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HERITAGE REVIEW

Hornsby Aquatic Centre Redevelopment

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EXECUTIVE SUMMARY

Hornsby Park is an important local park much valued by the community since its creation in 1896. The proposed Aquatic Centre is intended to replace an existing facility. Such a use is complementary to the function of the Park. As the new Aquatic Centre requires vehicular access, a number of options to provide access have been considered. After investigation, it was determined that the only practicable options for the access road are those that traverse the Park. This report examines the heritage impact of these options on Hornsby Park with particular regard to its status as a heritage item and with regard to the heritage significance of the Women's Rest Centre (the CWA building) located at the southern edge of the Park.

Three principal options for an access road across the park have been investigated. Option 1 (Revised) has a single, two-way, access road located along the southern boundary of Hornsby Park, and requires the demolition of the Women's Rest Centre. Option 2 has a single, two-way, access road that veers away from the southern boundary to avoid demolition of the Women's Rest Centre. Options 8 and the subsidiary Option 8b have a one-way loop road with traffic entering at the northern end of the Park and leaving at the southern end of the Park. These options curve the access road around the Women's Rest Centre thus providing for its retention.

The key issue in determining the preferred option is whether the Women's Rest Centre is of a level of significance that is sufficient that it warrants the additional major negative impacts to the Park arising from its retention. Doing this requires the relative significance of the Women's Rest Centre to be measured against the significance of Hornsby Park.

The Women's Rest Centre has some heritage significance for its long historical association with the Country Women's Association (CWA) and the insertion of community facilities within public parks. It is also a modest example late 1950s public building in the Modernist style. However, the Women's Rest Centre is not a local heritage item listed in Hornsby Shire Local Environmental Plan 1994.

The greater heritage significance lies with the Hornsby Park. The Park was a deliberately sought addition to the growing township in the 1880s, and as with municipal parks throughout Australia, became a source of local pride. In the late 1940s when it was proposed to build a memorial hall on part of the Park, there were objections to the notion that part of the open space of the Park would be alienated. It was realised then that new buildings built into parkland are seldom removed, and that given surrounding development, it was unlikely that the Park would ever be expanded.

The introduction of a swimming pool complex was seen in a much more favourable light. It introduced a popular form of active recreation to the park and an activity of almost universal community use. The use was not seen as being at odds with the Park, but as an appropriate and complimentary use of the parkland. The pool has continued high community esteem, as does the park. Hornsby Park's value as a park is seen as being enhanced by the construction of a new swimming complex, but in doing so, its impact on the park should be kept to a minimum.

The existence of the Women's Rest Centre is not required for the good functioning of Hornsby Park. Rather, preservation and enhancement of the Park should be the first priority when dealing with change within or adjacent to the Park. Ideally it would be desirable for the Women's Rest Centre to be retained, as the building is a community asset. However, in this instance, one community asset stands in the way of the efficient delivery of a far more important community asset. The retention of the Women's Rest Centre would create a set of circumstances that would have a major adverse impact on the heritage significance of Hornsby Park.

With regard to the options presented:

- Option 1 (Revised) conserves and enhances the heritage values of Hornsby Park by containing road access to the southern boundary and allowing the elimination of a road to the northern end of the Park. Historical pathways, pergolas and the greatest area of contiguous parkland are retained and the Women's Rest Centre is appropriately interpreted.

- Option 2 conserves and enhances the heritage values to the northern end of Hornsby Park. The Women's Rest Centre is retained, isolated from the rest of the Park, but the area required for both road and Women's Rest Centre, creates a major adverse impact on the historical layout of the southern end of the Park

- Options 8 and 8b have a major adverse impact on the northern end of the Park.

It is recommended that the revised version of Option 1 be approved as only this option delivers a high level of overall improvement to the heritage values of the Park. It is further recommended that an archival recording be made of the Women's Rest Centre, and that the Women's Rest Centre and its association with the CWA be interpreted on site.

1.0 INTRODUCTION

1.1 Purpose

The purpose of this report is to set out the findings of a peer review of the Statements of Heritage Impact for the proposed redevelopment of Hornsby Aquatic Centre prepared by:

- Mayne-Wilson and Associates, October 2011.
- Howard Heritage Consultancy, October 2011.

This report has been prepared at the request of Hornsby Shire Council. The brief was to address the following:

1. Does the consultant agree with the findings of the two heritage assessments undertaken in support of the DA?
2. Provide commentary on the (heritage) value of the Park and the Women's Rest Centre.
3. Is the Council's proposed Option 1 acceptable having regard to the circumstances of the case?

1.2 Background

It is proposed to redevelop Hornsby Aquatic Centre, which is located within Hornsby Park, Hornsby, a northern suburb of Sydney. The existing centre closed on 24 December 2010 on safety grounds. Hornsby Council has proposed that the existing facility be replaced with a new, larger, facility and has, accordingly, prepared development application documentation.

Two Statements of Heritage Impact (SoHI) were prepared to support the application:

- *Heritage Impact Assessment of the Proposed Aquatic Centre and Access Road Options for Hornsby Park, NSW* prepared by Mayne-Wilson & Associates
- *Proposed Redevelopment of Hornsby Aquatic Centre (within Hornsby Park). Statement of Heritage Impact* prepared by Howard Heritage Consultancy.

A development application for the proposed work was presented to the Joint Regional Planning Panel (JRPP) on 23 February 2012. The panel requested that Council review the access options for the car park under the Aquatic Centre:

> *The Panel has decided that it agrees with only two aspects of the application before it tonight, namely –*
>
> *1 – The demolition of the existing aquatic centre, and*
> *2 – The erection of the proposed new aquatic centre of three levels and basement parking.*
>
> *However, the Panel requires the applicant to give further consideration to the access across the heritage listed Hornsby Park and would prefer a roadway that is more sensitive to the heritage significance of the Park and will retain the CWA building.*
>
> *The Panel recommends a less engineered solution for this roadway, not involving major works on the Pacific Highway, and considers the road should be designed to have less heritage impact, not to be designed for heavy vehicles but for the most likely users – namely domestic cars, and to be more respectful to existing plantings.*
>
> *The panel accepts the need for the removal of the Pine tree and agrees with the manner in which the applicant intends to deal with a replacement tree.*

As a result of the comments from the JRPP Council have made further consideration of the Aquatic Centre access road options and have sought a peer review of the heritage impact statements and of Options 1, 2, 8 and 8b.

1.3 Methodology

The review of the heritage impact statements has not been undertaken specifically to examine or critique their structure or adequacy. The intention of the review is to provide information to assist the assessment of the preferred options identified for vehicular access to the car park of the proposed swimming pool.

This report will indicate the following:

- The author's level of concurrence with the heritage impact statements.
- Examine more closely the relative heritage values of both the park and the Women's Rest Centre.
- Provide commentary and recommendations in regard to Option 1 in comparison with Options 2, 8 and 8b.

1.4 Report Authorship

This heritage review has been was prepared by Kate Higgins, B.Sc. (Arch.), B. Arch., M.Herit.Cons. and James Phillips, B.Sc. (Arch.), B. Arch., M.Herit.Cons. (Hons), of Weir Phillips, Architects and Heritage Consultants.

1.5 Limitations

This Report has been prepared based on the following information made available by Hornsby Council:

- *Heritage Impact Assessment of the Proposed Aquatic Centre and Access Road Options for Hornsby Park, NSW* prepared by Mayne-Wilson & Associates, 4 October 2011

- *Proposed Redevelopment of Hornsby Aquatic Centre (within Hornsby Park). Statement of Heritage Impact* prepared by Howard Heritage Consultancy, October 2011.

- *Hornsby Park Heritage Assessment, Site Analysis, Conservation Policy and Concept Master Plan* by Mayne-Wilson & Associates, April 1996

- *Hornsby Park, Women's Rest Centre and Aquatic Centre Heritage Interpretation Strategy* by City Plan Heritage, February 2012

- Letter from the National Trust of Australia (New South Wales) dated 29 July 2011 (Listing Report for the Women's Rest Centre included with the letter.)

- Letter from The Twentieth Century Heritage Society of NSW Inc dated 26 July 2011.

- *Hornsby Aquatic Centre Option 1 – Vehicular Entry/Egress Evaluation of Potential Parkland Impacts*, plan prepared by Hornsby Shire Council Parks and Landscape Team, dated 23 March 2012 and numbered LA-01 (Option 1).

- *Hornsby Aquatic Centre Option 2 – Vehicular Entry/Egress Evaluation of Potential Parkland Impacts*, plan prepared by Hornsby Shire Council Parks and Landscape Team, dated 23 March 2012 and numbered LA-02 (Option 2).

- *Hornsby Aquatic Centre Option 8 – Vehicular Entry/Egress Evaluation of Potential Parkland Impacts*, plan prepared by Hornsby Shire Council Parks and Landscape Team, dated 23 March 2012 and numbered LA-03 (Option 8).

- *Hornsby Aquatic Centre Option 8b – Vehicular Entry/Egress Evaluation of Potential Parkland Impacts*, plan prepared by Hornsby Shire Council Parks and Landscape Team, dated 23 March 2012 and numbered LA-04 (Option 8b).

Limited additional research has been undertaken.

2.0 REVIEW OF HERITAGE IMPACT ASSESSMENT OF THE PROPOSED AQUATIC CENTRE AND ACCESS ROAD OPTION FOR HORNSBY PARK, NSW, PREPARED BY MAYNE-WILSON & ASSOCIATES

Mayne-Wilson and Associates were engaged by Hornsby Council to provide advice on the potential impacts of the proposed Aquatic Centre development on the heritage and visual values of Hornsby Park. In particular, the impacts of the seven options for the Aquatic Centre access road were examined.

2.1 Approach

The Heritage Impact Assessment relies on, and references, a previous study which assessed the heritage significance of Hornsby Park, being the *Hornsby Park Heritage Assessment, Site Analysis, Conservation Policy, and Concept Master Plan,* prepared by Mayne-Wilson & Associates in April 1996.

The NSW Heritage Office has prepared a specific guideline to assist in the preparation of Statements of Heritage Impact (SoHI). It recommends that a SoHI address:

- why an item is significant
- what impact the proposed works will have on that significance
- what measures are proposed to mitigate negative impacts
- why more sympathetic solutions are not viable

The Heritage Impact Assessment (HIA) prepared by Mayne-Wilson & Associates is in effect a Statement of Heritage Impact. It has been reviewed to determine of the matters above have been adequately addressed.

Matter	Comment
Significance of the item	The assessment of the significance of Hornsby Park forms Section 4 of the HIA. The NSW Heritage Assessment Criteria[1] have been systematically addressed in the HIA. • Historic significance as a recreation reserve created in 1896. • Social significance for the activities that took place there including the swimming pool. • CWA Rooms have modest social significance. • Park has aesthetic significance as influenced by "City Beautiful" Movement. • Park has aesthetic significance as influenced by writings and plans of Edna Walling. • Structures added since 1940, including the Women's Rest Centre, do not pay regard to the aesthetic precepts above and are considered to have no aesthetic value.

[1] NSW Heritage Office, *Assessing Heritage Significance*, July 2001, p9

Matter	Comment
	• The existing swimming pool is considered discordant and it is recommended it be replaced by a better design.
Impact of proposed work on significance	The assessment of the impact of the proposed work is addressed in Sections 7, 8, 9 and 10 of the SoHI. The assessment is made with regard to the impact of the proposed new Aquatic Centre and landscaping works on Hornsby Park. • Section 7 deals with the Aquatic Centre building and is therefore not part of this review. • Section 8 deals with the *draft Landscape Masterplan.* The Masterplan seeks to maintain the high (heritage) value and intrinsic character of the park. • Section 9 is the Arborist's Assessment. It indicates that the *Magnolia grandiflora* is in good health and vigour and its removal is solely for the purpose of access to the new complex. • Section 10 notes Foreseen Impacts; Option 1 would have a modest impact on the heritage values and character of the park, as it would increase the amount of pavement within the park and involve the demolition of the Women's Rest Centre, which has some social significance and is esteemed by its members and other users of the building.
Measures to mitigate negative impacts	The HIA, in Section 9, supports the propagation of a clone seedling to replace the Gallipoli Pine being removed. Seven options for the Aquatic Centre access driveway were considered in order to arrive at a preferred solution that minimised negative impacts. Options 2, 8 and 8b, prepared subsequently, will be assessed in this review.
Consideration of other sympathetic solutions	Consideration of options for the location of the access driveway for the proposed new Aquatic Centre is addressed in Sections 6 and 10 of the HIA. More sympathetic solutions for elements of the design of the Aquatic Centre are discussed in Section 7 of the HIA. More sympathetic solutions for elements of the proposed landscape works are discussed in Section 8.

The HIA has been structured to address relevant key matters in a logical and orderly way. The matters addressed are those considered appropriate by the NSW Heritage Office guidelines. In addition, seven options for the location of the Aquatic Centre access road have been evaluated with regard to their impact on the heritage significance of Hornsby Park.

The HIA has generally been prepared in accordance with NSW Heritage Branch guidelines and the *ICOMOS Burra Charter.* The HIA also includes a careful examination of the seven vehicular access options.

2.2 Content

2.2.1 Generally

The HIA provides an adequate assessment of the heritage impacts of the proposed development. The Aquatic Centre access road options discussed in the SoHI are addressed separately below.

2.2.2 Options

Each option has been discussed in the HIA in terms of its route, affect on significant elements of the park, and functionality.

Conclusion	Comment
VEHICULAR ACCESS OPTIONS	
Option 1 would have a modest impact on Hornsby Park.	This conclusion is accepted.
Options 2 and 3 would have a considerable impact on the park's heritage fabric and character.	This conclusion is accepted.
Options 4, 5 and 6 have least impact on the park but are impractical.	This conclusion is accepted.
Option 6 would require demolition of an existing heritage item, the Montessori Pre-School. This option also has practical difficulties.	This conclusion is accepted.
Option 7 has a number of practical difficulties and would be visually intrusive.	This conclusion is accepted.
Option 1 is considered the best option due to the impracticality of other Options.	This conclusion is accepted.

Conclusion	Comment
AQUATIC CENTRE DESIGN	
The removal of the existing grandstand will allow views to the bush beyond.	This conclusion is accepted.
The two storey section of the proposed new Aquatic Centre building will be a visually dominant element, making the park appear as a forecourt to the building.	This conclusion is accepted.
Views from Hornsby Park to the bush beyond would be blocked by the proposed new building at the southern part of the Park and improved at the northern part of the Park.	This conclusion is accepted.
Views to the bushland would be improved for pool users.	This conclusion is accepted.

Conclusion	Comment
LANDSCAPE	
Generally, the landscape plan is supported.	This conclusion is accepted.
The removal of the existing Magnolia tree and its replacement with a Washingtonia Palm is not supported.	This conclusion is accepted.
The proposed minor realignment of paths and plantings of Jacarandas and other trees is sound.	This conclusion is accepted.
The removal of the Lone Pine, the cultivation of the seedlings from the tree and the planting of a seedling in a new suitable location is supported.	This conclusion is accepted.

2.3 Other Comments

This Heritage Impact Statement deals with the impact on the whole of the park and the components therein. It does not deal extensively with the Women's Rest Centre, though its assessment is that the Women's Rest Centre is intrusive with regard to the aesthetic values of the Park

3.0 REVIEW OF THE PROPOSED REDEVELOPEMENT OF HORNSBY AQUATIC CENTRE (WITHIN HORNSBY PARK). STATEMENT OF HERITAGE IMPACT, PREPARED BY HOWARD HERITAGE CONSULTANCY

This Statement of Heritage Impact was commissioned by the architect of the new Aquatic Centre, Peter Hunt, Architect. It addresses the proposal to construct the new Aquatic Centre to replace the existing structure. Howard Heritage Consultancy was appointed as heritage consultants for the project.

3.1 Approach

The NSW Heritage Office has prepared a specific guideline to assist in the preparation of Statements of Heritage Impact (SoHI). It recommends that a SoHI address:

- why an item is significant
- what impact the proposed works will have on that significance
- what measures are proposed to mitigate negative impacts
- why more sympathetic solutions are not viable

The Statement of Heritage Impact prepared by Howard Heritage Consultancy has been reviewed to determine of the matters above have been adequately addressed.

Matter	Comment
Significance of the item	The assessment of the significance of Hornsby Park relies in part on the heritage assessment undertaken by Mayne-Wilson Associates in 1996.[2] Additional historical research has also been undertaken. The NSW Heritage Assessment Criteria[3] have not been systematically addressed in the SoHI. Only the aesthetic and social values of Hornsby Park have been addressed separately (Sections 4.1 and 4.2), although its history is addressed in the Summary Statement of Significance (Section4.3) The significance of the Women's Rest Centre has not been systematically addressed using the NSW Heritage Assessment Criteria, although it is noted as being: • an item of moderate significance within Hornsby Park (Section 5.2). • as a representative and intact example of a modest mid-twentieth century building. An assessment of the heritage significance of the Women's Rest Centre should have been undertaken in the SoHI as the building

[2] Mayne-Wilson & Associates, *Hornsby Park: Heritage Assessment, Site Analysis, Conservation Policy, and Concept Master Plan,* April 1996, p14
[3] NSW Heritage Office, *Assessing Heritage Significance*, July 2001, p9

Matter	Comment
	had been assessed as having local heritage significance in the Hornsby Heritage Inventory: Stage 4 project[4] and is proposed to be demolished. Reference is not made to its listing on the National Trust Register or on the Australian Institute of Architects Registry of Twentieth Century Buildings.
Impact of proposed work on significance	The assessment of the impact of the proposed work is addressed in Section 7 of the SoHI. The assessment is made with regard to the impact on Hornsby Park and references an assessment of the relative levels of significance of the component elements of Hornsby Park made in Section 5 of the SoHI. Further consideration of the removal of the Gallipoli Pine and the demolition of the Women's Rest Centre is made in Section 8 of the SoHI.
Measures to mitigate negative impacts	The SoHI, in Section 10, recommends that: • a thorough archival recording be made of the Women's Rest Centre prior to its demolition • the carved sandstone plaque be salvaged and used as part of an interpretation display for the Women's Rest Centre • an interpretation plan be prepared for Hornsby Park (Note: An interpretation plan has been prepared - *Hornsby Park, Women's Rest Centres and Aquatic Centre Heritage Interpretation Strategy*, City Plan Heritage, February 2012.)
Consideration of other sympathetic solutions	Consideration of other sympathetic solutions are not included in the SoHI, however this has been included in the SOHI prepared by Mayne-Wilson and Associates.

The SoHI has generally been prepared in accordance with NSW Heritage Branch guidelines and the *ICOMOS Burra Charter.*

3.2 Content

The SoHI generally provides a reasonable assessment of the impacts of the proposed development on the heritage values of the place, although further information could be provided on a number of matters. These are discussed below.

3.2.1 Women's Rest Centre

The focus of the SoHI is on the significance of Hornsby Park and the impact of the proposed development on the Park. The Women's Rest Centre is assessed as a component of the Park, rather than being investigated in detail as an individual item using the NSW Heritage Branch assessment methodology. However some additional research has been undertaken in order to further understand the significance of the Women's Rest Centre.

[4] Included as an appendix to the SoHI (Howard Heritage Consultancy, *Proposed Redevelopment of Hornsby Aquatic Centre (within Hornsby Park). Statement of Heritage Impact*, October 2011.

The SoHI includes the Heritage Inventory Sheet prepared for the Women's Rest Centre as part of Hornsby Council *Hornsby Heritage Review Stage 4* project, and the development application documents include the letter from The Twentieth Century Heritage Society of NSW and the Listing Report for the building from the National Trust of Australia (NSW). Together, this information assists in providing an understanding of the significance of the Women's Rest Centre.

The SoHI does not include a description of the aesthetic values of the Women's Rest Centre in section 4.1.

The social values of the Women's Rest Centre have not been addressed in Section 4.2.

The SoHI does not state whether or not the Women's Rest Centre has reached the threshold for local significance, although it does assess it as having "moderate" significance.

The assessment of the impact of the proposed Aquatic Centre development (Section 7 of the SoHI) states that Women's Rest Centre does not have sufficient architectural merit to warrant its preservation.

3.2.2 Swimming Pool

The social values of the existing Aquatic Centre have not been addressed in Section 4.2, although these are mentioned in the Statement of Significance for Hornsby Park. The Aquatic Centre has a long association with the local community and the new facility will provide for this association to continue.

3.2.3 Hornsby Park Design

The open lawns and specimen tree plantings of Hornsby Park (which contrast with the bush beyond) have not been identified as elements of high contributory significance in Section 5.1 of the SoHI. This should be considered.

3.2.4 Heritage Impact Assessment

The matters addressed are those of the Conclusion (Section 9 of the SoHI) and the Recommendations (Section 10 of the SoHI).

Conclusion	Comment
The chief adverse heritage impacts of the proposed development are the removal of the Gallipoli Pine and the demolition of the Women's Rest Centre.	The removal of the Gallipoli Pine will not have an adverse heritage impact as: • it appears the tree is in poor condition • clones of the tree will be propagated and a specimen planted in another location • the local RSL supports the above approach.
The demolition of the Women's Rest Centre will have some adverse heritage impact as the building demonstrates the history of community facilities being erected in public parks.	This conclusion is accepted.
The Women's Rest Centre, while having some significance, has insufficient	This conclusion is accepted.

Conclusion	Comment
significance to warrant retaining, "It is not exceptional, outstanding or even an early example of its kind and it does little to enhance the aesthetic values of Hornsby Park."	
The Gallipoli Pine be allowed to be removed as it has reached the end of its life and is unable to be transplanted.	This conclusion is supported provided that the recommendation to propagate clonal plants is taken up by Council.
The proposed redevelopment will have little or no negative impacts on heritage items in the vicinity.	This conclusion is accepted.

Other comment:

The Conclusion (Section 9) does not address the impact of the proposed new Aquatic Centre on Hornsby Park.

Recommendation	Comment
Photographic recording of existing pool complex.	This recommendation is supported.
Propagate clonal plants from the Gallipoli Tree and plant one in an appropriate location and on a suitable occasion, in consultation with the RSL.	This recommendation is supported.
The carved sandstone plaque of the Women's Rest Centre, should be salvaged and relocated in a suitable new position as part of an interpretation display.	This recommendation is supported. It is now proposed, in Option 1, to retain the plaque in its present location.
An interpretation Strategy or Interpretation Plan should be prepared for Hornsby Park.	This recommendation is supported. This document has been produced as *Hornsby Park, Women's Rest Centre and Aquatic Centre Heritage Interpretation Strategy*, City Plan Heritage, February 2012.

Other comment:

The recommendations have been thoughtfully considered and provide a useful set of actions to help preserve and interpret the heritage values of the place.

4.0 HERITAGE VALUES OF HORNSBY PARK

4.1 History

The creation of Hornsby Park was the result of representations by local residents of the Hornsby district who requested that the Minister for Lands resume part of the Crown Lands in

Hornsby for the purpose of creating a public park. The petition to the Minister, as reported in The Sydney Morning Herald 1 August 1887, read:

> *Sir,*
> *We, the undersigned residents of the district of Hornsby, and others interested in its welfare, observing that the Government are having the Crown lands of the neighbourhood cleared and in other respects improved with a view, as we are informed, to their being sold by auction, have the honour to bring to your notice the great desirability of resuming for a public park the portion of Crown Lands on the western side of Peats Ferry Road, between the lands of Messrs. Burns, Withers and Smith, and those of the Hornsby Land Company, and extending at the rear to the land of the late Mr. Thomas Higgins. The land referred to is situated within a short distance of the Hornsby station, is well adapted for a park, and the only piece of Crown land in the immediate locality of sufficient areas for such as purpose. We feel that it is the more desirable that this reservation should be made as the proprietors of the adjacent lands are subdividing and selling their properties in small lots, and it will in a few years doubtless be difficult to obtain any land in a convenient position for public recreation in this district.*[5]

The site of Hornsby Park finally became a Recreation Reserve (R52588) in 1896. The site was soon extended (R52590) and both parcels of land were dedicated as Reserves for Public Recreation on 11 January 1918. Council was made the Trustee of the Reserve on 15 February 1918. The Reserve was further added to on 24 November 1939 (R68841).[6] The provision of public gardens had been accepted as a normal part of town planning in England since the mid-nineteenth century and this influenced planning in Australia.[7]

The park appears originally to have been an informal space, its key features being a bandstand (built in 1905), drinking fountain, a regular row of camphor laurels along Peats Ferry Road (now the Pacific Highway), and random trees (such as Turpentine) regrown after 19th century clearing. The Park was used for fairs, festivals and sports meetings. In 1927 Council held a competition for designs for the Park on the 'Garden Park principle'. The winning plan, by Scott Finlay and Jack Dow, incorporated the bandstand, drinking fountain and some of the existing Turpentine trees, and had as key features, a curved driveway providing access to valley views from the western edge of the Park, a pedestrian path parallel to the Peats Ferry Road, informal pedestrian paths cross crossing the Park, a children's playground, and large lawn areas.[8] The design is influenced by English landscape parks. (The winning design plan is Figure 4 in the Mayne-Wilson 2011 SoHI.)

The 1927 design of the Park was only partially realised. By 1943, the essential layout of the Park as can be seen today, is evident: the curved driveway, the path parallel to the road, the perpendicular straight path in the centre of the Park, pergolas, garden beds lining some paths, single tree plantings, and large areas if lawn.[9] The revised design of the park may have been influenced by Norman Weekes more formal design of Hyde Park (Figure 1), with its long straight paths (also designed in 1927).

[5] Howard Heritage Consultancy, *op.cit.*, October 2011, p2
[6] Mayne-Wilson & Associates, *op.cit.*, April 1996, p2
[7] Richard Aiken, *A Celebration of Australian Gardening. Gardenesque*, p95
[8] Mayne Wilson& Associates, *op.cit.*,, 4 October 2011, p6
[9] 1943 Aerial Photograph, lite.maps.gov.au, accessed 27 March 2012

Figure 1: Hyde Park 1931
Source: City of Sydney Archive CRC8801

In 1943 Hornsby Council proposed to erect clubrooms for returned soldiers in Hornsby Park. This proposal was controversial with the local community who opposed the loss of open space for buildings.[10] In 1957, despite opposition from some Councillors, Hornsby Shire Council commissioned the design for a Women's Rest Centre in the park.[11]

The construction of public swimming pool within Hornsby Park was first proposed during the early 1930s. A public meeting was convened by the Hornsby Shire President in December 1935 to consider options for the construction of swimming baths. The Sydney Morning Herald of 12 December 1935 reported on the matter, noting that the construction of a local swimming pool had been the subject of agitation for some time. While there was ongoing discussion about the construction of public baths, it was not until 1962 that the existing Olympic swimming pool was constructed.[12]

4.2 Description

The developed section of Hornsby Park slopes from the east. There is an escarpment along the western edge with some views to the valley beyond. The park has four principle paths: the curved path leading to the western edge; the path parallel to the Pacific Highway; the central path; and, a diagonal path from the south-eastern corner to the western end of the central path. Lawns with single tree plantings form the areas between the paths. Planting beds are located along the path near the Pacific Highway, and this path has a small timber pergola at either end and at the central cross pathway. The swimming pool comprises much of the western edge of the park and there is a children's playground on the northern edge. The Women's Rest Centre is located in the south eastern corner of the park, a picnic shelter in the north-eastern corner, and a Bi-Centenary Fountain commemorating Captain Cook's discovery of the east coast of Australia in the southern portion of the park. For a fuller description of the Park refer to the Mayne-Wilson SoHI.

4.3 Heritage Significance of Hornsby Park

Arising from the above information from the existing reports, the authors of this report give the following assessment of significance for the Park:

Criterion (a): An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area).

> Hornsby Park demonstrates the development of Hornsby from a rural area to a town centre that serviced the local community. It also demonstrates the importance of public parks for the amenity of local residents.

[10] Howard Heritage Consultancy, *op.cit.*, October 2011, p8
[11] *Ibid*, p9
[12] *Ibid*, October 2011, p5

Hornsby Park provides evidence of the role of local government in the development and care of local parks.
Hornsby Park demonstrates the influence of English landscape park design and the "City Beautiful " movement on the design of public parks in Australia, (and perhaps, of the influence of Hyde Park on local suburban parks).

Criterion (b): An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area).

Hornsby Park has a strong association with the local Hornsby community. The community, who agitated for the creation of the Park, have continued to take an active interest in and continue to use the Park to the present day.

Criterion (c): An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area).

Hornsby Park makes a positive contribution to the streetscape and surrounding area and provides evidence of the influence of English landscape parks on the design of suburban parks in Sydney.

The formality of the Park provides a contrast to the bush land beyond and forms an integral part of the civic precinct for Hornsby.

Criterion (d): An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons.

The community has continuously used Hornsby Park since its creation in 1896 for open space, public recreation, celebration, commemoration, recreation and leisure.

Criterion (e): An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area).

Hornsby Park does not reach the threshold needed to satisfy this criterion.

Criterion (f): An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area).

Hornsby Park is the principal civic park of Hornsby.

Criterion (g): An item is important in demonstrating the principal characteristics of a class of NSW's: cultural or natural places; or cultural or natural environments; (or a class of the local area's cultural or natural places; or cultural or natural environments.)

Hornsby Park is a representative example of a suburban park.

4.4 Statement of Significance

Hornsby Park, created in 1896 after agitation by the local community, is the main civic park of Hornsby. It demonstrates the growth of Hornsby from a rural area to a suburban area with a town centre, and the provision of amenities to meet the needs of the local community. The Park is valued by the community and has been continuously used since its creation. Hornsby Park is an attractive park that provides evidence of the influence of English landscape park design and the "City Beautiful" movement in the development of suburban parks in Sydney.

5.0 HERITAGE VALUES OF THE WOMEN'S REST CENTRE

Howard Heritage Consultancy, in its heritage impact assessment, concludes that the Women's Rest Centre has insufficient heritage value to warrant retention.[13] The Twentieth Century Heritage Society of NSW is of the view that the historical, social and aesthetic significance of the building warrants retention.[14] The National Trust of Australia (New South Wales) has included the Women's Rest Centre on its Register and has prepared a listing report.[15] The Hornsby Heritage Inventory: Stage 4 study undertaken in 2007 recommends that the Women's Rest Centre be listed as a local heritage item. The Institute of Architects has included the Women's Rest Centre on the NSW Register of Significant 20th-Century Buildings[16] and considers that further assessment may reveal the building is of State significance[17]

As there are conflicting views of the heritage significance of the Women's Rest Centre a brief assessment of its significance has been made as part of this report. The assessment is based on information included in the heritage impact assessment prepared by Howard Heritage Consultancy, information in the National Trust Listing Report, and other sources as noted.

The assessment assists in the review of the heritage impact assessments.

5.1 History

The Women's Rest Centre was built in 1958 to the design of local Hornsby architect, Ross Aynsley, at a cost of £8,500. The building commemorates 50 years of local government in Hornsby (1906-1956) and the service of women of the Shire. After the building's erection, Council entered into an agreement with the Hornsby branch of the Country Women's Association for the CWA to manage and operate the new Women's Rest Centre.[18] Hornsby Waitara Rotary Club erected a toilet block near the building in 1981.[19]

The Country Women's Association was founded in 1922 as a group working for the interests of women and children in rural areas. The motto of the organisation is 'Honour to God, Loyalty to Throne, Service to the Country, Through Country Women, For Country Women, By Country Women.' The Association expanded rapidly and in 1924 there were 120 branches with 4,500 members and 21 rest rooms. By 1953 there were 28,000 members and 517 branches, 182 rest rooms, 157 baby health centres, holiday homes, rest homes, hospitals, school hostels and playgrounds. By the late 1960s membership started to decline and in 2004 the CWA had around 13,000 members forming 500 local branches.[20] The declining membership has resulted in the CWA selling a number of its buildings, including those at Cowra, Jindabyne, Ettalong and Coffs Harbour.[21]

The Women's Rest Centre provided clean toilet facilities for women visiting the town and a place to rest and meet. The Hornsby Women's Rest Centre operated as a CWA rest room and also as a local Tea Room for many years and was staffed by CWA volunteers. The main room was made available for lease to other community groups at times not used by the CWA, and the building also housed the Hornsby Shire tourism office from 2007 to 2010. [22] The Hornsby Branch of the CWA managed the building until they moved out in 2012, and the group now meets in St Peters Hall, Pacific Highway, Hornsby.[23]

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[13] Howard Heritage Consultancy, *op.cit*., October 2011, p19
[14] Letter from The Twentieth Century Heritage Society of NSW dated 26 July 2011
[15] Letter from the National Trust of Australia (NSW) dated 29 July 2011 (The Women's Rest Centre was listed on the 27 July 2011)
[16] Registration No. 4703457
[17] Letter from the Australian Institute of Architects dated 30 January 2012
[18] Howard Heritage Consultancy, *op.cit*., October 2011, p9 (Note: The local CWA branch President at the time was the wife of the Hornsby Shire President.)
[19] National Trust Listing Report, p6
[20] *Country Women's Association of New South Wales (1922 -*), The Australian Women's Register, www.womenaustralia.info, accessed 28 March 2012
[21] Denis Gregory, "Boss Sells CWA Meeting Rooms", *The Sun-Herald*, 26 June 2005
[22] National Trust Listing Report, pp 4 - 5
[23] Conversation with Secretary, CWA Hornsby and District Branch, 21 March 2012.

5.2 Description

The Women's Rest Centre is located in the south eastern corner of Hornsby Park. The Women's Rest Centre is a single storey community building purpose built to provide rest rooms and a meeting place for women visiting Hornsby town centre. Its design is domestic in scale and idiom. The low scale building has a clean uncluttered expression and simple detailing, with a mix of vertical and horizontal elements. The flat roof has wide overhanging eaves, and the external walls are face brick with timber framed windows forming the entire north wall. The incorporation of art work into the building, being the circular sandstone carving of a woman fixing her hair in front of a mirror, reflects the integration of art into the architecture, a common feature of Modernist architecture.

A more detailed description of the building is provided in the National Trust Listing Report.

The design of Women's Rest Centre reflects a vernacular version of Modernist influences, albeit on a domestic scale. This architectural form was popularised by architectural and house magazines of the period immediately after WWII as a way of creating buildings in an economical manner. Figures 2 and 3 provide two examples of vernacular domestic architecture of the period.

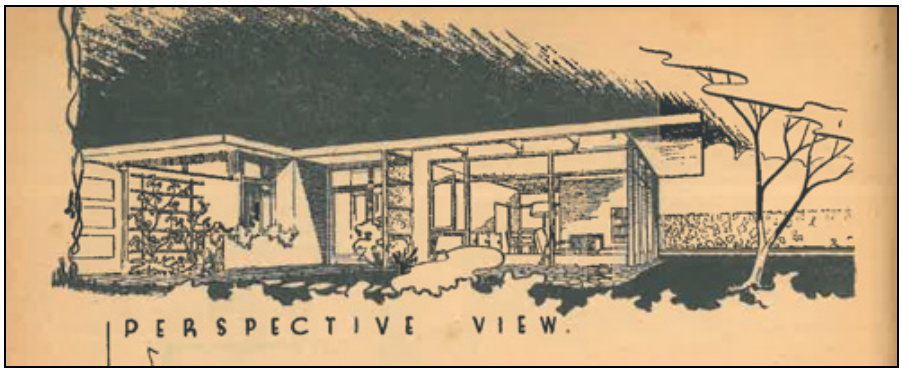


Figure 2: House design
Home Plans Published by the Australian Women's Weekly, Consolidated Press Limited, (published c.1946).

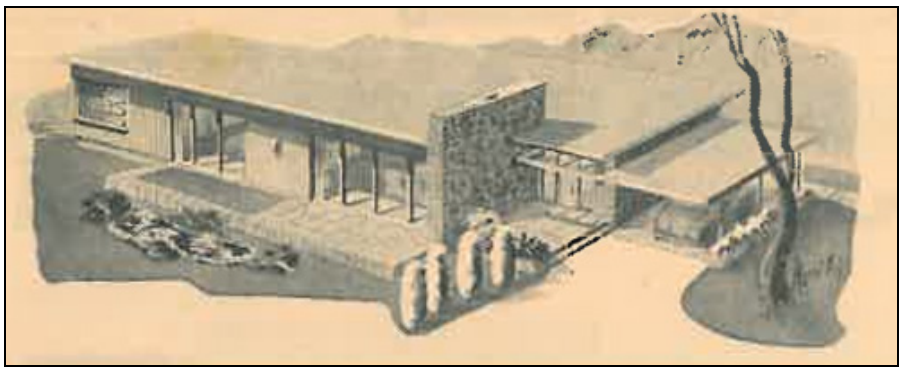


Figure 3: House design
Australian House and Garden Book of Budget Home Plans. Practical Planning Series No. 4, K. G. Murray Publishing Company, Sydney, (published c.1950s).

Following WWII, architects such as Sydney Anchor began to develop an architecture, which, while acknowledging Modernist principles, responded to local conditions. The plans were open and informal with large amounts of glazing, the structure was clearly apparent and internal spaces had a strong connection to the outside.

By the end of the 1950s Sydney architects were starting to develop a regional style:

In retrospect it seems that 1957 was a turning point for residential architecture in Sydney. In this year, four of the architects who were to make a considerable contribution to housing design returned to Sydney after time spent overseas. These were Bruce Rickard, Don Gazzard, Ken Woolley and John James. Also in 1957, three important homes were placed before the jury for the Sulman Award. These were homes designed by architects for their own occupation; The Sydney Anchor House at Neutral Bay, The Russel Jack House at Wahroonga, and the W.E. and Ruth Lucas House at Castlecrag. All three were related – they were post and beam structures, and more importantly they expressed an increased awareness of the potential use of outside space.[24]

Designed in 1957, the Women's Rest Centre is of a style that was not new, but was one of a number of accepted vernacular styles that had developed since the end of the War. The building is a modest expression of the Modernist Style that does not display the design intent and innovation of leading Sydney architects working after WWII. A more sophisticated version of this style is reflected in houses of the period by more prominent architects. Two examples are provided in Figures 4 and 5.

Figure 4: Cohen House, Middle Head, 1958, by Bruce Rickard
Google Images

Figure 5: Jack House, Wahroonga, Sydney, 1956, by Russell Jack. Winner of the 1957 Sulman Award for Architecture.

5.3 Heritage Significance of the Woman's Rest Centre

Arising from the above information from the existing reports, the authors of this report give the following assessment of significance for the Woman's Rest Centre:

Criterion (a): An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area).

The Women's Rest Centre building is an example of a range of community facilities erected to meet the needs of the growing population of Sydney in the post World War II period.

[24] Jennifer Taylor, *An Australian Identity. Houses for Sydney 1953-63*, Department of Architecture, University of Sydney, 1984, p31

The Women's Rest Centre building is an example of the range of community buildings erected in public parks that while providing community services, caused a reduction in public open space.

While the use of the building as a community facility formed part of the pattern of Hornsby's cultural history it is of insufficient importance to warrant listing.

Criterion (b): An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area).

It has not been demonstrated that the architect, Ross Aynsley is important in the history of the Hornsby area. He appears to have been a local architect working in the area, along with a number of other architects and builders.

The building has a strong association with the Country Women's Association on the basis of its historical use.

The Women's Rest Centre building does not reach the threshold needed to satisfy this criterion.

Criterion (c): An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area).

The building demonstrates architectural features of Modernist architecture made popular by architectural and home design magazines. The building does not demonstrate creative excellence, aesthetic distinctiveness or the epitome of a particular style, and is not the work of an important architect.

The Women's Rest Centre building does not reach the threshold needed to satisfy this criterion.

Criterion (d): An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons.

The Women's Rest Centre has an association with the Country Women's Association. This association is largely an historic association with the building.

The Women's Rest Centre building does not reach the threshold needed to satisfy this criterion.

Criterion (e): An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area).

The building is not an example of innovative design and contains information readily available from other sources or through an archival recording.

The Women's Rest Centre building does not reach the threshold needed to satisfy this criterion.

Criterion (f): An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area).

Community facilities, including toilets, are not uncommon in local parks.

The Women's Rest Centre building does not reach the threshold needed to satisfy this criterion.

Criterion (g): An item is important in demonstrating the principal characteristics of a

class of NSW's: cultural or natural places; or cultural or natural environments; (or a class of the local area's cultural or natural places; or cultural or natural environments.)

> The building is not a fine example of its type nor does it demonstrate the principal characteristics of excellent Post War architecture in Sydney.
>
> The Women's Rest Centre building does not reach the threshold needed to satisfy this criterion.

6.0 DISCUSSION OF HERITAGE ASSESSMENT FINDINGS

6.1 Hornsby Park

Hornsby Park has been assessed by Mayne-Wilson as being of local heritage significance. This assessment is accepted for the following reasons:

- The Park demonstrates the historical development of Hornsby from a rural area to a suburb with a town centre.
- The Park is an attractive and important element in Hornsby Civic Precinct, demonstrating the influence of the style of English landscape parks on suburban parks in Sydney.
- The Park has a strong association with the local community who agitated for the creation of the Park and continue to use the Park.

The heritage values of Hornsby Park should therefore be conserved.

6.2 Women's Rest Centre

The SoHIs prepared by Howard Heritage Consultancy and Mayne-Wilson and Associates support the demolition of the Women's Rest Centre. The SoHI prepared by Howard states:

> *The demolition of the Women's Rest Centre building would remove a building assessed as having a moderate degree of significance. The primary importance of this late 1950s building derives from the fact that it is a representative and substantially intact example of mid twentieth century (post-war) architecture, which is still being used for its original purpose. However, it should be recognised that although this building has a high degree of architectural integrity (because it is little altered from its original configuration and appearance), it is not considered to be a building of sufficient architectural merit to warrant its preservation. The original designer of the building (local architect Ross Aynsley) is a relatively little-known figure. The building's historic value as a project that marked fifty years of local government in Hornsby would be lost as a result of its demolition. Its social value as a community place providing facilities for women and young children and for the activities of the members of the Hornsby and District CWA would be lost.*

This assessment is accepted.

The Women's Rest Centre has been assessed as having insufficient heritage values to be of local heritage significance. The building is historically associated with the CWA and the provision of public amenity for local residents. The design of the building does reflect some aspects of mid-century Modernism but is not a notable example and does not display a level of creativity that would warrant the listing of the building by association with the architect.

The demolition of the Women's Rest Centre is therefore acceptable with regard to its level of heritage significance, the greater significance of the Park and with regard to the beneficial impact its demolition will have on the significance of Hornsby Park. The building and its association with the CWA will be interpreted as part of an interpretation strategy for the Park.

The demolition of public facilities within parks is not uncommon as Councils respond to current community needs within their budget frameworks. The demolition is consistent with a growing pattern of demolishing buildings that have alienated parkland and now no longer

have a specific or compelling function. An example of this is the demolition of the Women's Rest Centre in Hyde Park (Figure 6). It was demolished in 2000, removing a structure built in 1956 that was visually intrusive with regard to the aesthetic values of Hyde Park and the area incorporated into the park.

Figure 6. Hyde Park Women's Rest Centre (Family Centre).
Built 1955 and demolished 2000.
City of Sydney Archives

The demolition of the Women's Rest Centre will have a positive impact on Hornsby Park because it would remove an element that is visually intrusive with regard to the aesthetics of the Park.

7.0 DISCUSSION OF ACCESS ROAD OPTIONS

As part of the development application preparation, seven options (Option 1 to Option 7) were considered for the location and alignment of the access road to the Aquatic Centre. The preferred option was determined to be Option 1 and this was presented to the JRPP. Following concerns raised by the JRPP regarding the demolition of the Women's Rest Centre, which was required by Option 1, a number of alternate options have been assessed totalling 13 options in all. Three alternate options, Options 2, 8 and 8b, have been further investigated by Council and Option 1 has been revised.

7.1 Option 1 (Revised)

This option is for a two-way road along the southern boundary of the Park. The road is set back from the southern boundary to allow for substantial planting. An existing accessible toilet and adjoining face brick wall are to be retained. Part of an original blade brick wall retained. This wall contains a circular disc containing a carving designed by Hugo Kocken.

It is proposed to refurbish the toilet so that the entry door is on the western elevation of the building away from the street, affording better privacy. The location of the door will be adjacent to that part of the wall with Kocken's carving, allowing this area to become a small courtyard with provision for interpretive panels. These panels would specifically interpret the Women's Rest Centre and the work of the CWA. The interpretation would be to Heritage Office standards.

Refer to Figures 7 and 8.

Figure 7:
Location of accessible toilet. Wall to the right with plaque to be retained as an interpretative courtyard for the Women's Rest Centre. Door to toilet to be relocated to face courtyard. Hedge to the left to be new location of dismantled sandstone wall.

It is also suggested that Council should negotiate with the owner to paint out the sign on the hoarding of the adjacent building.

Figure 8:
Front elevation of Women's Rest Centre showing sandstone wall to be carefully dismantled and relocated as indicated in the picture above.

The alignment of the road is such that it will feed into the controlled intersection of Coronation Street and the Pacific Highway. It is proposed to enhance this intersection by relocating the sandstone wall to the front of the CWA, to a position adjacent to the boundary between the park and a dilapidated commercial premises to the south that faces onto Pacific Highway. The sidewall of this premises will also be painted.

To further enhance this intersection, it is proposed to provide a heritage grant to have the building on the opposite corner painted in heritage colours.

Advantages

- This option allows for the greatest understanding of the site as a park and of its historical context.

- The demolition of the Women's Rest Centre removes an intrusive element in the park. As the CWA, an organisation with social significance, is continuing to meet in suitable premises, the functioning of the CWA is not contingent on the retention of the Women's Rest Centre.

- This option maximises the extent of open space in the park by having only one access road and by removing an existing length of roadway in the northern end of the park.

- This option retains the curved path in the park and the maximum extent of the path parallel to the Pacific Highway. These paths are surviving elements of the 1927 park design.

- This option contains all vehicular movement to one portion of the park.

- This option allows a clean, *controlled*, intersection with Pacific Highway.

- This option removes an existing length of road from the northern portion of the park thus increasing the open space area of the park.

- This option reconnects the children's play area with the rest of the park without the need to cross a road and therefore enhances safety within the park. The reconnection of the children's play area also improves the aesthetics of the park in this section.

- This option does not impact on a section of land in the north west corner of the park that is earmarked for future development of the aquatic centre.

- This option allows for a the interpretation of the Women's Rest Centre by retaining the Kocken Plaque in its original location and by reusing a sandstone blade wall as part of the interpretation and enhancement of the Coronation Street, Pacific Highway intersection.

- There are no significant trees removed from the northern end of the park.

- The existing sandstone gates to the northeast corner are retained.

- The existing timber pergolas on the front path are able to be retained.

- This option provides for a good pedestrian connection between the park and the bush in the valley beyond by a proposed new path (which is not interrupted by a road).

Disadvantages

- Demolition of the Women's Rest Centre is required. This building is not heritage listed, although it has non-statutory listings.

- A mature *Magnolia grandiflora* is removed.

7.2 Option 2

This option is for a two-way road along the southern boundary of the Park. The road slews out and around the Women's Rest Centre allowing its retention.

It is proposed to truncate part of the curved path system and relocate one of the symmetrically disposed pergolas to accommodate the slewed section of road.

The alignment of the road is such that it will not feed into the controlled intersection of Coronation Street and the Pacific Highway.

Advantages

- The Women's Rest Centre is retained.

- This option contains all vehicular movement to one portion of the park

- This option removes an existing length of road from the northern portion of the park thus increasing the open space area of the park.

- This option reconnects the children's play area with the rest of the park without the need to cross a road and therefore enhances safety within the park. The reconnection of the children's play area also improves the aesthetics of the park in this section.

- This option does not impact on a section of land in the north west corner of the park that is earmarked for future development of the aquatic centre.

- There are no significant trees removed from the northern end of the park.

- The existing sandstone gates to the northeast corner are retained.

- The mature *Magnolia grandiflora* is retained.

- This option provides for a good pedestrian connection between the park and the bush in the valley beyond by a proposed new path that is not interrupted by a road.

Disadvantages

- The road requires two lanes to intrude some distance into the established southern section of the park. This makes a major intrusion into the southern section of the park and substantially diminishes the understanding of the park as a whole.

- The existing historic path system is severely truncated at its southern end.

- The loss of a large area of open space area of the park.

- Vehicular access to the park is not through a controlled intersection.

7.3 Option 8

Option 8 provides a loop road for access to the proposed new Aquatic Centre. The access road entry is located adjacent to the Hornsby TAFE vehicular access entry. A single lane road runs along the alignment of the existing access road and dives in a sharp curve into the basement of new Aquatic Centre. The proposed road is wider than the existing road and two significant trees are expected to require removal. Special construction would be required to minimise impacts on other trees. Access to the children's playground will be limited to the Pacific Highway frontage due to safety concerns with vehicle conflicts.

The access road exit would be located in the southern end of the park. It would also be single lane except for the section of road adjacent to the Women's Rest Centre, where it would become two lanes to allow for existing in both directions at the traffic lights at the intersection of Coronation Street and Pacific Highway. The exit road would curve around the Women's Rest Centre thus providing for its retention. To achieve this, the existing curved path would need to be realigned to have a sharper radius and the southern pergola would need to be relocated.

Advantages

- This option allows for the retention of the Women's Rest Centre building.

- This option allows for one controlled intersection with the Pacific Highway and an uncontrolled intersection.

Disadvantages

- This option reduces the visual extent of the park, as the Park would appear to be confined between the two access roads rather than extending to its boundaries. This option also breaks the Park into separate 'parcels'. This results in the loss of an understanding of the historical extent and design of the Park.

- The loop road would require the new Aquatic Centre to be considerably lower to allow a 3.5 metre high truck to pass under the pool.

- The retention of the Women's Rest Centre retains a visually intrusive element to the Park.

- Two access roads would be required rather than one, thus resulting in the loss of greater areas of open space than would be required by Option1 (Revised).

- This option would require the existing curved pedestrian path to be realigned in the southern section of the park, thus losing an element of the historical design of the Park.

- This option would require the loss of parts of the front path parallel to the Pacific Highway, an element of the original park design.

- This option increases the disconnection of the children's play area with the main portion of the park. The existing heritage sandstone steps off the playground would need to be closed for safety reasons.

- Two significant trees would need to be removed from the northern end of the park.

- One of the existing sandstone gates in the northeast corner would need to be modified. Although not deemed to be significant, they do tell part of the story of social esteem in which the park is held.

- This option does not allow for a direct connection between the main section of the park and the stair to the bush valley beyond as provided for by Option 1 (Revised).

7.4 Option 8b

Option 8b is similar to Option 8 with the exception that the entry driveway describes a wider arc than Option 8 as it approaches the entry to the basement of the new Aquatic Centre. As a result of this, several trees, in addition to those removed in Option 8, are adversely impacted.

Advantages

- This option allows for the retention of the CWA Rooms.

- This option allows for one controlled intersection with Pacific Highway and an uncontrolled intersection.

Disadvantages

- This option reduces the visual extent of the park as the park as the Park would appear to be confined between the two access roads rather than extending to its boundaries. This option also breaks the park into separate 'parcels'. This results in the loss of an understanding of the historical extent and design of the Park.

- The loop road would require the new Aquatic Centre to be considerably lower to allow a 3.5 metre high truck to pass under the pool.

- The retention of the Women's Rest Centre retains a visually intrusive element to the Park.

- Two access roads would be required rather than one, thus resulting in the loss of greater areas of open space than would be required by Option 1 (Revised).

- This option would require the existing curved pedestrian path to be realigned in the southern section of the Park, thus losing an element of the historical design of the Park.

- This option would require the loss of parts of the front path parallel to the Pacific Highway, an element of the original design of the Park.

- This option increases the disconnection of the children's play area with the main portion of the Park. The existing heritage sandstone steps off the playground would need to be closed for safety reasons.

- Three significant trees would need to be removed from the northern end of the Park.

- One of the existing sandstone gates in the northeast corner would need to be modified. Although not deemed to be significant, they do tell part of the story of social esteem in which the Park is held.

- This option does allow for a connection between the main section of the park and the stair to the bush valley beyond as provided for by Option1 (Revised) although park users would be required to cross the busier northern access road.

7.5 Discussion

The key issue in determining a preferred option is whether the Women's Rest Centre has sufficient significance such that its retention warrants the additional negative impacts to Hornsby Park arising from its retention.

The Women's Rest Centre has considerable social significance arising from its association with the CWA and the opportunity it provided for interaction between the general public and the CWA. The CWA have now moved from the building making the association an historical one, as opposed to an ongoing one.

The Women's Rest Centre has some significance as an example of a small late 1950s public building. While it has some architectural merit, the architect is not a notable architect, and the building design is not an example of architectural excellence or innovation. The building has recent non-statutory listings, but given the quality of other buildings on both the associated registers, it is uncertain that the Women's Rest Centre reaches the threshold for listing on either of these registers.

Hornsby Park is of greater heritage significance. The Park was a deliberately sought addition to the growing township in the 1880s, and as with municipal parks throughout Australia, became a source of local pride. Unlike the Women's Rest Centre building, the Park has had statutory listing for some time. In the late 1940s when it was proposed to build a memorial hall on part of the park, there were objections to the notion that part of the open space of the park would be removed. It was even realised then that new buildings built into parkland are seldom removed, and it is usually impossible to expand the park.

The introduction of a swimming pool complex in the 1960s was seen in a much more favourable light. It introduced a popular form of active recreation to the park and an activity of almost universal community use. The use was not seen as being at odds with the park, but a central location for a popular recreational use. This was before the days of backyard swimming pools. Local pools were the breeding grounds of Olympic swimmers, and were often named as *Olympic* pools. The construction of an Olympic standard swimming pool had been on Council's agenda since before the Second World War.

The pool has continued high community esteem, as does the park. Hornsby Park's value as a park is seen as being enhanced by the construction of a new swimming complex, but in doing so, its impact on the park should be kept to a minimum. Community esteem for a Women's Rest Centre has declined as such facilities are not now considered necessary. Clean public rest rooms can be found in most public buildings and shopping centres.

The existence of the Women's Rest Centre is not required for the good functioning of Hornsby Park. Rather, this requires maximising the useable parkland, in part by ensuring that the useable part of the park is contiguous. The level of significance of the Women's Rest Centre is not sufficient to warrant its retention if its removal will benefit the community and enhance the heritage significance of the Park.

Option 1 allows the good functioning of the park and the understanding of its significance but with the loss of the Women's Rest Centre. Options 2, 8 and 8b have been prepared to investigate ways to retain the Women's Rest Centre, but in so doing the options ascribe too much significance to the Women's Rest Centre over the major adverse impacts to the park that arise out of its retention. All of these three retention options have a far greater adverse impact on the park, both in terms of amenity and retention of its heritage significance, than does Option 1.

Preservation and enhancement of the amenity and heritage significance of the park should be the first priority when dealing with change within or adjacent to the park. This imperative takes priority over retention of the Women's Rest Centre.

Ideally it would be desirable for the Women's Rest Centre to be retained. The building is a community asset. In this instance, however, retaining one community asset will create a major adverse heritage and amenity impact in efficient delivery of a far more important community asset. The retention of the Women's Rest Centre creates a set of circumstances that will have a major adverse impact on the heritage significance of Hornsby Park and on its amenity to a wide range of citizens.

8.0 RECOMMENDATIONS

1. Option 1 (Revised) is to be considered the preferred option for vehicular access to the new Hornsby Aquatic Centre.

2. An archival recording should be made of the Women's Rest Centre (using both measured drawings and photographs) prior to its demolition.

3. The Heritage Interpretation Strategy should be revised to take into account the removal of the Women's Rest Centre, the retention in situ of the Kocken plaque and the reconstruction of the sandstone blade wall.

4. The Civic Centre precinct should be improved at its southern end by the painting of the side wall of the adjoining property to the south, the reconstruction of the sandstone blade wall presently in part of the front of the Women's Rest Centre, and the possible repainting of the heritage listed building opposite, to reinforce the enhanced importance of the intersection.

9.0 CONCLUSION

Hornsby Park is a significant local park much valued by the community since its creation in 1896. In proposing a new Aquatic Centre, the findings of the two heritage assessments undertaken in support of the Development Application are supported by this report. Ranking the Park as having greater significance than the Women's rest Centre is also supported by this report.

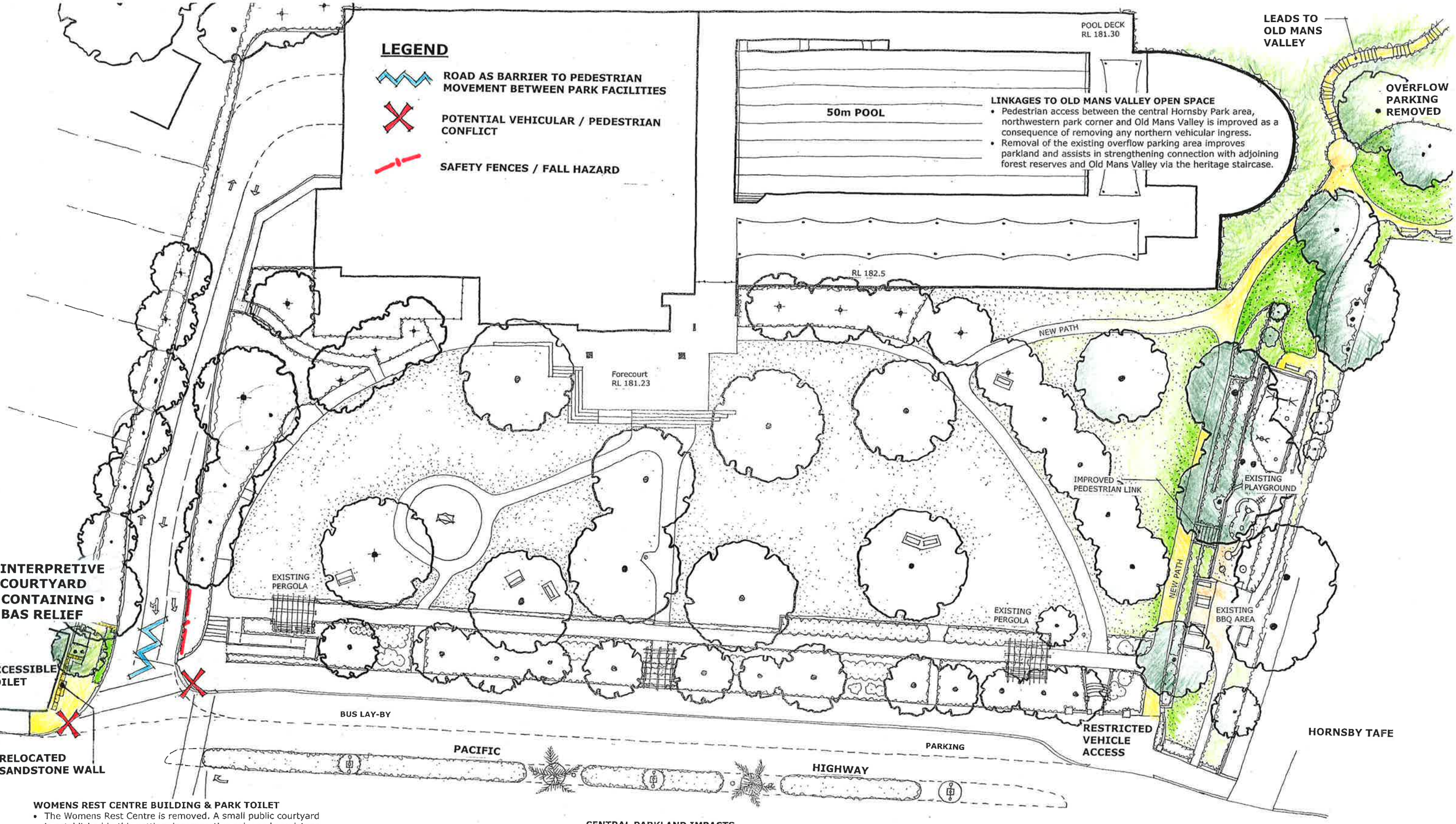
The proposed Aquatic Centre will enhance the function of the park and is much desired by the local community. A considerable number of options have been carefully considered, the only practical options are those that directly cross the park at some point. Those options have

been carefully considered and all have some form of impact on the amenity and heritage significance of the Park.

The option of a single access road at the southern end of Hornsby Park, Option1 (Revised), is the preferred option as it conserves the heritage values of the park to a far greater degree than the other options discussed in this report; Options; 2, 8 and 8b. Option 1 (Revised) does require the demolition of the Women's Rest Centre. This is considered acceptable as, on balance, this has less of an adverse heritage impact on the Park, as outlined in detail above, than Options 2, 8 and 8b. In accepting the negative impact of the removal of the Women's Rest Centre, a considerable incidental benefit is given to the significance of the Park by removing what is, in terms of the Park's original and long-standing purpose, a visually intrusive element.

10.0 APPENDIX 1

Hornsby Aquatic Centre Options 1, 2, 8 and 8b



WOMENS REST CENTRE BUILDING & PARK TOILET

- The Womens Rest Centre is removed. A small public courtyard is established in this setting, incorporating salvaged sandstone bass relief sculpture, salvaged sandstone walls and supplementary landscape plantings.
- The existing public toilet will be refurbished and the entry more discretely located.
- The courtyard will be a place where the former Womens Rest Centre will be interpreted, including through historical references and reinstatement of a sandstone wall adjacent to the southern corner of the site.
- Access from other parts of Hornsby Park requires the pedestrian crossing of 3 lanes of roadway.

0 5 10 15 20m

BAR SCALE

CENTRAL PARKLAND IMPACTS

- Vehicular movements are confined to the southern park area.
- Useable open space in the central park area is significantly unchanged however conversion of the existing northern road access to path delivers gains for the parkland (aesthetic, spatial and safety improvements).
- Connections to adjoining areas are retained and enhanced including by removal of vehicular ingress and overflow parking area in the northwestern park corner.

N

NORTHERN PLAYGROUND AND PICNIC AREA

- Park improved by the removal of the existing vehicle access lane and replacement with a pedestrian path.
- No impact on heritage-listed Turpentine trees or heritage stone walls in the northern park area.
- Playground has a good overview of and improved physical connection with parkland areas.

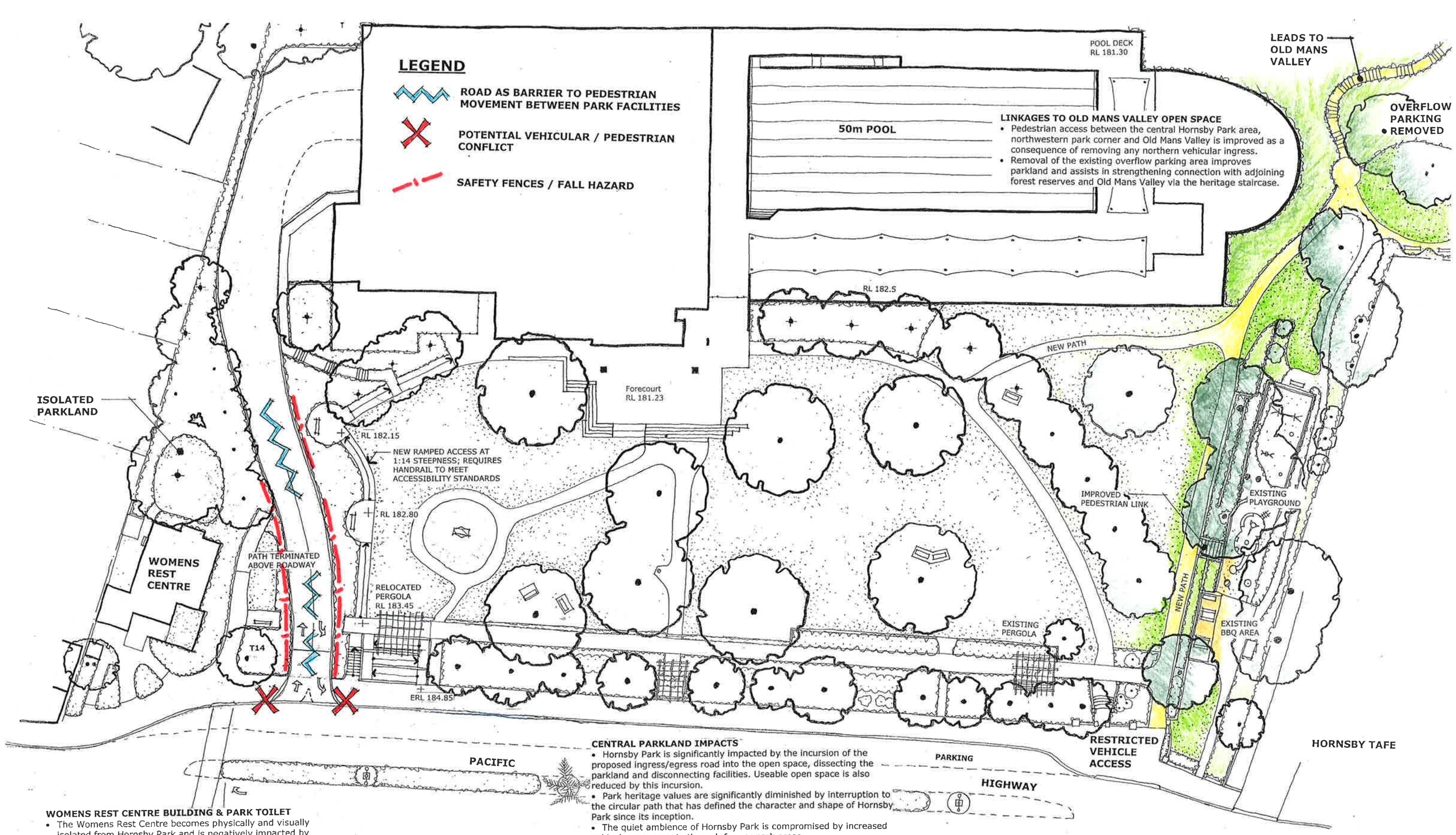
HORNSBY AQUATIC CENTRE
OPTION 1 – VEHICULAR ENTRY/EGRESS
EVALUATION OF POTENTIAL PARKLAND IMPACTS

Scale 1:250 @ A1

Hornsby Shire Council
Parks and Landscape Team

Dwg No: LA-01 (Option 1)
23/3/12

HORNSBY SHIRE COUNCIL



WOMENS REST CENTRE BUILDING & PARK TOILET

- The Womens Rest Centre becomes physically and visually isolated from Hornsby Park and is negatively impacted by proximity of the roadway (visual, noise, fumes). These impacts diminish its attraction as a visitor/user venue.
- Public toilet facilities become remote and access from other parts of Hornsby Park requires the pedestrian crossing of 2 lanes as a result of the incursion of the roadway.
- Landscape treatments and fencing will be required alongside the ingress/egress road to manage pedestrian and park user movements away from potential fall hazards and vehicular conflict.

0 5 10 15 20m

BAR SCALE

CENTRAL PARKLAND IMPACTS

- Hornsby Park is significantly impacted by the incursion of the proposed ingress/egress road into the open space, dissecting the parkland and disconnecting facilities. Useable open space is also reduced by this incursion.
- Park heritage values are significantly diminished by interruption to the circular path that has defined the character and shape of Hornsby Park since its inception.
- The quiet ambience of Hornsby Park is compromised by increased vehicular movements through former park areas.
- Excavation to bring the roadway up to the Pacific Highway will introduce level changes between road and parkland areas above it. Potential fall hazards will require fencing above roadside walls.
- The potential to develop an attractive park entry statement is compromised by the width and siting of the roadway across the park frontage.
- The ingress/egress necessitates development of an accessible entry stair and ramp in the location of existing garden areas, relocation of a garden pergola and lowering of path levels. Ease of connection to the Aquatic Centre and other park areas becomes less direct, particularly for wheelchair users.

NORTHERN PLAYGROUND AND PICNIC AREA

- Park improved by the removal of the existing vehicle access lane and replacement with a pedestrian path.
- No impact on heritage-listed Turpentine trees or heritage stone walls in the northern park area.
- Playground has a good overview of and improved physical connection with parkland areas.

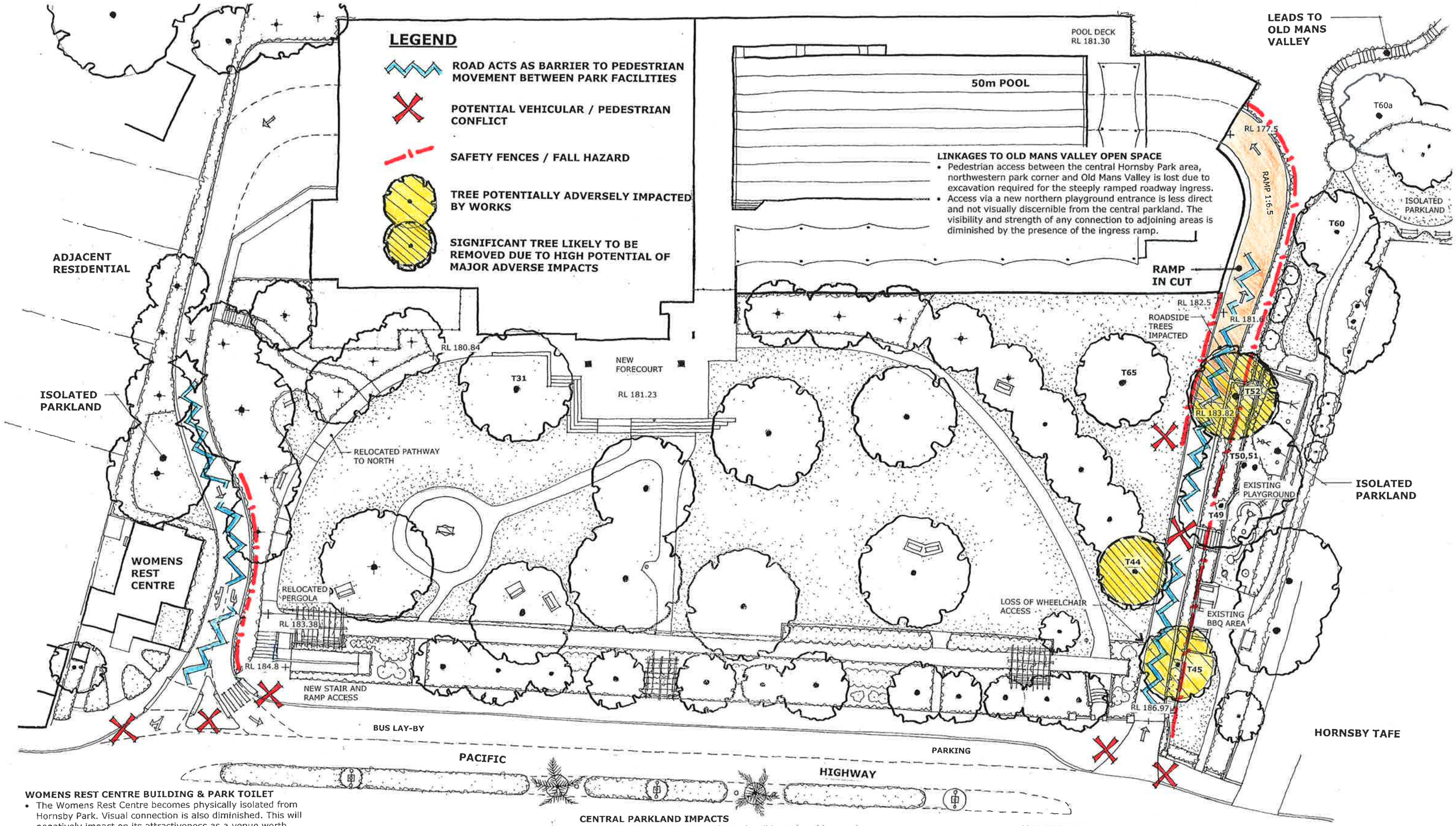
HORNSBY AQUATIC CENTRE
OPTION 2 – VEHICULAR 2-WAY DRIVE IN PARK
EVALUATION OF POTENTIAL PARKLAND IMPACTS

Scale 1:250 @ A1

Hornsby Shire Council
Parks and Landscape Team

Dwg No: LA-02 (Option 2)
23/3/12

HORNSBY SHIRE COUNCIL



WOMENS REST CENTRE BUILDING & PARK TOILET

- The Womens Rest Centre becomes physically isolated from Hornsby Park. Visual connection is also diminished. This will negatively impact on its attractiveness as a venue worth visiting.
- Access from other parts of Hornsby Park requires the pedestrian crossing of 2 lanes of roadway.
- The Womens Rest Centre is negatively impacted by proximity of the egress roadway, including 2 lanes of traffic (visual, noise, fumes).
- Public toilet facilities are remote to the park as a consequence of the road development.
- Landscape treatments will be required alongside the egress road to restrict pedestrian movements.

0 5 10 15 20m

BAR SCALE

CENTRAL PARKLAND IMPACTS

- Useable open space in Hornsby Park will be reduced in area by the southern and northern egress requirements.
- The quiet ambience of Hornsby Park is compromised by increased vehicular movements in northern and southern park areas.
- Connections to adjoining park areas are restricted by physical and visual barriers and increased risks of vehicular-pedestrian conflict.
- The northern park area is dissected from the central parkland area. This physical remoteness presents an additional safety concern for users of Hornsby Park.

NORTHERN PLAYGROUND AND PICNIC AREA

- The road (which will be required to be widened into the parkland and developed by excavation through Hornsby Park) will cause removal of a number of heritage-listed Turpentine trees in the northern park area.
- The proposed road may impact on heritage stone walls. Heritage-listed trees will be adversely affected. These impacts include on park amenity (sun/shade patterns and useability), character and ambience.
- The northern entry road introduces a higher risk of pedestrian-vehicular conflict, forcing park users to cross the busier access road at park frontage. The existing stairs from the playground will need to be closed due to safety concerns.
- The northern play, picnic and open space areas and beyond become further dissected from Hornsby Park. The remoteness of particularly the northwestern park area presents additional safety concerns for park users.

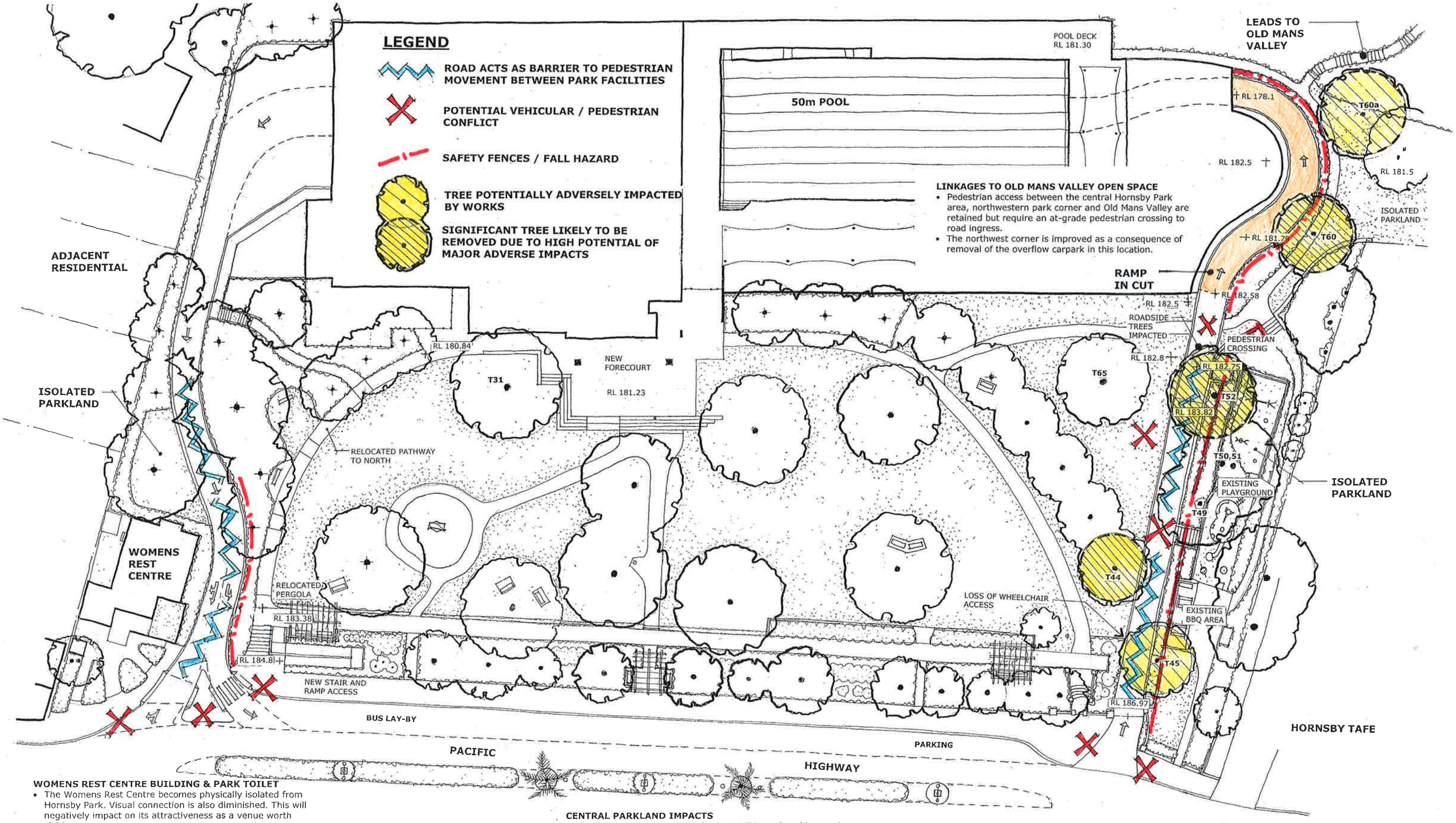
HORNSBY AQUATIC CENTRE
OPTION 8 – VEHICULAR ENTRY/EGRESS
EVALUATION OF POTENTIAL PARKLAND IMPACTS

Scale 1:250 @ A1

Hornsby Shire Council
Parks and Landscape Team

Dwg No: LA-03 (Option 8)
23/3/12

HORNSBY SHIRE COUNCIL



WOMENS REST CENTRE BUILDING & PARK TOILET

- The Womens Rest Centre becomes physically isolated from Hornsby Park. Visual connection is also diminished. This will negatively impact on its attractiveness as a venue worth visiting.
- Access from other parts of Hornsby Park requires the pedestrian crossing of 2 lanes of roadway.
- The Womens Rest Centre is negatively impacted by proximity of the egress roadway, including 2 lanes of traffic (visual, noise, fumes).
- Public toilet facilities are remote to the park as a consequence of the road development.
- Landscape treatments will be required alongside the egress road to restrict pedestrian movements.

0 5 10 15 20m

BAR SCALE

CENTRAL PARKLAND IMPACTS

- Useable open space in Hornsby Park will be reduced in area by the southern and northern egress requirements.
- The quiet ambience of Hornsby Park is compromised by increased vehicular movements in northern and southern park areas.
- Connections to adjoining park areas are restricted by physical and visual barriers and increased risks of vehicular-pedestrian conflict.
- The northern park area is dissected from the central parkland area. This physical remoteness presents an additional safety concern for users of Hornsby Park.

NORTHERN PLAYGROUND AND PICNIC AREA

- The road (which will be required to be widened into the parkland and developed by excavation through Hornsby Park) will cause removal of a number of heritage-listed Turpentine trees in the northern park area.
- The proposed road may impact on heritage stone walls. Heritage-listed trees will be adversely affected. These impacts include on park amenity (sun/shade patterns and useability), character and ambience.
- The northern entry road introduces a higher risk of pedestrian-vehicular conflict, forcing park users to cross the busier access road at park frontage. The existing stairs from the playground will need to be closed due to safety concerns.
- The northern play, picnic and open space areas and beyond become further dissected from Hornsby Park. The remoteness of particularly the northwestern park area presents additional safety concerns for park users.

HORNSBY AQUATIC CENTRE
OPTION 8b – MODIFIED ENTRY RAMP
EVALUATION OF POTENTIAL PARKLAND IMPACTS

Scale 1:250 @ A1

Hornsby Shire Council
Parks and Landscape Team

Dwg No: LA-04 (Option 8b)
23/3/12

HORNSBY SHIRE COUNCIL

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APPENDIX D

LEVEL 1, 364 KENT STREET, SYDNEY NSW 2000 TEL 82703500 FAX 82703501 WWW.CITYPLAN.COM.AU
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CITY PLAN STRATEGY & DEVELOPMENT PTY LTD ABN 58 133 501 774
CITY PLAN URBAN DESIGN PTY LTD ABN 41 107317 206
CITY PLAN HERITAGE PTY LTD ABN 46 103 185 413

PAUL SCRIVENER
LANDSCAPE ARCHITECT

Statement of Environmental Effects
Assessment on alternative access routes
and
landscape impacts
for
Hornsby Park and Hornsby Aquatic Centre

Ref: 2012/1604/DA1

Date: 7 March, 2012

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The following discussion is in response to the listed options 1-12 as listed below for alternative access options into the proposed Hornsby Aquatic Centre via the Hornsby Park.

The various assessments focus on landscape impacts and generally do not address other issues which are directly relevant to the option which may be problematic such as land ownership, costs or traffic requirements. These are all addressed by the relevant expert consultants elsewhere in the report.

Option 1 - Access into Hornsby Park opposite Coronation Street via Traffic lights

Option 2 - Access north of CWA building

Option 3 - Access northern end of Hornsby Park – widen existing access

Option 4 - Access through TAFE Carpark

Option 5 - Access via no. 4 Dural Street, privately owned land

Option 6 - Access via no.6 Dural Street, The Montessori pre school site (Norwood)

Option 7 - Old Mans Valley fire trail

Option 8 - Access via Loop Road as proposed by Mark Cambourn

Option 9 - Access via Loop Road as proposed by Mark Cambourn reversed ingress/egress

Option 10 - Access through playground northern side of Hornsby Park

Option 11 - Access through playground northern side of Hornsby Park with access ramp at rear of pool

Option 12 - Access into Park opposite Coronation St.via Traffic lights with 1.5 clearance of CWA bldg.

Option 1

Access into Hornsby Park opposite Coronation Street via Traffic lights

Landscape or associated issues supporting the option

- This is the preferred option as proposed in the original DA. The single entrance option at this end of the park provides the least impact on the visual and use pattern of the park
- Allows for the items of heritage importance such as the bus shelter and associated stone gardens to have minimal impact upon them
- Allows for the opportunity for the pedestrian access into the SE corner of the site to be upgraded to complement the existing pedestrian entry ways at the north eastern and central eastern park/footpath interface. Characteristics include the high quality stone piers and garden walls and unique tiled paving patterns that identify the entry points to the park.
- The upgraded pedestrian entry is the superior location to facilitate disabled access into the site due to the SE corner being the lowest level to access the site from the public footpath.
- The relationship of the existing playground to the park is unchanged.
- Allows the strong semi-circular path alignment that connect the NE and SE pedestrian entries into the park. This path configuration has been identified as a key underlying component of the park layout and character and is considered an important design component worthy of retention if at all possible.
- No identified indigenous trees of importance are required to be removed

Landscape or associated issues identified against

- The removal of the CWA building. It should be noted that this is a park element that has limited relationship with the current adjoining informal open parkland.
- Isolates the public toilets from the main part of the park.

Option 2

Access north of CWA building

Landscape or associated issues supporting the option

- This configuration allows for the retention of the CWA building. It is noted that this built element loses any limited relationship it currently has with the adjoining informal open parkland as a consequence of this proposed roadway.

Landscape or associated issues identified against

- Requires the proposed disabled access area to be relocated further away from the SE corner of the site. The rise in street levels will require increased ramps and will require demolition and reconfiguration of some of the eastern boundary gardens. This will have some negative impact on the streetscape of the park and disrupt the linear pattern of these gardens.
- Requires the demolition of the heritage bus shelter adjacent to the SE corner of the site.
- Requires demolition of the southern-most linear garden bed along the SE street front.
- Requires the removal of large indigenous Angophora tree #13
- Reduces the amount of useable open space within Hornsby Park.
- Severely impacts the underlying semi-circular path pattern and southern heritage pergola identified in the option 1 discussion which is an important underlying component of the park configuration
- The opportunity for the proposed supplementary Jacaranda tree avenue planting adjacent to the southern side of the semi-circular entry path would be lost. This specific design aspect was considered important to provide a design balance to the established Jacaranda avenue tree planting on the northern side of the semi-circular path which is a well established design component of the park.
- Isolates the CWA building and the public toilets from the main part of the park.

Option 3

Access northern end of Hornsby Park – widen existing access

Landscape or associated issues supporting the option

- Allows for the CWA building to be retained. It is noted that this built element retains its limited relationship with the adjoining informal open parkland.Allows for the opportunity for the pedestrian access into the SE corner of the site to be upgraded to complement the existing pedestrian entry ways at the north eastern and central eastern park/footpath interface
- This option allows for the opportunity (in the longer term) for a possible relocation of the children's play area to be relocated into the main park precinct, to the west of the CWA building and south of the semi-circular pathway.

Landscape or associated issues identified against

- The NE corner has an established and strong pedestrian entry into Hornsby Park. This would be severely disrupted by a widened two way road access into the site. It is likely the entire character of the northern side of the park would be negatively impacted by the driveway location here.
- The widening of the road would need to be completed on the southern side of the existing access road which reduces the useable area of the park. It would also impact on the amenity of the northern side of the semi –circular path and established avenue tree planting.
- The higher use road would effectively cut the northern side of the park (including the children's play area) from the main part of the park unless relocated.
- There is the likely negative impacts on several established trees including the large Turpentines # 45 & 44. Substantial cut and fill and engineered structures would be required.

Option 4

Access through TAFE Carpark

Landscape or associated issues supporting the option

- Allows for the CWA to be retained. It is again noted that this built element retains its limited relationship with the adjoining informal open parkland.
- Minimises disruption of the existing park configuration
- Allows for the opportunity for the pedestrian access into the SE corner of the site to be upgraded to complement the existing pedestrian entry ways at the north eastern and central eastern park/footpath interface
- The upgraded pedestrian entry is the superior location to facilitate disabled access into the site due to the SE corner being the lowest level to access the site from the public footpath.
- This option allows for the opportunity (in the longer term) for a possible relocation of the children's play area to be relocated into the main park precinct, to the west of the CWA building and south of the semi-circular pathway.
- Allows the strong semi-circular path alignment that connect the NE and SE pedestrian entries into the park. This path configuration has been identified as a key underlying component of the park layout and character and is considered an important design component worthy of retention if at all possible.

Landscape or associated issues identified against

- Would require the likely removal of the large Turpentine Tree # 60
- Would require substantial cut and fill and engineered solutions at the lower end of the roadway from the elevated area of the TAFE roadway down to the basement car park level.
- Would provide a structural barrier for future access into the bushland reserve below the site. There is currently opportunity for a future defined access to the bushland reserve from NW corner of Hornsby Park.

Option 5

Access via no. 4 Dural Street, privately owned land

Landscape or associated issues supporting the option

- Allows for the CWA to be retained. It is again noted that this built element retains its limited relationship with the adjoining informal open parkland.
- Allows for minimum disruption to the existing Hornsby Park configuration

Landscape or associated issues identified against

- Would require expensive structural works due to the topography of the adjoining land. Substantial cut and fill and engineered structures would be required.
- Would require the removal of some large and mature indigenous street trees on Dural Street
- Would have a negative impact on the streetscape of Dural Street
- Would have a negative impact on the adjacent Montessori school

Option 6

Access via no.6 Dural Street, The Montessori pre school site (Norwood)

Landscape or associated issues supporting the option

- Allows for the CWA to be retained. It is again noted that this built element retains its limited relationship with the adjoining informal open parkland.
- Allows for minimum disruption to the existing Hornsby Park configuration

Landscape or associated issues identified against

- Would require expensive structural works due to the topography of the land. Substantial cut and fill and engineered structures would be required.
- Would require the removal of some large and mature indigenous street trees on Dural Street
- Would have a negative impact on the streetscape of Dural Street

Option 7

Old Mans Valley fire trail

Landscape or associated issues supporting the option

- Allows for the CWA to be retained. It is again noted that this built element retains its limited relationship with the adjoining informal open parkland.
- Allows for minimum disruption to the existing Hornsby Park configuration

Landscape or associated issues identified against

- Would require substantial structural works due to the topography of the land including a complex and expensive switchback road through the bushland reserve
- Would be prohibitively expensive
- Would have substantial negative impacts on existing trees and bushland areas during construction as well as over the long term.
- Would require extensive environmental impact assessments on the bushland reserve

Option 8

Access via Loop Road as proposed by Mark Cambourn

Landscape or associated issues supporting the option

- Allows for retention of the CWA building. It is again noted that this built element loses any limited relationship it currently has with the adjoining informal open parkland as a consequence of the proposed roadway.

Landscape or associated issues identified against

- Requires the proposed disabled access pathway to be relocated further away from the SE corner of the site, making this pedestrian access less direct. The rise in street levels will require increased ramps.It will also require demolition and reconfiguration of some of the eastern boundary gardens. This will have some negative impact on the streetscape of the park and disrupt the linear pattern of these gardens.
- Requires the demolition of the bus shelter adjacent to the SE corner of the site.
- Requires demolition of the southern-most linear garden bed along the SE street front.
- Requires the removal of large indigenous Angophora tree # 13
- Reduces the amount of useable open space within Hornsby Park as a consequence of the road development.
- Severely impacts the underlying semi-circular path pattern identified in the option 1 discussion which is considered an important underlying component of the park configuration
- The opportunity for the proposed supplementary Jacaranda tree avenue planting adjacent to the southern side of the semi-circular entry path would be lost. This specific design aspect was considered important to provide a design balance to the established Jacaranda avenue tree planting on the northern side of the semi-circular path which is a well established design component of the park.
- The NE corner has an established and strong pedestrian entry into Hornsby Park. This would be impacted to some extent by the higher traffic flows of the upgraded access road. It is likely the entire character of the northern side of the park would be negatively impacted by driveways at both the southern end and northern end of the site which are also key pedestrian access points and termination points for the established semi-circular path configuration.
- The higher use road would effectively cut the northern side of the park (including the children's play area) from the main part of the park. Existing direct pedestrian linkages between the park and the playground will need to be closed off because of safety concerns.
- Would provide a structural barrier for future access into the bushland reserve from the NW corner of the site. Council has identified an opportunity to direct the Great North Walk to come through this area as part of a new pedestrian gateway into the open space areas beyond, including Berowra Valley Regional Park.

- **Option 9**

Access via Loop Road as proposed by Mark Cambourn reversed ingress/egress

Landscape or associated issues supporting the option

- Allows for retention of the CWA building. It is again noted that this built element loses any limited relationship it currently has with the adjoining informal open parkland as a consequence of the proposed roadway.
- Requires only a one lane road at the southern entry, which is less intrusive than Option 8.

Landscape or associated issues identified against

- Requires the proposed disabled access pathway to be relocated further away from the SE corner of the site, making this pedestrian access less direct. The rise in street levels will require increased ramps and will require demolition and reconfiguration of some of the eastern boundary gardens. This will have some negative impact on the streetscape of the park and disrupt the linear pattern of these gardens.
- Requires the demolition of the bus shelter adjacent to the SE corner of the site.
- Requires demolition of the southern-most linear garden bed along the SE street front.
- Requires the removal of large indigenous Angophora tree # 13
- Reduces the amount of useable open space within Hornsby Park as a consequence of the road development.
- Severely impacts the underlying semi-circular path pattern identified in the option 1 discussion which is considered an important underlying component of the park configuration
- The opportunity for the proposed supplementary Jacaranda tree avenue planting adjacent to the southern side of the semi-circular entry path would be lost. This specific design aspect was considered important to provide a design balance to the established Jacaranda avenue tree planting on the northern side of the semi-circular path which is a well established design component of the park.
- The NE corner has an established and strong pedestrian entry into Hornsby Park. This would be impacted to some extent by the higher traffic flows of the upgraded access road. It is likely the entire character of the northern side of the park would be negatively impacted by driveways at both the southern end and northern end of the site which are also key pedestrian access points and termination points for the established semi-circular path configuration.
- The higher use road would effectively cut the northern side of the park (including the children's play area) from the main part of the park. Existing direct pedestrian linkages between the park and the playground will need to be closed off because of safety concerns.
- Would provide a structural barrier for future access into the bushland reserve from the NW corner of the site. Council has identified an opportunity to direct the Great North Walk to come through this

area as part of a new pedestrian gateway into the open space areas beyond, including Berowra Valley Regional Park.

- Isolates the public toilets from the main part of the park.

Option 10

Access through playground northern side of Hornsby Park

Landscape or associated issues supporting the option

- Allows for the CWA building to be retained. It is again noted that this built element retains its limited relationship with the adjoining informal open parkland.
- Allows for the opportunity for the pedestrian access into the SE corner of the site to be upgraded to complement the existing pedestrian entry ways at the north eastern and central eastern park/footpath interface
- This option allows for the possible relocation of the children's play area to be relocated into the main park precinct, to the west of the CWA building and south of the semi-circular pathway.

Landscape or associated issues identified against

- The NE corner has an established and strong pedestrian entry into Hornsby Park. This would be somewhat impacted by a road access into the site from the northern elevated section of the park. It is likely the entire character of the northern side of the park would be negatively impacted by the driveway location here.
- Substantial cut and fill and engineered structures would be required.
- It will require the immediate relocation of the children's play area.
- There is the likely negative impacts on several established trees # 45, 46 50, 51 & 60 including a number of mature large Turpentines.

Option 11

Access through playground northern side of Hornsby Park with access ramp at rear of pool

Landscape or associated issues supporting the option

- Allows for the CWA building to be retained. It is again noted that this built element retains its limited relationship with the adjoining informal open parkland.
- Allows for the opportunity for the pedestrian access into the SE corner of the site to be upgraded to complement the existing pedestrian entry ways at the north eastern and central eastern park/footpath interface

Landscape or associated issues identified against

- The NE corner has an established and strong pedestrian entry into Hornsby Park. This would be somewhat impacted by a road access into the site from the northern elevated section of the park. It is likely the entire character of the northern side of the park would be negatively impacted by the driveway location here.
- Substantial cut and fill and engineered structures would be required. Also there would be some additional impacts on the interface of the development with the bushland reserve below.
- This option requires relocation of the children's play area to be relocated into the main park precinct, to the west of the CWA building and south of the semi-circular pathway.
- There is the likely negative impacts on several established trees # 45, 46 50, 51 & 60 including a number of mature large Turpentines.
- Visual impacts of the elevated roadway when viewed from the bushland reserve, especially in context of the long term passive use development opportunities of the bushland reserve precinct.
- Would provide a structural barrier for future access into the bushland reserve from the NW corner of the site. Council has identified an opportunity to direct the Great North Walk to come through this area as part of a new pedestrian gateway into the open space areas beyond, including Berowra Valley Regional Park.

Option 12

Access into Park opposite Coronation St. via Traffic lights with 1.5 clearance of CWA bldg.

Landscape or associated issues supporting the option

- This configuration allows for the retention of the CWA building. It is again noted that this built element loses any limited relationship it currently has with the adjoining informal open parkland as a consequence of the proposed roadway.

Landscape or associated issues identified against

- Requires the proposed disabled access pathway to be relocated further away from the SE corner of the site, making this pedestrian access less direct. The rise in street levels will require increased ramps and will require demolition and reconfiguration of some of the eastern boundary gardens. This will have some negative impact on the streetscape of the park and disrupt the linear pattern of these gardens.
- Requires the demolition of the bus shelter adjacent to the SE corner of the site.
- Requires demolition of the southern-most linear garden bed along the SE street front.
- Requires the removal of large indigenous Angophora tree # 13 near to the bus shelter
- Reduces the amount of useable open space within the Hornsby Park as a consequence of the road development.
- Severely impacts the underlying semi-circular path pattern identified in the option 1 discussion which is considered an important underlying component of the park configuration
- The opportunity for the proposed supplementary Jacaranda tree avenue planting adjacent to the southern side of the semi-circular entry path would be greatly reduced. This specific design aspect was considered important to provide a design balance to the established Jacaranda avenue tree planting on the northern side of the semi-circular path which is a well established design component of the park.
- Requires the compacting of competing pedestrian access, vehicular access, disabled path access and retention of important heritage items into too small an area to make it a viable alternative. The likely result is the demolition of the above mentioned items of significance to the fabric of the park including the path alignment, the southern pergola and the linear garden alignment along the SE street frontage.
- Isolates the public toilets from the main part of the park.

Summary

Having assessed all the alternative options with a view to retaining the CWA building it becomes clear that each alternative results in varying combinations of negative impacts to the Hornsby Park precinct in terms of landscape assessment and the related park heritage impacts.

In the original assessment of alternative road access opportunities these impacts were apparent and the option 1 road access was considered the most viable from such landscape and park heritage perspectives.

Due to specific topography constraints, road access opportunities and the significant underlying geometry that are integral to Hornsby Park's character the alternative options, to varying degrees promote unacceptable impacts that in terms of landscape significance outweigh the contribution the CWA building makes to the Park as an important public asset.

Having reassessed the options and reviewed additional alternative options my preference for the incorporation of the Option 1 entry configuration is reinforced.

Yours sincerely,

Paul Scrivener (Director)

Paul Scrivener Landscape Architects Pty Ltd

PLANNING
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CITY PLAN SERVICES

APPENDIX E

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CITY PLAN HERITAGE PTY LTD ABN 46 103 185 413

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Hornsby Shire Council

Report for New Hornsby Aquatic Centre

Review Access Options for Waste Collection Issues

March 2012

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

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1. Introduction

1.1 Background

Hornsby Aquatic Centre (HAC) is operated by Hornsby Shire Council (Council) but has been closed since late 2010 due to concrete cancer in the grandstand. Council is planning the redevelopment of the facility with a new 50 m pool as well as smaller leisure pools and a water slide. A car park is also planned for the site.

The previous pool received about 130,000 visitors per year. This is expected to rise to 300,000 for the new facility.

Access to the current site has been by way of a driveway near the northern boundary. Only limited parking has been available on site.

1.2 Access Options

The new development includes improved access to the facility for which 12 options have been developed, some of which arose during the course of the community consultation process. The options are:

Option 1 – Two way driveway on the southern side of the site that joins the Pacific Highway at the Coronation Street intersection. Joins the site from the south;

Option 2 – Two way driveway on the southern side of the site that joins the Pacific Highway slightly to the north of the Coronation Street intersection. Joins the site from the south;

Option 3 – Two way driveway on the northern side of the site along the existing driveway corridor that joins the Pacific Highway opposite the Council Chambers. Joins the site from the north;

Option 4 - Two way driveway on the northern side of the site using the TAFE driveway and carpark that joins the Pacific Highway at the TAFE driveway opposite the Council Chambers. Joins the site from the north;

Option 5 - Two way driveway from Dural Street south of the site, through No 4 Dural Street. Joins the site from the south;

Option 6 - Two way driveway from Dural Street south of the site, through No 6 Dural Street. Joins the site from the nor south;

Option 7 - Two way driveway from Quarry Rd via an existing road from the western side of the property. Joins the site from the west;

Option 8 – One way road running under the pool complex with northern access along existing driveway corridor that joins the Pacific Highway opposite the Council Chambers and southern exit by a driveway that joins the Pacific Highway slightly to the north of the Coronation Street intersection;

Option 9 - One way road running under the pool complex with northern exit along existing driveway corridor that joins the Pacific Highway opposite the Council

Chambers and southern access by a driveway that that joins the Pacific Highway slightly to the north of the Coronation Street intersection;

Option 10 - Two way driveway on the northern side of the site through existing playground that joins the Pacific Highway opposite the Council Chambers. Joins the site from the north;

Option 11 - Two way driveway on the northern side of the site along the existing driveway corridor that joins the Pacific Highway opposite the Council Chambers. Joins the site from the west; and

Option 12 - Two way driveway on the southern side of the site that joins the Pacific Highway at the Coronation Street intersection. Joins the site from the south. This option differs only slightly from Option 1 in the driveway design and not in a way that affects the waste service.

Option 1 is Council's preferred option.

1.3 Proposed Waste System

1.3.1 Proposed Bins

The previous pool had two 660 litre bins for garbage and one 660 litre bin for recyclables. In winter these were emptied once a week and twice a week in summer. The days of collection were specified by Council.

The new aquatic centre is expected to have more than twice as many visitors so it is likely that there will be at least twice as much waste. For the purposes of this analysis, it is assumed that the 660 L bins will be used and the frequency of collection increased to twice a week in winter and four times per week in summer.

1.3.2 Default Collection System

The collection of bins is proposed to be carried out by Council's contractor, Cleanaway, under the terms of a contract it has with Council. Cleanaway's collection vehicle is a conventional real-lift mobile compactor vehicle which requires clearance of 4.5 m.

Regardless of which access option is chosen, it is assumed that the bins would be stored in a bin room secured with a roller door in some part of the complex with easy access for collection vehicles by the driveway. The bins would either be placed outside the roller door for collection the day before the service day or the collection vehicle driver would, upon arrival, open the roller door and pull out the bins himself.

1.3.3 Access Options 1, 2, 5, 6 and 12

For all options that involve entry and exit from the south, Options 1, 2, 5, 6 and 12, the bin storage room would be located in the south-west corner of the complex.

The collection vehicle would enter the driveway from the Pacific Highway, turn the vehicle around in the turning area outside the bin room, empty the bins into the vehicle and then drive out the driveway and onto the Pacific Highway to exit the site.

The bins would be emptied in the open and neither the vehicle nor the emptying of the bins would be subject to any height restrictions.

1.3.4 Options 3, 4 and 10

Options 3, 4, 10 and 11 involve entry and exit from the north.

In the case of Option 3 the bin storage room is assumed to be in the north-east corner of the complex. In the case of Options 4 and 10 it is assumed to be in the north west corner of the complex. In each case it is assumed that the bin rooms would be located at the edge of any building and that the turning areas would not be located under cover as clearance in this area is proposed to be 3.5 m which is less than the required 4.5 m for access by the Council's contractor's collection vehicles. Access for collection vehicles to the collection point in each case would be by the driveway.

The collection vehicle would enter into the driveway from the Pacific Highway, turn the vehicle around in the turning area outside the bin room, empty the bins into the vehicle and then drive out the driveway and onto the Pacific Highway to exit the site.

1.3.5 Options 7 and 11

For Options that involve collection on the western side of the complex, Options 7 and 11, the bin storage room is assumed to be located in the centre of the complex on the western side. In each case it is assumed that the bin room would be located at the edge of any building and that the turning areas would not be located under cover.

In the case of Option 7 the collection vehicle would enter into the access driveway from Quarry Road, turn the vehicle around in the turning area outside the bin room, empty the bins into the vehicle and then drive out the driveway and back onto Quarry Road to exit the site. In the case of Option 11 the collection vehicle would enter into the access driveway from the Pacific Highway, turn the vehicle around in the turning area outside the bin room, empty the bins into the vehicle and then drive out the driveway and onto Quarry Road to exit the site.

1.3.6 Options 8 and 9

Two Options involve the collection vehicle driving through the complex on a one-way loop and collection bins from their location in the south western corner of the complex. These are Options 8 and 9. For these options waste collection would take place in the way described below.

In the case of Option 8, the collection vehicle would enter from the Pacific Highway into the northern driveway next to the TAFE, drive under the complex and stop outside the bin storage area in the south west corner. Here it would empty the bins into the vehicle and then drive out the southern driveway to the Pacific Highway to exit the site.

In the case of Option 9, the collection vehicle would enter from the Pacific Highway into the southern driveway near the Coronation Street intersection, drive down the driveway and stop outside the bin storage area in the south west corner. Here it would empty the

bins into the vehicle and then drive out under the complex to the northern driveway next to the TAFE and onto the Pacific Highway to exit the site.

2. Method

2.1 Document Review and Site Visit

GHD reviewed documentation provided by Council including:

- A PowerPoint presentation - Alternative Access to Hornsby Aquatic Centre Review Meeting - 29th February 2012;
- Two drawings of the site – DA05 and DA06;
- Meeting Minutes - Design and Construction Branch, Works Division Meeting - Hornsby Aquatic Centre Redevelopment, 29th February 2012 - Access Options for Vehicular Traffic; and
- Executive Manager's Report No. WK59/11 28 Redevelopment of Hornsby Aquatic Centre. Review of Impact on CWA Rooms

GHD's consultant also met with Council representatives on 6 March, 2012, who briefed him on the project. On the same day GHD undertook a site inspection with representatives of Council.

A draft report was submitted and then on 9 March GHD attended a consultants meeting at Hornsby Council at which some details of the development and waste collection options became clearer and some additional tasks were commissioned. The draft report has been amended according to Council's instructions.

2.2 Waste Contractor Consultation

GHD contacted seven waste collection contractors to enquire whether any could provide the waste and recycling service at the HAC using a small rear-lift vehicle that could gain access where clearance was no more than the 2.9 m minimum clearance proposed under Options 8 and 9.

The results of the consultation are shown in Table 1 below.

Table 1 Results of Contractor Consultation

Contractor	Phone Number	Contact	Comments
Watts Waste	02 9452 4053 or 0405 183 924	Steve	Trucks are minimum 3.9 m so cannot provide this service
Sita Australia	131335 or 0401 980 434	Tony Candy	Trucks are minimum 3.0 m so cannot provide this service
Veolia	132955		Trucks are minimum 3.6 m so cannot provide this service
Galloway	02 9620 6060 or 0433 229 844	Darryl	Have a truck that can collect these bins. Galloway collects mixed waste and sorts it at its own facility. Could collect 3 x 660 L mixed waste bins but would depend on composition of the waste. Would need to be 80% recoverable. Rough cost would be

Contractor	Phone Number	Contact	Comments
			$18 per bin.
JJ Richards	02 9832 4022		Trucks are minimum 3.39 m high so cannot provide this service
Doyle Bros	02 9999 2111 or 0412 330 052		Cannot provide this service
Cleanaway[1]	02 9671 9604 or 0439 690 188	Peter Blair	Trucks are minimum 3.1 m high so cannot provide this service

Of the companies contacted, only Galloway can provide a vehicle to collect the bins at the HAC under the proposed access options. However, the composition of the waste must be suitable for the system operated Galloway. The waste stream must be at least 80% recyclable and have less than 15% food. The cost would be $54 per week in winter and $108 per week in summer.

2.3 Sulo MGB Consultation

Sulo MGB is one of a number of manufactures of 660 L bins. Sulo has advised that 660 L bins can be linked together and towed as proposed under Alternative 2 in Section 3.3.2 below. A towing kit is required and these are available from Sulo for $300 each. Alternatively, new bins fitted with the kit could be bought for around $500 each. The tow kits allow the bins to be hitched to a conventional tow ball that might be fitted on any car. More information can be found in Appendix A.

2.4 Tow Motor Consultation

GHD contacted several manufacturers and distributors of tow motors and tow tugs, including Toyota Materials Handling, Sitecraft Materials Handling Equipment[2] and King Materials Handling[3]. Tow motors or tow tugs could be used to tow the bins to the road for collection as proposed under Alternative 2 in Section 3.3.2 below.

The consultation showed that a four wheeled ride-on tow motor, like that in Figure 1, has a towing capacity far in excess of that required at HAC. Prices start at $15,000 and increase from there.

[1] Council's current contractor

[2] http://www.sitecraft.net.au/materials-handling

[3] http://www.kinggroup.com.au

Figure 1 - Toyota Tow Motor

Other smaller hand operated tow tugs are available. These have been designed for towing bins, and are much more suitable for this task. These tow tugs have a minimum towing capacity of 1000 kg. An example can be seen in Figure 2 below. The tow tugs connect to the bin tow kit and are operated by someone walking ahead as shown in Figure 3. Prices start at around $11,000. King Group Materials Handling quoted a price of $11,110 for the unit shown in Figure 2.

Figure 2 - Powered Tow Tug[4]

Figure 3 - Tow Tug in Operation

[4] http://www.kinggroup.com.au/tow%20tugs/tug1.jpg

3. Waste Collection Alternatives

3.1 Introduction

This section outlines the viable waste collection alternatives available for each of the access options detailed in Section 1.1. Alternatives for waste collection can be divided according to the different types of access and collection points proposed.

3.2 Options 1, 2, 3, 4, 5, 6, 7, 10, 11 and 12

Design details of the waste storage room, collection area and truck turning circle have been developed for Option 1 only. These details are assumed to be the same for all southern access options. GHD also assumes that if northern or western access options are chosen that the same arrangements for bin storage and vehicle turning would be provided for in each case. Based on these assumptions therefore, the type of access and collection point for all options except Options 8 and 9 are essentially the same. The bin collection point will be outside and a collection vehicle can get access to it by way of an open driveway without any height or clearance restrictions.

If any of Options 1 to 7 or 10 to 12 are chosen, waste collection could be undertaken as it has been in the past, using Council's contractor and its regular vehicles.

3.3 Options 8 and 9

Options 8 and 9 provide for a one way road system that runs through the complex with traffic flowing either north to south or south to north. Minimum clearance under the complex is 2.9 m which is lower than Council's contractor's vehicles need to gain access. Indeed with this clearance no conventional waste collection vehicles could gain access and would not be able to service the bins at this site if they are required to drive through the loop road.

There are therefore three alternatives for waste collection if these options are chosen.

3.3.1 Alternative 1 – Small Collection Vehicle

In this alternative, the bins could be collected from the normal collection point outside the bin room using a vehicle that can drive under the complex. Waste collection vehicles of a suitable size do exist but are quite uncommon. An example is shown in Figure 4 and the dimensions in Figure 5.

Figure 4 - Small rear lift collection vehicle

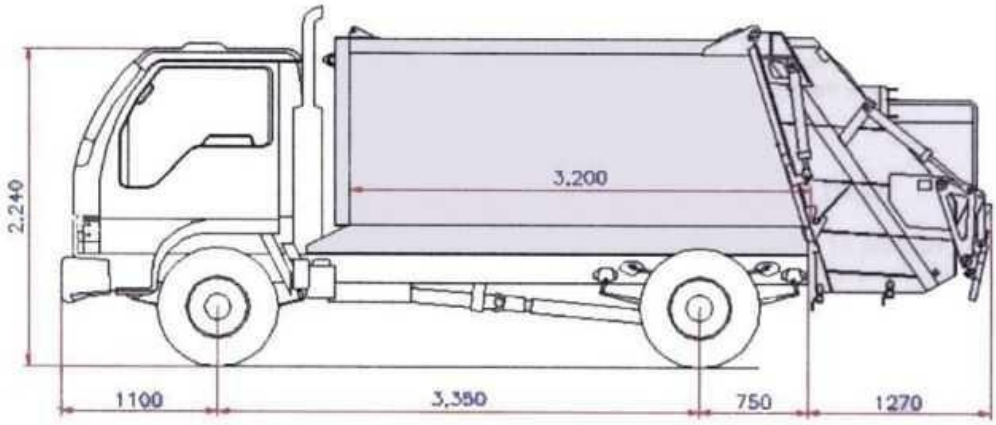

Figure 5 - Garwood Bantam Specifications

Of the seven waste contractors contacted by GHD only one could provide such a vehicle and in that case significant conditions were placed on the type of waste that this company, Galloway, could collect. It is by no means sure that waste from the HAC would be suitable.

Galloway would charge around $18 per bin for three bins of mixed waste collected twice per week in winter and four times per week in summer. This is compared to Council's charge of $26.73 for general waste and $10.89 for recycling per bin per week.

Table 2 below shows the cost differences, based on possible future waste quantities, over one year, assuming 26 weeks of summer and 26 weeks of winter.

Table 2 Galloway v Cleanaway Collection Costs

Item	Galloway	Cleanaway
Per bin cost general waste	$18.00	$26.73
Per bin cost recycling	$18.00	$10.89
General waste bins per week - summer		8
General waste bins per week - winter		4
Recycling bins per week - summer	12	4
Recycling bins per week - winter	6	2
Weekly Summer cost	$216.00	$257.40
Weekly Winter cost	$108.00	$128.70
Summer cost	$5,616.00	$6,692.40
Winter cost	$2,808.00	$3,346.20
Total Year	**$8,424.00**	**$10,038.60**

There are significant advantages to using Galloway including cheaper collection costs and greater recovery rate, however, it is by no means certain that Galloway can provide the service. Even if it can initially, but pulls out at a later date, it may not be possible to find another replacement contractor with a suitable vehicle. Imposing this collection system severely restricts the options available to Council for servicing the site.

Another option is for Council to acquire and operate a small vehicle itself. Garwood can supply one of its Bantam bodies fitted to a cab chassis for $150,000. This includes a lifter suitable for 660 litre bins.

GHD has calculated the approximate costs of providing the vehicle and service over 10 years using the following assumptions:

- Depreciation is 10% of the actual vehicle value per year;
- Other yearly costs for operating the vehicle include:
    - Licences - $500;
    - Fuel - $7500;
    - Insurance - $7500;
    - Maintenance - $10,000;
    - Miscellaneous - $5000;
    - Total - $30,500;

- Driver hourly cost - $25.72 plus 43% on costs;
- Each service would take three hours. This involves driving from the Beaumont Road depot to the Aquatic Centre, collecting the recycling bin, driving to the MRF at Chullora and back to the Aquatic Centre to collect the garbage bins, then driving to Ryde Transfer Station to dispose of the waste and then driving back to the depot;
- Two services would be required for 26 weeks in winter and four services for 26 weeks in summer;
- Tipping cost would be $200 per tonne for waste, rising by $10 per year for ten years;
- Payment of $25 per tonne is assumed for recycling;
- General waste has a density of 0.2 tonnes per cubic metre and mixed recyclables a density of 0.06 tonnes per cubic metres;
- Loan interest rate of 7%;
- Interest paid each year plus 2% off the loan capital each year;
- For the purposes of the calculations all input costs are assumed to remain the same for ten years other than depreciation and waste tipping costs; and
- The figures have been simplified and are estimates only with the aim of providing an approximate indication of costs. Council should not rely on these figures until further, more accurate modelling has been undertaken.

Figures shown here are based on information provided by Council and calculations made by GHD in preparing a Local Government Recycling Business Case Model for the now NSW Office of Environment and Heritage.

Table 3 below shows the costs each year if the $150,000 cost of the vehicle is borrowed at an interest rate of 7% per year and 2% off the principal.

Table 3 Ten Year Costs – Vehicle Cost Borrowed

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Truck cost depreciation	$15,000	$13,500	$12,150	$10,935	$9,842	$8,857	$7,972	$7,174	$6,457	$5,811	**$97,698**
Other truck costs	$30,500	$30,500	$30,500	$30,500	$30,500	$30,500	$30,500	$30,500	$30,500	$30,500	**$305,000**
Driver	$18,647	$18,647	$18,647	$18,647	$18,647	$18,647	$18,647	$18,647	$18,647	$18,647	**$186,473**
Tipping	$8,005	$8,417	$8,829	$9,241	$9,653	$10,064	$10,476	$10,888	$11,300	$11,712	**$98,584**
Loan interest	$10,500	$10,500	$10,500	$10,500	$10,500	$10,500	$10,500	$10,500	$10,500	$10,500	**$105,000**
Loan capital											**$122,561**

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Total	$82,652	$81,564	$80,626	$79,823	$79,141	$78,569	$78,095	$77,710	$77,404	$77,170	**$915,316**
Truck Sale										*Subtract*	**$52,302**
Net Cost											**$863,014**

The table shows that after ten years the total cost of operating the service is estimated to be $915,316. The truck will have depreciated to $52,302, which if sold would then provide an estimated net cost of $863,014.

Table 4 below shows the costs each year if the vehicle is bought outright.

Table 4 Ten Year Costs – Vehicle Bought Outright

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Truck cost depreciation	$15,000	$13,500	$12,150	$10,935	$9,842	$8,857	$7,972	$7,174	$6,457	$5,811	**$97,698**
Other truck costs	$30,500	$30,500	$30,500	$30,500	$30,500	$30,500	$30,500	$30,500	$30,500	$30,500	**$305,000**
Driver	$18,647	$18,647	$18,647	$18,647	$18,647	$18,647	$18,647	$18,647	$18,647	$18,647	**$186,473**
Tipping	$8,005	$8,417	$8,829	$9,241	$9,653	$10,064	$10,476	$10,888	$11,300	$11,712	**$98,584**
Total	$72,152	$71,064	$70,126	$69,323	$68,641	$68,069	$67,595	$67,210	$66,904	$66,670	**$687,755**
Truck Sale										*Subtract*	**$52,302**
Net Cost											**$635,453**

The table shows that after ten years the total cost of operating the service is estimated to be $687,755. The truck will have depreciated to $52,302, which if sold would then provide an estimated net cost of $635,453.

3.3.2 Alternative 2 – Bins collected from Street

In this alternative, waste bins are stored in the bin room but taken to the Pacific Highway for collection. Normally this would be done the night before collection and the bins would be transported to the footpath at the top of the southern driveway and left there overnight.

It is probably not safe or convenient for staff to push the bins up the driveway gradient to the street, so the bins would need to be conveyed there by other means. Wheeled bins, like the 660 litre bins used at the HAC, can be fitted with a towing kit that enables them to be linked together and towed as a small train. They can be towed behind a

conventional car, ute or a tow tug of which there are a variety available (see Section 2.4). No such vehicle or plant exists on the site so this would need to be acquired.

Table 5 below shows the costs.

Table 5 Bin Towing Equipment Costs

Equipment Item	Cost Per Unit	Total Cost
Tow Tug	$11,110	$11,110
Tow Kit	$300	$900
Total		**$12,010**

Additional time would also be required of Aquatic Centre staff to take the bins to the street the night before collection and to bring them back down to the bin room after collection the next morning. This has not been costed.

The bins would have to be left on the footpath outside the Aquatic Centre on the Pacific Highway overnight, exposing them to the risk of theft, vandalism and damage. This would mean they would have to be secured to a structure to prevent unauthorised movement. Alternatively a bin storage area may need to be constructed to safely contain them.

There is also an increased risk of the bins being used for illegal waste disposal by others. This would require them to be locked. A kerb ramp would also need to be constructed to allow the bins to be moved for servicing from the footpath to the road and back.

For all the reasons outlined above this option is not recommended.

3.3.3 Alternative 3 – Conventional Vehicle Entry and Exit Through Same Gate

In this alternative the bins are collected from the normal collection point outside the bin storage room. The collection vehicle is the conventional vehicle provided by Council's contractor. It would enter the site by the southern driveway and exit again by the same driveway after collecting the bins. If the one way traffic flow is north to south (Option 8) it will be heading the opposite direction on the way in and if it is south to north (Option 9), the collection vehicle will be heading the opposite direction on the way out.

Ideally the collection vehicle should be heading in the correct direction on the way out so that it re-enters traffic on the Pacific Highway at an intersection arranged to cope with vehicles exiting the site at this point. If the bin room is located in the south west corner, as is planned, this would make Option 8 slightly more preferred than Option 9.

The specified collection time on the collection day is before 5.30 am, which is the time the aquatic centre opens each morning. The collection will take place therefore when there are no other vehicles or people on the site. Turning the vehicle and heading back in the opposite direction should therefore, not present any risks to vehicles entering or leaving the site.

This alternative is only viable provided the collection takes place before 5.30 am on the collection days. On some occasions, collection vehicles breakdown or staff are sick or the collection cannot be completed according to the normal schedule for other reasons. If for any reason the collection vehicle cannot complete the service before 5.30 am, the collection probably will not able to take place unless the driveway is completely closed to traffic while the vehicle travels along the driveway in the opposite direction.

In winter this would probably not present significant problems as, provided the bins are collected the next day, there may be some additional capacity in the bins to accommodate one more day's waste. In summer however, additional capacity is unlikely to be available and Council may have to have a contingency in place.

3.3.4 Summary of Alternatives

Table 6 below summarises the waste collection alternatives of Options 8 or 9 are chosen.

Table 6 Summary of Alternatives for Options 8 and 9

Alternative	Description	Advantages	Disadvantages	Approximate Additional Cost
◗ 1	◗ Small collection vehicle	◗ Collection vehicle would travel in same direction as traffic ◗ Possibly cheaper if contractor used	◗ Very limited choice of collection contractor ◗ May not be possible to collect outside operating hours ◗ HAC waste stream may not be suitable ◗ Would be significant expense if Council acquired its own vehicle	◗ May be a net gain if contractor used ◗ Between approx. $600,000 and $900,000 over ten years if Council acquires own vehicle
◗ 2	◗ Bins collected from street	◗ Allows normal collection vehicle to be used	◗ Requires additional equipment and costs ◗ Requires additional staff time ◗ Increase risk of theft, vandalism and damage	◗ Approx. $12,000 ◗ Staff time
◗ 3	◗ Conventional vehicle in and out same gate	◗ Allows normal collection vehicle to be used ◗ No additional costs	◗ Collection vehicle would have to travel against traffic direction, although no other traffic is on site at time of collection	◗ No change from current costs

Of the three alternatives proposed if Options 8 and 9 are chosen, Alternative 3 is the most viable as it uses Council's contractor and requires no special vehicles, equipment or additional costs. Although it requires the vehicle to either enter or leave the site against the traffic direction, this can be done safety at the proposed collection times and if exiting the site with the traffic direction.

3.4 Waste Collection Summary

If Options 1, 2, 3, 4, 5, 6, 7, 10, 11 or 12 are chosen, waste collection could be undertaken as has been in the past, using Council's contractor and its regular vehicles.

All of these Options are preferred to Options 8 and 9 as they are cheaper, safer and more convenient.

If Options 8 or 9 are chosen, normal waste collection could not be undertaken, as the minimum clearance required collection vehicle access would be 2.9 m, lower than Council's contractor's vehicles and other conventional waste collection vehicles.

Three alternatives are therefore proposed; using a small truck, collecting the bins on the street and using a conventional vehicle entering and exiting through the same gate. A summary of the advantages and disadvantages of these alternatives are shown in

Table 6. Of these three alternatives, Alternative 3 is the most viable as it uses Council's contractor and requires no special vehicles, equipment or additional costs.

Option 8 is preferred slightly over Option 9 but neither is preferred over any of the other ten Options. This is shown below using the tick system proposed by Council.

Option	1	2	3	4	5	6	7	8	9	10	11	12
Waste	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓	✓	✓✓✓	✓✓✓	✓✓✓

Appendix A

660 L Bin Tow Kit Information

Assembly and operating Instruction

Universal Towing Device for MGB

Issue 1 21.08.2008

SULO®

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1. Introduction

These assembly instructions contain information for the correct use of the universal towing device.
This will allow all four wheeled MGBs equipped with a complete set of towing devices to be towed singularly or connected in a “train” configuration.

4. Components of towing device

The universal towing device can be used for all SULO 660 L and 1100 L MGBs
The universal towing device comprises off

ii Draw bar **(photo 1)**
iii Draw bar receiver **(photo 1)**
iiii Tow hitch bracket **(photo 1)**
ivi “R” clip **(photo 1)**
vi Securing chain **(photo 1)**
vii Snap ring **(photo 2)**
viii Securing chain **(photo 2)**

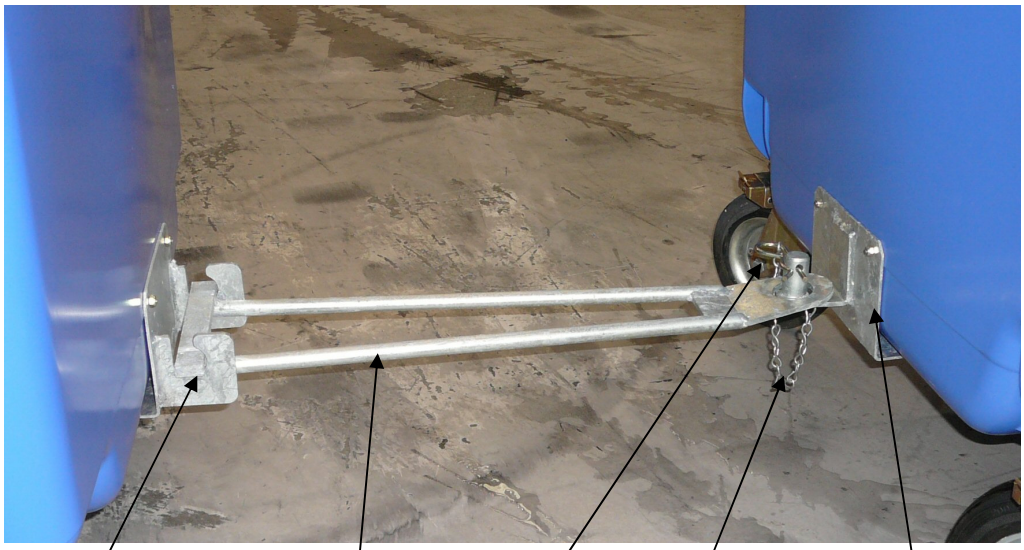


Photo 1

Photograph shows trailing MGB’s if in a “train” configuration, towing vehicle would have to be fitted with Tow Hitch as shown or tow ball if towed by a standard road vehicle (see photo 5)

3. Towing device component configuration:

Orientation of the components are as follows, **when standing in front of the bin with the lid opening away from you the:**

A. Draw bar receiver is attached to the right hand side of the MGB **(photo 2)**

B. Draw bar tow hitch bracket is attached to the left hand side of the MGB **(photo 3)**

C. The directional wheels are attached to the left hand side of the MGB **(photo3)**

D. The locking wheel are attached to the front wheels **(photo 4)**

E. When draw bar is not in use it can be stored by attaching to the snap ring and chain attached to the MGB. **(photo 2)**

Securing chain Snap ring

Photo 2

Right hand side of MGB showing Draw bar in stored position

Directional locking wheel

Photo 3

Left hand side of MGB; Directional locks are on these wheels

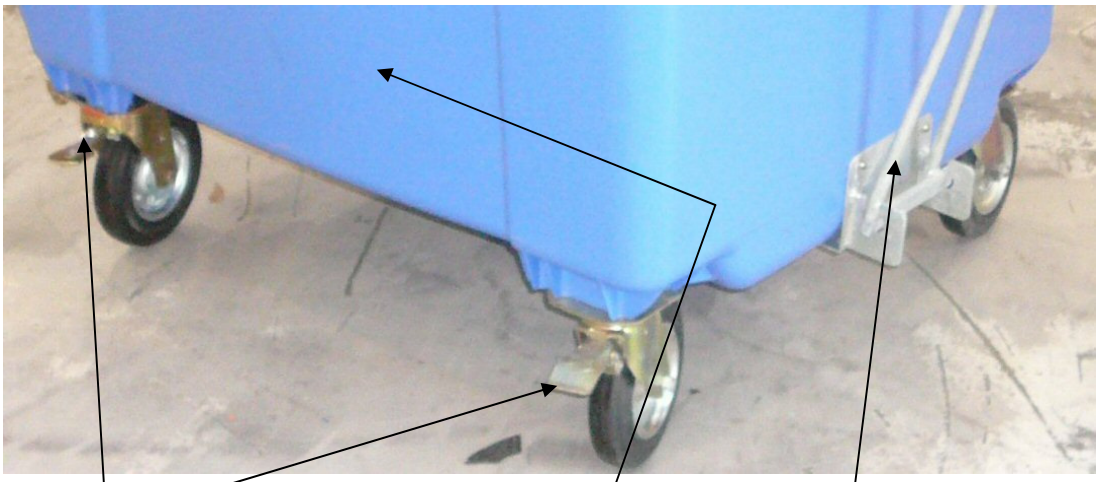


Photo 4

The draw bar can also be fitted with a standard tow ball attachment that can be towed by standard road vehicles

Photo 5

Draw bar with tow ball attachment. If towing vehicle is not fitted with a standard tow ball it should be fitted with the tow hitch bracket shown in photos 1 and 3

(Ensure tow ball is secureley attached and safety chains connected before use)

4. Instructions for use of the Universal Towing Device

4.1. Preparation of the train

The bins and the universal towing device assembly should be checked before use to ensure all are in good working order. Ensure rear directional wheels are locked in the forward position. The draw bar should be fitted securely into draw bar receiver.
Hook the required number of MGB's together fit the "R" clip through the hole in the tow hitch bracket and unlock the brakes. **The lid(s) must be closed.**

4.2. Speed of train

The maximum speed of the train should equal walking speed. Higher speeds can lead to bearing failures.

4.3. Load per bin

The bins should not be loaded with more than 0.4 of their nominal volume according i.e. MGB 660 = 264kg, MGB1100 = 440 kg. This according to the relevant Australian and European standard.

4.4. Bins per train

If configured in a "train", train should not contain more than 3 MGB's.

4.5. Turning radius

The complete train can do a 3 m turning radius, this does not include the towing vehicle.

4.6. Wheels

Steel hub wheels "MUST" be fitted to the MGB's if the Universal Towing Device is to be used in an outdoor environment or any rough surface. Standard wheels can be used if the Towing Device is used "ONLY" indoors and on a smooth surface.

5. Emptying of bin

The draw bar is to be removed before emptying the MGB

Warranty will be voided if these points are not adhered to.

6. Safety

The operator should conduct their own risk assessment before operating the equipment, taking into account the equipment, the environment, and personnel in the vicinity. The following **minimum** safety points should be adhered to.

Hands, fingers should be away from holes and pinch points and preferably be behind the components during assembly.

Ensure that all components are attached securely i.e. the draw bar is sitting fully over the tow hitch bracket and the "R" clip securely attached. Safety chains are to be securely connected where applicable.

Extra care should be taken if hooked together in a "train" and the length should be allowed for during operation, especially when turning. Lids should be closed when in motion;

Safe speeds should be strictly adhered to and particular attention should be paid to personnel or equipment in the area of operation; if needed an audible warning may be required.

Under no circumstances should anyone ride on the MGB's

7. Maintenance

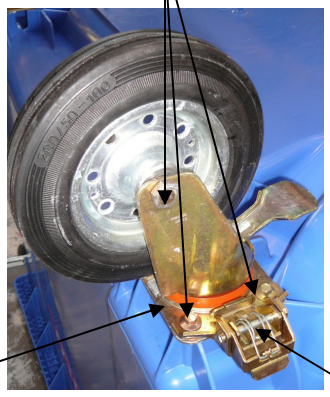
On a regular basis check all nuts and bolts are secure. *If not tighten them*

Check that wheel spindle nut and bolt is secure. *If not tighten it*

Ensure spring is in good order. *If not replace*

Ensure that wheels have not seized up and are free to rotate. *If seized clean ball race with kerosene. If this does not work replace the wheel*

Check nuts, bolts and wheel spindle are secure



Ensure ball race is free to rotate

Ensure spring is in good order

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Document Status

Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
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Hornsby Shire Council

Report for New Hornsby Aquatic Centre

Review Access Options for Work Health Safety Issues

March 2012

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

This Review Access Options for Waste Collection Issues *("Report"):*

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3. *must not be copied to, used by, or relied on by any person other than Hornsby Shire Council without the prior written consent of GHD;*
4. *may only be used for the purpose of considering options for waste services at Hornsby Aquatic Centre (and must not be used for any other purpose).*

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The services undertaken by GHD in connection with preparing this Report were limited to those specifically detailed in sections 1 to 6 of this Report;

The opinions, conclusions and any recommendations in this Report are based on assumptions made by GHD when undertaking services and preparing the Report ("Assumptions"), including (but not limited to):

- *All information provided by Hornsby Shire Council and others is current and accurate*

GHD expressly disclaims responsibility for any error in, or omission from, this Report arising from or in connection with any of the Assumptions being incorrect.

Subject to the paragraphs in this section of the Report, the opinions, conclusions and any recommendations in this Report are based on conditions encountered and information reviewed at the time of preparation and may be relied on until March 2013, after which time, GHD expressly disclaims responsibility for any error in, or omission from, this Report arising from or in connection with those opinions, conclusions and any recommendations.

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1. Introduction

1.1 Background

Hornsby Aquatic Centre (HAC) is operated by Hornsby Shire Council (Council) and has been closed since late 2010 due to concrete cancer in the concrete structure. Council is planning the redevelopment of the facility with a new 50 m pool as well as smaller leisure pools and a water slide. A car park is also planned for the site.

Access to the current site has been by way of a driveway near the northern boundary. Only limited parking has been available on site. The new development includes improved access to the facility and Council has developed a number of access options, which have been added to during the course of the community consultation process.

Council have requested a review of the access options that have been proposed. This report looks at these options from a Work Health and Safety (WHS) viewpoint, specifically with regard to waste removal and servicing of the HAC by contractors, and extends to safety issues such as pedestrian and vehicle traffic, noise and security.

1.2 Access Options

The options are:

Option 1 – Two way driveway on the southern side of the site that joins the Pacific Highway at the Coronation Street intersection. Access to site from south

Option 2 – Two way driveway on the southern side of the site that joins the Pacific Highway slightly to the north of the Coronation Street intersection. Access to site from south

Option 3 – Two way driveway on the northern side of the site along the existing driveway corridor that joins the Pacific Highway opposite the Council Chambers. Access to site from north

Option 4 - Two way driveway on the northern side of the site using the TAFE driveway and car park that joins the Pacific Highway at the TAFE driveway opposite the Council Chambers. Access to site from north

Option 5 - Two way driveway from Dural Street south of the site, through No 4 Dural Street. Access to site from south

Option 6 - Two way driveway from Dural Street south of the site, through No 6 Dural Street. Access to site from south

Option 7 - Two way driveway from Quarry Rd via an existing road from the western side of the property. Access to site from west.

Option 8 – One way road running under the pool complex with northern access along existing driveway corridor that joins the Pacific Highway opposite the Council Chambers and southern exit by a driveway that joins the Pacific Highway slightly to the north of the Coronation Street intersection.

Option 9 - One way road running under the pool complex with northern exit along existing driveway corridor that joins the Pacific Highway opposite the Council Chambers and southern access by a driveway that that joins the Pacific Highway slightly to the north of the Coronation Street intersection.

Option 10 - Two way driveway on the northern side of the site through existing playground that joins the Pacific Highway opposite the Council Chambers. Access to site from north

Option 11 - Two way driveway on the northern side of the site through existing playground that joins the Pacific Highway opposite the Council Chambers. Access to site is from the west.

Option 12 - Two way driveway on the southern side of the site that joins the Pacific Highway at the Coronation Street intersection. Access to the site is from the south. This option differs only slightly from Option 1 in the driveway design and not in a way that affects the waste service.

Council previously submitted Option 1 to the Joint Regional Planning Panel (JRPP).

2. Method

2.1 Document Review and Site Visit

GHD reviewed documentation provided by Council including:

- A PowerPoint presentation - Alternative Access to Hornsby Aquatic Centre Review Meeting - 29th February 2012;
- Two drawings of the site – DA05 and DA06;
- Meeting Minutes - Design and Construction Branch, Works Division Meeting - Hornsby Aquatic Centre Redevelopment, 29th February 2012 - Access Options for Vehicular Traffic; and
- Executive Manager's Report No. WK59/11 28 Redevelopment of Hornsby Aquatic Centre. Review of Impact on CWA Rooms

Two GHD consultants also met with Council representatives who briefed them on the project. On the same day GHD undertook a site inspection with representatives of Council.

2.2 Legal and Other Requirements

In undertaking this desktop review the following legal and other documents were referred to:

- Work Health and Safety Act 2011 (NSW
- Work Health and Safety Regulations 2011 (NSW)
- Code of Practice: How to Manage Work Health and Safety Risks
- Code of Practice: Moving Plant on Construction Sites
- Code of Practice: Managing the Work Environment and Facilities
- Code of Practice: Managing Risks in Construction Work
- Code of Practice: Hazardous Manual Tasks

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3. Safety

3.1 Introduction

This section outlines the various safety risks identified as part of a desktop review of the Options outlined in Section 1.2. The focus of the desktop review are the probable safety issues, specifically with regard to waste removal and servicing of the HAC by contractors, pedestrian and vehicle traffic, noise and security.

The risks and summaries have been grouped by common access directions:

- Options 1, 2, and 12 all have southern entry from Pacific Highway and a two-way access road;
- Options 3, 4, 10 and 11 all have northern entry from Pacific Highway and a two-way access road;
- Options 5, 6 and 7 all have access from southern and western side roads and have two-way access road; and
- Options 8 and 9 have access via a one-way loop road.

For each Option risks have been identified and a risk mitigation measure suggested. This is for guidance purposes only and provides an indication of the type of measure that can be implemented according to the risk. No costs of the risk mitigation measure are included within this report.

Where reference has been made to the installation of zebra crossings as a risk mitigation measure it should be noted that there may be specific engineering requirements, for example a 20 metre sight distance prior to any crossing, that need to be considered and may render the measure redundant. As such the phrase ‘or other appropriate crossing device’ has been added to indicate that there may be other suitable options to help mitigate the risk.

3.2 Hierarchy of Controls

Beneath each grouping of Options a brief summary of the Options is presented. These options also make reference to risk controls such as elimination, substitution, isolation, engineering and administrative. This is a reference to the Hierarchy of Controls referred to in the Work Health and Safety Regulations 2011 (NSW) Section 36 Hierarchy of Control Measures.

The Hierarchy of Controls specify that **Elimination** of the hazard is the strongest control. This is followed in order of strongest to weakest control by:

- **Substituting** (wholly or partly) the hazard giving rise to the risk with something that gives rise to lesser risk
- **Isolating** the hazard from any person exposed to it
- Implementing **Engineering** controls
- If a risk then remains, the duty holder must minimise the remaining risk, so far as is reasonably practicable, by implementing **Administrative** controls.

- If a risk then remains, the duty holder must minimise the remaining risk, so far as is reasonably practicable, by ensuring the provision and use of suitable **personal protective equipment**

A combination of these controls may be used to minimise risks, so far as is reasonably practicable, if a single control is not sufficient for the purpose.

Examples of the different types of control are:

Table 1 Examples of Different Types of Controls

Type of Control	Example
Elimination	Using of a waste service vehicle to collect waste from a bin storage area eliminates manual handling risks associated with moving waste bins to curb side for collection
Substitution	Using signalised crossing as opposed to zebra crossing to reduce risk of pedestrian incident when crossing trafficable areas
Isolation	Installing hard fencing between roadways and footpath to isolate pedestrians from vehicles
Engineering	Installing speed bumps to reduce vehicle speeds
Administrative	Installing a speed sign to reduce vehicle speeds
Personal Protective Equipment	Wearing ear plugs to reduce risk of hearing loss from loud noises

Section 3.6 contains a Review of Options identifying preference attached to each Option based on this desktop review.

3.3 Options 1, 2 and 12 – southern entry from Pacific Highway

3.3.1 Option 1 – access into Hornsby Park opposite Coronation Street via traffic lights

Table 2 Option 1

Identified Risk	Risk Mitigation
Pedestrian traffic at roadside	Only one point of vehicle access/egress to park by means of signalised intersection; Access road can be managed by use of signalised crossing at intersection; Use of signalised intersection by vehicles reduces vehicle use of existing northern lane;
Pedestrian traffic within park	Pedestrian use of paths to access HAC would minimise interaction with vehicles;
Pedestrian traffic within car park	Within car park pedestrian traffic can be minimised by use of drop-off zone; Vehicle speeds can be reduced by installation of speed bumps; Pedestrian traffic focussed in direction of foyer/lifts/stairs and not directed towards entry/exit roadway;
Pedestrian traffic (staff) accessing bin store, mechanical and plant rooms	Staff accessing these areas at nominated times with minimal traffic, i.e. as part of start of shift or end of shift procedures (unless for repairs or emergency purposes); Bollards can be installed outside of room doors to identify safety zone for staff; Vehicle speeds can be reduced by installation of speed bumps;
Pedestrian traffic (service workers) accessing bin store, mechanical and plant rooms	Bin store can be accessed externally from designated outdoor service area reducing interaction with vehicles entering/exiting car park; Bollards can be installed outside of room doors to identify safety zone for service workers; Vehicle speeds can be reduced by installation of speed bumps;
Vehicle traffic entering and exiting HAC at roadside	Only one point of vehicle access/egress to park by means of signalised intersection reduces number of traffic flow areas to be controlled; Signalised intersection reduces likelihood of pedestrian

Identified Risk	Risk Mitigation
	incident; One point of entry/exit at signalised location removes likelihood of traffic build up and crossing before or into oncoming traffic when entering/exiting HAC; One point of vehicle access/egress at southern end of park likely to decrease vehicle traffic in vicinity of children's playground at northern end of park;
Vehicle traffic entering and exiting HAC car park	Controlled access by use of boom gate; Vehicle speeds can be controlled by installation of speed bumps;
Waste service vehicle interaction with vehicles and pedestrians	External access to bin store removes the need for waste services to enter the car park; A designated outdoor service vehicle area removes need for specialty service vehicles, that is, no height restriction would need to be applied for waste service vehicles (for example, under 2.9 m); Risk of incident with vehicles and pedestrians at HAC can be reduced by nominating times for waste removal to coincide with lowest traffic times, for example, between 11 pm and 6 am; Reduced interaction times due to minimal time spent to complete operations/empty the bins (highly likely to be less than 5 minutes);
Traffic flow on road into park is two-way.	Risk of collision can be reduced by installation of lane dividers and lane marking paint; Speed can be controlled by installation of speed bumps;
Waste vehicles required to reverse in turn-around area to leave HAC	Risk of collision with vehicles can be reduced by installation of appropriately placed mirrors for drivers; Risk of collision with vehicles can be reduced by installation of ground marking paint and signs identifying area is only for use by service vehicles; Risk of collision with structure can be reduced by placement of tire stoppers at designated distance from wall; Risk of incident with vehicles and pedestrians at HAC can be reduced by nominating times for waste removal to coincide with lowest traffic times, for example, between 11 pm and 6 am; Risk of reversing into pedestrians can be reduced by service vehicles having reversing alarms/flashing lights; Risk of reversing into pedestrians is reduced by having pedestrian access path on opposite side of road to waste vehicle area;

Identified Risk	Risk Mitigation
Service vehicles required to enter car park to access mechanical plant and pool rooms	Risk of incident with vehicles and pedestrians can be reduced by having designated parking area for service vehicles within car park; Service vehicles can be required to have flashing lights or other warning devices activated while parked within car park to perform servicing; Risk of incident involving service vehicles within car park can be reduced by scheduling services to occur at specific times, for example, at times of lowest traffic.
Operating noise of service vehicles (engine, hydraulics, reversing alarm) within car park	A designated outdoor service vehicle area minimises noise issues within car park; Installation of acoustic wall around designated outdoor service vehicle area reduces noise impact on local residents; Minimal time spent to complete operations;
Security of HAC car park and facility after hours	Security risk to HAC can be reduced by installing roller-doors to entry/exit point of car park; Security risk can be reduced by limiting access to car park, that is, waste service contractors only able to access bin store via external doors and HAC staff ensuring interior doors are locked from inside;
Emergency response vehicle access to car park	A designated outdoor service vehicle area reduces likelihood of obstructing emergency response vehicles both from entering car park and reaching drop-off zone/foyer;

3.3.2 Option 2 – access north of CWA building

Risks identified in Option 1 for the car park and service vehicles should be considered as relevant to Option 2 with the following inclusions.

Table 3 Option 2

Identified Risk	Risk Mitigation
Pedestrian traffic at roadside without signalised crossing	Reduce risk of pedestrian incident by installing zebra crossing (or other appropriate crossing device) at road side;
Pedestrian traffic within park	Pedestrian use of paths to access HAC would minimise interaction with vehicles; Pedestrian traffic to and from the CWA building into the park or HCA can be directed to a zebra crossing (or other appropriate crossing device) by means of designated path;
Vehicle traffic entering and exiting HAC from south without a signalised	Reduce risk of pedestrian incident by installing zebra crossing (or other appropriate crossing device); Reduce risk of vehicle incidents when entering Hornsby

Identified Risk	Risk Mitigation
intersection	Park, for example, rear-ending immediately after intersection, by installing warning signs advising of entry/exit point; Reduce risk of traffic build-up from south by creating a left turn lane before bus stop; Eliminate risk of right hand turn from north by barricading current u-turn area (would also mean entry to HAC is only from the south);
Increased vehicle traffic in immediate vicinity to CWA building	Vehicle speeds can be controlled by installation of speed bumps; Pedestrian traffic to and from the CWA building into the park can be directed to a zebra crossing (or other appropriate crossing device) by means of designated path;
Operating noise of service vehicles (engine, hydraulics, reversing alarm)	Minimal time spent to complete service operations;

3.3.3 Option 12 – access north of CWA building via signalised intersection

Risks identified in Option 1 for the car park and service vehicles should be considered as relevant to Option 12 with the following inclusions.

Table 4 Option 12

Identified Risk	Risk Mitigation
Pedestrian traffic within park	Pedestrian use of paths to access HAC would minimise interaction with vehicles; Pedestrian traffic to and from the CWA building into the park or HCA can be directed to a signalised crossing;
Increased vehicle traffic in immediate vicinity to CWA building	Vehicle speeds can be controlled by installation of speed bumps; Pedestrian traffic to and from the CWA building into the park or HCA can be directed to a signalised crossing;
Operating noise of service vehicles (engine, hydraulics, reversing alarm)	Minimal time spent to complete service operations;

3.3.4 Summary

- Options 1 and 12 utilise more risk controls such as elimination, substitution/isolation and engineering than administrative controls.

- This enables Option 1 and 12 risks to be controlled to a more acceptable level of risk.
- Option 2 utilises more risk controls using engineering and administrative as opposed to elimination and substitution/isolation controls. This means Option 2 risks are more reliant on human performance to be effective and carries a lower level of risk control than Options 1 and 12.
- Option 1 and 12 uses access/egress via a signalised control while Option 2 does not provide for any signalised control.
- All three of these options concentrate vehicle movement to one end of the park.
- No waste vehicle access necessary into car park as designated area for service vehicles allows external access to bin storage and vehicle turn around.
- Options 2 and 12 have added risk of increased traffic flow in the vicinity of CWA building.

3.4 Options 3, 4, 10 and 11 – northern entry from Pacific Highway

3.4.1 Option 3 – access northern end of Hornsby Park – widen existing access

Assumes that the bin storage area is in the north-east corner of structure.

Table 5 Option 3

Identified Risk	Risk Mitigation
Pedestrian traffic at roadside without signalised crossing	Reduce risk of pedestrian incident by installing zebra crossing (or other appropriate crossing device) at road side;
Pedestrian traffic within park	Pedestrian use of paths to access HAC would minimise interaction with vehicles; Pedestrian traffic to and from children's playground into the park or HCA can be directed to a zebra crossing (or other appropriate crossing device) by means of designated path;
Pedestrian traffic within car park	Within car park pedestrian traffic can be minimised by use of drop-off zone; Vehicle speeds can be reduced by installation of speed bumps; Pedestrian traffic focussed in direction of foyer/lifts/stairs and not directed towards entry/exit roadway;
Pedestrian traffic (staff) accessing bin store, mechanical and plant rooms	Staff accessing these areas at nominated times with minimal traffic, i.e. as part of start of shift or end of shift procedures (unless for repairs or emergency purposes); Bollards can be installed outside of room doors to identify safety zone for staff; Vehicle speeds can be reduced by installation of speed bumps;

Identified Risk	Risk Mitigation
Pedestrian traffic (service workers) accessing bin store, mechanical and plant rooms	Bollards can be installed outside of room doors to identify safety zone for service workers; Vehicle speeds can be reduced by installation of speed bumps; Collection point for waste bins can be moved to driveway;
Vehicle traffic entering and exiting HAC at roadside without signalised intersection	Reduce risk of pedestrian incident by installing zebra crossing (or other appropriate crossing device); Reduce risk of vehicle incidents when entering/exiting Hornsby Park, for example, rear-ending vehicle, by installing warning signs advising of entry/exit point;
Park entry/exit point within metres of TAFE entry driveway	Reduce risk of collision with vehicles indicating to enter TAFE driveway but having a left turn lane added for traffic from the south;
Decreased line of sight vehicles entering and exiting (north and south)	For traffic from the north, reduce vegetation on medium strip to increase line of sight to oncoming traffic; For traffic exiting the park, remove 3-4 car spaces to the south of the entry/exit location to increase line of sight to oncoming traffic;
Vehicle traffic entering and exiting HAC car park	Controlled access by use of boom gate; Vehicle speeds can be controlled by installation of speed bumps; Reduce risk of road grade by commencing cutting of road closer to roadside entry point;
Car park and pedestrian/cyclist bridge clearance for waste and service vehicles,	Implement contract requirement for special waste and service vehicles to be used which can meet car park height restrictions (for example, under 2.9 m); Implement contract requirement for special waste and service vehicles to be used which can meet pedestrian/cyclist bridge height restrictions (for example, under 3.5 m);
Traffic flow inside car park and on road into park is two-way.	Risk of collision can be reduced by installation of lane dividers and lane marking paint; Speed can be controlled by installation of speed bumps;
Waste and service vehicles entering HAC car park to bin store, mechanical plant and pool rooms	Risk of collision with vehicles can be reduced by installation of appropriately placed mirrors for drivers; Risk of incident with vehicles and pedestrians can be reduced by having designated parking area for waste vehicles within car park; Risk of collision with structure can be reduced by placement of tire stoppers at designated distance from wall;

Identified Risk	Risk Mitigation
	Waste vehicles can be required to have flashing lights or other warning devices activated while parked within car park to perform servicing; Risk of reversing into pedestrians can be reduced by service vehicles having reversing alarms/flashing lights; Risk of incident with vehicles and pedestrians at HAC can be reduced by nominating times for waste removal to coincide with lowest traffic times, for example, between 11 pm and 6 am; Risk of incident involving service vehicles within car park can be reduced by scheduling services to occur at specific times, for example, at times of lowest traffic.
Increased traffic in immediate vicinity of children's playground and public barbeque area	Vehicle speeds can be controlled by installation of speed bumps; Pedestrian traffic to and from the children's playground and public barbeque area into the park or HCA can be directed to a zebra crossing (or other appropriate crossing device) by means of designated path;
Operating noise of service vehicles (engine, hydraulics, reversing alarm) within car park	Minimal time spent to complete operations;

3.4.2 Option 4 – access through TAFE car park

Assumes the bin storage area is in the northwest corner of the structure.

Table 6 Option 4

Identified Risk	Risk Mitigation
Pedestrian traffic at roadside without signalised crossing	Reduce risk of pedestrian incident by installing zebra crossing (or other appropriate crossing device) at road side;
Pedestrian traffic within car park	Within car park pedestrian traffic can be minimised by use of drop-off zone; Vehicle speeds can be reduced by installation of speed bumps; Pedestrian traffic focussed in direction of foyer/lifts/stairs and not directed towards entry/exit roadway;
Pedestrian traffic (staff) accessing bin store, mechanical and plant rooms	Staff accessing these areas at nominated times with minimal traffic, for example as part of start of shift or end of shift procedures (unless for repairs or emergency purposes); Bollards can be installed outside of room doors to identify safety zone for staff;

Identified Risk	Risk Mitigation
	Vehicle speeds can be reduced by installation of speed bumps;
Pedestrian traffic (service workers) accessing bin store, mechanical and plant rooms	Bollards can be installed outside of room doors to identify safety zone for service workers; Vehicle speeds can be reduced by installation of speed bumps; Collection point for waste bins can be moved to driveway;
Vehicle traffic entering and exiting HAC at roadside without signalised intersection	Reduce risk of pedestrian incident by installing zebra crossing (or other appropriate crossing device); Reduce risk of vehicle incidents when entering/exiting Hornsby Park, for example, rear-ending vehicle, by installing warning signs advising of entry/exit point;
Vehicle traffic entering and exiting HAC car park	Controlled access by use of boom gate; Vehicle speeds can be controlled by installation of speed bumps; Reduce risk of road grade by commencing cutting of road closer to roadside entry point;
Car park clearance for waste and service vehicles,	Implement contract requirement for special waste and service vehicles to be used which can meet car park height restrictions (for example, under 2.9 m);
Traffic flow inside car park and on road into park is two-way.	Risk of collision can be reduced by installation of lane dividers and lane marking paint; Speed can be controlled by installation of speed bumps;
Waste and service vehicles entering HAC car park to bin store, mechanical plant and pool rooms	Risk of collision with vehicles can be reduced by installation of appropriately placed mirrors for drivers; Risk of incident with vehicles and pedestrians can be reduced by having designated parking area for waste vehicles within car park; Risk of collision with structure can be reduced by placement of tire stoppers at designated distance from wall; Waste vehicles can be required to have flashing lights or other warning devices activated while parked within car park to perform servicing; Risk of reversing into pedestrians can be reduced by service vehicles having reversing alarms/flashing lights; Risk of incident with vehicles and pedestrians at HAC can be reduced by nominating times for waste removal to coincide with lowest traffic times, for example, between 11pm and 6am; Risk of incident involving service vehicles within car park can be reduced by scheduling services to occur at specific

Identified Risk	Risk Mitigation
	times, for example, at times of lowest traffic.
Increased traffic in immediate vicinity of TAFE building	Vehicle speeds can be controlled by installation of speed bumps; Pedestrian traffic around TAFE building can be directed to a zebra crossing (or other appropriate crossing device) by means of designated path and bollards to segregate traffic and pedestrians;
Operating noise of service vehicles (engine, hydraulics, reversing alarm) within car park	Minimal time spent to complete operations;

3.4.3 Options 10 and 11 – access through playground northern side of Hornsby Park

Option 10 would see the same risks present as identified in Option 3 with the exception that the risk of increased traffic near the playground would be eliminated. Assumes the bin storage area is in the northwest corner of the structure.

Option 11 – access through playground northern side of Hornsby Park with access ramp at rear of pool to basement

Option 11 would see the same risks present as identified in Option 3 with the exception that the risk of increased traffic near the playground would be eliminated.

3.4.4 Summary

- Options 3, 4, 10 and 11 utilise more risk controls using engineering and administrative controls as than elimination and substitution/isolation controls. This means Options 3 and 4 risks are more reliant on human performance to be effective and carry a lower level of risk control than Option 1.
- Options 3, 4, 10 and 11 do not make use of controlled access/egress points.
- Option 3, 10 and 11 concentrates vehicle movement to the north end of the park where a children's playground is located and in close proximity to the TAFE entry driveway, increasing traffic congestion and potential collisions.
- Option 4 concentrates vehicle movement to the TAFE entry driveway, increasing traffic congestion and potential collisions. There is also a possibility of increased traffic if this entry point is also used by TAFE as a two-lane entry/exit point.
- In the event that waste service vehicles are unable to travel directly to the bin storage area within the car park then with each of these four options the collection point for bins may end up being at the driveway entry on the Pacific Highway. This is likely to result in HAC staff manoeuvring the bins either manually or with a pulley/tow-tug device to a location where the waste service vehicle can load them. This activity introduces new risks such as manual handling, towing or use of self-powered devices, up and down steep gradients, which in turn will require additional risk control measures to be implemented.

3.5 Options 5, 6, 7 – access from southern and western side roads

3.5.1 Option 5 – access via No 4 Dural Street, privately owned land

Risks identified in Option 1 for the car park and service vehicles should be considered as relevant to Option 5 with the following inclusions. Assumes that a designated outdoor service vehicle area with acoustic wall is planned and bin storage is located in the south west corner.

Table 7 Option 5

Identified Risk	Risk Mitigation
Pedestrian traffic at roadside without signalised crossing	Reduce risk of pedestrian incident by installing zebra crossing (or other appropriate crossing device) at road side;
Vehicle traffic entering and exiting HAC without a signalised intersection	Reduce risk of pedestrian incident by installing zebra crossing (or other appropriate crossing device); Reduce risk of vehicle incidents, for example, rear-ending immediately after intersection, by installing warning signs advising of entry/exit point;
Reduced visibility to west when exiting driveway	Increase visibility and line of sight by removing large trees;
Increased vehicle traffic in residential and preschool area	Vehicle speeds can be controlled by installation of speed bumps on Dural Street and entry/exit driveway;
Operating noise of service vehicles (engine, hydraulics, reversing alarm)	Minimal time spent to complete service operations;

3.5.2 Option 6 – access via No 6 Dural Street, Montessori preschool site

Risks identified in Option 5 for the car park and service vehicles should be considered as relevant to Option 6 with the following inclusions. Assumes that a designated outdoor service vehicle area with acoustic wall is planned and bin storage is located in the south west corner.

Table 8 Option 6

Identified Risk	Risk Mitigation
Pedestrian traffic at roadside without signalised crossing	Reduce risk of pedestrian incident by installing zebra crossing (or other appropriate crossing device) at road side;
Vehicle traffic entering and exiting HAC without a signalised intersection	Reduce risk of pedestrian incident by installing zebra crossing (or other appropriate crossing device); Reduce risk of vehicle incidents, for example, rear-ending immediately after intersection, by installing warning signs advising of entry/exit point;
Reduced visibility to west	Increase visibility and line of sight by removing large trees;

Identified Risk	Risk Mitigation
when exiting driveway	
Increased vehicle traffic in residential area	Vehicle speeds can be controlled by installation of speed bumps on Dural Street and entry/exit driveway;
Operating noise of service vehicles (engine, hydraulics, reversing alarm)	Minimal time spent to complete service operations;

3.5.3 Option 7 – access via Old Mans Valley fire trail

Assumes the bin storage area is in centre of complex on western side. A turning area, or a designated service vehicle area would not be under cover.

Table 9 Option 7

Identified Risk	Risk Mitigation
Pedestrian traffic at roadside without signalised crossing	Reduce risk of pedestrian incident by installing zebra crossing (or other appropriate crossing device) at road side;
Pedestrian traffic within car park	Within car park pedestrian traffic can be minimised by use of drop-off zone; Vehicle speeds can be reduced by installation of speed bumps; Pedestrian traffic focussed in direction of foyer/lifts/stairs and not directed towards entry/exit roadway;
Pedestrian traffic (staff) accessing bin store, mechanical and plant rooms	Staff accessing these areas at nominated times with minimal traffic, for example as part of start of shift or end of shift procedures (unless for repairs or emergency purposes); Bollards can be installed outside of room doors to identify safety zone for staff; Vehicle speeds can be reduced by installation of speed bumps;
Pedestrian traffic (service workers) accessing bin store, mechanical and plant rooms	Bollards can be installed outside of room doors to identify safety zone for service workers; Vehicle speeds can be reduced by installation of speed bumps;
Vehicle traffic entering and exiting HAC at roadside without signalised intersection	Reduce risk of pedestrian incident by installing zebra crossing (or other appropriate crossing device);
Vehicle traffic entering and exiting HAC car park via road with steep grades and hairpin	Controlled access by use of boom gate; Vehicle speeds can be controlled by installation of speed bumps;

Identified Risk	Risk Mitigation
bends	Reduce risk of road grade and bends by commencing entry/exit ramp from different location on fire trail ; Implement contract requirement for special waste and service vehicles to be used which can meet car park height restrictions (for example, under 2.9 m) and safely drive on entry/exit roads and bends;
Traffic flow inside car park and on road into park is two-way.	Risk of collision can be reduced by installation of lane dividers and lane marking paint; Speed can be controlled by installation of speed bumps;
Waste and service vehicles entering HAC car park to bin store, mechanical plant and pool rooms	Risk of collision with vehicles can be reduced by installation of appropriately placed mirrors for drivers; Risk of incident with vehicles and pedestrians can be reduced by having designated parking area for waste vehicles within car park; Risk of collision with structure can be reduced by placement of tire stoppers at designated distance from wall; Waste vehicles can be required to have flashing lights or other warning devices activated while parked within car park to perform servicing; Risk of reversing into pedestrians can be reduced by service vehicles having reversing alarms/flashing lights; Risk of incident with vehicles and pedestrians at HAC can be reduced by nominating times for waste removal to coincide with lowest traffic times, for example, between 11 pm and 6 am; Risk of incident involving service vehicles within car park can be reduced by scheduling services to occur at specific times, for example, at times of lowest traffic.
Operating noise of service vehicles (engine, hydraulics, reversing alarm) within car park	Minimal time spent to complete operations;

3.5.4 Summary

- Options 5 and 6 utilise more risk controls using engineering and administrative controls as than elimination and substitution/isolation controls. This means Option 5 and 6 risks are more reliant on human performance to be effective and carry a lower level of risk control than Option 1.
- Option 7 utilises risk controls using engineering, administration and substitution/isolation as well as some elimination. Option 7 risks are more reliant on engineering risk controls, particularly concerning the steep grade to the west of the HAC, and could be considered more costly to implement and may also involve extensive removal of bushland.

- Options 5, 6 and 7 concentrate vehicle movement onto a residential street with a preschool and do not make use of controlled access/egress points.
- No risk assessment of the potential traffic impact between Dural Street and Pacific Highway has been discussed in this review.

3.6 Options 8 and 9 – one-way access loop road

3.6.1 Option 8 – access via loop road as proposed by Mark Cambourn

Assumes that bin storage area is in south west corner and waste vehicles would need to drive under complex (from north) and then stop outside bin storage area before continuing to southern exit on Pacific Highway.

Table 10 Option 8

Identified Risk	Risk Mitigation
Pedestrian traffic at roadside – entry point without signalised crossing	Reduce risk of pedestrian incident by installing zebra crossing (or other appropriate crossing device) at road side;
Pedestrian traffic at roadside – exit point with signalised crossing	Only one point of vehicle egress from park by means of signalised intersection (refer to note 'relocate lights and pedestrian crossing'); Access road can be managed by use of signalised crossing at intersection;
Pedestrian traffic within park	Pedestrian use of paths to access HAC would minimise interaction with vehicles; Pedestrian traffic to and from the CWA building into the park or HCA can be directed to a zebra crossing (or other appropriate crossing device) by means of designated path; Pedestrian traffic to and from children's playground into the park or HCA can be directed to a zebra crossing (or other appropriate crossing device) by means of designated path;
Pedestrian traffic within car park	Within car park pedestrian traffic can be minimised by use of drop-off zone; Vehicle speeds can be reduced by installation of speed bumps; Pedestrian traffic focussed in direction of foyer/lifts/stairs and not directed towards entry/exit roadway;
Pedestrian traffic (staff) accessing bin store, mechanical and plant rooms	Staff accessing these areas at nominated times with minimal traffic, i.e. as part of start of shift or end of shift procedures (unless for repairs or emergency purposes); Bollards can be installed outside of room doors to identify safety zone for staff;

Identified Risk	Risk Mitigation
	Vehicle speeds can be reduced by installation of speed bumps;
Pedestrian traffic (service workers) accessing bin store, mechanical and plant rooms	Bollards can be installed outside of room doors to identify safety zone for service workers; Vehicle speeds can be reduced by installation of speed bumps;
Vehicle traffic entering Park at roadside without signalised intersection	Reduce risk of pedestrian incident by installing zebra crossing (or other appropriate crossing device); Reduce risk of vehicle incidents when entering Hornsby Park, for example, rear-ending vehicle, by installing warning signs advising of entry/exit point;
Park entry point within metres of TAFE entry driveway	Reduce risk of collision with vehicles indicating to enter TAFE driveway but having a left turn lane added for traffic from the south;
Decreased line of sight vehicles entering (from north)	For traffic from the north, reduce vegetation on medium strip to increase line of sight for oncoming traffic; Reduce traffic build up and risk of rear-end collision by installing right turn lane for traffic from the north;
Vehicle traffic exiting Park at signalised intersection	Only one point of vehicle egress from park by means of signalised intersection (refer to note 'relocate lights and pedestrian crossing'); Signalised intersection reduces likelihood of pedestrian incident; One point of exit at signalised location removes likelihood of traffic build up and vehicles crossing before or into oncoming traffic when exiting HAC;
Vehicle traffic entering and exiting HAC car park	Controlled access by use of boom gate; Vehicle speeds can be controlled by installation of speed bumps; Reduce risk of road grade by commencing cutting of road closer to roadside entry point;
Car park clearance for waste and service vehicles,	Implement contract requirement for special waste and service vehicles to be used which can meet car park height restrictions (for example, under 2.9 m);
Waste and service vehicles entering HAC car park to bin store, mechanical plant and pool rooms	Risk of collision with vehicles can be reduced by installation of appropriately placed mirrors for drivers; Risk of incident with vehicles and pedestrians can be reduced by having designated parking area for waste vehicles within car park; Risk of collision with structure can be reduced by placement of tire stoppers at designated distance from wall;

Identified Risk	Risk Mitigation
	Waste vehicles can be required to have flashing lights or other warning devices activated while parked within car park to perform servicing; Risk of reversing into pedestrians can be reduced by service vehicles having reversing alarms/flashing lights; Risk of incident with vehicles and pedestrians at HAC can be reduced by nominating times for waste removal to coincide with lowest traffic times, for example, between 11 pm and 6 am; Risk of incident involving service vehicles within car park can be reduced by scheduling services to occur at specific times, for example, at times of lowest traffic.
Increased traffic in immediate vicinity of children's playground and public barbeque area	Vehicle speeds can be controlled by installation of speed bumps; Pedestrian traffic to and from the children's playground and public barbeque area into the park or HCA can be directed to a zebra crossing (or other appropriate crossing device) by means of designated path, or by creation of access ramp way;
Increased vehicle traffic in immediate vicinity to CWA building	Vehicle speeds can be controlled by installation of speed bumps; Pedestrian traffic to and from the CWA building into the park or HCA can be directed to a zebra crossing (or other appropriate crossing device) by means of designated path;
Operating noise of service vehicles (engine, hydraulics, reversing alarm) within car park	Minimal time spent to complete operations;

3.6.2 Option 9 – access via loop road as proposed by Mark Cambourn with ingress and egress reversed

Assumes that bin storage area is in south west corner and waste vehicles would need to stop outside bin storage area and then drive under complex (from south) before continuing to northern exit on Pacific Highway.

Option 9 would see the same risks present as identified in Option 8 with the exception that with the exit at the northern end of the Park the following risks would be included.

Table 11 Option 9

Identified Risk	Risk Mitigation
Park exit point within metres of TAFE entry driveway	Reduce risk of collision with vehicles indicating to enter TAFE driveway but having a left turn lane added for traffic from the south;

Identified Risk	Risk Mitigation
Decreased line of sight for vehicles exiting Park at northern end	For traffic exiting the park, remove 3-4 car spaces to the south of the northern entry/exit location to increase line of sight to oncoming traffic; To reduce likelihood of vehicle incidents when exiting the Park to head south, install a 'No Right Turn' sign on medium strip preventing vehicles crossing the northbound lane into oncoming southbound traffic;

3.6.3 Summary

- Options 8 and 9 utilise a mix of risk controls using elimination, substitution/isolation, and engineering as well as administrative controls.
- These Options implement a one-way flow of traffic into and out of Hornsby Park. One-way traffic flow has the benefit of aiding in hazard avoidance by facing and maintaining attention in the direction of travel. Within the HAC and Hornsby Park setting this works for some risk control measures, however, it must be considered in combination with the introduced risks.
- Specifically, these introduced risks are the increased traffic flow in the vicinity of the children's playground, public barbeque area and the CWA building; the use of an entry point without signalised access in close proximity to another similar entry point (TAFE); and that with both options specialised waste service vehicles would be required to drive under the complex to complete the job. While this final activity may be carried out after hours it adds a security risk whereby vehicles are entering the complex out of view of the general public.
- While other Options have concentrated vehicle movements to one area of the Park, these Options divide movements between two areas, with one area having more risk control measures than the other.

3.7 Review of Options

A number of risks have been identified across the various Options that have been reviewed. When comparing all the Options with their associated risks and risk mitigation measures, and the strength of those mitigation measures with regard to the Hierarchy of Controls (refer to Section 3.2), the review would indicate that Option 1 would be the preferred option for the HAC.

Option 1 would be preferred for the following reasons:

- Relies on stronger risk control measures and is less reliant on human performance factors for safety
- Provides more controls for the safety of visitors (both pedestrian and vehicular) to HAC and users of Hornsby Park (e.g. children's playground, public barbeque area), HAC staff and service providers
- Concentrates traffic flow to one end of Hornsby Park and to one signalised intersection on the Pacific Highway
- Does not concentrate traffic onto residential streets or within the immediate vicinity of the TAFE driveway
- Does not require waste service vehicles to drive under the complex and allows for safe after-hours access to bin store enhancing both safety and security
- Incorporates an acoustic barrier which will minimise noise to residential areas as well as blocking out an amount of light from flashing lights on operating waste vehicles
- Does not require specialist waste service vehicles to be engaged to meet car park height clearances
- Does not require HAC staff to utilise tasks such as towing or walking of bins up inclines to the road side

Other Options have some of the above favourable reasons but not as many. Council should consider the cost of implementing controls and the residual risk (once controls have been implemented) to help determine what is an acceptable level of risk for the project and what risks would be deemed to have been controlled as far as is reasonably practicable.

Option 12 follows closely behind Option 1 as the next preferred Option. The primary concern with Option 12 is the increased traffic in the immediate vicinity of the CWA building, though this risk may be marginally reduced by a nearby signalised crossing.

Options 5 and 6 follow Option 12 as the next in preference. While both of these Options have increased traffic and traffic related risks directed to residential streets with reduced visibility at the entry/exit location and have smaller turning area for service vehicles, the benefit is that there is very little impact on the safety of park users.

Options 2, 3, 4, 7, 10 and 11 are less preferred Options due to a number of risks, the mixture of type and strength of controls that need to be implemented to mitigate the risk, as identified above in the summary sections.

Options 8 and 9 are the least preferred Options due to the increased risk to pedestrians and users of the park (vehicles at both the northern and southern end, in close proximity to the CWA, public barbeque area and children's playground) and the potential for security issues with access under the complex after hours. The increased number of vehicles using the site provides a real risk to park users and traffic, both at the northern and southern access/egress points on the Pacific Highway. While a signalised intersection is included at the southern end, it is not provided at the northern end where the vehicle and pedestrian activity will also be in the vicinity of the nearby TAFE driveway.

To further mitigate the risks of Options 8 and 9 to pedestrians and park users at the northern end (where the playground and public barbeque area is) it is likely that due to the height difference of the land and the proposed use of the roadway and increased number of vehicles, alternate access for prams and such would be required to safely access the playground and barbeque facilities. This may be by means of a ramp, possibly within the existing garden along the Pacific Highway or going to the southern end of the park, which may not be desirable for Council.

Council have requested GHD rank the Options using a ranking table, the result of which is presented below.

ASSESSMENT MATRIX FOR HAC ACCESS OPTIONS

	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8	Option 9	Option 10	Option 11	Option 12
WHS	✓✓✓	✓	✓	✓	✓✓	✓✓	✓	✖	✖	✓	✓	✓✓✓

Figure 1 - Review of HAC Access Options

4. General Comments on Construction Access

During the Construction phase of the HAC there are a number of Work Health and Safety (WHS) issues that will need to be identified and managed. Among these are issues relating to access and egress of people, plant and equipment, traffic management, security and unauthorised access, lighting, amenities, electrical supplies, hazardous substances and dangerous goods, first aid, fire safety and emergency response procedures, noise, working at heights, confined spaces and so on.

A number of these issues may need to be managed differently depending on the final design that is pursued and the planned construction stages. Access and egress of plant and equipment, traffic management and emergency response procedures may be influenced, positively or negatively, by having one way traffic flow, two way traffic flow, single lane or double lane roads. Space available for the movement, parking and operation of various plant and equipment – from small trucks to cement trucks to mobile cranes – can impact on efficient emergency response and evacuation processes for instance.

From the Options being considered for the HAC, access roads will either be one-way or two-way. Some of the advantages and disadvantages of both are shown in the table below.

Table 12 Construction Access Considerations

Access Flow	Advantage	Disadvantage
One-way	Reduces likelihood of reversing hazards	Areas must be established for loading and unloading activities to be carried out
	Vehicles and mobile plant always moving in one direction	Traffic movement on and off public roads is through two locations
	Focuses the drivers attention to hazards in the direction of travel	Traffic must drive through the construction area to exit the construction site
	Eliminates turns that may cross in front of oncoming traffic	No room for passing vehicles or mobile plant
		One-way roads tend to have higher speeds
Two-way	Provides rooms for larger vehicles and mobile plant to manoeuvre	People and vehicles more likely to share traffic routes
	Areas for loading and unloading activities can be more easily established	Reversing alarms may cause confusion where multiple plant is using the same area
	Traffic movement on and off public roads is through one location	Requires separate gate for pedestrians to enter site

	Traffic on two-way construction roads is generally slower making pedestrian use safer

It is important that while options for the design of the HAC are being finalised that consideration for access be given to such topics as:

- the amount of space that will be available for transport and storage to meet contractor requirements
- the impact there will be on grassed areas and trees within the park
- the impact the construction traffic will have on that particular stretch of Pacific Highway
- how many entry/access points will need traffic management
- where will different contractor disciplines be working at different stages of construction and with what equipment and office setups
- the ability for emergency response vehicle to enter and exit the site unobstructed

Council have requested GHD rank the Options with regard to Construction Access using a ranking table, the results of which are presented below. Note that this assessment is based on the assumption that construction access utilises the same access/egress road points provided in the Options and that these civil works form part of the initial site establishment.

ASSESSMENT MATRIX FOR HAC ACCESS OPTIONS

	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8	Option 9	Option 10	Option 11	Option 12
Construction access	✓✓✓	✓✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓✓

Figure 2 - Review of HAC Construction Access Options

WHS Regulations 2011 (NSW) Section 40 requires a person conducting a business or undertaking at a workplace to ensure, so far as is reasonably practicable, the layout of the workplace allows, and the workplace is maintained so as to allow, for persons to enter and exit and to move about without risk to health and safety, both under normal working conditions and in an emergency. Further, that work areas have space for work to be carried out without risk to health and safety.

The WHS Regulations 2011 (NSW) also contain Chapter 6 Construction Work. This includes duties of designers of structures and persons who commission construction work, duties of persons conducting business or undertaking, additional duties of principal contractors and general construction induction training.

For further guidance refer to the following:

- Code of Practice: How to Manage Work Health and Safety Risks
- Code of Practice: Moving Plant on Construction Sites
- Code of Practice: Managing the Work Environment and Facilities
- Code of Practice: Managing Risks in Construction Work

5. Safety in Design Obligations under the new Work Health and Safety Legislation

All design and safety in design activity must be in accordance with the requirements of:

- Work Health and Safety Act 2011 (NSW)
- Work Health and Safety Regulations 2011 (NSW)
- Building Code of Australia (BCA) being Volumes One and Two of the National Construction Code (NCC)

Designers should be familiar with the Work Health Safety (WHS) Act and Regulations listed above and any relevant Codes of Practice. In particular Designers should review s61 and s294-296 of the WHS Regulation 2011; s22 of the WHS Act ; and, the Code of Practice 'Safe Design of Buildings and Structures' for information on their statutory obligations under the new legislation.

Note: the Code of Practice for Safe Design of Buildings and Structures is currently in draft form, but should be used as a practical guide to achieving the standards of WHS under the Act and Regulations.

Section 22 of the Work Health and Safety Act 2011 (NSW) is reproduced here:

> ***22 Duties of persons conducting businesses or undertakings that design plant, substances or structures***
>
> *(1) This section applies to a person (the **designer**) who conducts a business or undertaking that designs:*
>
> *(a) plant that is to be used, or could reasonably be expected to be used, as, or at, a workplace, or*
>
> *(b) a substance that is to be used, or could reasonably be expected to be used, at a workplace, or*
>
> *(c) a structure that is to be used, or could reasonably be expected to be used, as, or at, a workplace.*
>
> *(2) The designer must ensure, so far as is reasonably practicable, that the plant, substance or structure is designed to be without risks to the health and safety of persons:*
>
> *(a) who, at a workplace, use the plant, substance or structure for a purpose for which it was designed, or*
>
> *(b) who handle the substance at a workplace, or*
>
> *(c) who store the plant or substance at a workplace, or*
>
> *(d) who construct the structure at a workplace, or*
>
> *(e) who carry out any reasonably foreseeable activity at a workplace in relation to:*

(i) the manufacture, assembly or use of the plant for a purpose for which it was designed, or the proper storage, decommissioning, dismantling or disposal of the plant, or

(ii) the manufacture or use of the substance for a purpose for which it was designed or the proper handling, storage or disposal of the substance, or

(iii) the manufacture, assembly or use of the structure for a purpose for which it was designed or the proper demolition or disposal of the structure, or ***Example.*** *Inspection, operation, cleaning, maintenance or repair of plant.*

(f) who are at or in the vicinity of a workplace and who are exposed to the plant, substance or structure at the workplace or whose health or safety may be affected by a use or activity referred to in paragraph (a), (b), (c), (d) or (e).

(3) The designer must carry out, or arrange the carrying out of, any calculations, analysis, testing or examination that may be necessary for the performance of the duty imposed by subsection (2).

(4) The designer must give adequate information to each person who is provided with the design for the purpose of giving effect to it concerning:

(a) each purpose for which the plant, substance or structure was designed, and

(b) the results of any calculations, analysis, testing or examination referred to in subsection (3), including, in relation to a substance, any hazardous properties of the substance identified by testing, and

(c) any conditions necessary to ensure that the plant, substance or structure is without risks to health and safety when used for a purpose for which it was designed or when carrying out any activity referred to in subsection (2) (a)–(e).

(5) The designer, on request, must, so far as is reasonably practicable, give current relevant information on the matters referred to in subsection (4) to a person who carries out, or is to carry out, any of the activities referred to in subsection (2) (a)–(e).

Section 61 of the Work Health and Safety Regulations 2011 (NSW) is reproduced here:

61 Duties of designers, manufacturers, importers and suppliers of plant or structures

(1) A designer of plant or a structure must ensure that the plant or structure is designed so as to eliminate the need for any hazardous manual task to be carried out in connection with the plant or structure.

Maximum penalty:

(a) in the case of an individual—$6,000, or

(b) in the case of a body corporate—$30,000.

(2) If it is not reasonably practicable to comply with subclause (1), the designer must ensure that the plant or structure is designed so that the need for any hazardous manual task to be carried out in connection with the plant or structure is minimised so far as is reasonably practicable.

Maximum penalty:

(a) in the case of an individual—$6,000, or

(b) in the case of a body corporate—$30,000.

(3) The designer must give to each person who is provided with the design for the purpose of giving effect to it adequate information about the features of the plant or structure that eliminate or minimise the need for any hazardous manual task to be carried out in connection with the plant or structure.

Maximum penalty:

(a) in the case of an individual—$6,000, or

(b) in the case of a body corporate—$30,000.

(4) A manufacturer of plant or a structure must ensure that the plant or structure is manufactured so as to eliminate the need for any hazardous manual task to be carried out in connection with the plant or structure.

Maximum penalty:

(a) in the case of an individual—$6,000, or

(b) in the case of a body corporate—$30,000.

(5) If it is not reasonably practicable to comply with subclause (4), the manufacturer must ensure that the plant or structure is manufactured so that the need for any hazardous manual task to be carried out in connection with the plant or structure is minimised so far as is reasonably practicable.

Maximum penalty:

(a) in the case of an individual—$6,000, or

(b) in the case of a body corporate—$30,000.

(6) The manufacturer must give to each person to whom the manufacturer provides the plant or structure adequate information about the features of the plant or structure that eliminate or minimise the need for any hazardous manual task to be carried out in connection with the plant or structure.

Maximum penalty:

(a) in the case of an individual—$6,000, or

(b) in the case of a body corporate—$30,000.

(7) An importer of plant or a structure must take all reasonable steps to:

(a) obtain the information the designer or manufacturer is required to give under subclause (3) or (6), and

(b) give that information to any person to whom the importer supplies the plant.

Maximum penalty:

(a) in the case of an individual—$6,000, or

(b) in the case of a body corporate—$30,000.

(8) A supplier of plant or a structure must take all reasonable steps to:

(a) obtain the information the designer, manufacturer or importer is required to give a supplier under subclause (3), (6) or (7), and

(b) give that information to any person to whom the supplier supplies the plant.

Maximum penalty:

(a) in the case of an individual—$6,000, or

(b) in the case of a body corporate—$30,000.

Section 294 to 296 of the Work Health and Safety Regulations 2011 (NSW) is reproduced here:

Part 6.2 Duties of designer of structure and person who commissions construction work

294 Person who commissions work must consult with designer

(1) A person conducting a business or undertaking that commissions construction work in relation to a structure must, so far as is reasonably practicable, consult with the designer of the whole or any part of the structure about how to ensure that risks to health and safety arising from the design during the construction work are:

(a) eliminated, so far as is reasonably practicable, or

(b) if it is not reasonably practicable to eliminate the risks, minimised so far as is reasonably practicable.

Maximum penalty:

(a) in the case of an individual—$3,600, or

(b) in the case of a body corporate—$18,000.

(2) Consultation must include giving the designer any information that the person who commissions the construction work has in relation to the hazards and risks at the workplace where the construction work is to be carried out.

295 Designer must give safety report to person who commissions design

(1) The designer of a structure or any part of a structure that is to be constructed must give the person conducting a business or undertaking who commissioned the design a written report that specifies the hazards relating to the design of the structure that, so far as the designer is reasonably aware:

(a) create a risk to the health or safety of persons who are to carry out any construction work on the structure or part, and

(b) are associated only with the particular design and not with other designs of the same type of structure.

Maximum penalty:

(a) in the case of an individual—$3,600, or

(b) in the case of a body corporate—$18,000.

(2) If the person conducting a business or undertaking who commissions a construction project did not commission the design of the construction project, the person must take all reasonable steps to obtain a copy of the written report referred to in subclause (1) in relation to that design.

Maximum penalty:

(a) in the case of an individual—$3,600, or

(b) in the case of a body corporate—$18,000.

296 Person who commissions project must give information to principal contractor

If a person conducting a business or undertaking that commissions a construction project engages a principal contractor for the project, the person must give the principal contractor any information the person has in relation to hazards and risks at or in the vicinity of the workplace where the construction work is to be carried out.

Maximum penalty:

(a) in the case of an individual—$3,600, or

(b) in the case of a body corporate—$18,000.

6. General Overview of Council Obligations under new WHS Legislation

Under the new WHS Act 2011 (NSW) and WHS Regulations 2011 (NSW) Hornsby Shire Council have a number of obligations in relation to the HAC project. The new legislation has aligned the obligations of officers to the due diligence requirements of the Corporations Act 2001. There is also definition to 'persons conducting a business or undertaking' and 'reasonably practicable'.

The WHS Act 2011 (NSW) Division 2 Primary Duty of Care states:

> ***19 Primary duty of care***
>
> *(1) A person conducting a business or undertaking must ensure, so far as is reasonably practicable, the health and safety of:*
>
> *(a) workers engaged, or caused to be engaged by the person, and*
>
> *(b) workers whose activities in carrying out work are influenced or directed by the person, while the workers are at work in the business or undertaking.*
>
> *(2) A person conducting a business or undertaking must ensure, so far as is reasonably practicable, that the health and safety of other persons is not put at risk from work carried out as part of the conduct of the business or undertaking.*
>
> *(3) Without limiting subsections (1) and (2), a person conducting a business or undertaking must ensure, so far as is reasonably practicable:*
>
> *(a) the provision and maintenance of a work environment without risks to health and safety, and*
>
> *(b) the provision and maintenance of safe plant and structures, and*
>
> *(c) the provision and maintenance of safe systems of work, and*
>
> *(d) the safe use, handling, and storage of plant, structures and substances, and*
>
> *(e) the provision of adequate facilities for the welfare at work of workers in carrying out work for the business or undertaking, including ensuring access to those facilities, and*
>
> *(f) the provision of any information, training, instruction or supervision that is necessary to protect all persons from risks to their health and safety arising from work carried out as part of the conduct of the business or undertaking, and*
>
> *(g) that the health of workers and the conditions at the workplace are monitored for the purpose of preventing illness or injury of workers arising from the conduct of the business or undertaking.*

Further duties of persons conducting a business or undertaking are provided with respect to:

- management or control of fixtures, fittings or plant at workplaces
- design of plant, substances or structures

- manufacture of plant, substances or structures
- import plant, substances or structures
- supply of plant, substances or structures
- installation, construction or commission of structures

Consultation must also occur between stakeholders (workers, duty holders) and, as explained above in the various duties of designers, consult with those constructing, commissioning and the end users of the product.

For further guidance refer to the following:

WHS Act 2011 (NSW)

http://www.legislation.nsw.gov.au/maintop/view/inforce/act+10+2011+cd+0+N

WHS Regulations 2011 (NSW)

http://www.legislation.nsw.gov.au/maintop/view/inforce/subordleg+674+2011+cd+0+N

Appendix A

GHD

133 Castlereagh St Sydney NSW 2000

-

T: 2 9239 7100 F: 2 9239 7199 E: sydmail@ghd.com.au

Document Status

Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
0	D Giusti			A Dixon		8/3/12

PLANNING
BUILDING
HERITAGE
URBAN DESIGN

CITY PLAN SERVICES

APPENDIX G

LEVEL 1, 364 KENT STREET, SYDNEY NSW 2000 TEL 82703500 FAX 82703501 WWW.CITYPLAN.COM.AU
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26 March 2012

Hornsby Council
Attention: Craig Clendinning
PO Box 37, Hornsby NSW 1630

Field Notes Following Site Meeting of 26 March 2012

(Addendum to Tree Assessment & Audit document of July 2011)

Dear Craig

Please find helpful my comments & observations following our site meting this morning. My comments relate to Options 8 & 8b which explore the possibility of redeveloping the existing northern roadway, *(concept plans used onsite & subsequently updated are attached at the end of this document).*

Both options propose the widening of the existing roadway footprint (along its southern boundary). **Option 8 proposes a *"straight roadway with a left hand bend",* Option 8b proposes a *"straight roadway* with a right hand bend which then deviates left & finishes in a similar position to Option 8".**

Most trees discussed have significant ***"heritage status".***

Both options have adverse impacts to numerous trees. All trees potentially impacted upon have previously been discussed with the exception of one (1) tree not assessed in July 2011 document. This tree will be known as ***Tree #60A***. Trees previously assessed & potentially adversely impacted upon include: ***Tree #44, Tree #45, Tree #49, Tree #50, Tree #51, Tree #52, Tree #60 & Tree #65.***

Both options will require many hundreds (if not more) of truck movements over most of the discussed trees calculated ***Tree Protection Zone radial distances*** & in some cases their ***Structural Root Zone radial distances.***

Comments relative to Tree Protection Zone radial distances & Structural Root Zone radial distances are derived by using the provisions within the Australian Standard (AS4970) for the protection of trees on development sites.

Summary of Discussed Options:

Option 8

- **Option 8 has a very high potential to significantly impact upon Tree #44, Tree #45 & Tree #52 root zones. Tree #44 is likely to be least impacted upon.**

At the very least Option 8 requires roadway reconstruction within the calculated *Structural Root Zone (SRZ) radial distances* of 2.76m. for Tree #45 & 3.47m. for Tree #52.

The calculated *TPZ radial distance* of 12.0m for Tree #44 is noted to be significantly breached. It is possible the breach may be proven to be manageable. This however can only be confirmed with a root location investigation.

Option 8 requires major excavation relative to the proposed altered roadway slope within the Tree #52 calculated *SRZ* radial distance of 3.47m. Potential *"significant diameter roots"* (roots greater than 0.05m/50mm in Ø) have already damaged the existing roadway.

- Option 8 will likely result in Tree #52 having to be removed.
- Option 8 has the capacity to additionally adversely impact upon Tree #45, Tree #50 & Tree #51.

  The potential adverse impact to these trees is assessed as being less than that to trees indentified in previous dot points. These trees are slightly further away from the roadway profile. No evidence of existing roadway damage is noted within their individual *SRZ radial distances,* (Tree #44, 3.44m, Tree #49, 3.21m, Tree #50, 3.35m., Tree #51, 3.25m.).
- The calculated *TPZ radial distance of 12.0m for Tree #44* is noted to be significantly breached. It is possible the breach may be proven to be manageable. This however can only be confirmed with a root location investigation.
- Option 8 is not assessed as having any predicable or likely adverse impacts to Tree #60 or Tree #60A.
- Option 8 is not assessed as having any predicable or likely adverse impacts to Tree #60 or Tree #60A.
- Option 8 is not assessed as having any impact not considered to be manageable relative to Tree #65.
- Option 8 if implemented will require the construction of a *"Bailey's Bridge"* or similar over the calculated *TPZ/SRZ radial distance* of any retained tree.

<u>Option 8b</u>

- Option 8b has a very high potential to significantly impact upon, Tree #44, Tree #45, Tree #52 & Tree #60 root zones, *(both SRZ & TPZ).* Tree #44 is likely to be least impacted upon.
- Option 8b will likely result in Tree #52 & Tree #60 having to be removed.
- Option 8b has the capacity to additionally adversely impact upon Tree #45, Tree #50 & Tree #51.

  The potential adverse impact to these trees is assessed as being less than that to trees indentified in previous dot points. These trees are slightly further away from the roadway profile. No evidence of existing roadway damage is noted within their individual *SRZ radial distances,* (Tree #45, 3.21m, Tree #50, 3.35m., Tree #51, 3.25m.).
- Option 8b at the very least requires roadway reconstruction within the calculated *SRZ radial distance* of 3.47m. for Tree #52. Potential "significant diameter roots" (i.e. roots greater than 0.05m/50mm in Ø) belonging to Tree #52 have already damaged the existing roadway & are likely to be damaged by any roadway resurfacing required.
- Option 8b proposes roadway (new) construction within the calculated *SRZ radial distance* of (3.35m) for Tree #60.

Construction work within the calculated *Structural Root Zone (SRZ) radial distance* in most circumstances is not an acceptable practice as defined by the provisions of the *Australian Standard (AS4970-2009) for the protection of trees on development sites.*

The calculated *TPZ radial distance of 12.0m for Tree #44* is noted to be significantly breached. It is possible the breach may be proven to be manageable. This however can only be confirmed with a root location investigation.

- **Option 8b does not require major excavation relative to the existing & proposed roadway slope within Tree #52 calculated *SRZ radial distance* of 3.47m.**

  Potential *"significant diameter roots"* (i.e. roots greater than 0.05m/50mm in Ø) belonging Tree #52 have already damaged the existing roadway & are likely to be damaged by any roadway resurfacing required.

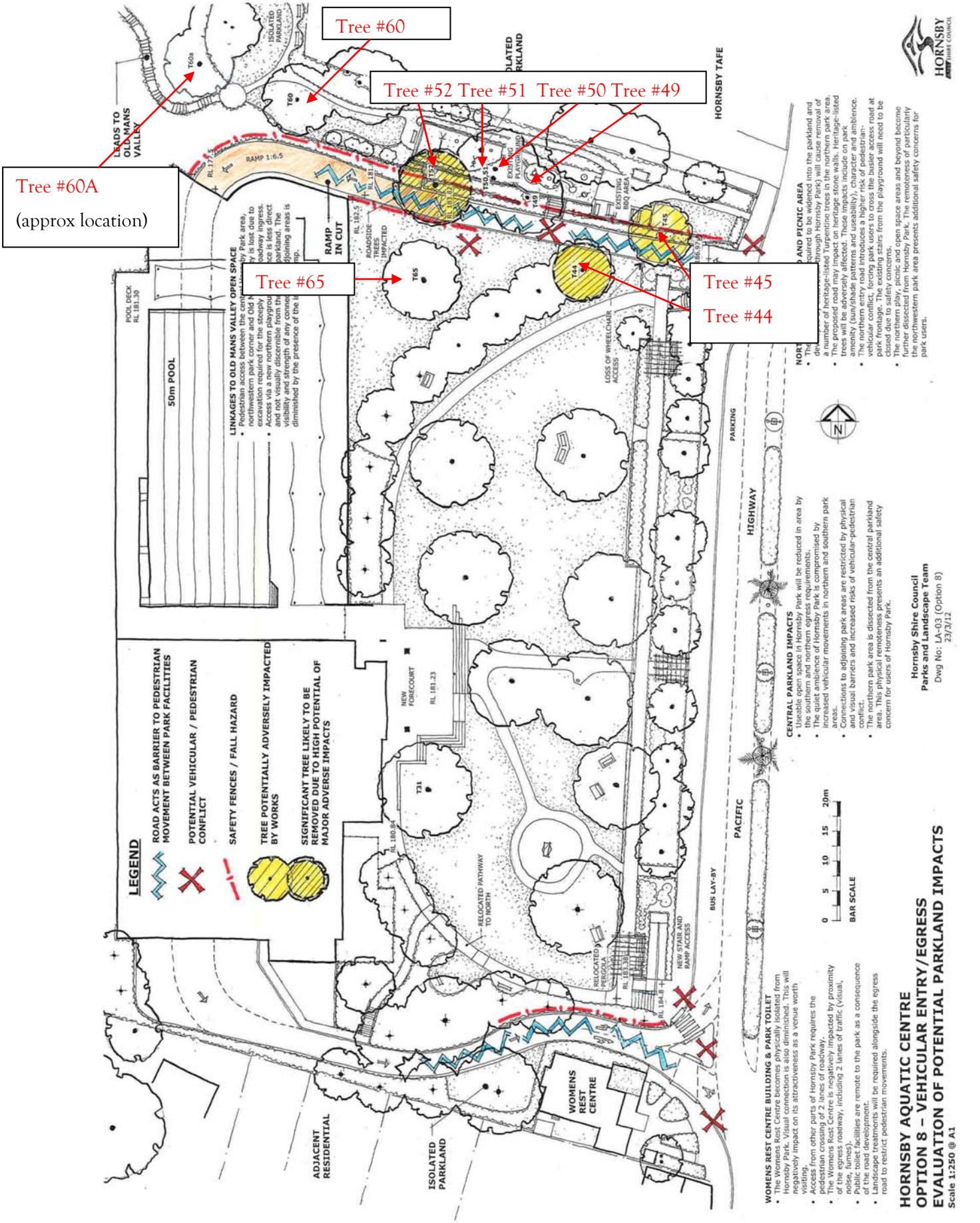
- **Option 8b if implemented is not assessed to have any significant adverse impact to Tree #60A. This tree is assessed as being in the early stages of decline (dead branch tips), most likely the result of significant *SRZ/TPZ radial* distance change of soil levels some years ago.**

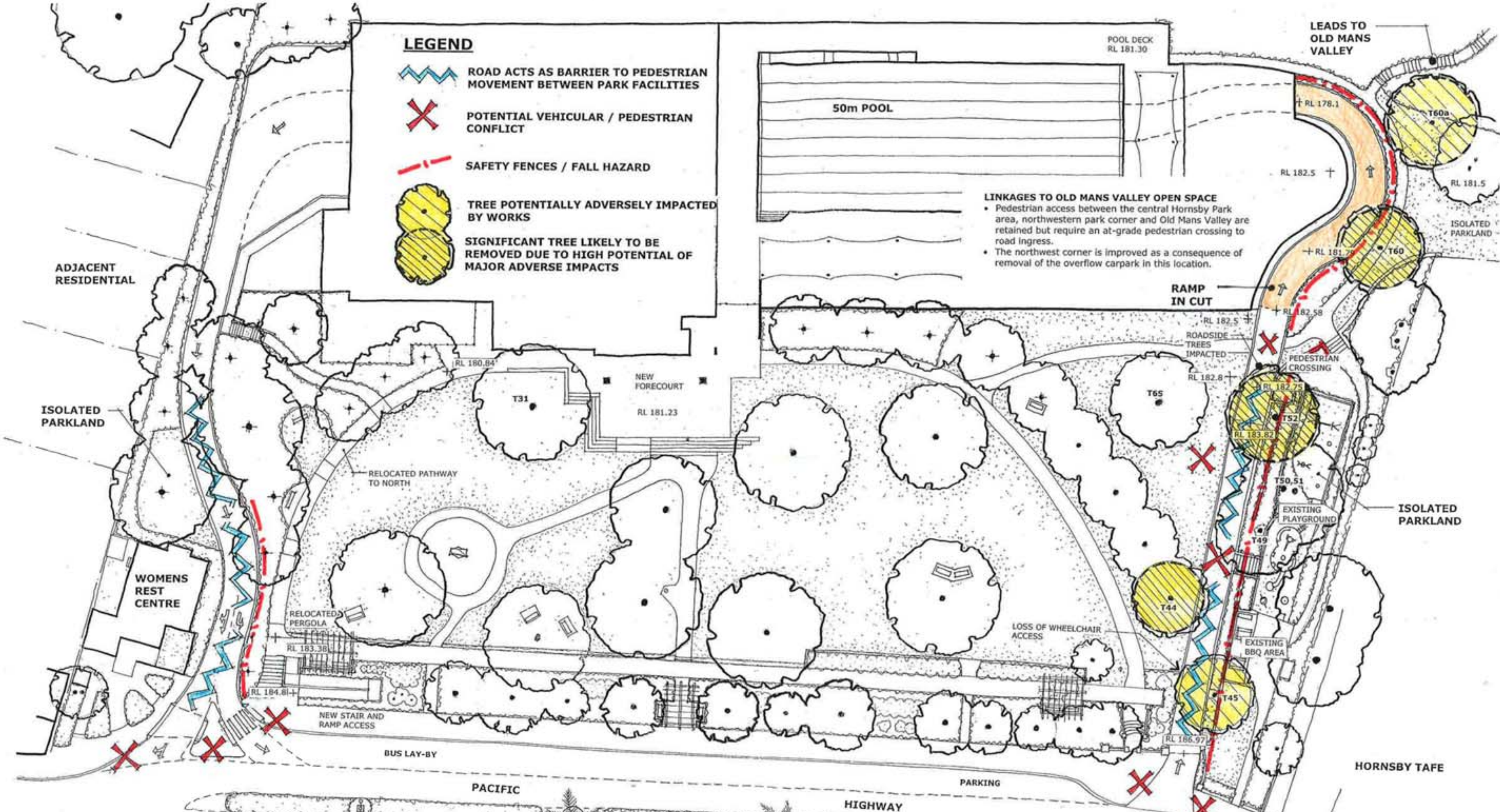
- **Option 8b if implemented will require the construction of a *"Bailey's Bridge"* or similar over the calculated *TPZ/SRZ radial distance* of any retained tree.**

Should you have any questions please do not to hesitate to contact me on 0412 21 962 during business hours Monday to Friday.

Yours faithfully,

Kyle Hill Registered (Arboriculture Australia #1884) Practicing & Consulting Arborist


Tree #60
Tree #52 Tree #51 Tree #50 Tree #49
Tree #60A
(approx location)
Tree #65
Tree #45
Tree #44
LEADS TO OLD MANS VALLEY
HORNSBY TAFE
RAMP 1:6.5
RAMP IN CUT
50m POOL
POOL DECK RL 181.30
LINKAGES TO OLD MANS VALLEY OPEN SPACE
LOSS OF WHEELCHAIR ACCESS
EXISTING BBQ AREA
EXISTING PLAYGROUND
ROADSIDE TREE IMPACTED
NEW FORECOURT RL 181.23
RELOCATED PATHWAY TO NORTH
RELOCATED PERGOLA
NEW STAIR AND RAMP ACCESS
BUS LAY-BY
PARKING
HIGHWAY
PACIFIC
WOMENS REST CENTRE
ADJACENT RESIDENTIAL
ISOLATED PARKLAND
LEGEND
ROAD ACTS AS BARRIER TO PEDESTRIAN MOVEMENT BETWEEN PARK FACILITIES
POTENTIAL VEHICULAR / PEDESTRIAN CONFLICT
SAFETY FENCES / FALL HAZARD
TREE POTENTIALLY ADVERSELY IMPACTED BY WORKS
SIGNIFICANT TREE LIKELY TO BE REMOVED DUE TO HIGH POTENTIAL OF MAJOR ADVERSE IMPACTS
WOMENS REST CENTRE BUILDING & PARK TOILET
CENTRAL PARKLAND IMPACTS
AND PICNIC AREA
BAR SCALE
0 5 10 15 20m
Hornsby Shire Council
Parks and Landscape Team
Dwg No: LA-03 (Option 8)
23/3/12
HORNSBY AQUATIC CENTRE
OPTION 8 – VEHICULAR ENTRY/EGRESS
EVALUATION OF POTENTIAL PARKLAND IMPACTS
Scale 1:250 @ A1



WOMENS REST CENTRE BUILDING & PARK TOILET

- The Womens Rest Centre becomes physically isolated from Hornsby Park. Visual connection is also diminished. This will negatively impact on its attractiveness as a venue worth visiting.
- Access from other parts of Hornsby Park requires the pedestrian crossing of 2 lanes of roadway.
- The Womens Rest Centre is negatively impacted by proximity of the egress roadway, including 2 lanes of traffic (visual, noise, fumes).
- Public toilet facilities are remote to the park as a consequence of the road development.
- Landscape treatments will be required alongside the egress road to restrict pedestrian movements.

CENTRAL PARKLAND IMPACTS

- Useable open space in Hornsby Park will be reduced in area by the southern and northern egress requirements.
- The quiet ambience of Hornsby Park is compromised by increased vehicular movements in northern and southern park areas.
- Connections to adjoining park areas are restricted by physical and visual barriers and increased risks of vehicular-pedestrian conflict.
- The northern park area is dissected from the central parkland area. This physical remoteness presents an additional safety concern for users of Hornsby Park.

NORTHERN PLAYGROUND AND PICNIC AREA

- The road (which will be required to be widened into the parkland and developed by excavation through Hornsby Park) will cause removal of a number of heritage-listed Turpentine trees in the northern park area.
- The proposed road may impact on heritage stone walls. Heritage-listed trees will be adversely affected. These impacts include on park amenity (sun/shade patterns and useability), character and ambience.
- The northern entry road introduces a higher risk of pedestrian-vehicular conflict, forcing park users to cross the busier access road at park frontage. The existing stairs from the playground will need to be closed due to safety concerns.
- The northern play, picnic and open space areas and beyond become further dissected from Hornsby Park. The remoteness of particularly the northwestern park area presents additional safety concerns for park users.

HORNSBY AQUATIC CENTRE
OPTION 8b – MODIFIED ENTRY RAMP
EVALUATION OF POTENTIAL PARKLAND IMPACTS
Scale 1:250 @ A1

Hornsby Shire Council
Parks and Landscape Team
Dwg No: LA-04 (Option 8b)
23/3/12

HORNSBY SHIRE COUNCIL

APPENDIX H – Brown Consulting (Cost Estimates)

BROWN

Smart Consulting

PRELIMINARY BUDGET COST ESTIMATES REPORT

HORNSBY AQUATIC CENTRE

April 2012
Report No. X12109
Prepared for Hornsby Shire Council

COMMERCIAL IN CONFIDENCE

April 2012

DOCUMENT CONTROL

Document2

Issue	Date	Issue Details	Author	Checked	Approved
A	April 12	Draft Report			

HORNSBY AQUATIC CENTRE
PRELIMINARY BUDGET COST ESTIMATES

HORNSBY, NSW

FOR HORNSBY SHIRE COUNCIL

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EXECUTIVE SUMMARY

This report has been prepared to provide an independent assessment of the budget cost estimates of the potential access options to provide vehicular / pedestrian access to the Hornsby Aquatic Centre (HAC) as part of the redevelopment of the site.

This report has analysed the original seven (7) cost estimates for the access options for the site prepared and investigated by Hornsby Shire Council as part of the development application process. Further, this report has assessed an additional two (2) options presented by the public at the recent meeting of the Joint Regional Planning Panel (JRPP). Options 9,11 and 12 were developed by Hornsby Shire Council as additional alternatives access options following the JRPP meeting. Option 13 was submitted to the JRPP via email dated 16th March 2012 by Graham Hoskins and has also been assessed.

The preliminary budget cost estimates are based on figures provided by Hornsby Shire Council utilised on the original 7 options. These figures have been assessed and deemed acceptable to current market conditions. These base rates have been used to compile the budget cost estimates for the additional options.

A summary of the preliminary budget cost estimates for all the options can be found in Table 1

Hornsby Aquatic Centre
Preliminary Budget Cost Estimates

1 BACKGROUND

1.1 THE PROPOSAL

Hornsby Shire Council has prepared a development application for the redevelopment of the now defunct Hornsby Aquatic Centre. The redevelopment of the site includes construction of the following main items:

- Maintain outdoor 50m pool
- Indoor pools including a learn to swim pool and leisure pool
- Administration area
- Kiosk
- Multi-purpose rooms for pool operations and / or community use.
- 111 space car park under pools

The proposal includes a 3.5m height clearance to the car park at the southern end and 2.9m height clearance at the northern end of the car park. The difference in clearance is due to the deep end of the 50m pool being at the northern end.

Figure 1: Locality Sketch

1.2 POTENTIAL ACCESS OPTIONS

In summary, the following options have been estimated:

Option 1 - Access into Hornsby Park opposite Coronation Street via traffic lights
Option 2 - Access north of Women's Rest Centre building.
Option 3 - Access northern end of Hornsby Park – widen existing access
Option 4 - Access through TAFE carpark
Option 5 - Access via No 4 Dural Street, privately owned land.
Option 6 - Access via No 6 Dural Street, the Montessori preschool site (Norwood).
Option 7 - Access via Old Man's Valley fire trail
Option 8 - Access via Loop road as proposed by Mark Cambourn
Option 9 - Access via Loop road as proposed by Mark Cambourn with ingress & egress reversed
Option 10 - Access through playground northern side of Hornsby Park
Option 11 - Access through playground northern side of Hornsby Park with access ramp at rear of pool to basement.
Option 12 – Left turn slip lane adopted as part of Option 1 (moved north)
Option 13 – 50 space open air car park as northern end of site

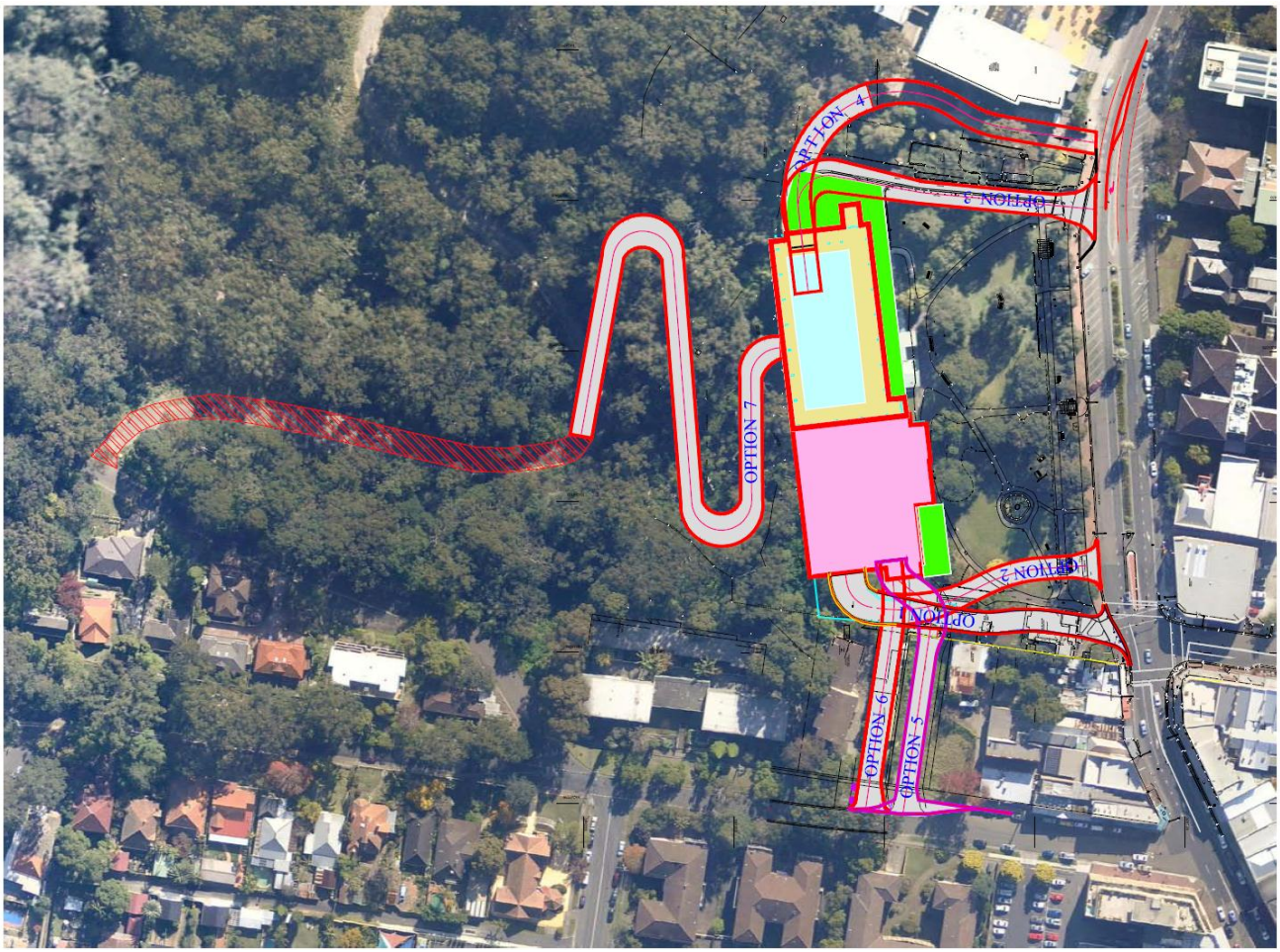

Figure 2: Options 1 to 7

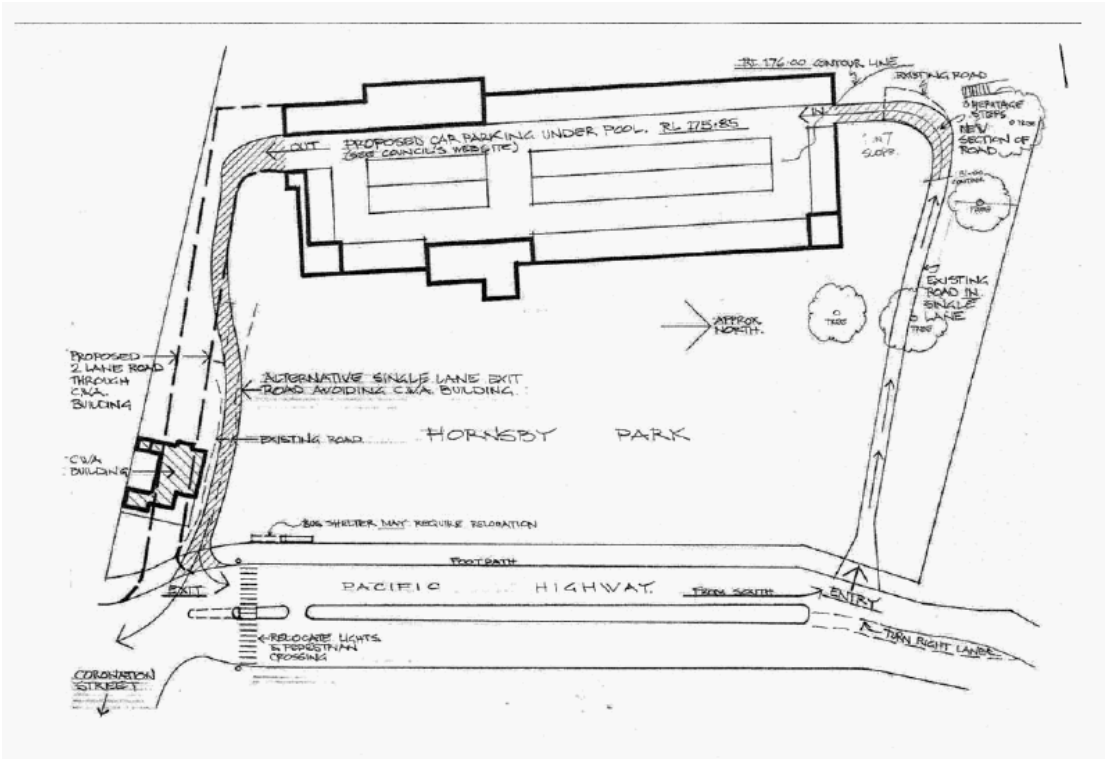

Figure 3: Option 8

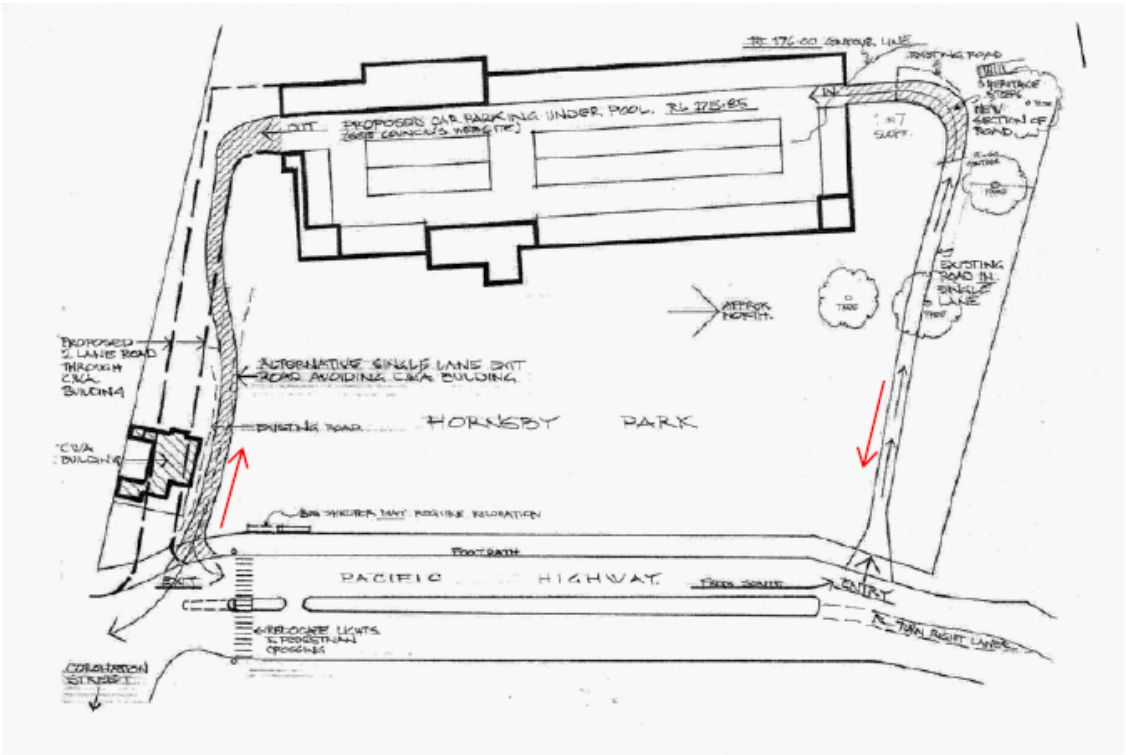

Figure 4: Option 9

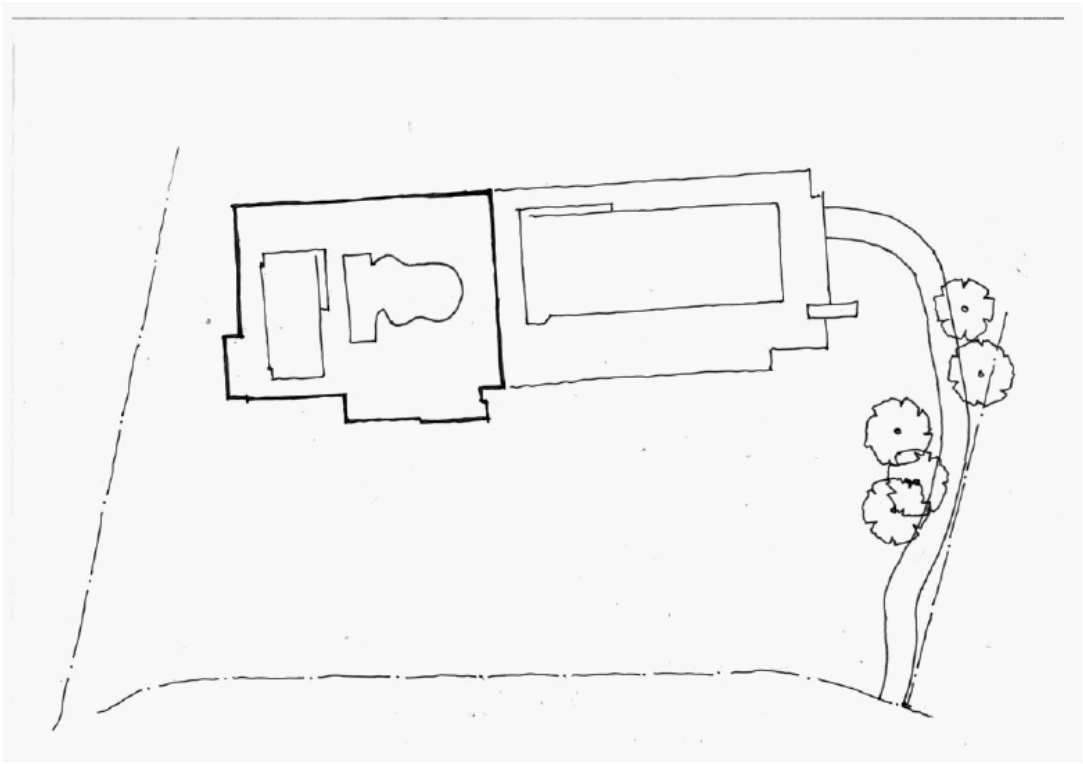

Figure 5: Option 10

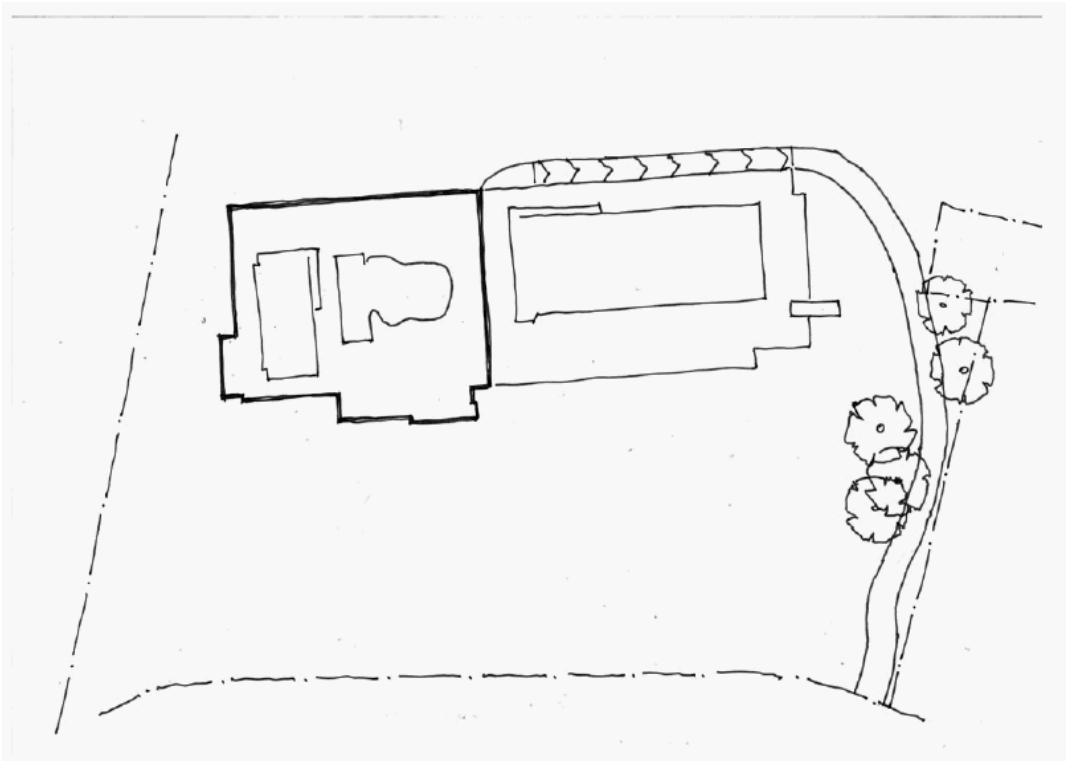

Figure 6: Option 11

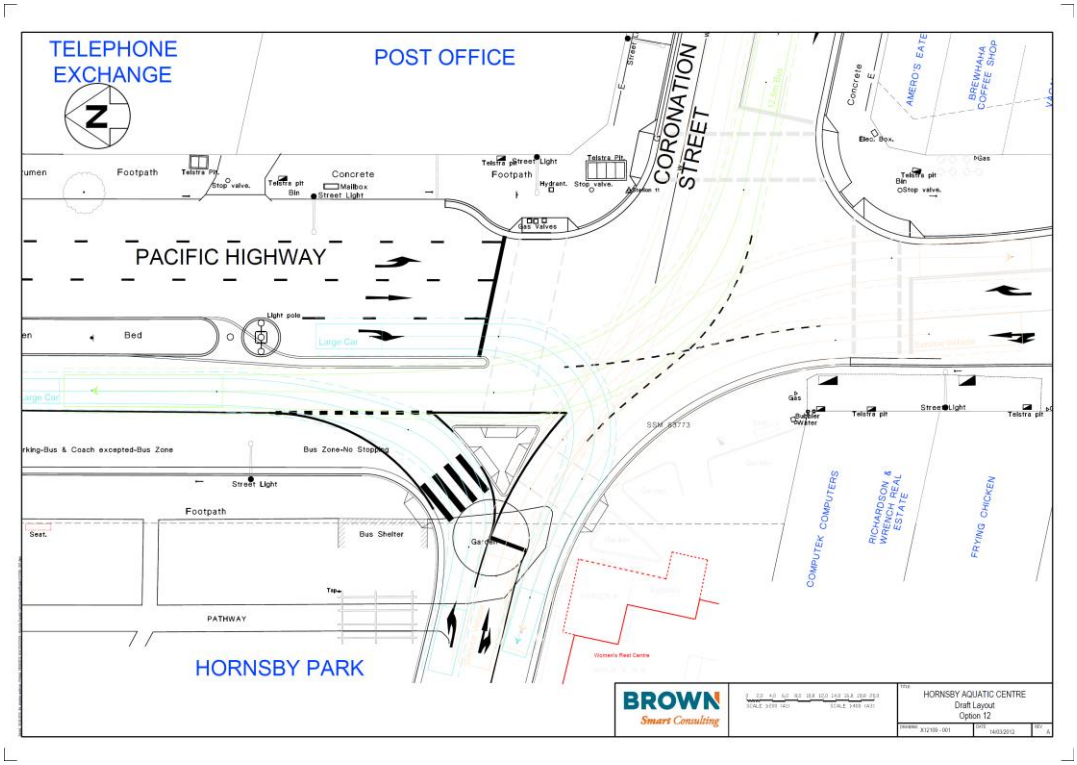

Figure 7: Option 12

Figure 8: Option 13

2 METHODOLOGY

The following methodology has been used to compile the preliminary budget cost estimates

2.1 HORNSBY SHIRE COUNCIL ESTIMATES

The rates and quantities used have been assessed and are acceptable to current market figures and conditions

2.2 CONTINGENCIES

It was noted that that the contingency figure used varied dependant on the activity. To maintain a consistent approach to the assessment, all variations on the Hornsby Shire Council (HSC) rates have been left unchanged. For the estimates undertaken by Brown Consulting (BC), Options 10, 11, 12 and 13, a 23% contingency was used in line with the similar HSC Options 2 &3.

2.3 SUPERVISION

A median figure of 5% was used on BC estimates 10,11,12 & 13.

2.4 UTILITIES

A full assessment of the existing utilities has not been undertaken at this stage. Further inquiries will be required before finalising any costs for public utility relocation/protection

2.5 ACCESS OPTIONS

2.5.1 Option 1

This estimate includes both works on the Access Road & any alterations to the signalised intersection on the Old Pacific Highway. The access road alignment goes through the land currently occupied by the CWA building & includes for its demolition & the provision of a new room within the HAC (provided by HSC).

2.5.2 Option 2

This estimate allows for no alteration to the Old Pacific Highway except for kerb returns

2.5.3 Option 3

This estimate allows for no alteration to the Old Pacific Highway except for kerb returns. It also allows for a pedestrian/cyclist footbridge over the new access road to connection the existing play area with the rest of the park. Alternative estimate for lowering car park to RL of 175.25m included, figures taken from Davis Langdon Quantity Surveyors report dated 23/09/11

2.5.4 Option 4

This estimate utilises the existing access to the TAFE buildings. This does not include for property costs, right of way (ROW) & legal fees that maybe applicable.

2.5.5 Option 5

This estimate allows for access to the site through the existing property at 4 Dural Street & includes land purchase costs (provided by HSC).

2.5.6 Option 6

This estimate allows for access to the site through the land currently occupied by The Montessori Preschool & includes for the buildings demolition based on previous rates used on the Duffy Ave Project (provided by HSC). This does not include for the provision of a replacement building on another site.

2.5.7 Option 7

Access to site via the existing Fire Track off Quarry Road, Includes Utility rates based on the Cardno Report dated February 2005 & factored at 5% per annum.

2.5.8 Option 8 and 9

Cambourn Options, Access to site via a one way loop road (Option 9 reversed). Alternative estimate for lowering of car park to RL of 175.25m & 174.25m based on estimates undertaken by Davis Langdon QS report dated 23/09/11. Additional costs are included for the provision of traffic management on The Old Pacific Highway to control ingress & egress onto the site during construction.
Note this is only applicable to Options 8 & 9 as they are one way access roads & therefore reduced width.

2.5.9 Option 10

Lucy Bal Option 1, access via new road at northern end of site through existing playground area, accessing building at north west corner. Access Road costs based on HSC Option 3.

2.5.10 Option 11

Lucy Bal Option 2, access via new road at northern end of site through existing playground area, accessing building at western side of the building via an elevated roadway. Access Road costs based on HSC Option 3. This includes additional costs for an elevated roadway to the west.

2.5.11 Option 12

Access at the southern end of the site adjacent to the CWA building. Access Road costs as per HSC Option 2, additional costs for alterations to Old Pacific Highway signalised Intersection included. Further design development required on the signalised intersection arrangements needed.

2.5.12 Option 13

Hoskings Option, access at the northern end of the site. Separate access and ingress with parallel parking on both sides of roadways. Estimate excludes relocation of playground, toilet block and café. Estimates for option 3 and 10 used to compile data. Alternative estimate for lowering of car park to RL of 175.25m based on estimates undertaken by Davis Langdon QS report dated 23/09/11

3 SUMMARY OF ESTIMATES

Table 1 shows the summary of the preliminary budget cost estimates for all the options considered:

SUMMARY of PRELIMINARY BUDGET COST ESTIMATES

Option	Description	Amount	Additional Cost Traffic Management for Access Control (1)	Total Cost	Notes	Additional Cost over Option 1
1	**Access Opposite Coronation Street**	$800,000		$800,000	Access Road & Alterations to Pacific Highway. Includes new room in HAC.	$0
2	**Access North of Women's Rest Centre Building**	$500,000		$500,000	Access Road Works Only.	-$300,000
3	**Northern End of Hornsby Park**	$1,400,000		$1,400,000		$600,000
3a	**Northern End of Hornsby Park entry RL 175.25m**	$2,000,000		$2,000,000	Includes costs to lower RL to 175.25 for 3.5m clearance	$1,200,000
4	**Access Through TAFE**	$900,000		$900,000	Excludes raising pool by 2.8 metres	$100,000
5	**Access Through 4 Dural Street**	$2,000,000		$2,000,000	Includes property aquistion	$1,200,000
6	**Access Through 6 Dural Street**	$700,000		$700,000	Excludes cost to construct new Montessori Preschool.	-$100,000
7	**Access via Fire Trail Off Quarry Street**	$3,000,000		$3,000,000	Inc Utility costs provided by Cardno Report Feb 2005	$2,200,000
8	**Cambourn Option 1 (One Way North - South)**	$2,000,000	$430,000	$2,400,000	Inc signal alterations	$1,600,000
8a	**Cambourn Option 1 (One Way North - South) entry RL 174.25m**	$3,200,000	$430,000	$3,600,000	Inc signal alterations & add' costs to lower RL to 174.25	$2,800,000
8b	**Cambourn Option 1 (One Way North - South) entry RL 175.25m**	$2,600,000	$430,000	$3,000,000	Inc signal alterations & add' costs to lower RL to 175.25 & extra access road	$2,200,000
9	**Cambourn Option 2 (One Way South - North)**	$2,000,000	$430,000	$2,400,000	Not costed, Refer to Option 8 estimate	$1,600,000
9a	**Cambourn Option 2 (One Way South - North) entry RL 174.25m**	$3,200,000	$430,000	$3,600,000	Not costed, Refer to Option 8a estimate	$2,800,000
10	**Access through playground northern side of park**	$1,400,000		$1,400,000	Utilities estimate taken from Option 3	$600,000
11	**Access through playground northern side of park - modified**	$3,500,000		$3,500,000	Utilities estimate taken from Option 3	$2,700,000
12	**Access Opposite Coronation Street (retaining Women's Rest Centre building)**	$800,000		$800,000	Access Road & Alterations to The Pacific Highway, Inc relocation of heritage light, Utilities estimate taken from Option 2	$0
13	**Graham Hoskings Option**	$2,500,000		$2,500,000	Excludes relocation of Playground, toilet block and new Café. Estimate taken from Option 3 & Option 10 adjusted to exclude doubled costs	$1,700,000
13a	**Graham Hoskings Option entry RL 175.25m**	$3,100,000		$3,100,000	Excludes relocation of Playground, toilet block and new Café. Estimate taken from Option 3 & Option 10 adjusted to exclude doubled costs	$2,300,000

(1) - additional cost for traffic control during construction for one way options

Table 1: Summary of Preliminary Budget Cost Estimates