose is not likely to be granted.

A licence from DECCW to collect seed from the Cumberland Plain Woodland vegetation within the reserve will be required in the event propagation material is needed for bush regeneration purposes.

Any proposed building works other than approved as part of a current Development Application will be subject to separate Council Approval. Any further removal of Cumberland Plain Woodland Vegetation within the Reserve would also need to be reassessed under the Environmental Planning and Assessment Act (1979). Ecological or hazard reduction burns within the park, if proposed, would also need to be assessed by the Rural Fire Service prior to the initiation of a burn program.

6.3 Implementation

The dedicated lands to be gazetted to Timbertop Reserve will be handed over after a three-year period during which regeneration works will be undertaken on these lands. BCC will assume management of this land once all Conditions of Consent have been satisfied.

Maintenance and ongoing management of Timbertop Reserve will remain the responsibility of Blacktown City Council and will be implemented according to allocated resources.

The auditing of the implementation of this Plan of Management will be undertaken by Blacktown City Council.

6.4 Monitoring

In order to accurately evaluate the success of this Plan of Management, a monitoring program is recommended.

The following issues could be included in an annual program:-

- Floristic biodiversity.
- Conservation and prosperity of threatened species and the enrichment of their habitats.
- The success of vegetation regeneration at restored sites (measured through evaluation of plant growth, percentage cover, survival rates, weed invasion, vandalism etc).
- The presence, abundance and cover of weed species.
- The condition of any trails and areas affected by community access.
- The condition and effectiveness of gates and fences.
- The maintenance of APZ's and fuel reduction methods in accordance with relevant guidelines.
- The effectiveness and appropriateness of weed control.
- The condition of facilities or amenities within Timbertop Reserve.
- The effective control and removal of waste and litter from Timbertop Reserve.
- The incidence of unlawful activities, including unauthorised vehicle access, vandalism, waste dumping and tree-felling.

It is desirable to keep an accurate photo-record of the site including flora and fauna presence, progress of rehabilitation works, community usage, condition of infrastructure, incidence of unlawful activities etc.

6.5 Review

A review of this Plan of Management is to be undertaken every 5 years, as described in Table 1. The above recommended monitoring plan can be used to evaluate the success of this Plan of Management and to reflect changing community and Council priorities and issues.

In the event that the review proposes no changes to this Plan of Management, the current Plan of Management will be rolled over for a further 5 years.

This Plan of Management, when adopted, will super cede any existing generic Natural area Bushland Plan of Management.

7. References and Recommended Reading

- Blacktown City Council (2002). Timbertop Reserve Draft Plan of Management, 2002.
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- Robinson, L. (1991). *Field guide to the native plants of Sydney*. Kangaroo Press, NSW.
- UBD, Sydney (2001). Street Directory, Universal Press 2001.

Appendix A

Figures

2 – Vegetation Distribution and Management Units

3 – Management Categories

LEGEND:

- RIPARIAN LANDS
- DEDICATED LANDS
- CONSERVATION LANDS
- RECREATIONAL LANDS

0 50 100 150 200 250m

SCALE 1:5000 AT ORIGINAL SIZE

GHD CLIENTS | PEOPLE | PERFORMANCE

BLACKTOWN CITY COUNCIL
TIMBER TOP RESERVE
PLAN OF MANAGEMENT
LAND USE MAP

scale | 1:5000 for A3 date | JUNE 2010

job no. | 22-14410
rev no. | B

Figure 02

2nd Floor, Belconnen Chambers, 59 Cameron Ave Belconnen ACT 2617 Australia T 61 2 6253 1999 F 61 2 6253 1911 E cbrmail@ghd.com.au W www.ghd.com.au

Plot Date: 16 June, 2010 - 10:21 AM Cad File No: G:\22\14410\CADD\Drawings\ 22-14410-FIG02.dwg

LEGEND:

WATERCOURSE

NATURAL

0 50 100 150 200 250m

SCALE 1:5000 AT ORIGINAL SIZE

GHD CLIENTS | PEOPLE | PERFORMANCE

BLACKTOWN CITY COUNCIL
TIMBER TOP RESERVE
PLAN OF MANAGEMENT
LAND CAPABILITY MAP

scale | 1:5000 for A3 date | JUNE 2010

job no. | 22-14410
rev no. | B

Figure 03

2nd Floor, Belconnen Chambers, 59 Cameron Ave Belconnen ACT 2617 Australia T 61 2 6253 1999 F 61 2 6253 1911 E cbrmail@ghd.com.au W www.ghd.com.au

Plot Date: 16 June, 2010 - 10:34 AM Cad File No: G:\22\14410\CADD\Drawings\ 22-14410-FIG03.dwg

Appendix B

Vegetation Description – Cumberland Plain Woodland

ENDANGERED ECOLOGICAL COMMUNITY INFORMATION

Cumberland Plain Woodland

RBG/Jaime Plaza

Conservation Status

Cumberland Plain Woodland is listed as an endangered ecological community under the *NSW Threatened Species Conservation Act* 1995 and the Commonwealth *Environmental Protection and Biodiversity Conservation Act* 1999.

Description

In the NPWS vegetation mapping of the Cumberland Plain, two forms of Cumberland Plain Woodland have been identified — shale hills woodland and shale plains woodland.

Shale hills woodland occurs mainly on the elevated and sloping southern half of the Cumberland Plain. The dominant canopy trees include grey box (*Eucalyptus moluccana*), forest red gum (*E. tereticornis*) and narrow-leaved ironbark (*E. crebra*). It has a shrub layer dominated by blackthorn (*Bursaria spinosa*), with other shrubs, such as *Acacia implexa*, *Indigofera australis* and *Dodonaea viscosa ssp cuneata*.

Shale plains woodland is the most widely distributed form of Cumberland Plain Woodland. *Bursaria spinosa* is the dominant shrub species and there are canopy trees such as grey box (*E. moluccana*), forest red gum (*E. tereticornis*), spotted gum (*Corymbia maculata*) and thin leaved stringybark (*E. eugenioides*).

The diverse understorey layer is similar for both forms of Cumberland Plain Woodland. It is common to find grasses, such as kangaroo grass (*Themeda australis*), weeping meadow grass (*Microlaena stipoides var stipoides*) and herbs, such as kidney weed (*Dichondra repens*), blue trumpet (*Brunoniella australis*) and *Desmodium varians*.

Distribution

Before European settlement, Cumberland Plain Woodland was extensive across western Sydney, covering 125,000 hectares. Today,

NSW NATIONAL PARKS AND WILDLIFE SERVICE

there is only nine percent of the original extent, with a further 14 percent remaining as scattered trees across the landscape (NPWS 2002a, NPWS 2002b). Cumberland Plain Woodland is an important part of the western Sydney landscape and occurs on the well structured clay soils, derived from Wianamatta shale.

There are bushland remnants of Cumberland Plain Woodland in an area bounded by Scheyville (north), Penrith (west), Parramatta (east) and Thirlmere (south). Cumberland Plain Woodland occurs in the Auburn, Bankstown, Baulkham Hills, Blacktown, Camden, Campbelltown, Fairfield, Hawkesbury, Holroyd, Liverpool, Parramatta, Penrith and Wollondilly local government areas.

Examples to see

Cumberland Plain Woodland can be seen at Scheyville National Park, Windsor Downs Nature Reserve, Leacock Regional Park and Mulgoa Nature Reserve.

Ecology

Cumberland Plain Woodland occurs throughout the driest part of the Sydney Basin and is well adapted to drought and fire. The understorey plants often rely on underground tubers or profuse annual seed production to survive adverse conditions.

It is thought that Aboriginal people used fire to promote the growth of tuberous food plants.The common shrub *blackthorn* is excellent bird habitat and provides food for a wide range of insects. Cumberland Plain Woodland is habitat for threatened species such as the pink pimelea (*Pimelea spicata*) and the Cumberland land snail (*Meridolum corneovirens*).

Threats

Clearing for agriculture and urban development is the greatest threat to Cumberland Plain Woodland. Because it exists now only in fragments, Cumberland Plain Woodland is vulnerable to disturbances, such as weed invasion, increased soil nutrients, rubbish dumping and frequent fire. Weeds, such as African lovegrass, African olive, bridal veil creeper and Rhodes grass are a major threat.

Recovery and management

The recovery of this ecological community is being addressed as part of the Cumberland Plain Endangered Ecological Communities Recovery Plan, which is currently being prepared.

Because the original extent of Cumberland Plain Woodland has been greatly reduced, high conservation value remnants will be identified in the recovery plan and recommended for protection through a range of mechanisms including reservation, environmental protection zoning and development control processes. Other protection measures can be through plans of management and voluntary conservation agreements. These measures will enable the remnants to be better managed for conservation and vegetation corridors to be formed.

Cumberland Plain Woodland remnants should be managed to maintain all vegetation layers. The understorey needs to be conserved as its removal reduces the viability of the remnants and encourages weeds. Cumberland Plain Woodland can regenerate naturally once threats, such as weeds, grazing and mowing/slashing, are controlled. The edges of remnants are prone to weeds and need to be regularly

monitored. Frequent fires (occurring less than five years apart) can lead to a loss of plant species, which are unable to quickly set seed or regenerate in a short space of time. Replanting should only occur when natural regeneration is not possible, and locally sourced seeds should be used to ensure genetic integrity.

For further information contact

Central Threatened Species Unit, NSW Department of Environment and Conservation, PO Box 1967, Hurstville NSW 2220 Phone 02 9585 6678. www.nationalparks.nsw.gov.au

References

Benson, D.H. and Howell, J. (1990) Taken for Granted: The Bushland of Sydney and Its Suburbs*, Kangaroo Press, Sydney.*

Benson, D.H. and Howell, J. (2000) Sydney's Bushland — More than Meets the Eye*, Royal Botanic Gardens, Sydney.*

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NPWS (2002a) Native Vegetation of the Cumberland Plain - Final Edition, NPWS, Sydney.

NPWS (2002b) Interpretation Guidelines for the Native Vegetation Maps of the Cumberland Plain, Western Sydney, Final Edition, NPWS, Sydney.

February 04

Appendix C

Flora Species List

Table 7 Flora Species List

Species	Common Name
Trees/Shrubs	
Acacia falcata	Sickle wattle
Acacia parramattensis	Parramatta Wattle
Bursaria spinosa	Blackthorn
Dillwynia juniperina	Prickly Parrot Pea
Daviesia ulicifolia	Gorse Bitter Pea
Eucalyptus crebra	Narrow Leaf Ironbark
Eucalyptus eugenoides	Thin Leaf Stringybark
Eucalyptus fibrosa	Broad Leaf Ironbark
Eucalyptus moluccana	Eastern Grey Box
Eucalyptus tereticornis	Forest Red Gum
Exocarpus cupressiformis	Cherry Ballart
Grevillea juniperina	Prickly Spider Flower
Indigofera australis	Native Indigo
Pultenea microphylla	Spreading Bush Pea
Groundcovers	
Aristida ramosa	Wire Grass
Aristida vagans	
Brunoniella australis	Blue Trumpet
Cheilanthes sieberi	Rock Fern
Cynodon dactylon	Common Couch
Dichondra repens	Kidney Grass
Glycine tabacina	
Goodenia hederacea	Ivy Goodenia
Hardenbergia violaceae	Purple Twining Pea
Hybanthus enneaspermus sp.*stellaroides*	Slender Violet
Lomandra multiflora	Many Flowered Rush
Lomandra glauca ssp. glauca	Pale Mat Rush
Microlaena stipoides	Weeping meadow grass
Myoporum montanum	Western Boobialla

Species	Common Name
Oxalis rubens	
Parsonia straminea	Common Silkpod
Plectranthus parviflorus	Cockspur Flower
Trachymene incisa	Wild Parsnip
Themeda australis sp. triandra	Kangaroo Grass
Vittadinea pustulata	Fuzzweed

Appendix D

Management Actions Summary

Rehabilitation Action Descriptions

Habitat Assessment and Management (all zones)

A brief assessment of available habitat, including the use of woody weeds by native species, will occur before rehabilitation works commence. Results will be summarised in a simple report. This will enable proposed monitoring program to have baseline reference data to assess if objectives are being achieved.

In areas of disturbed bush land for example, the Cumberland Plain Land Snail can utilise the introduced species *Tradescantia fluminensis* as suitable habitat (DECC 2000 and Williams *pers com* 2008). Consideration of such ecological features has been considered when preparing the recommended restoration and management actions in this VMP. Large logs and other debris resultant from restoration works may be left in situ, as appropriate, to also provide habitat.

Rubbish Removal

Any items of rubbish will be removed. Small items need to be removed by hand prior to any restoration activities. The larger items will need to be assessed to ensure they do not provide a valuable source of habitat and then carefully removed utilising methods that minimise damage to existing vegetation.

The above litter removal program does not consider the presence of asbestos fragments throughout the site or its removal. Note Clearance Report on dedicated land.

Application for Section 132C Licence

If any revegetation, seed collection or weed control works are undertaken in an 'Endangered Ecological Community' (EEC), a Section 132C licence is required under the provisions of the TSC Act. As the restoration of SPW and RFEF is proposed, a Section 132C licence will be required to undertake seed collection and rehabilitation works. Generally speaking, this licence is readily granted by DECC if they are satisfied that the proponents undertaking the works comply with all of the requirements under the licence.

Seed Collection

All activities will utilise local provenance seed, collected from within a 5km radius of the planting sites, with works being undertaken in accordance with DECC's Restoring the Bush – Best Practice Restoration Guidelines for the Cumberland Plain, 2005 and Florabank Seed Collection and Management Guidelines, updated 2007.

Primary Weed control

Initial herbicide spraying will be undertaken in order to prepare areas of the site for revegetation.

Revegetation

Revegetation will be limited to hand plantings in 'bare' areas, within mulched areas or to add biodiversity. These activities can be undertaken with involvement from the local community. Refer to Appendix C for recommended planting list.

Maintenance

These visits will involve herbicide spraying, additional follow-up watering and general weeding. These tasks will assist establishment and reduce competition by non-native species.

A program of mowing and weed control will be applied to the lots that are bounded by the Great Western Highway and will be maintained as road easements. Existing trees along these easements will be protected.

Bush Regeneration

GHD recommends a comprehensive bush regeneration to improve the condition of existing remnant vegetation throughout the reserve. Primary and secondary bush regeneration activities will occur over a 5 year period throughout the reserve. This will be undertaken by appropriately qualified and experienced contractors. The community can be engaged in bush regeneration activities should appropriate supervision be in place. Primary bush regeneration activities will focus on noxious weeds, woody weeds and ground covers such as *Tradescantia*. Follow-up bush regeneration activities will focus on small perennials, annuals and introduced grasses.

Weed Waste

It is recommended that weed material from bush regeneration works is piled and left in situ to break down. All weeds propagules will be collected and 'bagged' on site and disposed of at a suitable waste facility.

Hand Broadcasting of Native Seed

To supplement bush regeneration activities, GHD recommends pre-treated acacia's, pea's and native grass seed be hand broadcast throughout revegetation zones. This will add further diversity to the site, particularly ground covers, and help improve native plant colonisation. Species will be selected from the species list included as Appendix C.

Appendix E

Noxious Weed List – Blacktown LGA

Table 8 Complete List of Noxious Weeds – Blacktown LGA

Weed	Class	Legal requirements
African boxthorn [Lycium ferocissimum]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority
African feathergrass [Pennisetum macrourum]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
African olive [Olea europaea subspecies cuspidata]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed
African turnipweed [Sisymbrium runcinatum]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
African turnipweed [Sisymbrium thellungii]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Alligator weed [Alternanthera philoxeroides]	3	The plant must be fully and continuously suppressed and destroyed
Anchored water hyacinth [Eichhornia azurea]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Annual ragweed [Ambrosia artemisiifolia]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Arrowhead [Sagittaria montevidensis]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Artichoke thistle [Cynara cardunculus]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Athel pine [Tamarix aphylla]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Bathurst/Noogoora/Hunter/South American/Californian/cockle burr [Xanthium species]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority

Weed	Class	Legal requirements
Bear-skin fescue [Festuca gautieri]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Black knapweed [Centaurea nigra]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Blackberry [Rubus fruticosus aggregate species] except cultivars Black satin, Chehalem, Chester Thornless, Dirksen Thornless, Loch Ness, Murrindindi, Silvan, Smoothstem, Thornfree	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed This is an All of NSW declaration
Bridal creeper [Asparagus asparagoides]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Broomrapes [Orobanche species] Includes all Orobanche species except the native O. cernua variety australiana and O. minor	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Burr ragweed [Ambrosia confertiflora]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Cabomba [Cabomba caroliniana]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Cayenne snakeweed [Stachytarpheta cayennensis]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Chilean needle grass [Nassella neesiana]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed
Chinese violet [Asystasia gangetica subspecies micrantha]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Clockweed [Gaura parviflora]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration

Weed	Class	Legal requirements
Columbus grass [Sorghum x almum]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority
Corn sowthistle [Sonchus arvensis]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Crofton weed [Ageratina adenophora]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority
Dodder [Cuscuta species] Includes All Cuscuta species except the native species C. australis, C. tasmanica and C. victoriana	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
East Indian hygrophila [Hygrophila polysperma]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Espartillo [Achnatherum brachychaetum]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Eurasian water milfoil [Myriophyllum spicatum]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Fine-bristled burr grass [Cenchrus brownii]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Fountain grass [Pennisetum setaceum]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Gallon's curse [Cenchrus biflorus]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Giant Parramatta grass [Sporobolus fertilis]	3	The plant must be fully and continuously suppressed and destroyed
Glaucous starthistle [Carthamus glaucus]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Golden dodder [Cuscuta campestris]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority

Weed	Class	Legal requirements
Golden thistle [Scolymus hispanicus]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Green cestrum [Cestrum parqui]	3	The plant must be fully and continuously suppressed and destroyed
Harrisia cactus [Harrisia species]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed This is an All of NSW declaration
Hawkweed [Hieracium species]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Horsetail [Equisetum species]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Hygrophila [Hygrophila costata]	2	The plant must be eradicated from the land and the land must be kept free of the plant
Hymenachne [Hymenachne amplexicaulis]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Italian bugloss [Echium species]		See Paterson's curse, Vipers bugloss, Italian bugloss
Johnson grass [Sorghum halepense]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority
Karoo thorn [Acacia karroo]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Kochia [Bassia scoparia] except Bassia scoparia subspecies trichophylla	1	except B.scoparia subspecies trichophylla The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Lagarosiphon [Lagarosiphon major]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Lantana [Lantana species]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration

Weed	Class	Legal requirements
Leafy elodea [Egeria densa]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Long-leaf willow primrose [Ludwigia longifolia]	3	The plant must be fully and continuously suppressed and destroyed
Long-leaf willow primrose [Ludwigia longifolia]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Ludwigia [Ludwigia peruviana]	3	The plant must be fully and continuously suppressed and destroyed
Mexican feather grass [Nassella tenuissima]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Mexican poppy [Argemone mexicana]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Miconia [Miconia species]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Mimosa [Mimosa pigra]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Mossman River grass [Cenchrus echinatus]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Mother-of-millions [Bryophyllum species and hybrids]	3	The plant must be fully and continuously suppressed and destroyed and the plant may not be sold, propagated or knowingly distributed
Noogoora burr [Xanthium species]		See Bathurst/Noogoora/Hunter/South American/Californian/cockle burr
Onion grass [Romulea species] Includes all Romulea species and varieties except R. rosea var. australis	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Oxalis [Oxalis species and varieties] Includes all Oxalis species and varieties except the native species O. chnoodes, O. exilis, O. perennans, O. radicosa, O. rubens, and O. thompsoniae	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration

Weed	Class	Legal requirements
Pampas grass [Cortaderia species]	3	The plant must be fully and continuously suppressed and destroyed
Parthenium weed [Parthenium hysterophorus]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Paterson's curse, Vipers bugloss, Italian bugloss [Echium species]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority
Pellitory [Parietaria judaica]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority
Pond apple [Annona glabra]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Prickly acacia [Acacia nilotica]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Prickly pear [Cylindropuntia species]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed This is an All of NSW declaration
Prickly pear [Opuntia species except O. ficus-indica]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed This is an All of NSW declaration
Privet (Broad-leaf) [Ligustrum lucidum]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed
Privet (Narrow-leaf/Chinese) [Ligustrum sinense]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed
Red rice [Oryza rufipogon]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration

Weed	Class	Legal requirements
Rhus tree [Toxicodendron succedaneum]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority This is an All of NSW declaration
Rubbervine [Cryptostegia grandiflora]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Sagittaria [Sagittaria platyphylla]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Salvinia [Salvinia molesta]	3	The plant must be fully and continuously suppressed and destroyed
Sand oat [Avena strigosa]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Senegal tea plant [Gymnocoronis spilanthoides]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Serrated tussock [Nassella trichotoma]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed
Siam weed [Chromolaena odorata]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Smooth-stemmed turnip [Brassica barrelieri subspecies oxyrrhina]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Soldier thistle [Picnomon acarna]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Spiny burrgrass [Cenchrus incertus]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed
Spiny burrgrass [Cenchrus longispinus]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly

Weed	Class	Legal requirements
		distributed
Spotted knapweed [Centaurea maculosa]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
St. John's wort [Hypericum perforatum]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority
Texas blueweed [Helianthus ciliaris]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Water caltrop [Trapa species]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Water hyacinth [Eichhornia crassipes]	3	The plant must be fully and continuously suppressed and destroyed
Water lettuce [Pistia stratiotes]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Water soldier [Stratiotes aloides]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Willows [Salix species] Includes all Salix species except S. babylonica, S. x reichardtii, S. x calodendron	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Witchweed [Striga species] Includes all Striga species except native species and Striga parviflora	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Yellow burrhead [Limnocharis flava]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Yellow nutgrass [Cyperus esculentus]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration

Note: This control area includes the local council areas of Baulkham Hills, Blacktown, Hawkesbury, and Penrith.

Appendix F

Weed Species Recorded and Recommended Control Techniques

Table 9 List of Weed Species

Botanical Name	*Common Name*
Woody Weeds	
Lantana camara	Lantana
Ligustrum sinense	Small Leaf Privet
Ligustrum lucidum	Large Leaf Privet
Olea europa ssp africana	African Olive
Lycium ferocissimum	African Boxthorn
Solanum nigram	Nightshade
Herbaceous Weeds	
Bidens pilosa	Cobblers Pegs
Chloris gayana	Rhodes Grass
Cirsium vulgare	Spear Thistle
Conyza albida	Fleabane
Conyza bonariensis	Flaxleaf Fleabane
Eragrostis curvula	African Lovegrass
Foeniculum vulgare	Fennel
Hypochaeris radicata	Catsear
Myrsiphyllum asparagoides	Bridal Creeper
Paspalum dilatum	Giant Paspalum
Pennisetum clandestinum	Kikuyu Grass
Plantaginaceae Plantago lanceolata	Ribwort Plantain
Protoasparagus aethiopicus	Wild Asparagus Fern
Senecio madagascarensis	Fireweed
Sida rhombifolia	Paddys Lucerne
Taraxacum officinale	Dandelion
Trifolium campestre	Hop Trefoil
Verbenaceae Verbena bonariensis	Verbena

Table 10 Common Weeds and Treatment Technique

Common Name	*Botanical Name*	*Status*	*Removal Techniques*
African love grass	*Eragrostis curvula*	Environmental Weed	Slash or mow before it sets seed along roads and in highly disturbed areas. Spot spray with diluted 1:100 Roundup. Hand remove isolated plants
Dodder	*Cuscata sp.*	Environmental Weed	Hand remove
Blackberry	*Rubus fruiticosus agg. Spp.*	Noxious Weed W2	Cut and paint crown/lignotuber with undiluted Roundup or Garlon and diesel immediately for isolated plants. Slash large populations and spray re-growth with selective herbicide Garlon, Grazon or Brushoff at flowering/fruiting stage.
Bridal Creeper	*Myrsiphyllum asparagoides*	Environmental Weed	Hand remove (i.e. by crowning with a knife) isolated plants after removing and bagging fruit. Spray large populations with Brushoff at flowering stage.
Cobblers peg	*Bidens pilosa*	Environmental Weed	Spot spray with diluted 1:100 Roundup. Best done before it sets seed. Hand remove isolated plants.
Crofton weed	*Ageratina adenophora*	Environmental Weed	Hand remove or spray with 1:100 Roundup.
Fireweed	*Senencio madagascariensis*	Environmental Weed	Spot spray with diluted 1:100 Roundup. Best done before it sets seed. Hand remove isolated plants.
Fleabane	*Conyza spp.*	Environmental Weed	Spot spray with diluted 1:100 Roundup. Best done before it sets seed. Hand remove isolated plants.
Green cestrum	*Cestrum parqui*	Noxious Weed W2	Stem scrape and paint with Garlon and diesel (i.e. both sides of stem) immediately at flowering stage. Remove and bag fruit.
Inkweed	*Phytolacca octandra*	Environmental Weed	Hand remove or cut and paint base with undiluted Roundup after removing and bagging fruit.
Kikuyu	*Pennisetum clandestinum*	Environmental Weed	Spot spray with diluted 1:100 Roundup.
Lantana	*Lantana camara*	Noxious Weed W2	Cut and paint base of trunks with undiluted Roundup immediately. Slash Lantana stems into 2x2 metre piles. Treatment of re-growth may be necessary as layering stems may re-shoot. Hand remove seedlings.
Large leaf privet	*Ligustrum lucidum*	Environmental Weed	Cut and paint base of trunk or drill/chisel trunk (>10cm diameter) and inject with undiluted Roundup immediately before fruiting stage. Hand remove or spot spray seedlings with 1:100 Roundup.
Madiera winter cherry	*Solanum pseudocapsicum*	Environmental Weed	Stem scrape and paint with Garlon and diesel (i.e. both sides of stem) immediately at flowering stage. Remove and bag fruit.

Moth plant	*Arauja sericifolia*	Environmental Weed	Hand remove or cut and paint base of stems with undiluted Roundup after removing and bagging fruit.
Paddy's lucerne	*Sida rhombifolia*	Environmental Weed	Hand remove or cut and paint base with undiluted Roundup. Slash large populations and spray re-growth with 1:100 Roundup.
Pampas grass	*Cortaderia spp.*	Noxious Weed W2	Spot spray with diluted 1:70 Roundup after removing and bagging fruit/flowering stems.
Paspalum	*Paspalum dilatatum*	Environmental Weed	Spot spray with diluted 1:100 Roundup.
Prickly pear	*Opuntia spp.*	Noxious Weed W4f	Mattock/hand remove all parts of plant.
Boneseed	*Chrysanthemoides monilifera*	Environmental Weed	Spray actively growing plants, spray to wet all foliage. Spray Roundup at a ratio of 1:100.
Scotch thistle	*Onopordum acanthium*	Environmental Weed	Spot spray with diluted 1:100 Roundup. Best done before it sets seed. Hand remove isolated plants.
Broom	*Spp.*	Environmental Weed	Spray with Garlon 600 Herbicide.
Silky oak	*Grevillea robusta*	Environmental Weed	Cut and paint base of trunk or drill/chisel trunk (>10cm diameter) and inject with undiluted Roundup immediately. Hand remove seedlings.
Small leaf privet	*Ligustrum sinense*	Environmental Weed	Cut and paint base of trunk or drill/chisel trunk (>10cm diameter) and inject with undiluted Roundup immediately before fruiting stage. Hand remove or spot spray seedlings with 1:100 Roundup. Treatment of re-growth may be necessary as the plant has the ability to sucker from roots.
Sowthistle	*Sonchus oleraceus*	Environmental Weed	Spot spray with diluted 1:100 Roundup. Best done before it sets seed. Hand remove isolated plants.
Verbena	*Verbena spp.*	Environmental Weed	Spot spray with diluted 1:100 Roundup. Best done before it sets seed.
Wandering jew	*Tradescantia fluminensis*	Environmental Weed	Spot spray with 1:50 Roundup or Starane. It is photo-inhibited so should be treated on overcast days after rain. Rake and hand remove all stem fragments in small populations amongst native species.
Mother of millions	*Kalanchoe tubiflora*	Environmental Weed	Remove by hand, bag all plant material and dispose of in appropriate manner.

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Document Status

Rev No.	Author	Reviewer		Approved for Issue		
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1	A. Fletcher	B Snedden	*B Snedden*	D Williams		12/01/10
2.	L Gallagher	D Williams	*D Williams*	D Williams		28/01/10
3.	L Gallagher	D Williams	*D Williams*	D Williams		30/06/10

SCHEDULE 6
Vegetation Management Plan

CLIENTS | PEOPLE | PERFORMANCE

Fitzpatrick Investments

Report on Timbertop Residential Development

Draft Vegetation Management Plan

October 2008

Contents

Table Index

Appendices

A Site Location

B Plantings List

C Recommended Bush Regeneration Techniques for Various Weeds Common to Western Sydney

D Implementation Program

1. Forward Disclaimer

This document is provided as an incomplete draft Vegetation Management Plan (VMP) to outline the applicant's commitment towards investing in the management of Timbertop Reserve should the Land and Environment Court (Case No. 2008/10579) be successful by the applicant. The applicant provides this draft VMP to describe information relating to the rehabilitation and management actions required for the remnant vegetation at Timbertop. The applicant will commit to the completion of this draft VMP, in consultation with Blacktown City Council, and providing investment to complete the various recommended tasks, should the case be successful.

It must be noted that the current Offset Proposal associated with the case does not include investment in the rehabilitation and/or management of vegetation at Timbertop Reserve. This position has been taken at the request of Blacktown City Council. Should the case determine that a suitable offset include investment in Timbertop, the applicant seeks cooperation from Blacktown City Council in finalising a suitable offset and the associated investment in Timbertop Reserve.

The current proposed offset has agreement from relevant parties and is therefore deliverable. Investigation into changes to offset, and therefore investment in Timbertop, would only occur with the cooperation from Blacktown City Council.

This draft VMP has been prepared on the assumption that asbestos removal, through soil amelioration, will not occur.

1.1 List of Abbreviations

The following summarises the various abbreviations used throughout the VMP.

APZ	Asset Protection Zone (firebreak)
BCC	Blacktown City Council
CPW	Cumberland Plain Woodland
DECC	Department of Environment & Climate Change
EEC	Endangered Ecological Communities
EP&BC Act	Environmental Protection and Biodiversity Conservation Act
GA	Greening Australia
HNCMA	Hawkesbury Nepean Catchment Management Authority
LGA	Local Government Area
PoM	Plan of Management
RFEF	River Flat Eucalypt Forest
SPW	Shale Plains Woodland
TSC Act	Threatened Species Conservation Act
VMP	Vegetation Management Plan

2. Introduction

2.1 Overview

GHD Pty Ltd (GHD) has been engaged by Fitzpatrick Investments Pty Ltd to prepare an outline of a draft Vegetation Management Plan (VMP) to address the future rehabilitation and management of remnant vegetation at Timbertop Reserve (including the additional lands dedicated to BCC as a condition of consent from the neighbouring residential development). Timbertop Reserve is owned by Blacktown City Council and zoned under the Local Environment Plan as Public Open Space community open space and includes conservation of remnant vegetation, limited passive recreation opportunities, asset protection and access land uses.

The site contains Shale Plains Woodland (SPW) vegetation, in moderate condition, and listed as an endangered ecological community (EEC) under both the *Threatened Species Conservation (TSC) Act 1995* and the *Environmental Protection and Biodiversity Conservation (EP&BC) Act 1999*. The site also contains the Cumberland Plain Land Snail (CPLS), listed as an endangered species under the TSC Act.

The VMP will work in conjunction with the draft plan of management for the site (GHD 2008) when approval of the proposed development is granted. This draft VMP has been prepared to provide a clear, concise and practical framework for the restoration and management of vegetation throughout the site.

The VMP covers the initial three years of restoration and maintenance for Timbertop. It is anticipated that implementation of the draft VMP will leave the site only requiring follow-up weed monitoring and removal. The on-going maintenance of Timbertop Reserve will be the responsibility of BCC and associated resident community group or equivalent.

2.2 Aims and Objectives

The objectives of the draft VMP are:

- To establish local vegetation characteristics;
- To describe the restoration activities necessary to rehabilitate native vegetation throughout Timbertop and the dedicated lands;
- Describe the maintenance program to ensure establishment; and
- Provide recommendations for future management.

2.3 Relationship with Existing Reports

A number of reports already exist regarding the native vegetation occurring on site and possible restoration programs. The draft VMP has taken into consideration the impacts of the following documentation:

- Draft Plan of Management, Timbertop Reserve, October 2008;
- Draft CPLS Translocation Plan, Timbertop Residential Development, October 2008;
- Offsetting Proposal for Prospect Residential Development, October 2006;

- Statement of Evidence Lot 101, Hampton Crescent Prospect, April 2005;
- Statement of Environmental Effects Lot 101, Hampton Crescent Prospect, July 2003;
- Bush Fire Management Report for Lot 101, Norman Street Blacktown, March 2005
- Conservation Assessment of Bushland Norman Street Prospect, Blacktown, October 1998;
- Species Impact Statement Lot 101, Hampton Crescent Prospect, October 2005;
- Timbertop Reserve Draft Plan of Management, 2002; and
- Other relevant reports pertaining to the site.

All work to be performed on site will also be in accordance with the following guidelines:

- 'Recovering Bushland on the Cumberland Plain' Best Practice Guidelines for the Management and Restoration of Bushland, June 2005;
- DIPNR's Best Practice Guidelines for Bush Regeneration on the Cumberland Plain, 2004; and
- Florabank Seed Collection and Management Guidelines, updated 2004;

2.4 Relevant Legislation

The draft VMP has been prepared in accordance with the provisions contained in relevant legislation and policy guidelines, including but not limited to the following:

- Environment Protection and Biodiversity Conservation Act 1999;
- Threatened Species Conservation Act 1995;
- Section 132 Licence;
- Noxious Weeds Act
- Water Management Act 2000;
- Native Vegetation Act 1997;
- Environmental Planning and Assessment Act 1979;
- Local Government Act 1993 and Local Government Amendment (Community Land Management) Act 1998; and
- Relevant Blacktown Council regulations and policies.

The above listed legislation has been identified as being highly relevant to the restoration and management activities outlined in this draft VMP. This list by no means covers all relevant legislation pertaining to the site.

2.5 Description of Key Terms

The following key terms are used throughout the description of the proposed restoration program.

- ***Regeneration*** - Refers to natural regeneration of the vegetation community;
- ***Bush regeneration*** - Refers to techniques used to assist and promote natural regeneration without utilising plant material propagated in nurseries;

- ***Revegetation*** - Refers to the planting of tube stock or similar grown from local provenance seed to re-establish vegetation;
- ***Restoration*** - Refers to a combination of restoration activities and management techniques to restore native vegetation;
- ***Practical completion*** - Refers to the completion of installation of revegetation activities;
- ***Establishment*** - Refers to the minimum 24 month maintenance program applied to revegetation work to ensure plant establishment; and
- ***Final Completion*** - Refers to the successful completion of the entire restoration program.

3. Site Description

3.1 Site Location

The site is located in the Blacktown LGA, in the residential suburb of Prospect. The site is bordered to the south by the Great Western Highway, to the west by existing residential development and will be bordered to the east by the proposed residential development. The location and details of the site is shown in Appendix A.

3.2 Climate

The Commonwealth Bureau of Meteorology website provides the following climatic information taken from the Prospect Reservoir weather station. Mean rainfall peaks in summer and mean annual rainfall is 872 mm per year. Mean daily maximum temperatures range from 27.8°C in summer to 17.6°C in winter.

3.3 Proposed Land Use

The restored areas will include a variety of land uses to perform necessary conservation, asset protection, public recreation and access functions. Land uses will comprise a mix of:

- Conservation – Existing remnant SPW vegetation.
- Asset Protection Zone (APZ) – This zone will be managed accordingly and will include emergent trees, with a discontinuous canopy, and grassy understorey only;
- Regeneration – Existing remnant vegetation will be protected and rehabilitated through bush regeneration activities;
- Revegetation – Revegetation works will be undertaken in Timbertop to add valuable biodiversity; and
- Access and Public Recreation – The implementation of the draft VMP will improve the quality and amenity of the local environment.

3.4 Vegetation

Three vegetation zones have been identified on Timbertop Reserve. These are:

- Remnant stands of Shale Plains Woodlands (SPW), which is a sub community of Cumberland Plain Woodland and River Flat Eucalypt Forest (RFEF) if required;
- A highly modified cleared zone, with no native species; &
- A riparian zone, with no native species.

Two vegetation communities are found across the site, River Flat Eucalypt Forest (RFEF), and Shale Plains Woodland (SPW), which is a sub community of Cumberland Plain Woodland.

River Flat Eucalypt Forest DECC Description

River Flat Eucalypt Forest (RFEF) contains a number of tree species that may dominate at different sites. The two most common species are *Eucalyptus amplifolia* and *E. tereticornis*, with *Angophora floribunda* occurring slightly less frequently. RFEF often includes a stratum of small trees, frequently including *Acacia parramattensis subsp. parramattensis*, and less

frequently *Casuarina glauca*, and sometimes *Angophora floribunda* and *Melaleuca linariifolia*. A shrub stratum is usually evident, but is often sparse and invariably dominated by *Bursaria spinosa*. RFEF often has a dense ground cover dominated by grasses such as *Oplismenus aemulus, Microlaena stipoides var. stipoides, Entolasia marginata* and *Echinopogon ovatus.* Herb species are also common, including *Solanum prinophyllum, Pratia purpurascens* and *Commelina cyanea*.

Shale Plains Woodland DECC Description

Shale Plains Woodland (SPW) is dominated by *Eucalyptus moluccana* and *E. tereticornis* with *E. crebra, E. eugenioides* and *Corymbia maculata* occurring less frequently. These species often form a separate small tree stratum, occasionally including other species such as *Exocarpus cupressiformis, Acacia parramattensis subsp. parramattensis* and *Acacia decurrens*. A shrub stratum is usually present and dominated by *Bursaria spinosa*. Common ground stratum species include *Dichondra repens, Aristida vagans, Microlaena stipoides var stipoides, Themeda australis, Brunoniella australis, Desmodium varians, Opercularia diphylla, Wahlenbergia gracilis* and *Dichelachne micrantha*. SPW is the most widely distributed community on the Cumberland Plain. It predominantly occurs on soils derived from Wianamatta Shale, but also occurs on Holocene alluvium in well-drained areas that are infrequently inundated.

3.5 Opportunities and Constraints

Opportunities embraced in the restoration program include:

- Conserving and restoring areas of existing native vegetation;
- Restoring an endangered ecological community;
- Utilising ‘best practice’ vegetation restoration techniques endorsed by DECC, HNCMA and DWE;
- Engaging the new and existing community to be actively involved in the management of open space;
- Managing an effective APZ for property protection; and
- Passive recreation opportunities.

Constraints encountered during project design include:

- Presence of SPW, a listed EEC under state legislation;
- Presence of Cumberland Plain Land Snail; and
- Surrounding land uses.

4. Restoration Program

The following information provides a detailed description of activities required to implement the draft VMP. The required activities were determined using desktop research of existing reports pertaining to the site and current vegetation maps and restoration guidelines. The preparation of this draft VMP also involved liaison with the key stakeholders and/or review of their relevant documents pertaining to the site.

4.1 Site Preparation

4.1.1 Habitat Assessment and Management (all zones)

A brief assessment of available habitat, including the use of woody weeds by native species, will occur before bush regeneration works commence. Results will be summarised in a simple report. This will enable proposed monitoring program to have baseline reference data to assess if objectives are being achieved.

In areas of disturbed bush land for example, the Cumberland Plain Land Snail can utilise the introduced species *Tradescantia fluminensis* as suitable habitat (DECC 2000 and Williams *pers com* 2008). Consideration of such ecological features has been considered when preparing the recommended restoration and management actions in this VMP. Large logs and other debris resultant from restoration works may be left in situ, as appropriate, to also provide habitat.

4.1.2 Rubbish Removal

Any items of rubbish will be removed. Small items need to be removed by hand prior to any restoration activities. The larger items will need to be assessed to ensure they do not provide a valuable source of habitat and then carefully removed utilising methods that minimise damage to existing vegetation.

The above litter removal program does not consider the presence of asbestos fragments throughout the site or its removal.

4.1.3 Application for Section 132C Licence

If any revegetation, seed collection or weed control works are undertaken in an 'Endangered Ecological Community' (EEC), a Section 132C licence is required under the provisions of the TSC Act. As the restoration of SPW and RFEF is proposed for the development site, a Section 132C licence will be required. Generally speaking, this licence is readily granted by DECC if they are satisfied that the proponents undertaking the works comply with all of the requirements under the licence

4.1.4 Seed Collection

All activities will utilise local provenance seed, collected from within a 5km radius of the planting sites, with works being undertaken in accordance with DECC's Restoring the Bush – Best Practice Restoration Guidelines for the Cumberland Plain, 2005 and Florabank Seed Collection and Management Guidelines, updated 2007.

4.1.5 Primary Weed control

Initial herbicide spraying will be undertaken in order to prepare areas of the site for revegetation.

4.1.6 Revegetation

Revegetation will be limited to hand plantings in 'bare' areas, within mulched areas or to add biodiversity. These activities can be undertaken with involvement from the local community. Refer to Appendix B for recommended planting list.

4.1.7 Maintenance

These visits will involve herbicide spraying, additional follow-up watering and general weeding. These tasks will assist establishment and reduce competition by non-native species.

4.2 Regeneration

4.2.1 Bush Regeneration

GHD recommends a comprehensive bush regeneration to improve the condition of existing remnant vegetation throughout the proposed restoration sites. Bush regeneration activities will occur over a three-year period and will be undertaken by appropriately qualified and experienced contractors. The community can be engaged in bush regeneration activities should appropriate supervision be in place. Primary bush regeneration activities will focus on noxious weeds, woody weeds and ground covers such as *Tradescantia*. Follow-up bush regeneration activities will focus on small perennials, annuals and introduced grasses.

It is recommended that 16 primary bush regeneration sessions and 8 follow-up sessions over the three-year period to treat weed species.

The bush regeneration program will include the targeted control of noxious weeds. Table 1 lists the noxious weeds identified on site. A list of weeds typical of vegetation found in this area of Blacktown and their recommended treatment are included in Appendix C.

Table 1 Noxious Weeds found on site

Botanical Name	Common Name	Category
Lycium ferocissimum	African boxthorn	C4
Olea europaea subsp. *africanus*	African olive	C4
Class 1 - State Prohibited Weed. Class 1 weeds are also notifiable weeds.		
Class 2 - Regionally Prohibited Weed. Class 2 weeds are also notifiable weeds.		
Class 3 - Regionally Controlled Weed.		
Class 4 - Locally Controlled Weed.		
Class 5 - Restricted Weed. Class 5 weeds are also notifiable weeds.		

4.2.2 Weed Waste

It is recommended that weed material from bush regeneration works is piled and left in situ to break down. All weeds propagules will be collected and 'bagged' on site and disposed of at a suitable waste facility

4.2.3 Hand Broadcasting of Native Seed

To supplement bush regeneration activities, GHD recommends pre-treated acacia's, pea's and native grass seed be hand broadcast throughout revegetation zones. This will add further diversity to the site, particularly ground covers, and help improve native plant colonisation. Species will be selected from the species list included as Appendix B.

4.3 Recommendations for Ongoing Maintenance

The draft VMP is for an initial three-year restoration program. This will ensure plant establishment and that the condition of remnant vegetation is excellent. After such time, on-going management will be limited to rubbish removal and the monitoring and treatment of weeds.

It is anticipated that on-going management will be at the discretion of a new community group or the existing Timbertop Bush Care Group, whichever is deemed most suitable.

Community engagement and education activities are planned for the proposed residential development as well as interpretive material regarding sustainability.

5. Monitoring and Reporting

In order to accurately evaluate the success of the rehabilitation program, a three-year monitoring and evaluation program is recommended. The implementation contractor shall prepare annual reports for submission to BCC and the applicant. Reports may also be provided to other interested stakeholders such as DECC, if deemed necessary.

The monitoring and evaluation program should address the following issues:

- Plant growth, percentage cover and survival rates;
- Plant losses through herbivory, disease, vandalism, storm damage or other factors;
- Weed regrowth and control measures;
- Plant replacement;
- Guard repair and weeding inside guards;
- Maintenance watering regime; and
- Stream bank erosion.

GHD recommends that the above issues be monitored and evaluated through the set-up of one representative quadrat per hectare, approximately 20 m by 20 m. The quadrats should be clearly pegged so they can be easily located and monitored throughout the three-year monitoring period.

It is also desirable to keep an accurate photo-record of the progress of the rehabilitation works by setting up an appropriate number of representative fixed photo-points across the site. Photos should be taken by digital camera and recorded in the project file by date and discrete photo-point number. Photo-point locations should be clearly marked on site and recorded by GPS.

The yearly monitoring reports should also contain recommendations by the implementation contractor to the client in regard to issues affecting the ongoing success of the rehabilitation works, and the possible need for additional activities that may be required outside the normal maintenance program.

6. Program of Works

It is envisaged that the site preparation works, which includes habitat assessment, preparation of a restoration plan and litter removal will occur as soon as development approval is granted. Works will include seed collection, plant propagation, bush regeneration, revegetation and associated maintenance, for three years and appropriate management of any APZ's.

Community engagement activities may also occur.

A detailed program is outlined in Appendix D.

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Appendix A

Site Location

Revision	Amendment	Date

BTG

email: btg@ihug.com.au
B T Goldsmith Planning Services Pty Ltd
63 Waratah Street, Haberfield NSW 2045
P.O. Box 454 Haberfield
PH: (02) 9799 5100 FAX: (02) 9799 5200
ABN 78 066 620 699

Client

FITZPATRICK INVESTMENTS PTY LTD

Project

LOT 101 HAMPTON CRESCENT
PROSPECT

Title

SURVEY - SITE AND SURROUNDS
BOUNDARY

Date	20-10-2008	Sheets:	1 OF 1
Scale	NOT TO SCALE	CAD File:	SITE.dwg

REDUCTION RATIO
PLAN..1:1000..... CROSS SECT. H.....
LONG SECT. H..... V.....
V.....

1:1000 0 10 20 30 40 50 100 Metres

DATUM: AHD	DESIGN: N/A.	CHECKED: SA
AZIMUTH: ISG	DRAWN: RN	DATE: 11/7/06

SCHEDULE OF COMPUTER FILES					
SURVEYOR:	GGH	ROADS:		DWG FILE:	
DATE OF SURVEY	JULY 06	LMK FILE:	5462-1	LAYOUT:	N/A.
				CAD BASE:	N/A.

ROSE ATKINS
consulting surveyors
142 SUNNYHOLT ROAD, BLACKTOWN
PO BOX 6745, BLACKTOWN 2148
PH: (02) 9853 0299 FAX: (02) 9671 7399
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FOR:

FITZPATRICK INVESTMENTS

LOTS 100 & 101 IN D.P. 863828
HAMPTON CRES, PROSPECT

SURVEY – SITE AND SURROUNDS
Lot 6, Lot 30, Lot 100 & Lot 101

AMENDMENTS

REF. No. 5/3316-1

SHEET 1 OF 1 SHEETS

Appendix B

Plantings List

Table 2 Plant Schedule for RFEF

Botanical Name	Common Name	Status
Canopy:		
Angophora floribunda	Rough-barked Apple	Specialist
Angophora subvelutina	Broad-leafed Apple	Specialist
Casuarina glauca	She Oak	Dominant
Eucalyptus amplifolia	Cabbage Gum	Specialist
Eucalyptus tereticornis	Forest Red Gum	Specialist
Middle Storey:		
Acacia decurrens	Green Wattle	Dominant
Acacia parramattensis	Parramatta Green Wattle	Dominant
Bursaria spinosa	Blackthorn	Dominant
Acacia floribunda	White Sallow Wattle	Specialist
Melaleuca decora	Snow-in-Summer	Specialist
Melaleuca stypheloides	Prickly-leaved Paperbark	Specialist
Melaleuca linariifolia	Narrow-leaved Paperbark	Specialist
Breynia oblongifolia	Coffee Bush	Specialist
Dodenea viscosa	Giant hop bush	Specialist
Ozothamnus diosmifolium	Everlasting	Specialist
Leptospernum polygalifolium	Lemon-scented Tea Tree	Specialist
Groundcovers:		
Carex oppressa		Dominant
Centella asiatica		Specialist
Commelina cyanea	Native Wandering Jew	Dominant
Clematis aristate	Old Man's Beard	Specialist
Einadia hastata	Salt Bush	Dominant
Geranium homeanum		Specialist
Hardenbergia violacea		Specialist
Juncus usitatus		Dominant
Lomandra longifolia	Spiny-headed Mat-rush	Dominant

Lomandra multiflora		Specialist
Microlaena stipoides	Weeping Meadow Grass	Dominant
Oplismenus aemulus	Basket Grass	Specialist
Solanum prinophyllum		Specialist
Rubus parvifolius	Native Raspberry	Specialist
Themeda australis	Kangaroo grass	Dominant
Wahlenbergia gracilis	Native bluebell	Specialist

Table 3 Plant Schedule for SPW

Botanical Name	**Common Name**	**Status**
Canopy:		
Corymbia maculata	Spotted Gum	Specialist
Eucalyptus moluccana	Grey Box	Dominant
Eucalyptus teritecornis	Forest Red Gum	Dominant
Eucalyptus eugenoides	Thin-leaved Stringybark	Specialist
Middle Storey:		
Acacia decora	Native Raspberry	Specialist
Acacia falcata	Falcate Wattle	Dominant
Acacia parramatensis	Green Parramatta Wattle	Dominant
Bursaria spinosa	Blackthorn	Dominant
Daviesia ulicifolia		Specialist
Dilwynia sieberi	Parrot Pea	Specialist
Melaleuca decora	Snow in Summer	Specialist
Hardenbergia violacea		Dominant
Pultenaea microphylla	Bush Pea	Specialist
Ground Covers:		
Aristida sp	Three-awn Spear Grass	Dominant
Danthonia sp	Wallaby Grass	Dominant
Echinopogon caesipitosus	Hedgehog Grass	Specialist
Goodenia hederacea		Specialist

Botanical Name	Common Name	Status
Hardenbergia violacea	Purple Coral Pea	Dominant
Lomandra filiformis		Specialist
Lomandra multiflora	Many-flowered Mat-rush	Dominant
Microlaena stipodes	Weeping Meadow Grass	Dominant
Oplismenus aemulus	Basket Grass	Specialist
Rubus parvifolius	Native Raspberry	Specialist
Themeda australis	Kangaroo Grass	Dominant
Wahlenbergia gracilis	Native Bluebell	Specialist

Appendix C

Recommended Bush Regeneration Techniques for Various Weeds Common to Western Sydney

Table 4 Weed Control Techniques for Common Weeds Western Sydney

Common Name	***Botanical Name***	***Status***	***Removal Techniques***
African love grass	*Eragrostis curvula*	Environmental Weed	Slash or mow before it sets seed along roads and in highly disturbed areas. Spot spray with diluted 1:100 Roundup. Hand remove isolated plants
Dodder	*Cuscata sp.*	Environmental Weed	Hand remove
Blackberry	*Rubus fruiticosus agg. Spp.*	Noxious Weed W2	Cut and paint crown/lignotuber with undiluted Roundup or Garlon and diesel immediately for isolated plants. Slash large populations and spray re-growth with selective herbicide Garlon, Grazon or Brushoff at flowering/fruiting stage.
Bridal Creeper	*Myrsiphyllum asparagoides*	Environmental Weed	Hand remove (i.e. by crowning with a knife) isolated plants after removing and bagging fruit. Spray large populations with Brushoff at flowering stage.
Cobblers peg	*Bidens pilosa*	Environmental Weed	Spot spray with diluted 1:100 Roundup. Best done before it sets seed. Hand remove isolated plants.
Crofton weed	*Ageratina adenophora*	Environmental Weed	Hand remove or spray with 1:100 Roundup.
Fireweed	*Senencio madagascariensis*	Environmental Weed	Spot spray with diluted 1:100 Roundup. Best done before it sets seed. Hand remove isolated plants.
Fleabane	*Conyza spp.*	Environmental Weed	Spot spray with diluted 1:100 Roundup. Best done before it sets seed. Hand remove isolated plants.
Green cestrum	*Cestrum parqui*	Noxious Weed W2	Stem scrape and paint with Garlon and diesel (i.e. both sides of stem) immediately at flowering stage. Remove and bag fruit.
Inkweed	*Phytolacca octandra*	Environmental Weed	Hand remove or cut and paint base with undiluted Roundup after removing and bagging fruit.
Kikuyu	*Pennisetum clandestinum*	Environmental Weed	Spot spray with diluted 1:100 Roundup.
Lantana	*Lantana camara*	Noxious Weed W2	Cut and paint base of trunks with undiluted Roundup immediately. Slash Lantana stems into 2x2 metre piles. Treatment of re-growth may be necessary as layering stems may re-shoot. Hand remove seedlings.
Large leaf privet	*Ligustrum lucidum*	Environmental Weed	Cut and paint base of trunk or drill/chisel trunk (>10cm diameter) and inject with undiluted Roundup immediately before fruiting stage. Hand remove or spot spray seedlings with 1:100 Roundup.
Madiera winter cherry	*Solanum pseudocapsicum*	Environmental Weed	Stem scrape and paint with Garlon and diesel (i.e. both sides of stem) immediately at flowering stage. Remove and bag fruit.

Moth plant	*Arauja sericifolia*	Environmental Weed	Hand remove or cut and paint base of stems with undiluted Roundup after removing and bagging fruit.
Paddy's lucerne	*Sida rhombifolia*	Environmental Weed	Hand remove or cut and paint base with undiluted Roundup. Slash large populations and spray re-growth with 1:100 Roundup.
Pampas grass	*Cortaderia spp.*	Noxious Weed W2	Spot spray with diluted 1:70 Roundup after removing and bagging fruit/flowering stems.
Paspalum	*Paspalum dilatatum*	Environmental Weed	Spot spray with diluted 1:100 Roundup.
Prickly pear	*Opuntia spp.*	Noxious Weed W4f	Mattock/hand remove all parts of plant.
Boneseed	*Chrysanthemoides monilifera*	Environmental Weed	Spray actively growing plants, spray to wet all foliage. Spray Roundup at a ratio of 1:100.
Scotch thistle	*Onopordum acanthium*	Environmental Weed	Spot spray with diluted 1:100 Roundup. Best done before it sets seed. Hand remove isolated plants.
Broom	*Spp.*	Environmental Weed	Spray with Garlon 600 Herbicide.
Silky oak	*Grevillea robusta*	Environmental Weed	Cut and paint base of trunk or drill/chisel trunk (>10cm diameter) and inject with undiluted Roundup immediately. Hand remove seedlings.
Small leaf privet	*Ligustrum sinense*	Environmental Weed	Cut and paint base of trunk or drill/chisel trunk (>10cm diameter) and inject with undiluted Roundup immediately before fruiting stage. Hand remove or spot spray seedlings with 1:100 Roundup. Treatment of re-growth may be necessary as the plant has the ability to sucker from roots.
Sowthistle	*Sonchus oleraceus*	Environmental Weed	Spot spray with diluted 1:100 Roundup. Best done before it sets seed. Hand remove isolated plants.
Verbena	*Verbena spp.*	Environmental Weed	Spot spray with diluted 1:100 Roundup. Best done before it sets seed.
Wandering jew	*Tradescantia fluminensis*	Environmental Weed	Spot spray with 1:50 Roundup or Starane. It is photo-inhibited so should be treated on overcast days after rain. Rake and hand remove all stem fragments in small populations amongst native species.
Mother of millions	*Kalanchoe tubiflora*	Environmental Weed	Remove by hand, bag all plant material and dispose of in appropriate manner.

Appendix D

Implementation Program

GHD

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Document Status

Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
1	A Fletcher	D Williams	*D Williams*	I Joliffe	*I Joliffe*	23/10/08
2.	A Fletcher	D Williams	*D Williams*	I. Joliffe	I Joliffe	24/10/08

SCHEDULE 7
Plan of Translocation

CLIENTS | PEOPLE | PERFORMANCE

Fitzpatrick Investments

Report on Translocation Plan for the Cumberland Plain Land Snail

Lot 101 DP 863828, Hamilton Crescent, Prospect

June 2009

INFRASTRUCTURE | MINING & INDUSTRY | DEFENCE | PROPERTY & BUILDINGS | ENVIRONMENT

Contents

Figure Index

Appendices

1. Introduction

This document has been prepared in accordance with Policy and Procedure Statement No. 9 developed by the NSW NPWS and titled *Policy for the Translocation of Threatened Fauna in NSW* (NPWS 2001). In particular, this document has, where relevant, followed the *Guidelines for the Contents of a Translocation Proposal* that appears at Appendix 2 of the NPWS (2001) policy statement.

This is a translocation and management plan for the population of Cumberland Plain Land Snail (CPLS) on Lot 101 in DP 863828, located off Hampton Crescent, Prospect. The plan was prepared in response to a court decision and in consultation between the relevant stakeholders, particularly the Applicant and the Department of Environment and Climate Change (DECC). The document has been approved by DECC.

The areas referred to in this plan are shown on **Figure 1** and include the development area, the land to be dedicated and the Council's adjoining Timbertop Reserve. The extent of the relevant areas is as follows:

	Area	Woodland
Development Area	2.6237 ha	2.31 ha
Dedicated Land	1.5483 ha	1.5483 ha
Lot 101	4.172 ha	3.86 ha
Timbertop Reserve	7.5 ha (under PoM) total 14.0	2.83 ha

The ultimate area of reserved woodland would be approximately 5.25 hectares, inclusive of the dedicated parcel and Timbertop Reserve.

1.1 Reason for the Translocation

The translocation of specimens of the CPLS from one part of Lot 101 to another area is required in response to a proposal to develop residential lots, if approved, on the eastern part of the land, as shown on Figure 1. The proposal would remove about 2.60 hectares of woodland, and dedicate to Council 1.55 hectares, all of which is suitable habitat for the CPLS.

1.2 The Proponent

The proponent is the owner of Lot 101, who will engage suitably qualified persons to undertake the translocation and other measures outlined in this document.

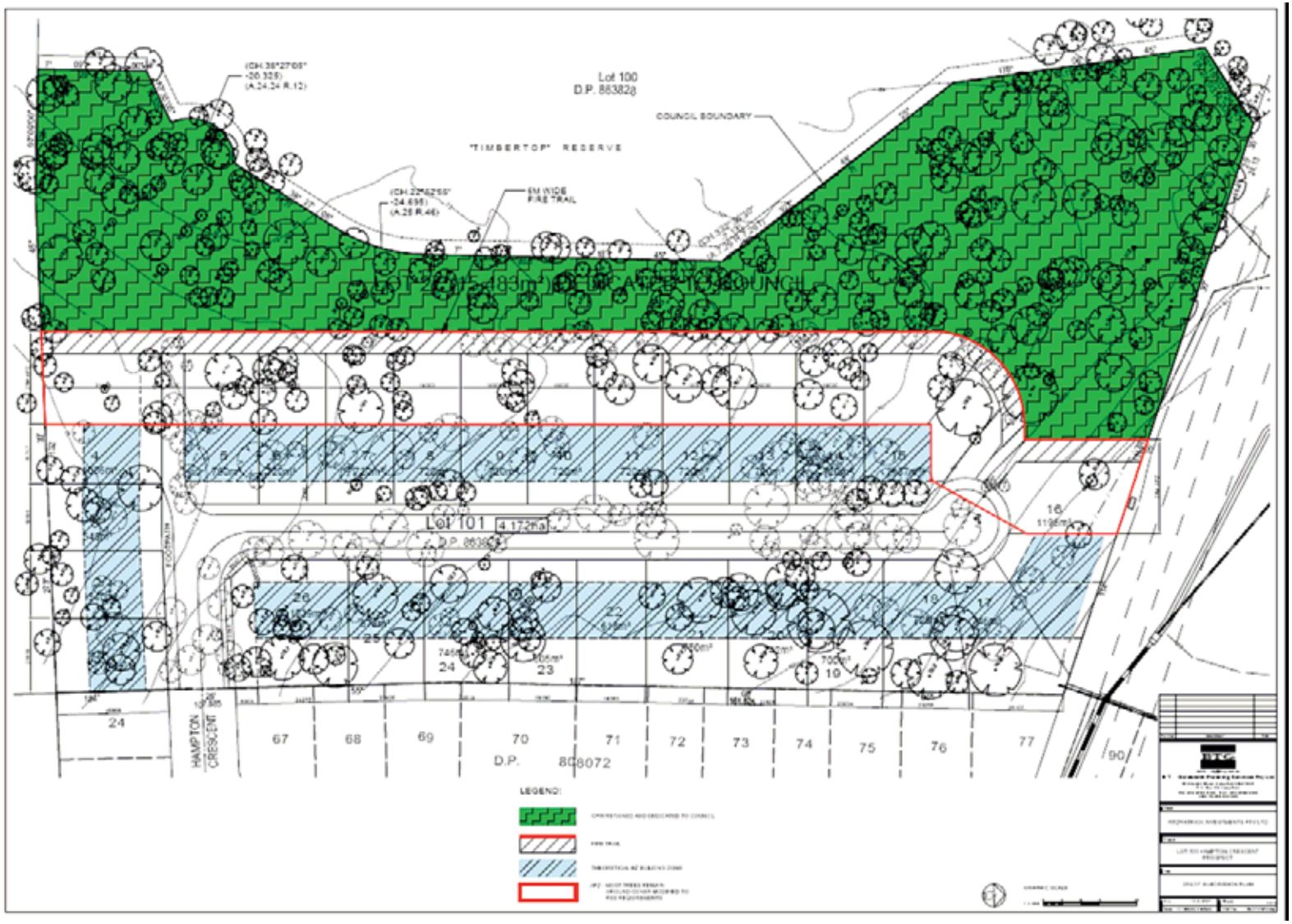


Figure 1: The Project Area and Development Proposal.

2. Meridolum Corneovirens (Cumberland Plain Land Snail)

Other common names: Large Land Snail, Cumberland Land Snail

2.1 Biology and Habitat Requirements

The Cumberland Plain Land Snail has a strong association with the vegetation and geology of the Cumberland Plain and is known to occur in vegetation communities that occur on shale-derived and alluvial soils, including Cumberland Plain Woodland, Sydney Coastal River-flat Forest, Shale-Gravel Transition Forest and Castlereagh Woodlands. It is also known from some areas of Shale-Sandstone Transition Forest, but in this community it tends to only occur where the shale influence is high or along the interface with a shale-derived community.

The CPLS appears to require a woodland community in order to survive. It does not typically occur in suburban gardens or cleared pasture. The species can persist for some time under isolated trees or logs in otherwise poor habitat, but in this situation usually occurs as a few individuals in a small area, for example, if there was some build-up of suitable material next to a trunk. However, the species is at a high risk of local extinction in these situations.

Evidence suggests that the CPLS is finely tuned to the particular plants and soil conditions of the Cumberland Plain. This is shown by the change in soil conditions where clay soils become increasing influenced by sandstone; the species is usually found only within the clay area, with the limit of its local distribution quite obvious.

The species of eucalypt that provide leaf and bark fall that set up suitable conditions include Forest Red Gum, Cabbage Gum, Grey Box as well as narrow and broad-leaved Ironbarks. In these communities, it typically occurs under logs and other debris and amongst leaf and bark accumulations, often around bases of trees. Where possible it will burrow into loose soil, which appears to be a unique feature of the species (Clark 2005). It lays eggs in shallow depressions in the ground, often around the edges of logs; it probably uses these sites because they are located along the 'drip-line' of logs during rain and so are relatively moist.

Very little is currently known about the biology and life history of the species. It is hermaphroditic and lays clutches of eggs, containing approximately 20-25 small, round white eggs. Recent observations suggest that the snail probably reproduces most of the year (if conditions are suitable). It is a fungal feeder and generally active at night. Very little is currently known about rates of fecundity, length of life span, dispersal patterns and what levels of inbreeding may be present in a given population. Its 'genetic neighbourhood' was calculated by Clark and Richardson (2002) to be approximately 350 m[1].

[1] The geographical distance at which spatial genetic structure of a population becomes significantly negatively correlated is referred to as the 'genetic neighbourhood' size of a population. Spatial genetic autocorrelation analysis is a useful tool for conservation and management, as it assists in defining populations or estimating the distance animals move between birth and breeding (Clark & Richardson 2002), although it has been mostly overlooked in studies of animal dispersal (Peakall *et al.* 2003).

2.2 Range and Conservation Status

2.2.1 Regional Distribution

The CPLS is endemic to the Cumberland Plain of western Sydney. Its known range is limited to the extent of the shale and alluvial soils of the Plain and is roughly bordered by the Nepean River and the Blue Mountains Plateau to the west, Cattai Creek and the Hornsby Plateau to the north-east and the Georges River and the Woronora Plateau to the south-east (Shea 1989). Within this area it typically occurs within dry forest/woodland environments where it usually lives under fallen logs and grass (Shea 1989). In periods of dry weather it will burrow a few centimetres into the soil and it has a shell shape that appears to be advantageous to burrowing (Shea 1989).

Collections in the Australian and Queensland Museum indicate that the species was formerly common throughout the Cumberland Plain (DECC Atlas of Wildlife); however, the open forest/woodland habitat of the CPLS has been subject to significant clearing in the past for the purposes of agriculture, logging, grazing, industry and housing. The species is now reduced to a number of remnant populations that occur where pockets of bushland remains. Few of these bushland remnants remain in original condition (Shea 1989) and many of these snail populations are small, disjunct and situated on lands that remain subject to development pressure.

The CPLS is known from several conservation reserves within the region. These include Scheyville National Park, Windsor Downs Nature Reserve, Kemps Creek Nature Reserve, Western Sydney Regional Park, Bents Basin State Recreation Area, and Dr Charles McKay Reserve (Mount Druitt). The species is also known to occur within other sites owned and maintained by public authorities, including the Holsworthy and Ingleburn Military Reserves, Prospect Reservoir, Noorumba and Nurragingy Nature Reserves and the Orchard Hills Defence area. Populations are also known from the former ADI site, St Marys, Western Sydney Parklands Bungarribee Precinct and the former Wonderland Theme Park. Other parks and reserves from which the species has been recently recorded include Scattergood Reserve (Bradbury), a small Council reserve at Denham Court, Hoxton Park Recreation Reserve, and the Chiefly College Conservation Reserve, Mt Druitt.

Several morphotypes have been described, although not published, due to the considerable genetic differences between extant populations (Clarke. 2005). From this work it appears that species in this location is most likely an undescribed "*Solemella*" *corneovirens* (Clark 2005). For the purposes of this translocation plan and to conform to current legislation the species occurring across the subject site will be referred to as the *M. corneovirens*, the current formally described nomenclature.

In view of the above, the CPLS (and sub –'species') is of state-wide conservation significance and was listed as an endangered species on the TSC Act in 1997. It is not, at this stage, listed as a threatened species nationally (i.e. by the Commonwealth *Environment Protection and Biodiversity Conservation Act* 1999).

2.2.2 Regional Abundance

Substantial data regarding the abundance of the CPLS is difficult to obtain. In many cases, where data is available it is likely to represent an underestimate of population size and has only limited use as a comparison. For example, there are a total of 25 records of the currently described CPLS within the Holsworthy Military Reserve on the NPWS database; however, there have been at least 100 individuals observed there (S. Clark, *pers. comm.*). Similarly in a clearance activity for the upgrade of Windsor Road,

initial surveys of the impact site and surrounds uncovered only a few individuals each session, however, near 100 were translocated as part of the subsequent clearance works and many more would have been missed (B Ryan *pers obs*).

Furthermore, it is important to note that data regarding the number of snails found at a site are not a measure of absolute abundance and should be treated with caution. The actual population size at any site could only be determined by counting every individual present, which would require the destruction of virtually all of the habitat present in order to locate the snails, or estimated by mark-recapture techniques, which would require DECC research permits and numerous surveys and has only rarely been carried out. Comparisons between populations are also complicated by differences in survey effort, the skill of the surveyor and the prevailing weather conditions at the time.

Notwithstanding the above, the number of snails found at a site can provide an indication of relative population size, provided a reasonable amount of survey effort is used and particularly if repeat surveys are carried out.

2.2.3 Legal Status

The CPLS is listed as endangered under the *Threatened Species Conservation Act 1995* (NSW). The species is not listed under the Commonwealth's *Environment Protection & Biodiversity Conservation Act 1999* (Australia). The primary habitat of the snail, Cumberland Plain Woodland, is listed as an endangered ecological community under both the above Acts. The other woodland communities that CPLS can also occur, such as Shale/gravel Transition Forest, Shale/sandstone Transition Forest, and the Castlereagh woodlands are all also listed on the TSC Act as endangered ecological communities.

2.3 Other Snails that do/may occur on Subject Site

2.3.1 Native Land Snails

- *Austrorhytida capillacae* – A carnivorous snail that occurs in numerous forest/woodland environs. Has a heavily flattened spiral shell. Has been recorded on site. Uncommon.
- *Fastosarion freycineti* – A semi-slug with a reduced shell, partially covered by the mantle of the animal when active. Mantle is often an orange colour. Shell up to 2 cm. Uncommon.
- *Austrosuccinea* sp. – Has a small pointed thin shell up to 10mm in length. Uncommon.
- *"Solemella" sheai* – soon to be divided from CPLS, generally occurs in Sandstone Transition Forest types often beneath Grey Gums.

2.3.2 Introduced Terrestrial Molluscs

- *Bradybaena similaris* – similar shape to CPLS. Has thin light coloured shell generally with brown apical stripe.
- *Cantareus aspersus* (was Helix) – Common Garden snails
- *Limax maximus* – Leopard Slug – grows up to 16 cm.
- *Zoniitoides arboreus* – small flat shell growing to only 3 – 4 mm in width.

3. Outline for the Translocation

3.1 Objectives

The translocation proposal has the following main objectives:

- To improve the receiving habitat for the species and manage the current threatening processes within that receiving habitat to optimise the quality of habitat for the ultimate population within the ultimate woodland patch;
- To successfully move the majority specimens of the species from the approved development area to the adjoining habitat in the dedicated land;
- To co-operate with Blacktown Council in managing the woodland and habitat over the whole patch, inclusive of Timbertop Reserve and the dedicated lands; and
- To monitor the success of the translocation as well as the CPLS habitat management actions and take action where required to improve the where practicable the outcomes for the persistence on the CPLS within the patch.

3.2 Criteria for Success

The success or otherwise, of the translocation and habitat management will be measured against the following performance objectives or criteria:

- The management of key threatening processes that are applicable to CPLS within the receiving habitat and wider woodland patch;
- Identify that the receiving habitat is in as good or better condition for the snail than prior to the translocation taking place and that over time management actions are shown to maintain habitat quality;
- The snail population, as shown by monitoring surveys, is similar number over the monitoring period within the dedicated land and adjoining Council reserve; and
- Agreement has been reached with Council about the management of the woodland patch as a whole and that all management objectives are consistent and complimentary, in the hope that CPLS habitat across the patch is ultimately improved and maintained.

3.3 Recovery Strategies

A Recovery Plan has not yet been prepared for the CPLS. The Department of Environment and Climate Change has identified several priority actions to assist in the recovery of the species. These are discussed later in the plan (section 9.4).

3.4 Nature of Translocation

Recipient sites for CPLS should be located in areas of retained suitable habitat as close as possible to the area from which they have been removed. Given the reported genetic neighbourhood of the species, this should ideally be within a 350 m radius of existing sites (see Clark and Richardson 2002). In all cases this will be achievable; the furthest distance likely will be less than 70 metres. Individuals have

previously been recorded moving distances of up to 60 metres over several months in a monitoring program at Mt Druitt (AMBS 2004) and therefore given the purported genetic neighbourhood and a movement of 70 metres is conceivable in the lifetime of an individual snail. The receiving lands located immediately north of the proposed development site. This area is currently contiguous with CPLS habitat to be removed and comprises known habitat for the CPLS (Figure 1).

4. The Receiving Environment

4.1 Identification of Recipient Habitat

Recipient sites for CPLS would be located in areas of retained suitable habitat as close as possible to the area from which they have been removed. Given the reported genetic neighbourhood of the species, this should ideally be within a 350 m radius of existing sites (see Clark and Richardson 2002). The dedicated land located immediately north of the proposed construction site has been identified as a suitable receiving site for translocated snails given it is currently contiguous with CPLS habitat to be removed within the proposed residential development and comprises known habitat for the CPLS (KMA 2007).

4.2 Improvement of Recipient Sites

CPLS shelter can consist of natural materials (such as wood and leaf litter) and/or artificial materials (such as tiles and corrugated iron). Where possible it is ideal to leave shelters in place for as long as possible before the translocation of any animals. This allows for the build up of natural fungal growths and the break down of leaf litter and bark under the shelter structures, thus rendering them more suitable as snail habitat. All suitable habitat, including manageable logs and other debris, will be translocated with snails during pre-clearing surveys, to supplement habitat and shelter sites for the increased density of snails in the recipient sites. It should also be noted that over time appropriate vegetation management and rehabilitation of the dedicated land will likely increase the habitability of the area for the snail population. Some of the receiving habitat is relatively poor habitat for snails, as is the source habitat.

The placement of shelter, leaf litter, and potential foraging resources will be undertaken to best recreate the benchmark for Cumberland Plain Woodland. This will involve:

- Careful relocation of felled trees from the approved development area to areas of the dedicated CPW to a level not substantially greater than benchmark levels (3-5 lineal metres of fallen logs over 10cm in diameter per square metre).
- Translocation of suitable ground litter. Suitable ground litter will be collected and distributed from the development area to the receiving habitat. Where snails are found on the development area, the litter at the site will be collected in two types, the decaying litter and the overlying fresh litter, and spread around the bases of trees in the receiving habitat along with the relevant snail(s).
- Placement of removed tree roots (tree balls) in order to translocate CPLS that were not possible to locate within the soil profile around trees. The number, location and orientation of placement of tree root balls will be reliant on:
  - Trees with the suitable habitat and observed resources at the time of the translocation works.
  - The manageability of the root balls which will be ultimately decided on a case by case basis, on site with the vegetation removal contractors and on-site CPLS expert.
  - The carrying capacity of the recipient site in relation to benchmark fallen timber levels.

Note that snails may be buried deep into the root ball of the larger trees removed from the impact area and therefore by placing these within the conserved areas, snails that would not be collected during routine clearance surveys would be moved as a result.

- Relocating soil and its associated mycorrhizal fungi (potential foraging resources for CPLS) to areas of existing high impact, including the bike track areas; access trails no longer required, areas of previous top soil modification (eg past quarrying activities). The translocation of soil should be conducted by 'scraping' the first 5 –10 centimetres of top soil (post weed removal) from impacted areas to areas required, thus translocating soil, leaf litter; native species seed, spores and fungal material to recipient areas. These activities would be undertaken during development site preparation and earth moving works, where rubber tyred vehicles would be most suitable, to avoid impacts, such as soil compaction/disturbance in the dedicated lands.
- The translocation of existing fallen timber, rocks and other potential shelter materials will also assist in the translocation of food resources for the snails (if not already present) such as fungi and leaf litter.

4.3 Alternative Sites

No alternative sites were considered. The proposed receiving habitat is immediately adjacent to the source habitat; the habitat and the snail population is contiguous. The snails on the whole site, including the Council's Timbertop Reserve, are of the one population and very likely to be genetically related considering the 350 metre genetic distance purported (Clark and Richardson 2002). Thus the genetic neighbourhood and local population are unlikely to be impacted by introducing novel genes.

4.4 Management of Threats

4.4.1 Key Threatening Processes

Two threatening processes have been listed in Schedule 3 of the TSC Act that can have a direct impact on the CPLS. The most important of these is clearing of native vegetation (as defined and described in the final determination of the Scientific Committee to list the key threatening process) and high frequency fire. The former removes the species' habitat entirely and the latter reduces the material in which the species lives and upon which it feeds.

Other processes that are relevant to this species include weed invasion and the presence of exotic species. High concentrations of weeds modify the habitat of the CPLS and the leaf fall of some species (such as African Olive) is thought to change the soil chemistry resulting in an unsuitable environment for the snail (M. Shea, Australian Museum *pers. comm*.). High concentrations of Lantana or Privet can significantly modify the community, although the species can sometimes persist around the base of trees in these situations.

Weeds typically increase the amount of suitable habitat for exotic molluscs that can be detrimental to the CPLS. The Brown Garden Snail (*Cantereus aspersus*) feeds on exotic species and where infestation occurs, it can be present in large numbers that completely occupy the underside of logs and bark that would otherwise be used as shelter by the CPLS. This shelter is an essential part of the ecology of the species; it protects the snails from desiccation, fire and predators such as rats, blue-tongued lizards and birds. The introduced slug, *Limax maximus*, could also be a threat to the CPLS, because it is an omnivore that is capable of consuming a wide variety of food resources, including (potentially) the eggs of the CPLS.

The following existing threats are identified for the snail population at Hampton Crescent:

- Frequent bushfire;
- Removal of ground litter (e.g. firewood collecting);
- Trail bike use;
- Weed invasion;
- Clearing of the ground cover by children (e.g. constructing bike tracks, etc.)

All of the above threats are relevant to the land to be dedicated and the adjoining Council reserve. Habitat management is therefore of a high priority in maintaining a viable population of the CPLS on the site.

4.5 Identification of Access Exclusion Zones

The receiving lands should be fenced to exclude additional impacts associated with vehicle or pedestrian movement. Access exclusion zones of relevance to the CPLS habitat will correspond with those required for the protection of retained vegetation outside of the development footprint. As noted in the proposed Environmental Management Plan, the erection of sediment fencing between the construction zone and the dedicated lands will also occur for sediment and erosion control activities. Such fencing may help to prevent snails (including those currently resident within this area and translocated individuals) from moving into the construction area.

4.6 Consequences of Not Proceeding

Should the residential subdivision proceed without removing the snails on the area, then the population in the patch of woodland would be reduced.

4.7 Potential Risks

There is a potential risk of death of individual snails as a result of the habitat clearances, vegetation removal and translocation activities. There is however, a greater probability of larger numbers of snail mortality from the vegetation clearances if the translocation is not undertaken. A successful translocation of individuals is anticipated because:

- The movement of the specimens would be up likely less than 70 metres and be within the same habitat and population; it is noted that a movement of 60 metres has been previously recorded for an individual CPLS (AMBS 2002) and therefore a 70 metre movement is likely possible within the life of an individual CPLS.
- The shelter associated with each snail moved would be moved with the snail, along with decomposing leaf litter; and
- The snail population would be monitored for a three year period after completion of the translocation.

Additional safeguards aimed to maximise the success of the translocation are included I the strategy outlined below in section 5.11.

4.8 Pre-construction Surveys and Translocation

Qualified ecologists with specific experience with CPLS surveys, including identification, collection and monitoring should undertake pre-clearing surveys throughout the full extent of the proposed construction and works area, as well as the additional APZ survey, described below.

4.8.1 Early asset protection zone instalment along eastern boundary

As a Rural Fire Service compliance requirement, the installation of an asset protection zone (APZ) along the boundary of Lot 101 will be required immediately. When considering the potential for a significant time lag between this hazard reduction and commencement of vegetation clearing for the proposal, an additional one-day site survey is proposed to minimise potential impacts on CPLS habitat in the area required for this APZ.

The required APZ is a 20 metre break from the existing residential fence line, where the first five metres requires a closely mown surface and the additional 15 metres requires only the reduction of vegetative cover to 100 mm (or 10 cm) above the ground, including shrubs and grasses. Potential habitat in the two differing zones will be inspected (based on the clearing requirements) and modified or translocated to immediately adjacent 'non-impacted' woodland, to limit potential impacts on CPLS individuals or their habitat by forest mowing machinery.

Across much of the 15-metre zone it is anticipated that the majority of logs and other shelter with a diameter less than 100mm are unlikely to be greatly impacted by the APZ works. Moreover, the leaf litter, foraging resources and bark accumulations around tree bases are unlikely to be impacted, thus this area will remain CPLS habitat after the APZ maintenance works.

If any CPLS are discovered the same marking and measuring process as highlighted in the below in the monitoring program would be undertaken and the snail then returned to where it was found (only if this shelter will not be impacted by bush fire hazard reduction works) or translocated to immediately adjacent woodland along with the shelter under which the animals was found. Snails will only be moved if the surveyor believes that it habitat will be impacted by the hazard reduction process.

4.8.2 Translocation and Monitoring program

Prior to the commencement of the residential development construction, three pre-clearing surveys are proposed to collect CPLS from the construction area. It is our experience; at the upper limit, only 80% of snails are usually detected and therefore collected during the initial survey. Consequently, two follow-up surveys are required to be more certain that the majority of snails on site have been collected before habitat deletion. To maximise the number of snails detected for translocation it is suggested that each survey period be conducted at least one week apart and would therefore be required to commence at least two full two weeks prior to any vegetation clearances proposed.

The pre-clearing surveys would be timed as follows:

- Survey 1: undertaken 2 weeks before the proposed vegetation clearing;
- Survey 2: undertaken 1 week before the proposed vegetation clearing; and
- Survey 3: conducted on the proposed clearing day immediately prior to and during clearing activities.

Placement of suitable shelter should occur preferably before all works commence and during each of the translocation events. Moving suitable shelter from under which the snails have been collected will aid in

the translocation of habitat, food resources (e.g. fungal material and spores) and of course known suitable shelter (see section 5.5.3). Areas of potential habitat for the CPLS that are immediately adjacent to the works area or likely to be indirectly affected by the works should also be surveyed.

It is important that the final survey be conducted on the day of vegetation clearance so the surveyor(s) can:

- Detect snails that have been buried deeply in the soil profile or around tree root balls; and
- Provide on site advice about the selection and placement of suitable large supplementary shelter to the recipient site for the translocated snails, which are too large to be moved by hand. This material would include felled trees, root balls and large logs which require heavy machinery to translocate.

To increase the likelihood of detecting its presence, surveys for the CPLS should be conducted in optimal climatic conditions (ideally conducted following rain when CPLS are often easier to detect) and not during extended periods of dry weather. Surveys would aim to be outside of very hot dry days to prevent desiccation of captured animals and to maximise the likelihood of capture.

The ecologist (CPLS translocation contractor) should ensure that logs and other surface materials are turned in a similar fashion to that done for reptile searches. Tree bases and loose and flaking bark on the ground and still attached to ALL trees across the impact site should also be examined for presence of this species. Trees within the impact area that are intended to be retained for landscaping value should also be examined. Leaf litter accumulations and loose soil should be raked with a small hand-held cultivator or similar gardening tool. As an approximate guide to survey effort, an experienced surveyor should spend a minimum of 1 hour per hectare. In areas where habitat is considered highly suitable for snails, specific searches will include targeted searches of soil around the base of trees, by gently turning over the soil to an approximate depth of up to 10 centimetres (this may require additional survey time). Habitat searches for CPLS during Survey 3 will be more intrusive (ie. involving removal of vegetation around the bases of trees, excavating soil under logs, in soil depressions and around trees etc) given that the majority of the snails are likely to have been collected during the preceding surveys and that the habitats present are to be removed/destroyed during the clearing activities that day.

All living specimens of the CPLS that are to be salvaged from the works area must be relocated within recipient habitat. Snails should be transferred to the recipient site as quickly as possible and placed under leaf litter adjacent to or underneath a log or similar shelter site. The transfer should be made during mild or wet weather conditions, not on days of extreme heat. All CPLS shells should also be translocated (and counted) into the receiving areas (after being examined for parasites) as the old shells are often the only source of calcium in these communities and are therefore a limiting resource for the population.

Advice will also be provided by the ecologists (CPLS translocation contractor), whilst on site with the vegetation removal contractor, regarding the placement of trees and ground debris (eg. logs) removed from the subject site, in the area of vegetation to be retained to provide supplementary shelter for CPLS, if deemed appropriate. Such material would be moved, ideally with smaller, manoeuvrable machinery with rubber tyres, such as a bob-cat, rather than large tracked vehicles (e.g. excavator), to reduced soil compaction and other disturbance in the retained CPW.

Snail numbers and age estimates based on shell size (juvenile, sub-adult, adult) should be documented prior to translocation (see Section 4.8.3). This will involve snails being retained in containers for a short period between the collection and placement at the recipient site. Collected snails will be individually

marked and measured prior to translocation to enable future identification of individuals if required (see Section 5).

Data collected will be provided to BCC for reference and to DECC for entry into relevant wildlife databases. This information will also be required to assess the success or otherwise of the translocation and monitoring program being implemented (see Section 5).

4.8.3 Measuring and Marking

Snails will be retained for a short period between the collection and placement at the translocation site to allow for the measurement of shell parameters, including maximum shell height (SH), shell width (SW) and aperture width (AW). These measurements will provide a baseline to determine future growth rates of snails following translocation should a monitoring program be implemented Figure 2.

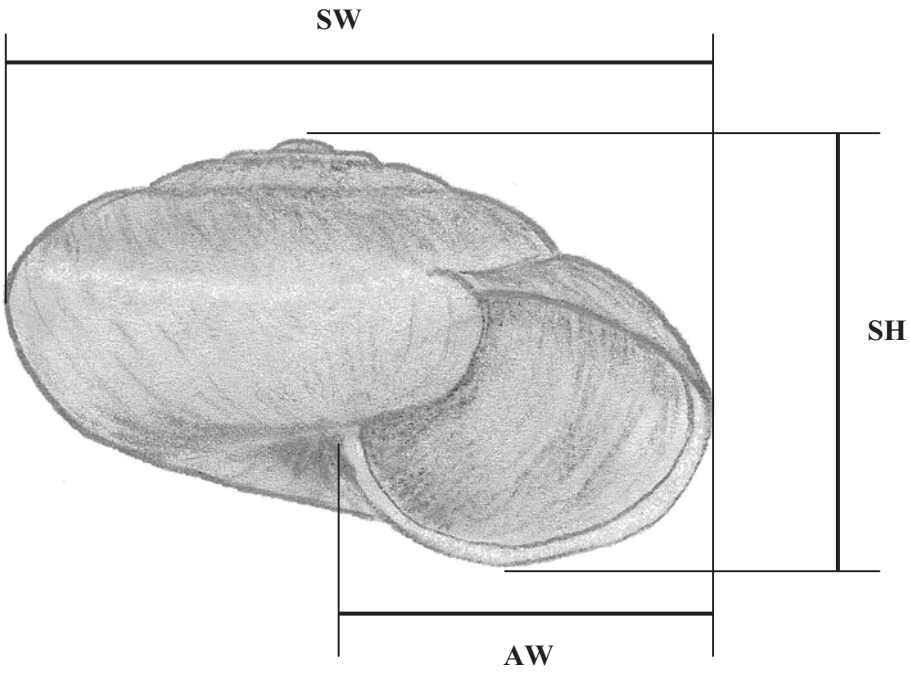


Figure 2: Measurements to be taken on snails

All translocated individuals collected will be marked with a unique identifying mark prior to translocation (see Plate 1). Coloured nail polish has proven to be the most durable marking technique in other studies (AMBS 2002). Different colours, patterns or numbers are used to individually mark animals and it appears that this technique has no detrimental affect on the individuals (AMBS 2004, S Clark *pers com,* 2005).

Marking of translocated snails will also allow identification of any translocated snails that have managed to move back into the construction area following translocation and assist in the identification of possible breaches in the 'snail fence'. This is unlikely to be a problem unless there are extended delays between the pre-clearing surveys. As noted above (section 4.8.1) prescribed bushfire protection works (Appendix B) will only involve the translocate individuals if the on-site ecologist feels that the equipment used to reduce fire hazards along the eastern boundary will harm individuals. Moreover, the time between these

fire-hazard works and commencement of the residential development is currently unknown, but may be several months, enough time for individuals to return to the site of initial capture.

Snail surveys will be conducted across the dedicated lands including those areas into which the translocated snails will be moved, in order to mark and measure all snails within the study area. Snails recorded in the areas which will not be impacted by the proposed development should be placed directly back to the position they were initially located following marking and measuring. This will assist in gaining a appreciation of the broader population of CPLS pre and post translocation.

Plate 1: Photograph of a marked Cumberland Plain Land Snail (AMBS 2002).

4.8.4 CPLS Shelter Translocation

CPLS shelter will be translocated to the recipient site as described above in order to improve the available shelter and foraging resources for the local population. Areas for shelter translocation should be, where possible, outside potential existing CPLS habitat. Open areas such as the impacted bike tracks, recently dug holes should be utilised so that overall shelter habitat is increased and that potential existing habitat for extant CPLS individuals are not impacted.

Where possible it is ideal to leave shelters in place for as long as possible before the translocation of any animals. This allows for the build up of natural fungal growths and the break down of leaf litter and bark under the shelter structures, thus rendering them more suitable as snail habitat. It is suggested, however, that suitable habitat, including manageable logs and other debris, be translocated with snails during pre-clearing surveys, to supplement habitat and shelter sites for the increased density of snails in

the recipient sites. It should also be noted that over time appropriate vegetation management and rehabilitation of the dedicated land will likely increase the habitability of the area for the snail population.

4.9 Timing

The pre-clearing and under-scrubbing required fro the creation of an APZ along the eastern boundary will be required as soon as possible to meet RFS prescriptions.

The timing of the CPLS three pre-clearing surveys and translocations will be dependent on proposed commencement of clearing activities and the clearing and construction activities and would need to commence at least two full weeks prior to vegetation clearances.

Relocation surveys should, where possible, be undertaken after rain events and in suitable climatic conditions. Hot dry weather may unduly stress translocated individuals, through desiccation and should be avoided.

5. Monitoring Program

5.1 Monitoring of Translocated Animals and CPLS Habitat

In order to determine whether translocations are successful and mitigation effective, it will be necessary to monitor the translocation site for the continued presence of CPLS across the woodland remnant as well as monitor the management and retention of suitable CPLS habitat across the woodland remnant over time under the active management plans, including but not limited to the Vegetation Management Plan, Weed management Plan and Bushfire Management Plan (all part of the dedicated lands Plan of Management). Monitoring would be aimed at examining the 'health' of the population and the survival of individuals post-translocation as well as aiming to improving habitat over time across the remnant. Monitoring is likely to provide data that will be valuable in the assessment of success of the translocation which will feed into the complimentary management plans for the site in order to best manage the habitat features for the species in order to best manage the 'population' long term. The work undertaken here will also provide information to direct similar projects in the future and for the management and recovery potential of the species across the Cumberland Plain.

The Monitoring will include:

- Establishing a standardised snail survey across the remnant, which will, resample the same locations to detect the presence or absence to the CPLS (details provided below in section 5.1). These standard sites will include the previously recorded location of live snails across the woodland remnant. As noted, collected snails will be individually marked and measured prior to translocation to enable future identification of individuals if required. The number of sites ultimately used in the monitoring will be reliant upon the number of snails found and translocated; the area of woodland to be monitored and managed for CPLS, and to a large degree the amount of potential shelter that can be disturbed at regular intervals without negatively impacting the CPLS population. This will be determined following the completion of all three pre-clearing surveys. The schedule of monitoring events is outlined in section 5.1 below.
- Monitoring key habitat features at standardised locations. Habitat features to be sampled will include:
  - Length Fallen woody debris (>10cm diameter)
  - Area (cm2) of other potential shelter
  - Presence/absence of fungal hyphae in leaf litter and under shelter
  - Presence/absence of known threats, including predatory and parasite species
  - Leaf litter cover (% cover over 5 m2)
  - Shrub abundance and density (% cover over 5 m2)
  - Upper and mid storey Canopy cover (% cover over 5 m2)
  - Weed abundance and density

5.1.1 Monitoring

Monitoring should occur regularly every week (first 4-5 weeks) following the initial translocation to obtain baseline data (as outlined above), then fortnightly (4-5 weeks) to observe longevity of the translocated individuals. Following this initial intensive survey program, surveys would be conducted at one to two-monthly intervals until population patterns are likely to be stabilised (first twelve months).

The frequency of subsequent monitoring and the development of a suitable monitoring regime would be dependent on the results of the population observations during the 1st year of monitoring but would likely be reduced to quarterly in the second year and six-monthly in the third year until the completion of the study (three years).

Monitoring of the snails would be conducted by examining standardised shelter locations throughout the site, including existing natural (eg logs, debris and trees) and artificial shelter (i.e. refuse, construction materials etc) on the recipient site and any supplementary shelter placed on the site. Monitoring events would record details of individual snails, including identification mark or number, size, age class, condition and habitat occupied. All new individuals captured during the monitoring program would be individually marked and recorded. Monitoring would also include documentation of relevant features (e.g. weather conditions, habitat condition, interpretation of recorded information, problems and issues affecting the potential viability of the population). All information collected during the monitoring surveys would be documented in Monitoring Reports as outlined below.

At each site a 5x5 metre plot would be established and habitat features as described above would be calculated and recorded. All collected information would be measured against the performance objectives and again the benchmark for Cumberland Plain Woodland to ascertain the outcomes of all management activities as well as the outcome of the translocation strategy.

The comparison between performance objectives as outlined in section 3.2 as well as against CPW benchmark will be reported to advise ensuing management activities (of all management plans) of performance and objectives. It will be crucial to encompass all management plans for both ecological performance and social outcomes (including bush care) so that all objectives and targets are congruous.

5.2 Reporting for Monitoring Program

A brief report will be prepared following the pre-clearing and translocation surveys to document baseline information of the snails translocated onto the recipient site. Specific information presented would include the following:

- Details of translocation times, dates and methods;
- Time and weather conditions during the translocations;
- Conditions at the collection and translocation sites (i.e. soil moisture etc);
- The total number of snails collected and translocated;
- Details of individual snails (i.e. shell measurements, identifying marks etc);
- Details of age classes;
- Details of microhabitats occupied at points of collection;
- Details of placement of individuals and associated microhabitat (sites located using a GPS); and
- Details of placement of supplementary shelter within the recipient site.

The standardised survey location will be ascertained at this point. Survey plot information along with detailed and specific key criteria will also be ascribed at this point.

All subsequent reporting for the ongoing monitoring program along with the number of reports required will be dependent on:

- The number of translocated snails;
- The area of recipient habitat 'improved' and whether the while remnant will be included in monitoring;
- The tasks undertaken during the preceding mazement period and the scale of these activities; as well as;
- The occurrence of unforseen impacts, alteration or modifications (such as bush fire, motorbike access etc.)

It is envisaged that a report would be prepared following the initial intensive monitoring period undertaken, following the initial 3 months and an annual report after 12 months, then every six (6) months for the remainder of the monitoring period (4 reports). These reports will document all baseline information regarding the snail population collected over the ensuing survey period and provide an assessment of the success of the translocation and monitoring protocol. These reports would incorporate:

- A summary of data collected;
- Assessment and discussion of the apparent success or otherwise of the translocation program and monitoring regime and recommendations for changes to the monitoring program (if relevant); and
- Identify any threatening processes and potential management issues and provide recommendations for management measures to be implemented to promote the long-term viability of the snail population.

Copies of all reports and data obtained will be submitted to BCC and DECC for reference.

6. Strategies to Achieve Success

6.1 Failure to Establish

The translocation plan aims to minimise the loss of individuals of the local 'population' by reducing the number potentially lost during vegetation clearing activities. The plan also aims to increase suitable habitat and shelter in the dedicated lands (and possibly across the woodland remnant) currently contiguous with the proposed impact area. Few, if any, snails will need to be moved a greater distance than the recorded movement of an individual snail, i.e. 60 metres (AMBS 2004). Moreover, enhancement of the receiving habitat will aim to improve the quality of the habitat as well as potential the viability of the population as a whole across the resultant woodland remnant. The monitoring program also aims at ensuring that habitat is maintained and management practices, such as weed and pest controls are supportive of the requirements of the snails in this location in accordance to the objectives outlined in section 3.2.

6.2 Captive Breeding

There is no captive breeding component to this translocation proposal. All snails captured in the proposed development zone will be immediately taken to the receiving habitat.

6.3 Habitat Fencing

Any form of fencing is unlikely to be able to contain CPLS, since this species is known to be a good climber and can be found several metres above the ground in trees during favourable climatic conditions (B. Ryan *pers obs*). However, human and vehicle-proof fencing will be constructed to protect the woodland habitat from the threats identified previously in this document, and to prevent unnecessary vehicle and pedestrian impacts within conserved CPLS habitat.

6.4 Threat Abatement Strategies

Various threat abatement measures are outlined in this plan as well as discussed in the Species Impact Statement produced for the development application (KMA 2007). These are designed to maximise the success of the translocation and address existing habitat deficiencies. The translocation of shelter, soil, and other potential key habitat features aim to improve CPLS habitat in all retained woodland and aim to increase the available resources for this 'population'. The monitoring of these features over time also aims to maintain and improve these habitat values for CPLS over time in order to reduce treats on this CPLS population.

The following documented priority actions are aimed at reducing threats for CPLS.

6.5 Priority Actions

The DECC have identified several priority actions to recover the Cumberland Plain Land Snail. These are set out below.

1. Approach priority private site landholders to negotiate implementing protective management regimes. (Low priority).

2. Ensure public land plans of management include appropriate actions for species' protection. (Medium priority).
3. Identify priority sites for conservation actions on private land. (Low priority).
4. Implement appropriate fire regimes (ones that allow build up of grass and litter layers). (Medium priority).
5. Implement weed control at sites where necessary. (Medium priority).
6. Install structures (where necessary) to prevent accidental slashing and removal of plant debris. (Medium priority).
7. Investigate population census techniques and responses to environmental conditions; with the aim of developing estimates of true population size based on numbers detected in standard surveys. (Low priority).
8. Reserve Fire management Strategy to include operational guidelines to protect this species from fire. (Medium priority).
9. Review species' conservation status with consideration of data obtained since listing as endangered. (Low priority).

This translocation plan, including the proposed habitat enhancement measures and long term monitoring for CPLS are all aimed to be consistent with the priority actions set out above. Given that:

- The proponent will implement a protective management regime over the land to be dedicated.
- The proponent will undertake management enhancement activities on the dedicated lands adjacent to the Timbertop Reserve. (Note that the current plan of management for Council's reserve has no mention of managing the snail on the reserve).
- The litter layer and ground timber, soil profile, fallen timber and other shelter on the dedicated land will be enhanced through augmentation and management.
- Weed control will be one of the major management actions on the dedicated land.
- The monitoring program could provide valuable information on census and translocation techniques.

7. Resource Commitment

The owner of Lot 101 commits to the following key measures to facilitate the translocation of the snails from the development area:

- The engagement of an ecologist to oversee the translocation proposal;
- The dedication of 1.55 hectares of woodland to Council for addition to its adjoining reserve;
- The enhancement of the habitat within the dedicated land, specifically for the snail, and also generally for native flora and fauna;
- The monitoring of the snail population for a period of three (3) years following completion of the translocation.

The following budget is estimated for the above commitments:

Item	Estimated cost
Translocation	$4,000
Improvement to habitat on dedicated land	$5,000
Monitoring for three years	$50,000
Total	$59,000

8. Licensing Requirements

The Department of Environment and Climate Change has been consulted in relation to the need for licensing for the gathering and moving of the species from one location to another within the same forest remnant and in the same ownership. DECC advised that a licence or permit is not required for this translocation as approvals have already been granted for the development.

9. Conclusion

The plans to move the CPLS from the proposed development area and improve the habitat in the dedicated land are aimed to manage the 'population' in order to maintain the long-term viability of the population in the woodland patch at Hampton Crescent, whilst allowing the development of the proposal.

With co-operation from Council for joint management action in the area, the habitat for the snail can be further improved. It is only with Council co-operation that the comprehensive measures required to improve the woodland habitat across the woodland remnant, can be achieved.

References

AMBS, 2002. Second Progress Report: Monitoring of *Meridolum corneovirens* within the Chifley Senior College, Mt Druitt. Unpublished document for the NSW Department of Public Works and Services.

AMBS, 2004. Forth Progress Report: Monitoring of *Meridolum corneovirens* within the Chifley Senior College, Mt Druitt. Unpublished document for the NSW Department of Education.

Clark, S. A. and Richardson, B. J., 2002. Spatial analysis of genetic variation as a rapid assessment tool in the conservation management of narrow-range endemics. Invertebrate Systematics 16(4) pp. 583-587.

Clark, S. A., 2005. Systematics, spatial analysis and conservation genetics of *Meridolum corneovirens* (Pfeiffer, 1851) and related forms (Gastropoda: Camaenidae) from the Sydney Region of Australia. Thesis submitted in fulfilment for the degree of Doctor of Philosophy. Centre for Biostructural and Biomolecular Research, University of Western Sydney, Richmond Campus.

KMA, 2007. Species Impact Statement for the proposed residential subdivision on Lot 101 DP 863828, Hampton Crescent, Prospect.

New South Wales National Parks and Wildlife Service (2001). *Threatened Species Management. Policy and Procedure Statement No 9 - Policy for the Translocation of Threatened Fauna in NSW*. The Service, Hurstville.

New South Wales (1995). *Threatened Species Conservation Act 1995*. NSW Government, Sydney.

Appendix A

Work Programme

The required and recommended actions are summarised in chronological order below to provide a guide for the preparation of a work programme for the implementation of the Translocation Management Plan and associated activities.

	Pre-construction Actions	**Required**	**Recommended**	**Responsibility/Action**
1	Request and receipt of approval and Licence to undertake CPLS translocation works		Yes	Licence not required for the CPLS translocation.
2	Site Induction	Yes		Civil contractor and CPLS translocation contractor
3	Clearly identify and delineate the perimeter of the construction and associated work areas and native vegetation to be retained	Yes		Civil contractor and CPLS translocation contractor
4	Install access exclusion zone fencing to protect remaining bushland habitat as defined in 3 (these fences should incorporate soil erosion controls)	Yes		Civil contractor after confirmation from BCC
5	Installation of appropriate erosion control devices, including silt fences to prevent CPLS access into construction area	Yes		Civil contractor with advice from CPLS translocation contractor
6	Undertake first CPLS pre-clearing translocation survey throughout construction footprint area and survey proposed recipient area to assess requirement for placement of supplementary shelter	Yes		CPLS translocation contractor
7	Undertake second CPLS pre-clearing and translocation in conjunction with vegetation clearing contractor	Yes		CPLS Translocation contractor and Vegetation Clearing Contractor
Construction Phase				
8	Undertake third and final CPLS translocation survey during vegetation clearance of the construction footprint	Yes		Civil contractor and CPLS translocation contractor
9	Maintain erosion control devices until soil and vegetation is stabilised and able to provide this function	Yes		Construction contractor

10	Assess requirement for implementation of a monitoring program for CPLS	Yes		CPLS translocation contractor in consultation with DECC and BCC
Post –construction monitoring				
11	Continue CPLS monitoring and reporting. Surveys and reporting to be conducted at least every six months. Results to be submitted to BCC and DECC every six months	Yes		CPLS translocation contractor in consultation with DECC and BCC

Appendix B

Snail data sheet for translocation

Snail translocation and monitoring data Sheet

Snail ID	Collection Location (way pt)	Recipient Location (way pt)	Live, Shell, Fragment	Shell Width (SW)	Shell Height (SH)	Aperture Width (AW)	Age estimate	Photo reference	Comment (Include presence of other species and shelter type – e.g.. log, leaf litter)

Appendix c

NSW Rural Fire Service Compliance letter for lot 101, Hampton Crescent, Blacktown.

All communications to be addressed to:

Cumberland Zone
NSW Rural Fire Service
PO Box 215
Kingswood NSW 2747

Cumberland Zone
NSW Rural Fire Service
99 Cox Ave
Kingswood NSW 2747

Training Centre
Cumberland Zone
Lot 12 Florence Street
Oakhurst NSW 2770

Telephone: (02) 4734 7777
E-mail: Justin.Back@rfs.nsw.gov.au

Facsimile: (02) 4722 8796
Mobile: 0407 077 023

BTG Planning
PO Box 258
SUMMER HILL NSW 2130

Your Ref:
Our Ref: ZU/CES/016/052

Attention: Mr Bruce T Goldsmith

16 February 2009

Dear Bruce

RE: Bush Fire Hazard Complaint at Lot 101 DP 863828 Hampton Crescent, Blacktown

Thankyou for your correspondence dated 13 February 2009 providing the Land & Environment Court's decision with regards to the above mentioned property.

As you would be aware that the bush fire hazard has existed for sometime and with this and other matters within the Land & Environment Court, there has not been any works undertaken to remove the bush fire hazard. In order to provide a level of protection for the properties along the eastern boundary and to address the environmental & health restrictions imposed on the site, the required 5 metre strip along the eastern boundary was to be mowed to create a buffer for properties, of which remains outstanding bush fire hazard reduction works.

The bush fire hazard reduction works proposed for the site was restricted due to the environmental and health concerns of having asbestos on the property. It is not understood whether or not this issue has been resolved and the property owner has removed the asbestos from the site. As this was a significant issue that prevented bush fire hazard reduction works to be permitted on site, the NSW Rural Fire Service would like to be provided confirmation that the asbestos has been removed from Lot 101 DP863828 Hampton Crescent for the safety of residents, emergency services and other contractors that may be involved in future works.

In reviewing the documentation that was forwarded on 13 February 2009, it is apparent that with the approval to subdivide that eventually the existing bush fire hazard will be removed and replaced with residential dwellings along the eastern boundary.

In the interim, the issue of a bush fire hazard exists, with the need for the vegetation along the eastern boundary of Lot 101 to be managed. On the basis that the Conditions of Consent and the Courts Decision are met, works may proceed for the subdivision, thus removing the need for a Bush Fire Hazard Reduction Certificate to be issued to undertake bush fire hazard works. To address the existing bush fire hazard, it is recommended that the following works are to be implemented along the eastern boundary of Lot 101:

- the 5 metre wide area along the eastern property boundary as previously stated in the Bush Fire Hazard Environmental Reduction Certificates from the NSW Rural Fire Service, is to be mowed to provide an Asset Protection Zone;

- an additional width of 15 metres from the above 5 metre mowed strip, creating a total of 20 metres from the eastern boundary, should be "underscrubbed" to reduce the shrubs and grasses to a height of 100mm within this area;

- The translocation of the Cumberland Plain Land Snail from within the 15 metre area to be "underscrubbed", is to be undertaken prior to the use of any machinery within this area and with the consultation of Department of Environment and Climate Change (DECC).

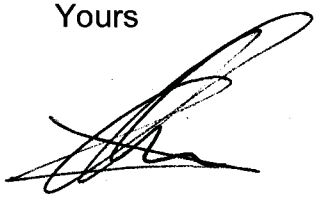
- Confirmation to the NSW Rural Fire Service that the asbestos within the 15 metre area to the "underscrubbed" has been removed prior to the commencement of the bush fire hazard reduction works.

- Any tree removal within this 20 metre APZ is to be in accordance with Tree Protection measures as stated in the Conditions of Consent;

On the completion of these works, notification is to be provide to the NSW Rural Fire Service – Cumberland Zone outlining the date, type and size of the bush fire hazard reduction works that have been completed. All correspondence to be forwarded to: NSW Rural Fire Service – Cumberland Zone, PO Box 215, Kingswood, NSW, 2747.

If there are any queries, please do not hesitate to contact me on 4734 7777.

Yours



Justin Back
Inspector
Community Safety Officer, Cumberland.

GHD

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Document Status

Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
0	B Ryan	D Williams	*D Williams*	I Joliffe		28/04/09
1	B. Ryan	D. Williams		I Joliffe		18/06/09

APPENDIX
Explanatory Note

Environmental Planning and Assessment Regulation 2000 (Clause 25E)

Draft Planning Agreement
This Explanatory Note is in respect of the draft planning agreement (the "Planning Agreement") prepared under section 93F of the Environmental Planning and Assessment Act 1979 (the "Act") to which this Explanatory Note is attached as an Appendix.

Parties to the draft Planning Agreement
The parties to the Planning Agreement are Fitzpatrick Investments Pty Limited (the "Developer") and Blacktown City Council (the "Council").

Land
The land to which the Planning Agreement applies is part of Lot 101 in Deposited Plan 863828 comprising of approximately 1.54 hectares to be dedicated by the Developer to the Council to form part of the Timbertop Reserve (the "Land"). The Land is located at Prospect, in the Local Government Area of Blacktown.

Development
The Developer proposes a 26 lot residential subdivision of the residual land (after dedication of the Land to the Council) in Lot 101 in Deposited Plan 863828 (the "Development").

Summary of the objectives, nature and effect of the Planning Agreement
Objectives
The objectives of the Planning Agreement are:

- to facilitate the Council's endeavours to increase the size of the Timbertop Reserve which is currently undergoing diminution due to urban impacts;
- to secure monetary contribution towards the ongoing long term care and maintenance of the existing and expanded Timbertop Reserve which the Council could not otherwise require the Developer to make in relation to the Development.

Nature
The Planning Agreement is a planning agreement under section 93F of the Act.

Effect
The Planning Agreement:

- provides for the dedication of land by the Developer to the Council which will expand the Timbertop Reserve;
- provides for a one off contribution by the Developer to the Council in the amount of $175,000 (the "Contribution");
- provides that part of the Contribution will be applied towards the ongoing maintenance and improvement of the condition of the Timbertop Reserve.

Assessment of merits of the Planning Agreement
The Planning Agreement promotes the public interest by:

- providing the Land for the expansion of the Timbertop Reserve;
- securing contributions towards a public purpose which serves the Development, surrounding development and community at large;
- implementing a revised Timbertop Management Plan and a Vegetation Management Plan to ensure the proper management, development and conservation of the Timbertop Reserve;
- promoting the objectives of the Act as set out in sections 5(a)(i), (ii), (iv) and (vi) of the Act.

How the Planning Agreement promotes the elements of the Council's charter under Section 8 of the Local Government Act 1993
The Planning Agreement promotes the elements of the Council's charter by:

- providing for the proper management, development and conservation of the environment of an area for which the Council is responsible, in a manner that is consistent with and promotes the principles of ecologically sustainable development;
- implementing long term strategic planning for the conservation of the local environment for the benefit of the local community;
- having regard to the Council's role as custodian and trustee of a public asset, namely the Timbertop Reserve and to effectively plan for, account for and manage the asset for which it is responsible.

Whether the Planning Agreement provides a reasonable means of achieving the purpose of the Planning Agreement
The Planning Agreement ensures that the objectives of the Planning Agreement as referred to above will be achieved by having included in the Planning Agreement:

- a provision which imposes an obligation for the Developer to transfer the Land to the Council following the subdivision of Lot 101 in Deposited Plan 863828;
- a provision that requires the Council to invest $75,000 of the Contribution in a trust fund and the interest earned on such investment specifically allocated for use by the Council for the ongoing long term maintenance and bushland regeneration of the Timbertop Reserve.

Whether the Planning Agreement conforms with Council's Capital Works Program
The Planning Agreement provides for a monetary contribution for the purpose of the ongoing maintenance of the Timbertop Reserve, a purpose which is consistent with the Council's existing objectives under the Timbertop Management Plan and Council's capital works program.

Interpretation of Planning Agreement
This Explanatory Note is not to be used to assist in construing the Planning Agreement.