

13-Feb-2007 16:50 WARRINGAH COUNCIL (0299422524)

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~~URGENT~~

For Mr Rod Piggott

Rod Piggott, Planning and Assessment Services
Ph: 02 9942 2489

5 February 2007

Russell Loel
PO Box 106
FRENCHS FOREST NSW 2086

Dear Rod.

Flora & Fauna Report

Regards
Russell Loel

Dear Mr Loel,

Re: Development Application No.2006/0339 for the construction of childcare centre, associated outdoor play areas, car park, staff rooms and gardeners shed at Lot 1039 Oxford Falls Road, Oxford Falls

I refer to your development application for the above-mentioned proposal that was received by Council on 5 May 2006 and Councils previous correspondence dated 11 May 2006, 6 July 2006, 10 August 2006 and 14 September 2006. Following assessment it is considered that additional information is essential for Council to properly determine the application. Accordingly, Council requires the following information to assist in the assessment of your proposal.

- An amended Flora and Fauna Assessment as previously requested on 10 August 2006. CALM does not believe that amendment of the Flora and Fauna Assessment will necessarily require a second full scale site survey. However Council must be satisfied that the landscape modification required to accommodate the expanded asset protection zone is unlikely to significantly affect the habitat of species of conservation significance, in particular threatened species.

If Council has not received this information to its satisfaction within 21 days, your Development Application will be determined on the basis of information presently before Council. Should you require additional time in which to provide this information, you are requested to seek an extension in writing.

Following a more detailed assessment of the proposal and the information provided, Council may request further detail and or clarification. Should you wish to discuss any issues regarding this letter please do not hesitate to contact Rod Piggott on 9942 2489 between the hours of 9.30am – 10.30am and 3.00pm – 4.00pm Monday to Friday.

Yours faithfully

Mr Rod Piggott,

Fax 9971-4522

Rod Piggott
Senior Development Assessment Officer – Major Projects
Planning & Assessment Services Division

**Flora and Fauna Impact Assessment
For 'Bush Haven' Educational Centre
Lot 1039 Oxford Falls Rd,
Oxford Falls**

Nicholas Skelton, B. Sc. (Hons), M. App. Sc.,

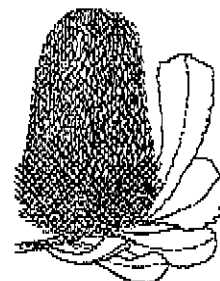
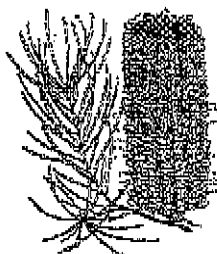
&

Cassandra Thompson, B. Sc., M.App.Sc.

March 2005

Prepared for

Russel Leon



GIS Environmental Consultants

45 Austin Avenue, North Curl Curl 2099

Mobile Ph: 041 943 8672, Ph: (02) 9939 5129, Fax: 9401 0715, Email: ecology@ecology.net.au

2.3 Description of the Study Site and Adjacent Land

2.3.1 Location

The study site is the triangular eastern section of Lot 1039 Oxford Falls Rd at Oxford Falls. See Map 1. The site is bounded by Oxford Falls Rd to the north-east, an existing residence and bushland within the lot to the west, and a private, semi-rural property to the south. Further to the west is a large area of bushland of mixed tenure. The site is within the Warringah Council Local Government Area at the AMG coordinates 336950 easting and 6265980 northing.

2.3.2 The Study Site

The proposed building site is an already disturbed area that is mostly cleared with grass, weeds, building materials, an area of fill and a partly completed building. The proposal site is approximately 0.65ha. There is a small area on the western side of the study site that is weedy bushland that will be impacted by the need for bushfire protection. The study site is triangular in shape and slopes to the east. Map 1 shows the lot and the proposal site.

2.4 The Proposed Development

The proposal is to extend an existing, approved building; the addition of 3 playground areas; construction of a car park and driveway; installation of an on-site sewerage system; bushfire protection measures; and landscaping (See Map 2). Additional fill is not associated with this proposal.

The proposal includes a number of water saving initiatives. The large tank to the south of the existing building will be moved to the eastern end and used for water storage. Rainwater will be collected and filtered for use onsite. Grey water will also be collected and used for irrigation of the landscaped area.

2.4.1 Plans and Reports Used

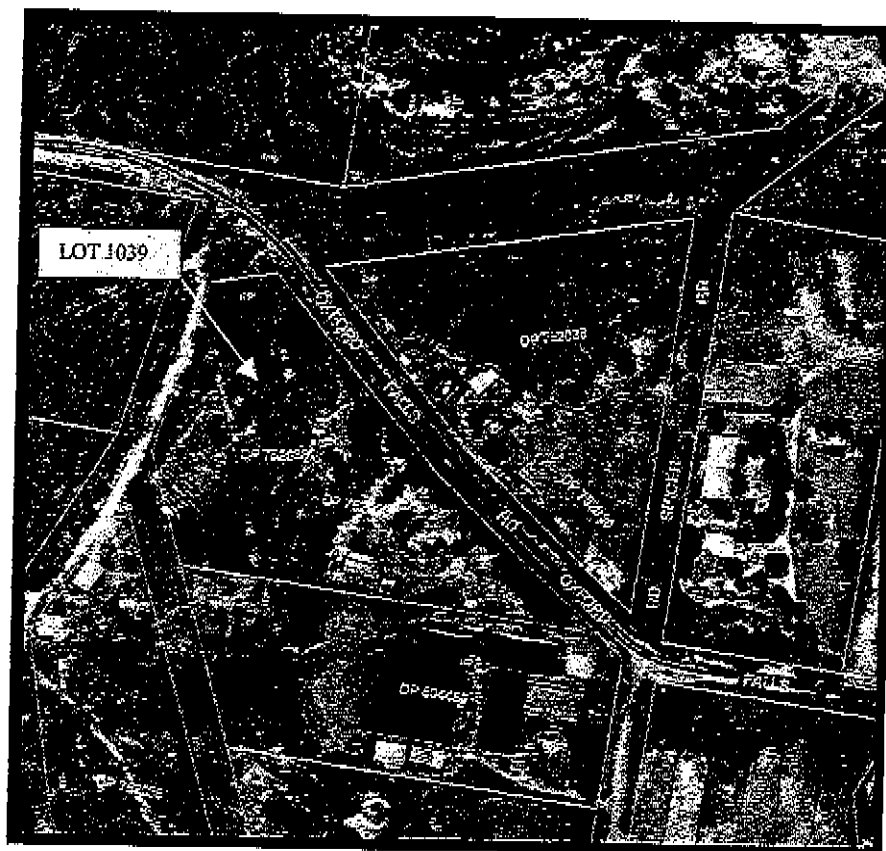
The plans used in the preparation of this report were:

- 'Development of Lot 1039 Oxford Falls Rd, Oxford Falls: Flora and Fauna Study and Assessment' by Countrywide Ecological Service with no date.
- 'Landscape Concept Plan' drawing number LP01 A, by Selena Hannan Landscape Design, dated 8/02/2005.
- 'Report for Wastewater Treatment and Disposal' by Lawfell Pty Ltd, dated 1995.
- 'Bushfire Threat Assessment for the Proposed Day Care Centre Only at 1039 Oxford Falls Road, Oxford Falls' by Wainwright Fire Service dated 2004.

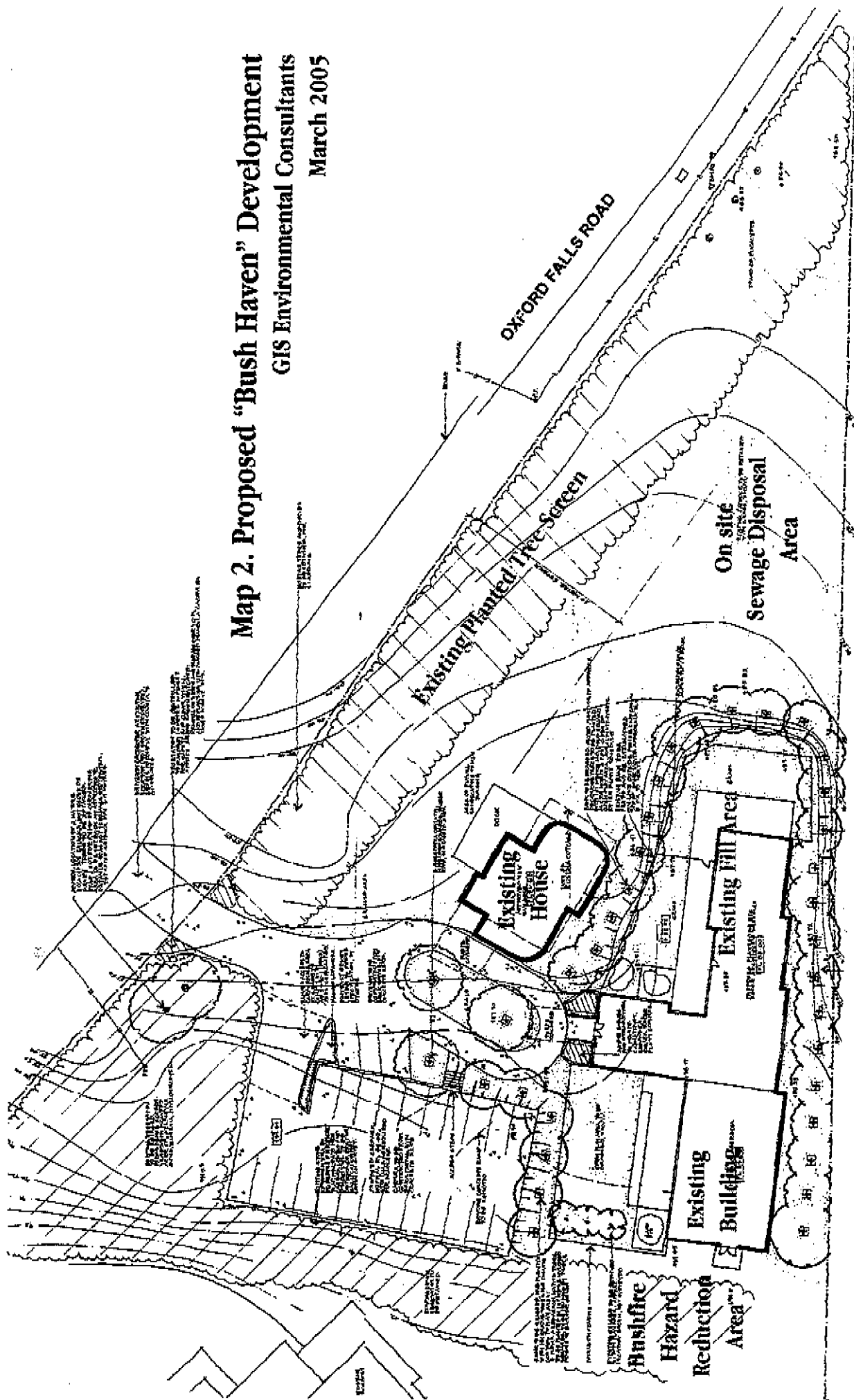
2.4.2 Proposed Disturbance to the Bushland

The proposal has been located in the already disturbed eastern corner of the site. The proposed development will only disturb a very small section (approximately 120m²) of very weedy bushland on the western side of the site, adjacent to the existing building, for bushfire hazard reduction (See Map 2). The stand of planted trees along the northern side, adjacent to Oxford Falls Rd, will be mostly retained.

2.5 Map 1. Lot 1039 Oxford Falls Rd and the Proposal Area (shown in red).



Map 2. Proposed "Bush Haven" Development
GIS Environmental Consultants
March 2005



3. Methods

The survey and assessment was carried out in 3 stages:

- Preliminary assessment involving investigation of existing knowledge about the site and preliminary field observations were made, including recording the overall physical characteristics, vegetation communities and habitat types that occurred within the proposed building site. This enabled the appropriate type of detailed searches to be designed to target the relevant ecological issues on this site.
- A field survey was then conducted across the proposed building site, including targeted searches for threatened species.
- After the information about the site was collected, an assessment was made as to the impact of the proposal with respect to the relevant legislation, and recommendations for ameliorative measures were formed. This included advising the client of ways the proposal could be modified to reduce the environmental impact, and general suggestions to facilitate long-term management of the remaining bushland area.

3.1 The Field Survey

The Flora and Fauna survey was conducted on the 11th March 2005 by Nicholas Skelton (B.Sc. Hons, M. App. Sc. with 17 years flora and fauna field survey experience in the Sydney basin) and Cassandra Thompson (B. Sc., M. App. Sc.).

During the field survey all of the proposed building site and some of the surrounding land was traversed on foot. Weed species were recorded and the proposal site was searched for any threatened, significant or cryptic species as well as scats, tracks, fur, feathers, nests and other signs. The survey involved the following procedures:

- Initial familiarisation of the site and its extent.
- Assessment of the physical environment of the site.
- Assessment of the extent of disturbance and weed invasion.
- Search for fauna, evidence of use of the site by fauna and suitability of habitat for threatened animals.
- Search for rare or threatened plant species and classification of the native vegetation.
- Discussions with the developer to reduce environmental impacts.
- Formulation of management recommendations.

3.1.1 Habitat Assessment

The general habitat value of the site for native fauna was assessed during the field investigations. Particular attention was paid to the presence of habitat features and resources such as hollow-bearing trees, rock outcrops, hollow logs, specific food trees, water features etc. which are of significant value for native fauna. Specific habitat features of value for target threatened species were specifically targeted during the survey and used to assess the likelihood of the presence of certain threatened faunal species or use of the site by these species.

Flora and Fauna Assessment, 'Bush Haven'

3.1.2 Targeted Flora Species

Table 1 lists the Threatened Plant Species that are known to occur in the locality, and which were targeted during the field survey.

Table 1: Targeted Threatened Plant Species for Lot 1039 Oxford Falls Rd, Oxford Falls.

Scientific Name	TSC	EPBC
<i>Epacris purpurascens</i> var. <i>purpurascens</i>	V	-
<i>Pimelia curviflora</i> var. <i>curviflora</i>	V	V
<i>Tetratheca glandulosa</i>	V	V

Threatened Species are classified as either Endangered (E1) or Vulnerable (V) in the Schedules of the TSC Act (Threatened Species Conservation Act 1995) (State Legislation) or Vulnerable (V) or Endangered (E) in the EPBC Act (Environmental Protection and Biodiversity Conservation Act 1999) (Federal Legislation)

3.1.3 Targeted Fauna Species

Threatened fauna species likely to occur in habitat similar to the site or that occur nearby were targeted during the survey. The suitability of the habitat for targeted species was assessed based on the presence of preferred habitat features. Threatened species are classified as either Endangered or Vulnerable in the Schedules of the *Threatened Species Conservation Act, 1995* (TSC Act), and under the *Commonwealth Environment Protection & Biodiversity Conservation Act, 2000* (EPBC Act). Legal status in the table below is either E (Endangered) or V (Vulnerable). The targeted fauna species are listed in Table 2.

Flora and Fauna Assessment, 'Bush Haven'

Table 2: List of potential threatened fauna species for Lot 1039 Oxford Falls Rd, Oxford Falls.

Common Name	Scientific Name	TSC Act	EPBC Act
BIRDS			
Glossy Black-Cockatoo	<i>Calyptrorhynchus lathamii</i>	V	-
Powerful Owl	<i>Ninox strenua</i>	V	-
Masked Owl	<i>Tyto novaehollandiae</i>	V	-
MAMMALS			
Spotted-tailed Quoll	<i>Dasyurus maculatus</i>	V	-
Eastern Quoll	<i>Dasyurus viverrinus</i>	E	-
Southern Brown Bandicoot	<i>Isodon obesulus</i>	E	-
Eastern Pigmy Possum	<i>Cercartetus nanus</i>	V	-
Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	V	-
Large-eared Pied Bat	<i>Chalinolobus dwyeri</i>	V	V
Common Bent-wing Bat	<i>Miniopterus schreibersii</i>	V	-
Greater Broad-nosed Bat	<i>Scoteanax rueppellii</i>	V	-
AMPHIBIANS			
Red-crowned Toadlet	<i>Pseudophryne australis</i>	V	-
Giant Burrowing Frog	<i>Heleioporus australiacus</i>	V	V
Green and Gold Bell Frog	<i>Litoria aurea</i>	E	V
REPTILES			
Heath Monitor	<i>Varanus rosenbergi</i>	V	-

4. Findings

4.1 Physical Characteristics of the Site

The underlying geology of the site is Hawkesbury Sandstone and the soils are thin, sandy and nutrient poor. The study site is on an east-facing slope. Fill has been placed in the proposal area to provide a level platform for building a previously approved DA.

4.2 Flora of the Site

A large number of weeds on the proposal site will be removed by the proposal and the remaining weeds are to be managed by a proposed Bushland/Site Management Plan. A list of the main weeds on this site is Table 3.

The small area (120m²) of vegetation upslope of the existing building is Sydney Sandstone Ridgetop Woodland, and is characterised by an open, dominant tree canopy consisting of Scribbly Gum (*Eucalyptus haemostama*), Red Bloodwood (*Eucalyptus gummifera*), and Grey Gum (*Eucalyptus punctata*). The understorey is dominated by weeds and *Pittosporum undulatum* adjacent to the building area. There are few weeds upslope with *Banksia serrata*, *Acacia saligna* and *Kunzea ambigua* occurring with an area of Rhizomatious Bamboo.

Table 3: Weed Species at the Proposed Development Site of 'Blue Haven'.

Genus Species	Common Name	Family	Habit	Status
<i>Lantana camara</i>	Lantana	VERBENACEAE	Shrub	Nox W2
<i>Phyllostachys</i> sp.	Rhizomatous Bamboo	POACEAE	Grass	Nox W4a
<i>Conyza albida</i>	Fleabane	ASTERACEAE	Shrub	Weed
<i>Ageratina adenophora</i>	Crofton Weed	ASTERACEAE	Herb	Weed
<i>Tradescantia albiflora</i>	Wandering Jew	COMMELINACEAE	Herb	Nox W4c
<i>Cestrum parqui</i>	Green Cestrum	SOLANACEAE	Shrub	Nox W2
<i>Anredera cordifolia</i>	Madeira Vine	BASELLACEAE	Vine	Nox W4c
<i>Nephrolepis cordifolia</i>	Fishbone Fern	DAVALLIACEAE	Fern	Nox W4c
<i>Bidens pilosa</i>	Cobbler's Pegs, Pitchforks	ASTERACEAE	Herb	Weed
<i>Parietaria judaica</i>	Asthma Weed, Pellitory	URTICACEAE	Herb	Nox W3
<i>Rubus fruticosus</i> (agg. sp.)	Blackberry	ROSACEAE	Scrambler	Nox W2
<i>Tagetes minuta</i>	Stinking Roger	ASTERACEAE	Herb	Weed
<i>Ligustrum sinense</i>	Privet - narrow leaved	OLEACEAE	Shrub	Nox W4b
<i>Acetosa sagittata</i>	Turkey Rhubarb	POLYGONACEAE	Vine	Nox W4b
<i>Verbena bonariensis</i>	Purpletop	VERBENACEAE	Herb	Weed
<i>Senna pendula</i>	Cassia	CAESALPINIOIDEAE	Shrub	Weed

4.2.2 Plant Species of Conservation Significance

No plant species of conservation significance were found on the site; and the proposal area is not suitable habitat for any significant species.

4.3 Fauna of the Site

Due to the highly disturbed nature of the proposal area, the site has limited fauna habitat features. The proposal site does not have suitable nesting or breeding habitat for any threatened fauna species. There were abundant reptiles: Eastern Water Dragon (*Physignathus lesueurii lesueurii*), Water Skink (*Eulamprus quoyii*), Garden Skink (*Lampropholis guichenoti*) and it is likely that there are exotic rats and mice.

Bats, birds and some mammals may use the site for foraging habitat although the author believes that this use of a disturbed area warrants an 8-part test of significance for any threatened fauna species.

4.4 Bushfire Hazard Reduction Clearing

The site is within a bushfire prone area. The bushfire report by Wainwright Fire Service, dated July 2004 provides a bushfire threat assessment of the proposal. It prescribes a high level of building standards and an Asset Protection Zones (APZ) for the proposal of 30m to protect the site from bushfire attack risk to the north, northwest, west, southwest and south. This APZ is to consist of an Inner Protection Area (IPA) of 20m and an Outer Protection Area (OPA) of 10m from habitable buildings. See Map 2.

4.5 Sewerage Disposal

The sewerage report by Lawfell Pty Ltd discusses the method of on-site sewerage disposal for the proposal. This report recommends that an Envirocycle unit along with wet weather storage tanks are to be installed underneath the proposed building. The report recommends the minimum area of 260m² as the irrigation area. The area proposed for irrigation 700m² at the location and shown on page 8 of the report, being situated 10m from boundaries with dual irrigation areas, alternating every 3-4 days. The report also shows above ground sprinklers and 300mm high earth embankments along the edges of the irrigation area to eliminate the possibility of runoff. It also recommends that grass in the area is regularly mowed and the clippings are removed. We recommend that subsurface irrigation is used for this proposal.

5. Impact Assessment

It is unlikely that the proposal will have any impact on native flora and fauna or their habitat, as the proposal area is already highly disturbed and not suitable habitat for most native flora and fauna species.

No threatened plant or animal species, population or community listed in the schedules of the TSC Act was found on the proposal site. The proposed development will not significantly impact upon any threatened flora and fauna habitat. The proposal area is highly disturbed and weedy. It is not recommended that further assessment in the form of an 8-part test or a Species Impact Statement is required for this proposal at this site.

6. Recommendations

6.1.1 Fill

It is recommended that no further fill be used in the building area. The owner has specified that there is no more fill required for the development.

6.1.2 Weed Control

Asthma, hay fever, allergies, skin rashes and poisonings can result from weeds. Weeds, especially Noxious Weeds, should be controlled before construction of the proposal by spraying and suppression of all weeds in the construction area before construction to prevent weeds being spread around the site. Monthly spraying should be completed in the construction area during construction and the long-term maintenance of weed control for the site will include annual searches for weeds and elimination of weed species. The long-term suppression of weeds can be achieved by mulching with weed free Eucalyptus much, a minimum of 150mm deep. This may need annual topping up. All weed control is to be completed using bush regeneration techniques. Further information on weed control and weed removal techniques for the site will be available in the recommended Bushland/Site Management Plan.

6.1.3 Removal of Building Materials

Unused building materials are not to be stored elsewhere on the site, that is, within the sewerage disposal area or in the bushland to the west of the proposal. Specifications for the area for storage of building materials during construction will be provided in the recommended Bushland/Site Management Plan.

It is strongly suggested that topsoil storage and dumping be prevented from occurring within the bushland areas as actions such as this are likely to lead to increased nutrient influx and weed infestation into the area.

6.1.4 Tree Protection

Trees to be retained that are within 3m of the construction area are to be protected during construction. Further information about tree protection will be available in the recommended Bushland/Site Management Plan.

6.1.5 Silt Protection

Appropriate stormwater and silt fences are to be installed.

6.1.6 Sewerage Disposal

On-site sewerage disposal is to be a subsurface irrigation system on a level area with bund walls to prevent runoff.

6.1.7 Bushfire Hazard Reduction

Bushfire hazard reduction will be completed by the removal of weeds first then dead plant material using bush regeneration techniques. There is no need to remove trees within the Asset Protection Zone.

6.1.8 Landscaping

Landscaped areas are to consist of a minimum of 80% native species.

6.1.9 Management Plan

It is recommended that a Bushland/Site Management Plan be completed for this proposal at this site. This will ensure that recommendations and weed control are effectively completed for the proposal. This management plan is to include:

- What is to occur before, during and after construction
- The qualifications of personnel to carry out work
- Materials to be used
- Weed Control and Bush Regeneration Techniques to be used.

Flora and Fauna Survey Data by Nick Skelton

Ph: 9939 5129, Mob: 041 943 8672 Email: nick.skelton@bigpond.com

Data from these reports is available on request for scientific or conservation purposes.
These reports contain full flora and fauna lists, accurate localities and habitat descriptions.



Year	Type of Work	Location	Locality	Pages	Area (ha)	No. Plant Species	No. Fauna sp recorded	Thr Sp, Pops and/or Communities
2003	F & F Survey	Tania Park	Balgowish	31	0.1			No
2002	Bushland Management Plan	Alexandra Cres	Bayview	5	0.1			
2002	Vegetation Assessment, Duffy Forest	Guardian Parade	Beacon Hill	n/a				
2002	Expert Evidence for Court	Red Hill	Beacon Hill	23	0.1			Yes
2003	Bushland Management Plan	Narrabang Way, Austlink Park	Belrose	21	0.7			Yes
2003	Works Protection Program	Narrabang Way, Austlink Park	Belrose	22	0.1			
2002	Bushland Management Plan	Minna Close, Austlink Park	Belrose	17	0.1			
2002	Works Protection Program	Minna Close, Austlink Park	Belrose	25	0.1	62	25	Yes
2002	F&F Assessment & Management Recs	Minna Close, Austlink Park	Belrose	29	0.1			No
2002	Species Impact Statement	Minna Close, Austlink Park	Belrose	27	0.1	74	23	Yes
2002	F&F Assessment & Management Recs	Minna Close, Austlink Park	Belrose	28	0.1			Yes
2002	Species Impact Statement	Minna Close, Austlink Park	Belrose	21	1.5			
2002	F&F Assessment & Management Recs	Morgan Rd	Belrose	10	8.5		Old	Yes
2001	Issues Report, Review & Meetings	Forest Way Belrose	Belrose	18				
2001	Works Protection Program	Narrabang Way, Austlink Park	Belrose	20	25.0			
2001	Bushland Management Plan	Narrabang Way, Austlink Park	Belrose	n/a				
2001	Supervising construction works	Narrabang Way, Austlink Park	Belrose	n/a	0.1			Yes
2001	Supervision of Works	Bigola Ave	Bigola	9	0.1			Yes
2001	Tree Survey	Bigola Ave	Bigola		0.1			Yes
2001	Bushland Management Plan	Bigola Ave	Bigola			27		
2002	Bushland Management Concept Plan	Cabarita Rd	Careel Bay	28		27		
2002	Tree Survey	Cabarita Rd	Careel Bay	37	1.1			No
2002	F&F Assessment & Management Recs	Cabarita Rd	Careel Bay	40+				
2003	Expert Evidence for Court	Bakers Rd	Church Point	36	0.8	76	25	Yes
2003	Biodiversity Impact Assessment	Mc Carrs Creek Road	Church Point	24	0.8			
2003	Bushland Management Concept Plan	Mc Carrs Creek Road	Church Point	n/a	n/a			Yes
2001	Expert Evidence for Court	Mc Carrs Creek Road	Church Point	33				
2001	Bushland Management Plan	Mc Carrs Creek Road	Church Point	37	1.2			Yes
2003	Arborist Report	Chisholm Ave	Clareville	3				No
2003	Update F & F Survey	Chisholm Avenue	Clareville	37	1.2			??
2002	F&F Assessment & Management Recs	Chisholm Ave	Clareville	56	4.0			
2002	Bushland Management Plan	Vetrans Village Collaroy	Collaroy	5				?
2002	Water Quality Monitoring	Vetrans Village Collaroy	Collaroy	51				
2001	Management Plan	Vetrans Village Collaroy	Collaroy	127				Yes
2003	F & F Survey	Sydney Harbour NP, Dobroyd Head	Dobroyd	?	64.6			
2002	Assessment of Urban Interface	Dobroyd Head (Sydney Harbour NP)	Dobroyd	?	84.6			
2002	Assessment of Path Condition	Dobroyd Head (Sydney Harbour NP)	Dobroyd	21	0.2	<20	5	Yes
2003	F&F Assessment & Management Recs	Killawarra Road	Duffy's Forest	11	0.2			Yes
2003	Bandicoot Survey & Weed Management	Killawarra Road	Duffy's Forest	19+8	0.1			Yes
2001	Expert Evidence for Court	Elanora Rd	Elanora	18	10.0		6	No
2003	F & F Survey	Camaron Drive	Frenches Forest	47	46.8			No
2003	Review of Environmental Factors	Allworth Dr, Ku-ring-gai NP	Gangai	56	21.7			Yes
2003	Review of Environmental Factors	Yimbria Pl, Garigal NP	Garigal NP	33				Yes
2002	Forest Management Plan	Montego Cay	Green haven	33				
2002	Water Level Monitoring	Montego Cay	Green haven	33				
2002	Weed Control Plan	Montego Cay	Green haven	14	< 0.1			
2002	Statement of Evidence	Pacific Highway	Hesthote	57	7.4	91	44	Yes
2003	F & F Survey	Woolwich Dock and Parklands	Hunter's Hill	25	1.2	108	8	No
2003	F&F Assessment & Management Recs	Old Ferry Rd	Illawong	9	0.4			No
2003	Bushland Management Plan	Lancove Rd	Inglestone	30	0.9			Yes
2002	F&F Assessment & Management Recs	Boronia Road	Inglestone	2	1.0			
2001	Frog survey	Addison Rd	Inglestone	34	16.8			Yes
2001	Bushland Management Plan	Lane Cove Rd	Inglestone	46	18.0			No
2003	Review of Environmental Factors	Cicada Glen, Ku-ring-gai NP	Ku-ring-gai Chase NP	54	50.9			No
2003	Review of Environmental Factors	Coasters Retreat, Ku-ring-gai NP	Ku-ring-gai Chase NP	44	14.1			No
2003	Review of Environmental Factors	Currawong Beach, Ku-ring-gai NP	Ku-ring-gai Chase NP	54	50.4			No
2003	Review of Environmental Factors	Elvina Bay, Ku-ring-gai NP	Ku-ring-gai Chase NP	53	33.4			No
2003	Review of Environmental Factors	Lovett Bay, Ku-ring-gai NP	Ku-ring-gai Chase NP	40	100.0			No
2003	Review of Environmental Factors	McCarrs Creek Rd, Ku-ring-gai NP	Ku-ring-gai Chase NP	n/a				
2002	Threatened Species Survey	Lucas Heights Nuclear Reactor	Lucas Heights	13	<1			Yes
2003	F&F Impact Assessment	Bruce Ave	Manly	24	0.1			Yes
2003	Species Impact Statement	Addison Road	Manly	9	<1			Yes
2003	Bandicoot Impact Assessment	Addison Road	Manly	11				Yes
2003	F&F Assessment & Management Recs	St Patrick's Estate	Manly	17	<1			Yes
2003	Bandicoot Impact Assessment	Bower Street	Manly	14	<1			Yes
2003	Bandicoot Impact Assessment	Bower Street	Manly	34		214	49	Yes
2003	Natural Assessment	Forty Baskets	Manly	32		86	35	Yes
2003	Natural Assessment	Little Manly Cove	Manly	18		18	24	Yes
2003	Natural Assessment	Manly Cove	Manly	27				

Year	Type of Work	Location	Locality	Pages	Area (he)	No. Plant Species	No. Fauna sp recorded	Thr Sp. Pops and/or Communities
2003	Natural Values Assessment	North Harbour	Manly	32		38	23	Yes
2003	GIS/GPS Walkway Mapping	Manly Coastal Walk	Manly	n/a	n/a			No
2003	Herbarium & Plant Identification	Manly LGA	Manly	n/a	n/a			Yes
2003	F & F Survey	Various Reserves	Manly	250	50.0	633	103	Yes
2003	Species Impact Assessment	Osborne Road	Manly	13	0.1			Yes
2003	Bandicoot Impact Assessment	Reddell St	Manly	11				Yes
2002	F&F Assessment & Managem't Recs	Addison Ave	Manly	13	0.1		1	Yes
2002	F&F Assessment & Managem't Recs	Addison Ave	Manly	8	0.1		1	No
2002	Penguin & Bandicoot Impact Statement	Addison Rd	Manly		0.1			Yes
2002	Penguin Survey	Addison Road	Manly	8	0.1			No
2002	Bandicoot Impact Assessment	Bower Street	Manly	11	0.1			Yes
2002	F&F Assessment & Managem't Recs	Bruce Ave	Manly	10	0.1		1	Yes
2002	Bushland Managem't Concept Plan	Chisholm Ave	Manly	18	2.0			
2002	F&F Assessment & Managem't Recs	Chisholm Ave	Manly	26	2.0			
2002	Stormwater impact survey	Manly Stormwater	Manly	25	n/a			Yes
2002	F & F Survey	Seaforth Unmade Road Reserves	Manly	6	n/a			
2002	F&F Assessment & Managem't Recs	North Head	Manly	4	n/a			
2002	Penguin & Bandicoot Impact Statement	Oyama Ave	Manly	10	0.1			
2002	Species Impact Statement	Oyama Ave	Manly	12	0.1		1	Yes
2002	F&F Assessment & Managem't Recs	Pickering Point	Manly	3	1.5			
2001	F&F Assessment & Managem't Recs	Bower St	Manly	8	0.7			
2001	Bandicoot Impact Assessment	Darley Road	Manly	7	n/a		1	Yes
2001	F&F Assessment & Managem't Recs	Little Manly Point	Manly					Yes
2001	F&F Assessment & Managem't Recs	Little Manly Point	Manly	15	< 0.1			Yes
2001	Penguin Impact Assessment	Oyama Ave	Manly	9				Yes
2001	Powerline Maintenance	Collins Beach	Manly	47	0.9	99	15	Yes
2002	F&F Assessment & Managem't Recs	Nareen Parade	Narrabeen			35	0	Yes
2003	Preliminary F&F survey Stage 1	Wakehurst Parkway	Narrabeen	3				Yes
2003	Preliminary F&F survey Stage 2	Wakehurst Parkway	Narrabeen	3				
2003	Installment of soil water level bore	Montego Cay	Narrabeen	n/a	n/a			No
2003	F&F Assessment & Managem't Recs	Montego Cay	Narrabeen	13				Yes
2003	Monitor Ground Water levels	Montego Cay	Narrabeen	20	4.0			Yes
2003	Survey for Threatened Flora	Montego Cay	Narrabeen	n/a	n/a			Yes
2003	F&F Assessment & Managem't Recs	Prince Alfred Parade	Newport	25	<1	37		Yes
2002	F&F Assessment & Managem't Recs	Grandview Drive	Newport	6	0.1			Yes
2002	Bushland Managem't Concept Plan	Prince Alfred Pde	Newport	18	0.1			Yes
2002	F&F Assessment & Managem't Recs	Prince Alfred Pde	Newport	34	0.1			No
2001	Managem't Plan	Herbert Ave	Newport	9				Yes
2003	Flora survey	North Head	North Head		385.0			Yes
2003	Fauna Survey	North Head	North Head	129	385.0		134	No
2003	Tree Survey	Collins Beach	North Head	3		26		Yes
2001	Bushland Managem't Plan	Collins Beach	North Head	18	0.9	99	13	Yes
2003	F & F Survey	Klerie Park	North Manly					Yes
2003	F&F Assessment & Managem't Recs	Cynthia Road	Palm Beach	19	<1	44	7	Yes
2003	Bushland Managem't Plan	Observation Point	Palm Beach	49	0.5	137		Yes
2003			Palm Beach	6				



GIS Environmental Consultants

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Reports Completed in the Years 2003 - 2004

Year	Type of Work	Location	Locality	Activity/Proposal	Client
2004	Flora and Fauna Survey	Killawarra Rd	Warringah	Development Constraints	Private
2004	Flora & Fauna Impact Assessment	Boorlaie Rd	Warringah	House DA	Private
2004	Assessment of Impact on Littoral Rainforest	Pittwater Rd	Pittwater	House DA	Pittwater Council
2004	Ecological Assessment of DAs	St Patricks Estate	Manly	8 House DAs	Manly Council
2004	Bandicoot Impact Assessment	Bower St	Manly	House DA	KGD Design
2004	Amalgamated ESP	Caladenia Close	Pittwater	House DA	Bill MacMahon Architects
2004	Bandicoot Impact Assessment	Addison Rd	Manly	Extension of Unit Block	Gilbey Burgess Strala
2004	Bandicoot Impact Assessment	Cliff St	Manly	Extension of Unit Block	David Hulme
2004	Court Expert	Ilwong	Ilwong	Subdivision	Jim Kekatos Lawyers
2004	Ecological Sustainability Plan	Ingleside Rd	Ingleside	House DA	Private
2004	Assessment of Dev. Constraints	Killawarra Rd	Duffy's Forest	Subdivision	Dep. Lands and Parnell Partners
2004	Guided Community Walk	Seaforth Walk	Seaforth/Manly	Lecture	Manly Council
2004	Bandicoot Impact Assessment	Wood St	Manly	House Replacement	Watershed - Architect
2004	Arborist Report	Wood St	Manly	House Replacement	Watershed - Architect
2004	Bandicoot Impact Assessment	Bower St	Manly	House Replacement	Albion Architects - Marc Biancardi
2004	Bandicoot Impact Assessment	Le Kiosk	Manly	Dwelling Extension	Daniel Morris - Le Kiosk
2004	Ecological Sustainability Plan	Caladenia Close	Elanora Heights	House Construction	Bill MacMahon Architects
2004	8-part tests	Caladenia Close	Elanora Heights	House Construction	Bill MacMahon Architects
2004	Statement of Evidence	Lane Cove Rd	Ingleside	House DA	Mallesons Stephen Jacques
2004	Court Expert	Bibb Luke	Duffy's Forest	Subdivision	Simon Maxwell & Mal Corbett
2004	Independent Assessment	St Patrick's Estate	Manly	Subdivision	Manly Council
2004	Tree Survey	Inman Rd	Dee Why	Subdivision	Roche
2004	Court Expert	Herbert Ave	Newport	Subdivision	Private
2004	Amendment to Report	Prince Alfred Parade	Newport	Residential Development	Dennis Leach & Associates Architects
2004	Flora and Fauna Impact Assessment	Park Street	Mona Vale	Unit development	Private
2004	Bandicoot Impact Assessment	Bower St	Manly	Carport	Mr M Nolan and assoc and architects.
2004	Bandicoot Impact Assessment	Bower St	Manly	Carport	Private
2004	Update Building Certificate Appl	Morgan Rd	Belrose	Earthworks	Mathews contracting
2004	Ecological Sustainability Plan	Turnburs St	Ingleside	Residential Development	Private
2004	Flora & Fauna Impact Assessment	Wood St	Manly	Residential Development	Timothy Moon Architecture
2004	Flora and Fauna Impact Assessment	Wood St	Manly	Residential Development	Timothy Moon Architecture
2004	Flora & Fauna Impact Assessment	The Knoll	Avalon	House Construction	Susie Watkins and Gerard Coetzee
2004	Ecological Sustainability Plan	The Knoll	Avalon	House Construction	Susie Watkins and Gerard Coetzee
2004	Flora and Fauna Assessment	The Knoll	Avalon	Development Application	Private
2004	Bushland Management Plan	Polo	Ingleside	House Construction	Chateau Construction (Aust) Pty. Ltd.
2004	Flora & Fauna/ Tree Assessment	Pittwater Rd	Bayview	House Replacement	Private
2004	Little Penguin Monitoring	Oyama Ave	Manly	Alterations and additions	Hans Brust Design
2004	Flora and Fauna Assessment	Ku-ring-gai Chase NP	Ku-ring-gai Chase NP	Trail upgrade	National Parks and Wildlife Service
2004	Flora Survey	North Head	North Head	Land Management	Sydney Harbour Federation Trust
2004	Amendment to Report	Narrabang Way	Belrose	Warehouse and Office Development	Access Communications c/o Giles Tribe Architects
2004	Flora and Fauna Impact Assessment	Mona Vale Rd	Terrey Hills	Development Application	Seahorse Securities - C/o Event Project Management
2004	Species Impact Statement	Manly SIS	Seaforth	Road and Carpark	Manly Council
2004	Ingleside Natural Values Survey	Ingleside GIS	Ingleside	Land Management	Pittwater Council
2004	Flora and Fauna Survey	Florida Rd	Palm Beach	House Construction	Private
2004	Assessment of DA and Manag't Recom' for Development Consent	Fairy Bower Rd	Manly	Development Application	Manly Council
2004	Flora & Fauna Survey	Debroyd	Debroyd	Land Management	National Parks and Wildlife Service
2004	Flora & Fauna Impact Assessment	Craig Ave	Manly	Residential Development	Kimmo Pitkanen Out of Site Projects
2004	Bushland Management Plan	Chisholm St	Avalon	Residential Development	Alan Lawrence Architecture
2004	Flora and Fauna Impact Assessment	Carey Street	Manly	Residential Development	Manly Council
2004	Ecological Sustainability Plan	Cabarita Rd	Avalon	House Extension	Private
2004	Flora and Fauna Impact Assessment	Bruce Ave	Manly	Residential Development	Tony Messitti & Michael Neale - Michael Robilliard & Associates

Year	Type of Work	Location	Locality	Activity/Proposal	Client
2004	Meetings and Field Visit	Bibbenluka Meetings	Duffys Forest	Subdivision	Simon Maxwell & Mal Corbett
2004	Works Protection Program	Bibbenluka EMP	Duffys Forest	Subdivision	Simon Maxwell & Mal Corbett
2004	Court Expert	Bibbenluka Court Case	Duffys Forest	Subdivision	Simon Maxwell & Mal Corbett
2004	Bushland Management Plan	Bibbenluka CEMP	Duffys Forest	Subdivision	Simon Maxwell & Mal Corbett
2004	Concept Bushland Management Plan	Bibbenluka CBMP	Duffys Forest	Subdivision	Simon Maxwell & Mal Corbett
2004	Vegetation Mapping	Beecroft	Jervis Bay	Land Management	Simon Maxwell & Mal Corbett
2004	Natural Environment Assessment & Recommendations	Manly	Manly	Management Planning	Environment Australia
2004	Response Letter	Mona Vale Rd	Terrey Hills	Development Proposal	Manly Council
2004	Ecological Sustainability Plan	Cabarita Rd	Avalon	Alterations and additions	Event Project Management Pty Ltd.
2003	Bushland Management Plan	Narabang Way, Austlink Park	Belrose	Warehouse Development	Private
2003	Works Protection Program	Narabang Way, Austlink Park	Belrose	Warehouse Development	Giles Tribe Architects
2003	Flora & Fauna Impact Assessment	Chisholm St.	South Turramurra	Sub-division for Housing	Giles Tribe Architects
2003	Expert Evidence for Court	Rosedale Road	St Ives	Sub-division for Housing	Masterton Homes
2003	Flora & Fauna Survey	Carnarvon Drive	Frenches Forest	Sub-division for Housing	Tripart Developments
2003	F&F Assessment & Management Recs	Old Ferry Rd	Ilwong	Sub-division for Housing	Souter and Associates
2003	F&F Assessment & Management Recs	Prince Alfred Parade	Newport	House Construction	Planning Logic
2003	Bushland Management Plan	Lane Cove Rd	Inglewood	House Construction	Dennis Leach & Associates Architects
2003	F&F Assessment & Management Recs	St Patrick's Estate	Manly	Alterations and Additions	John and Rita Valentino
2003	Species Impact Assessment	Osborne Road	Manly	Alterations and Additions	Philip Ayling Design
2003	Penguin Impact Assessment	Oyama Ave	Manly	Building Maintenance	Muhoba Pty. Ltd.
2003	Review of Environmental Factors	Albworth Dr, Ku-ring-gai NP	Garigal NP	Bush Fire Hazard Reduction Burn	Body Corporate
2003	Review of Environmental Factors	Yremba Pl, Garigal NP	Garigal NP	Bush Fire Hazard Reduction Burn	National Parks and Wildlife Service
2003	Review of Environmental Factors	Cicada Glen, Ku-ring-gai NP	Ku-ring-gai Chase NP	Bush Fire Hazard Reduction Burn	National Parks and Wildlife Service
2003	Review of Environmental Factors	Coasters Retreat, Ku-ring-gai NP	Ku-ring-gai Chase NP	Bush Fire Hazard Reduction Burn	National Parks and Wildlife Service
2003	Review of Environmental Factors	Currawong Beach, Ku-ring-gai NP	Ku-ring-gai Chase NP	Bush Fire Hazard Reduction Burn	National Parks and Wildlife Service
2003	Review of Environmental Factors	Elvina Bay, Ku-ring-gai NP	Ku-ring-gai Chase NP	Bush Fire Hazard Reduction Burn	National Parks and Wildlife Service
2003	Review of Environmental Factors	Lovett Bay, Ku-ring-gai NP	Ku-ring-gai Chase NP	Bush Fire Hazard Reduction Burn	National Parks and Wildlife Service
2003	Review of Environmental Factors	McCarrs Creek Rd, Ku-ring-gai NP	Ku-ring-gai Chase NP	Bush Fire Hazard Reduction Burn	National Parks and Wildlife Service
2002	F&F Assessment & Management Recs	North Head	Manly	Bush Fire Hazard Reduction Burn	National Parks and Wildlife Service
2003	F&F Assessment & Management Recs	Montego Cay	Narrabeen	Bush Fire Hazard Reduction Burn	Sydney Harbour Federation Trust
2003	Herbarium, Plant Identification & Education	Manly LGA	Manly	Bush Fire Hazard Reduction Burn	RSL Veterans Retirement Villages
2003	Bandicoot Impact Assessment	Reddell St	Manly	Bush Regeneration	Manly Council
2003	F & F Impact Assessment	Mona Vale Rd	Terrey Hills	Demolition & Construction of new Residence	J.J. Newlin-Mazaraki Architects
2003	F&F Assessment & Management Recs	Killawara Road	Duffys Forest	Development Application	Seahorse Securities Pty Ltd
2003	Bandicoot Survey & Weed Management	Killawara Road	Duffys Forest	Fire Trail Construction	Mr & Mrs Moyland
2003	F&F Assessment & Management Recs	Cynthia Road	Palm Beach	Garage Extension	Mr & Mrs Moyland
2003	Bandicoot Impact Assessment	Bower Street	Manly	House Alterations and Additions	Greg Barrett
2003	Biodiversity Impact Assessment	Mc Carrs Creek Road	Church Point	House Replacement	Mitura Pty. Ltd
2003	Bushland Management Concept Plan	Mc Carrs Creek Road	Church Point	House Replacement	Build Air Pty Ltd
2003	Species Impact Statement	Addison Road	Manly	House Replacement	Build Air Pty Ltd
2003	F&F Assessment & Management Recs	Pacific Rd	Palm Beach	House Replacement	Payton Holdings Pty Ltd
2003	Bushland Management Plan	McCarrs Ck Rd	Terrey Hills	House Replacement	SJB Interiors
2003	F & F Impact Assessment	McCarrs Ck Rd	Terrey Hills	House Replacement	Dimitri Berzov
2003	Preliminary F&F Survey Stage 1	Wakehurst Parkway	Narrabeen	House Replacement	Dimitri Berzov
2003	Preliminary F&F Survey Stage 2	Wakehurst Parkway	Narrabeen	Intersection and Entrance	Hyder Consulting for Aust. Academy of Sports
2003	Flora & Fauna Survey	Tania Park	Balgowlah	Intersection and Entrance	Hyder Consulting for Aust. Academy of Sports
2003	Flora & Fauna Survey	Sydney Harbour NP, Dobroyd Head	Dobroyd	Land Management	Manly Council
2003	Flora & Fauna Survey	Woolwich Dock and Parklands	Hunter's Hill	Land Management	National Parks and Wildlife Service
2003	Natural Assessment	Forty Baskets	Manly	Land Management	Sydney Harbour Federation Trust
2003	Natural Assessment	Little Manly Cove	Manly	Land Management	Manly Council
2003	Natural Values Assessment	Manly Cove	Manly	Land Management	Manly Council
2003	Natural Values Assessment	North Harbour	Manly	Land Management	Manly Council
2003	GIS/GPS Walkway Datacapture & Mapping	Manly Coastal Walk	Manly	Land Management	Manly Council
2003	Flora & Fauna Survey	Various Reserves	Manly	Land Management	Manly Council
2003	Flora survey	North Head	North Head	Land Management	Manly Council
2003	Fauna Survey	North Head	North Head	Land Management	Sydney Harbour Federation Trust
2003	Tree Survey	Collins Beach	North Head	Land Management	Sydney Harbour Federation Trust
2003	Flora & Fauna Survey	Kierle Park	North Manly	Land Management	Australian Police Institute
2003	Flora & Fauna Survey	Seaforth Oval	Seaforth	Land Management	Manly Council
				Land Management	Manly Council