

17 September 2009

S2F Pty Ltd

L1, Building 1, 21-31 Goodwood St,

Richmond, VIC 3121

T +61 3 8456 4800

**Targeted *Tetratheca juncea* Survey – Addendum to the Flora,
Fauna and Threatened Species Assessment (Ecobiological,
May 2009).**

**Proposed Medical Research and Development Facility
2 Lookout Road, New Lambton Heights, NSW.**

1. Background Information

During the original field surveys for the Flora, Fauna and Threatened species Assessment (Ecobiological, May 2009) an individual *Tetratheca juncea* plant was located. As a result of this finding, the following recommendation was made:

- ① A survey for *Tetratheca juncea* should be undertaken in September – December during its known flowering period within the area identified in Figure 8 to determine the extent of the population and the number and location of individual plants. The results of this survey should form an Addendum to this assessment. Should a local population of the species be confirmed within the proposed development footprint, mitigation measures such as translocation to another area within the Hospital grounds or offsetting may be required to address impacts on this species. Should a local population be found within the proposed bushfire APZ and fuel managed areas, these plants should be protected. Fuel reduction techniques such as manual slashing have the potential to impact on any plants found. Protection for identified plants should be afforded through the proposed Fire Management Plan (ABPP 2009)



PO Box 585
Warners Bay NSW 2282

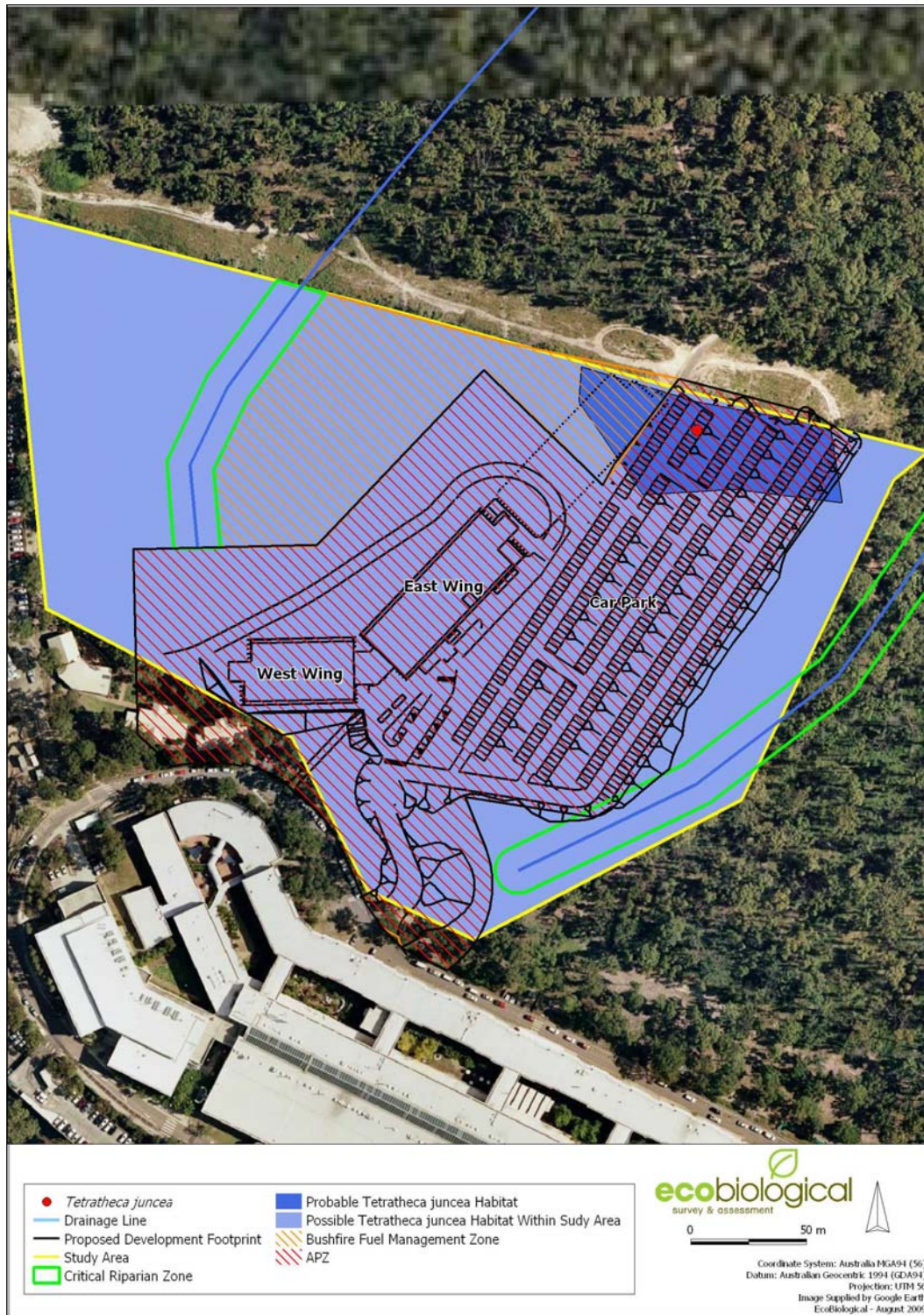
2/9 Oakdale Road
Gateshead NSW 2290

Tel 1300 881 869
Fax 1300 881 035

www.ecobiological.com.au

ABN 74 114 440 041

ecobiological
survey & assessment





2. Methodology

On the 10 September 2009 a detailed survey of the subject site during the peak flowering season was undertaken. A meandering technique was used to survey for *Tetratheca juncea* clumps. The definition of a clump was that of Payne *et al.* (2002) being a group of stems separated by 30cm from any other group of stems. Each clump will be located using a hand held GPS.

The area to be survey is approximately 4.2 hectares and is bound by drainage lines to the east and west, by John Hunter Hospital to the south and by a powerline easement to the north.

3. Results

The detailed survey resulted in 11 clumps of the threatened *Tetratheca juncea* being recorded. All occurrences were recorded on an eastern facing slope within the area to be disturbed by the proposed carpark. Figure 1 shows the survey effort. The 4.2 hectare area was surveyed over a 4 hour period. Figure 2 shows the locations of the 11 clumps surveyed.

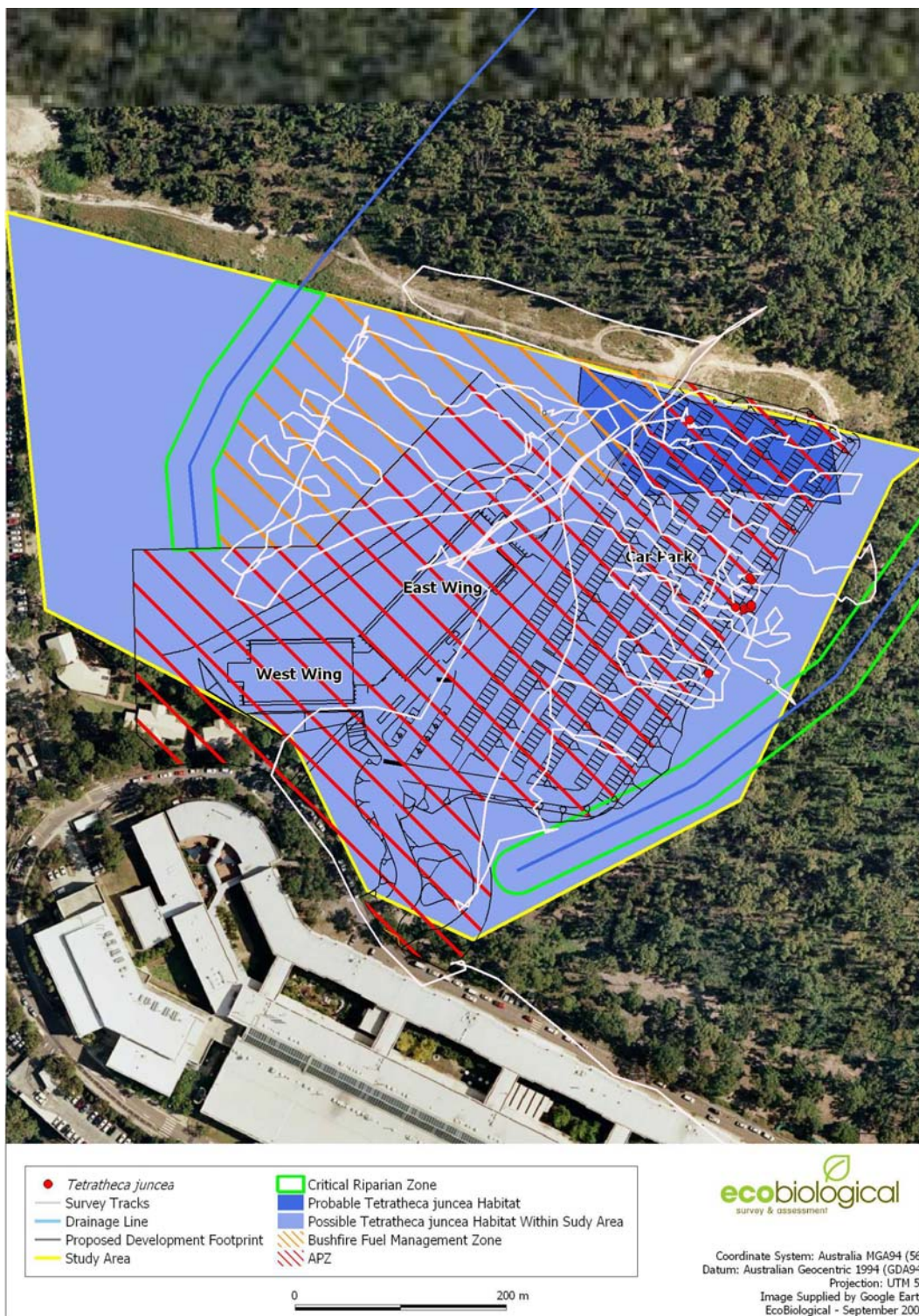


Figure 1: *Tetratheca juncea* survey effort and tracks



ecobiological
survey & assessment

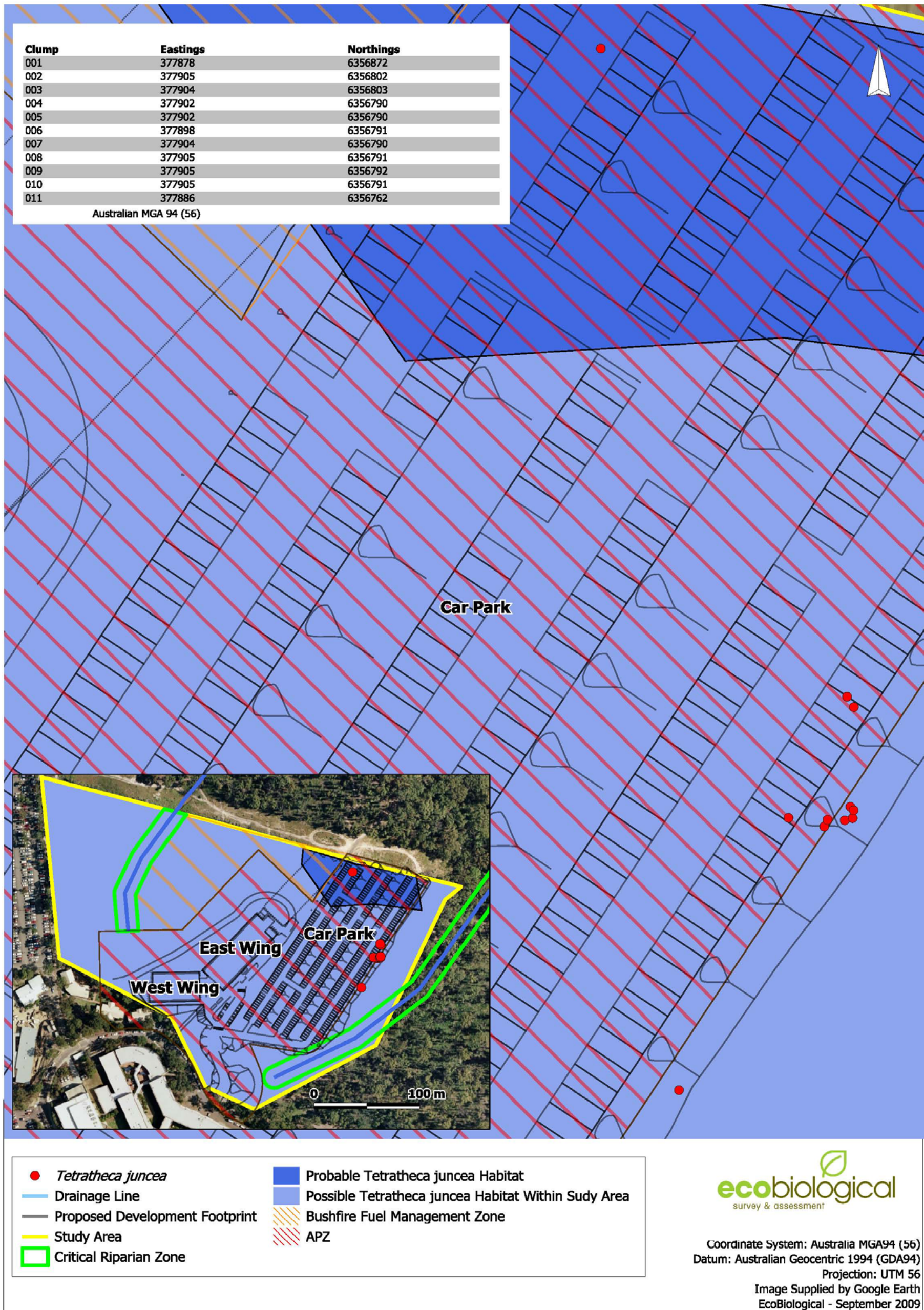


Figure 2: *Tetratheca juncea* clump locations.



4. Mitigation Measures

Several mitigation options were considered including; reduction of carpark spaces, offset site purchased and conserved which supports *Tetratheca juncea* or a translocation / monitoring program.

Of these only the translocation / monitoring program is considered a feasible mitigation option and will result in the translocation and conservation of the *Tetratheca juncea* plants on-site.

The translocation / monitoring program should be implemented following the below steps;

- 1) Each clump should be removed using a small excavator, ensuring the root system is kept intact and that a reasonable amount of soil is taken with the plant;
- 2) The clumps should be translocated into a vegetation community with an overstorey dominated by *Angophora costata* and with co- dominant species such as *Eucalyptus umbra*, *Eucalyptus piperita* subsp. *piperita* and *Eucalyptus resinifera* subsp. *resinifera*. The shrub layer should contain both *Banksia spinulosa* and *Xanthorrhoea latifolia*. The location to which the *Tetratheca juncea* clumps will be translocated should be as close as possible to the their original location, within an area of the grounds around the John Hunter Hospital facility that will not be developed in the future;
- 3) The translocated clumps should be well watered in and watered on a weekly basis for 8 weeks and then monthly for 4 months. Bringing the watering period to 6 months.
- 4) The translocated clumps should be monitored, with monitoring occurring every watering event and then once during September 2010 and again upon 12 months from the initial translocation date. The monitoring should simply



record the state of the translocated plants and if they proceeded to flower (during its flowering period); and

- 5) Upon completion of the 12 month monitoring period, a letter should be submitted to the appropriate authorities stating the success of the translocation program and give any recommendations that may have resulted from the translocation program process.

5. Revised Assessment of Significance

As a result of the detailed survey during the flowering period of *Tetratheca juncea*, the Assessment of Significance completed in the Flora, Fauna and Threatened Species Assessment (Ecobiological, May 2009) has been updated to include the new information.

Black-eyed Susan (*Tetratheca juncea*)

(a) *in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,*

The detailed targeted threatened plant survey conducted within the study area identified 11 clumps of the threatened species *Tetratheca juncea*. All 11 clumps of *Tetratheca juncea* will be disturbed as a result of the proposed carpark facilities. Although 11 clumps of *Tetratheca juncea* is a small population of this threatened flora species, the proposed disturbance will result in the population on-site becoming extinct. However with the above mentioned mitigation measure enacted, the *Tetratheca juncea* clumps on-site would be translocated and monitored for a minimum 12 months period.

It must be noted that the loss of 11 clumps of *Tetratheca juncea* in a regional context is inconsequential and will not put the regional population of *Tetratheca juncea* at risk of extinction. This isolated population of only 11 clumps of *Tetratheca juncea* has not been previously recorded on the NSW NPWS Wildlife Atlas. The NSW NPWS Wildlife Atlas has 33 records of *Tetratheca juncea* populations within the Newcastle LGA, 13 of which are within 1500m of the subject site. The NSW NPWS Wildlife Atlas records are of populations and would support a large number of clumps.

The proposed mitigation measure will aim to conserve all the 11 clumps through the translocation of the population. *Tetratheca juncea* translocation programs are susceptible to environmental and soil conditions and previous translocations programs have resulted in a survival rate of between 21% and 40%. Larger *Tetratheca juncea* clumps with greater



amounts of soil being translocated with the plants have had a higher survival rate (Ecobiological unpublished data). Therefore it is possible that up to 75% of the translocated population could be lost. The proposed translocation program has however built in additional watering events and will be translocating *Tetratheca juncea* clumps with greater amounts of soil compared to other translocation programs completed by Ecobiological, in an attempt to increase the survival rate.

- (b) *in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction,*

Not applicable.

- (c) *in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:*

- i. *is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or*

Not applicable

- ii. *is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,*

Not applicable

- (d) *in relation to the habitat of a threatened species, population or ecological community:*

- i. *the extent to which habitat is likely to be removed or modified as a result of the action proposed, and*

In total 4.2 hectares of potential habitat will be disturbed as a result of the proposed development.

Tetratheca juncea populations are known to occur in Coastal Smooth-barked Apple Woodland vegetation in the region. The nearest known population exists on the slopes south of the John Hunter Hospital facility and to the southeast within Blackbutt Reserve. Within the Newcastle LGA there are 33 records of *Tetratheca juncea*, with 13 of them occurring within 1500m of the subject site. These records represent populations and not clumps; each population is likely to consist of many clumps. In some cases populations can support up to 700 plus clumps (Ecobiological, unpublished data).

- ii. *whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and*

The proposed development site will involve clearing *Tetratheca juncea* habitat. However the proposed development will not result in *Tetratheca juncea* habitat becoming isolated or fragmented.



iii. the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality,

The habitat to be removed supports a known small population (11 clumps) of *Tetratheca juncea*. The proposed development will have an adverse affect on the long term survival of *Tetratheca juncea* within the study area, however, this is considered unlikely to impact significantly on the long-term survival of the species in the locality.

(e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly),

No critical habitat will be affected by the proposal.

(f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan,

No recovery plan has been prepared for this species. No threat abatement plan is relevant to this species.

(g) whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.

‘Clearing of native vegetation’ will occur as part of the proposed development. This will result in the loss of known and potential habitat for *Tetratheca juncea*. ‘Ecological consequences of high frequency fires’ is another KTP known to impact on *Tetratheca juncea*. The study area has been affected by a bushfire burning through the area approximately 4 years ago (Dan Pedersen pers. comm.). The proposed bushfire APZ and Bushfire Fuel Management Zone should assist in reducing the frequency of fires occurring in the study area.

Conclusion

Taking into consideration the size of the *Tetratheca juncea* population, extent of regional records and recommended mitigation measure, the potential loss of up to 75% of the *Tetratheca juncea* population as a result of the proposed development is considered acceptable.

6. Conclusion

The detailed targeted threatened flora survey on the 10 September 2009 identified and mapped 11 clumps of the threatened *Tetratheca juncea* flora species. The *Tetratheca juncea* population found was a small sparse population. In terms of the relevance of the potential



loss of the *Tetratheca juncea* population, the loss will not put any local populations of *Tetratheca juncea* at risk of extinction.

The proposed mitigation measure is best suited for the subject site as it will result in the *Tetratheca juncea* population being translocated, with the potential for its long term survival on-site.

Yours Faithfully

ecobiological

A handwritten signature in black ink, appearing to read 'A. Blundell'.

Adam Blundell
Managing Director
Senior Environmental Scientist