

**BLOCKS 15 + 16 SECTION 17 YARRALUMLA BAY
CGGS AQUATIC FACILITY**



ON BEHALF OF



CANBERRA GIRLS
GRAMMAR SCHOOL

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Purpose of this Report

This Planning Report has been prepared by Stewart Architecture (SA) on behalf of the Canberra Girls Gramma School (CGGS), for the development of Blocks 15 + 16 Section 17 Yarralumla Bay.

This report is intended to support a Works Approval application for the CGGS Aquatic Facility (MWSF) Blocks 15 + 16 Section 17, Yarralumla Bay.

This report makes reference to the following documents:

The National Capital Plan

The NCA Yarralumla Bay Recreation Hub Master Plan (YBRHMP), (2009)

The Crown Leases for Blocks 15 + 16 Section 17 Yarralumla Bay (both approved on 24 July 2014)

Project Background

Stewart Architecture were invited by CGGS (lessee of Blocks 15 + 16 Section 17 Yarralumla Bay) to participate in a design competition for a new Aquatic facility on Yarralumla Bay. The brief was to design a facility that would accommodate CGGS's needs in relation to aquatic activities whilst incorporating the operation of the ancillary café as outlined in the lease purpose.

Stewart Architecture were the successful competitors and were engaged by Construction Control (CC), on behalf of CGGS, as Architects.

Project Team

Construction Control have assembled a full and comprehensive professional consultant team for this project to ensure all aspects affecting design and planning are identified and addressed early in the design and approval process.

Project Manager	Construction Control
Architects and Master Planners	Stewart Architecture
Civil Engineer	Sellicks Consultants
Landscape Architect	Harris Hobbs
Structural Engineer	Sellicks Consultants
Hydraulic Engineer	Sellicks Consultants
Mechanical Engineer	WSP Parsons Brinckerhoff Engineering Services
Electrical Engineer	WSP Parsons Brinckerhoff Engineering Services
Heritage Consultant	GML Heritage
Certifier	Certified Building Solutions
Surveyor	Kleven Spain

Authority Consultation

The submission of Works Approval for the CGGS Aquatic Facility follows a program of consultation with Authorities as follows;

April 2016 CC and SA met with the NCA on 6 April to present the initial concept design.

July 2016 CC, SA and CGGS met with NCA for a second time on 20 July.

August 2016 On 04 August CC and SA met with TCCS (formerly TaMS) to discuss verge works and the treatment of adjacent parkland and lake edge. The design was presented in its current state, and TCCS provided comments and advice pertaining to both the handover and maintenance of soft landscaping in the proposal's immediate context, and clarification.

All documentation relating to this consultation, including correspondence with Territory and Municipal Services (TaMS), is provided within this report.

Community Consultation

June 2016 CC, SA and CGGS met with the Yarralumla Residents Association (YRA) on 23 June 2016. This was an initial consultation presentation, to discuss the current design.

November 2016 CC and CGGS met again with the YRA on 01 November 2016. This again was a further presentation, to outline the design as anticipated to be submitted for Works Approval.

November 2016 CC, SA and CGGS met with the Lake Burley Griffin Guardians (LBGG) on 03 November 2016. This was an initial consultation presentation, outlining the current design to the representatives of the LBGG. Subsequent to that meeting, LBGG have submitted formal response which is included in Appendix A of the Public Consultation Report accompanying this Planning Report.

We understand that the works approval will be publicly notified by the NCA during the assessment of the CGGS Aquatic Facility works approval.



The proposal includes amalgamating Blocks 15 + 16 Section 17. The site has a combined area of 1363sqm.

The site is currently undeveloped and has a cross-fall of approximately 3m from the eastern to western boundary. Following the capture of the above image, site servicing works have been undertaken. The work included the removal of several trees, removal of a picnic table and hard treatment to the lake's edge. All of this work was carried out by the LDA under an NCA Works Approval prior to the sale of the site.

The site is bounded by parkland to the north, Yarralumla Bay to the west, an existing laneway and Elizabeth McKay Aquatic Centre to the south and an existing carpark to the east. The carpark is accessed via Alexandrina Drive has an associated amenities block located to the north of the carpark. Each verge includes generally grassed verges and street tree planting of variable quality.

Surrounding developments includes both aquatic facilities and low scale residential developments. In addition, surrounding sites include open recreation spaces with easy access to Lake Burley Griffin.

There are no easements on the site.

There is currently one tree located on site, which is proposed to be removed (refer Appendix E for arborist report). There are a number of verge trees adjacent to the site of variable quantity and species; and established parkland to the north.

The site currently has no direct vehicular access. Therefore, a verge crossing is proposed via the existing laneway to the south of the site.

The Copyright Amendment (Moral Rights) Act 2000

There are no existing built structures on the site. The site is therefore not affected by the Copyright Amendment (Moral Rights) Act 2000.

The Environment Protection and Biodiversity Act 1999

There are no environmental protection issues associated with the site. The site is therefore not affected by the Environment Protection and Biodiversity Act 1999.



View of Yarralumla Bay Peninsula (east) from Blue Gum Point.

Note the screening the parkland to the north provides the site. This is pictured during winter, where the majority of deciduous trees on the have lost their leaf cover.



View of Alexandrina Drive (site in the background) from the east.

In the foreground is 90° parking off Alexandrina Drive, bordering the established parkland that characterises the Yarralumla Bay peninsula. As indicated in the Yarralumla Bay Recreation Hub Masterplan, this corner of Alexandrina Drive (pictured) is intended to become a secondary loop road, with Alexandrina Drive redirected to be parallel to the existing pedestrian/cycle way.



View of Hopetoun Circuit looking towards the south east.

The houses in the background mark the threshold of residential Yarralumla.



View of the existing amenities block and carpark directly east of the site.

This amenities block is approximately 20m due east of the site, and screening effectively by healthy existing Cypress Pines.



View west over site from carpark.



View north west over site from carpark entry off Alexandrina Drive.

Existing line of English Oaks south of site (pictured left) and Cypress Pines to the east (pictured right). Black Mountain and Lake Burley Griffin in the background.



View of site looking south.

The Elizabeth McKay Aquatic Centre - the current CGGS aquatic facility - in the background. Note the significant fall over the site providing a westerly aspect over Yarralumla Bay. The site was serviced by the LDA in 2013, including the construction of a pedestrian pathway and rubber buffer to the lake's edge.



View from site looking directly north towards Black Mountain.

Pictured is the established parkland to the south of site. The average width of parkland between the site and lake's edge is approx. 500m. The majority of existing vegetation is deciduous, however its density screens the site effectively from the point.

The parkland contains several park benches, soft edges and a picnic area to the east.



View of the lake's edge looking north.

Existing works at lake's edge include a 1.2m pathway, and rubber buffer to the edge. Existing reeds stand approx. 2m and provide considerable screening to the site from Yarralumla Bay.

Note Black Mountain and Black Mountain Peninsula in the background.



View from site looking due west over Yarralumla Bay.

The western Yarralumla Bay Peninsula contains low scale (single storey) aquatic facilities and storage spaces. All access roller doors face Yarralumla Bay and the prominent material of the lake's edge façade is hard stand concrete.

Note existing reeds and lake's edge in the foreground.



View of site from western Yarralumla Bay Peninsula.



View of site and eastern Yarralumla Bay Peninsula, looking north east from the existing public jetty.



View of adjacent buildings, looking south east from existing public jetty.

From the left, the Elizabeth McKay Aquatic Centre, the YARC Aquatic Recreation Centre, and the YMCA Sailing Club.



View of site and eastern Yarralumla Bay Peninsula from Alexandrina Drive.

Note the Elizabeth McKay Aquatic Centre and the YARC.

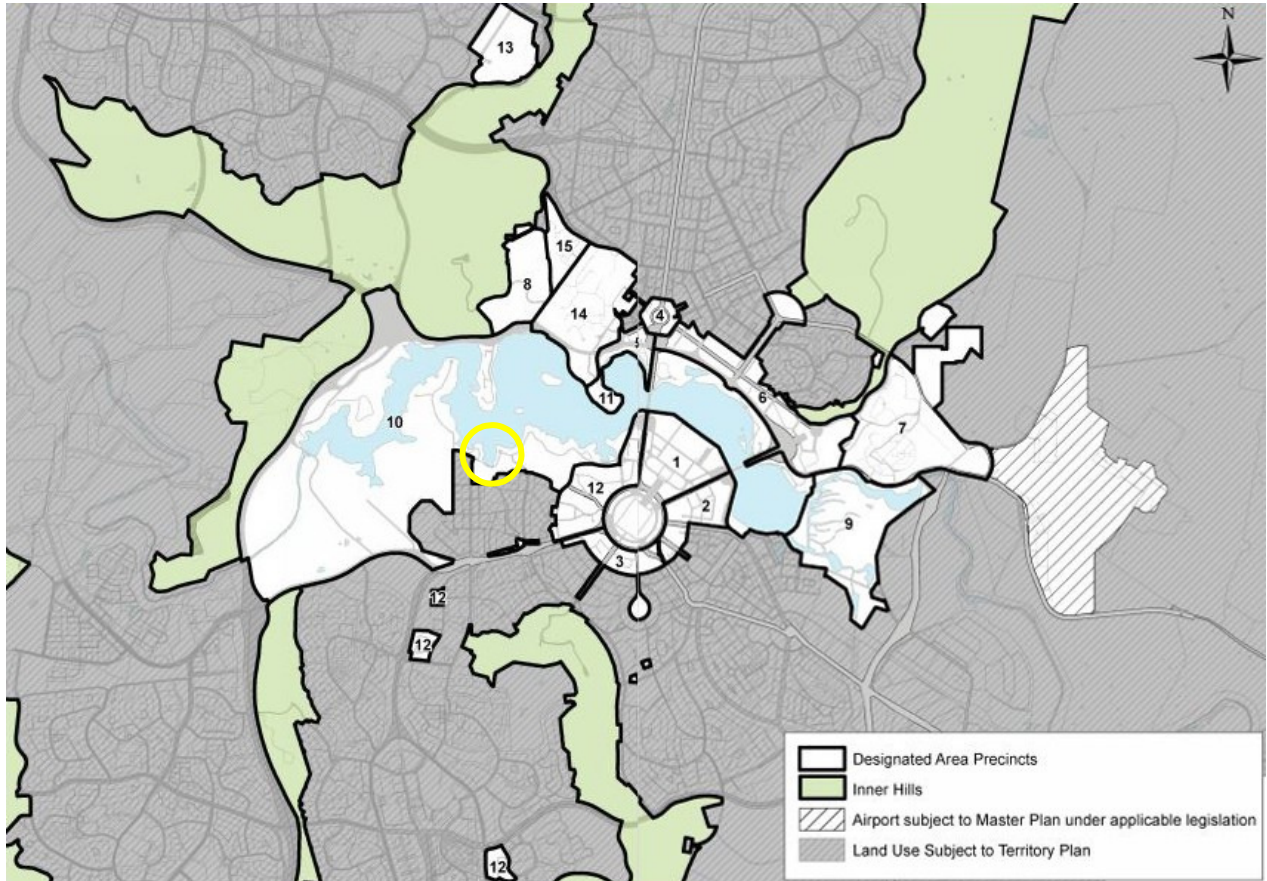


View of site and Yarralumla Bay from Black Mountain Peninsula.

The site rests behind the heavily screened point. Note, the Elizabeth McKay Aquatic Centre is the building pictured.

Blocks 15 & 16 Section 17 Yarralumla Bay are situated on Designated Land and therefore fall under jurisdiction of the NCA. Planning requirements are identified within the National Capital Plan.

The site is within the Central National Area, in an area designated as 'Zone 10 – Lake Burley Griffin and Foreshores' (below).



The Central National Area (Lake Burley Griffin and Foreshores) includes land use policies relevant to the site. A response to each land use policy is provided in the *Statement Against Relevant Criteria* (Section 9) within this Planning Report.

Stewart Architecture were engaged by Construction Control on behalf of Canberra Girls Grammar School (CGGS) to design a new Aquatic facility on Yarralumla Bay. The brief was to design a facility that would support the aquatic recreational programs of the School, including:

- Rowing
- Sailing
- Dragon Boating
- Triathlons

The facility will also support the ancillary activities associated with the aquatic programs, which come in the form of:

- Storage of aquatic fleet
- Workshop for repairs of the fleet
- General amenities, including change rooms, toilets and showers
- Spaces to facilitate coaching
- Regatta and Aquatic related functions
- Delivery of education to CGGS students, focused on the lake environment, environmental science, local history and other co-curricular activities
- Café/kitchen, meeting the lease purpose clauses

Noting that the School will seek to use the space in a similar manner to the current Elizabeth McKay Aquatic Centre.

Siting

The site is located on the eastern Yarralumla Bay Peninsula, directly adjacent established parkland. This proposal makes use of the prime location whilst maintaining discretion and site awareness through retaining existing screening opportunities, composition and site manipulation. Though heavily screened through the majority of the year by the parkland to the north, the site enjoys expansive views over Yarralumla Bay and the greater Lake Burley Griffin.

Existing Vegetation

Treeworks conducted a Visual Tree Assessment (VTA) on 17 July 2016, in order to identify and observe the trees immediately adjacent to the site. The verges and existing parkland contain a number of species, including but not restricted to; English Oak, She-oak and Cypress Pine. For further information, please refer to the Arborist Report in Appendix B. The landscape architect, Harris Hobbs Pty Ltd, together with Stewart Architecture, propose the removal of several street trees adjacent to the site. Please refer Landscape Drawings for details.

Proposed Landscaping

The proposed removal of trees will be supplemented by replacing those removed and additional planting throughout the existing parkland.

The proposal aims to negotiate with TCCS a leasing clause that allows landscaping beyond the boundary to the east (within the verge between building and carpark). This negotiation will include the transferral of this landscaping to TCCS as an asset and a binding commitment from the lessee to adequately maintain this landscaping. We consider this to be important for the overall amenity and appearance of the proposal.

The proposed landscaping includes a pathway to provide pedestrian access to both the Upper Level entrance and the café entrance to the north, a TCCS access pathway to the south east corner, screening elements along the eastern façade and low level planting appropriate to the aspect. Please refer Landscape Drawings for further details.

Vehicular and Pedestrian Access

Vehicular access is from Alexandrina Drive, by way of the existing laneway to the south of the site. This laneway currently serves the existing Elizabeth McKay Aquatic Centre. There are no current verge crossings afforded to the site. A verge crossed is proposed from the existing laneway to the south west corner of the site.

There are no requirements within the lease/zoning to provide carparking on site. Sufficient carparking is located adjacent (east) to the site, and overflow parking can be sourced along Alexandrina Drive. As outlined in the Yarralumla Bay Recreation Hub Master Plan, the corner of Alexandrina Drive that provides access to the site is to be bypassed and developed as a secondary loop road. Additional and more efficient perpendicular carparking is to be developed along this loop road.

A disabled parking/drop off zone is proposed on site.

Pedestrian access is limited to the primary pedestrian/cycle path offset to the east of Alexandrina Drive (refer DA 000). The Yarralumla Bay Recreation Hub Master Plan identifies a nodal extension of this path however that activates the eastern Yarralumla Bay Peninsula and passes across the lake's edge directly in front of the site. This proposal presents a catalyst for this extension by proposing a café and outdoor terrace opening to the north, developing the lake edge in preparation of this path extension and fulfilling all activation, characteristic and land use objectives outlined in the Yarralumla Bay Master Plan.

Address and Frontage

The site has two key addresses; Alexandrina Drive (east) and Yarralumla Bay (west). The two storey proposal is embedded into the site presenting an unobtrusive, practical and respectful address to both Yarralumla Bay and Alexandrina Drive.

This strategy allows pedestrian access directly from the Alexandrina Carpark to both the Upper Level and the café on the Upper Floor, and softens the scale of this main entry façade. A lower roof with deep overhangs over the eastern portion of the building amplifies human scale and intimacy for pedestrian arrival, coupled with careful screening and landscaping to both the café and Upper Level entry points. This frontage presents as a one storey building, with a secondary higher roof beyond.

The western frontage addresses Yarralumla Bay and the western peninsula with a two-storey façade. The finished floor level of the Lower Ground Floor is approx. 1200 below the existing ground line at the face of the building, utilising the site and allowing a generous setback to the water's edge.

Composition and Materiality

The proposal is a composition of two distinct forms; a robust, grounding base and a delicate light weight upper. Due to the design, the two forms are only unreadable from the eastern façade, which presents a low scale, light weight frontage to Alexandrina Drive.

The proposed robust base is composed of high quality precast concrete of a light grey, offset slightly from the upper form to suggest depth. In order to dilute the repetition of the roller doors on the western façade, the precast form has four punctures in its face, each puncture containing two roller doors and a light weight infill partition. This creates a sense of weight, proportionality and balance to the grounding precast base.

The Upper Floor is comprised of a combination of expressed structural framing and light weight cladding. The 'lightness' of the upper façade is not obtrusive: deep eaves and balconies modulate the façade and provide shading to the surface. Further, approximately two-thirds of this façade is glazed allowing much of the façade to be read as a reflection of the lake and parkland context. The vertical alignment of the cladding gives height and counterbalances the length of the façade, while a semi-opaque ribbon wraps around the top portion of the facades and terminates at the underside of the eaves. This treatment gives the roof a sense of buoyancy; a gentle gesture to the activity on the lake.

The main entry (eastern) façade is punctuated at Upper Ground Floor by natural timber screening, external covered foyers and an accent precast panel adjacent to the CGGS entry. Beyond the lower roof is a secondary façade defined by the semi-opaque glazed ribbon that wraps around the building and provides natural light to all internal spaces.

Interior Spaces

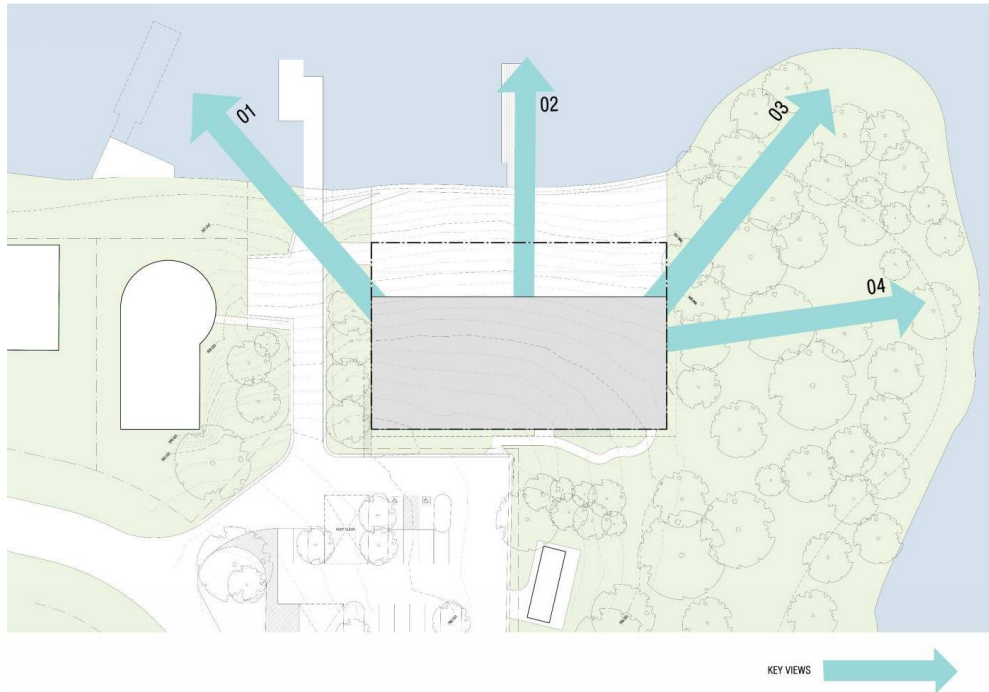
One of the key strengths that drives this proposal is the practical modular building structure that informs both the Lower and Upper Floor. On the Lower Floor the regulated grid ensures efficient, flexible storage solutions for the CGGS aquatic inventory, with space for expansion. Having researched several similar facilities, this proposal respects the practice of lake-based activities and the imperative need for organisation and an understanding of chronological process and practicality.

The spaces on the Upper Floor echo the same modular logic. The three spaces are divided equally by way of large, full length operable walls. In order to accommodate a series of configurations and settings, the spaces can be used in isolation, partial shared use, or a full three bay unobstructed space. Articulated ceilings and generous space allow these rooms a high degree on functionality, whilst maintaining grandeur and elegance.

The Café is afforded a similar interior proportion, however, both the north and west facades are replaced with glazed facades addressing the outdoor terrace, Yarralumla Bay and parkland. Deep overhangs ensure the spaces do not receive unwanted direct sunlight during the summer, but allow winter sun to flood the outdoor terrace.

Views

1. Views to Yarralumla Bay and Yarralumla Bay Oval
2. Views to Yarralumla Bay Peninsula (west).
3. Views to Molongolo River
4. Views to immediately adjacent Yarralumla Bay Peninsula (east) parkland, Black Mountain Peninsula, Black Mountain and Lake Burley Griffin.



Vehicular and Pedestrian Access

Although currently inaccessible by any designated pedestrian route, the Yarralumla Bay Recreation Hub Master Plan identifies a nodal extension of the primary pedestrian/cycle way that activates the Yarralumla Bay Peninsula (east) and passes directly between the site and the lake's edge.



Purpose		Aquatic Facility and Ancillary Cafe
Site Area		1, 363 m ² (pending amalgamation)
Gross Floor Area	Lower Ground	947 m ²
	Upper Ground	615 m ²
	Cafe	254 m ²
	Total	1, 816 m ²
Plot Ratio		Not defined (DES: DESIGNATED)
Site Coverage		69% (947 m ²)
Building Height	Alexandrina Drive Carpark (East)	3m – 5m
	Lake Front (West)	8m
Building Setbacks		N/A
External Materials & Colours	Precast concrete	Grey or off-white
Refer also to sample board	Light weight cladding	Off white
		Navy blue (Colorbond Deep Ocean)
	Accents	Timber battens (natural finish)
		Semi-opaque glazing
On-Site and Off-Site Parking Provisions		
Refer to the TIA		

This Statement Against Relevant Criteria (SARC) has been prepared by Stewart Architecture in support of a Development Application for Blocks 15 & 16 Section 17 Yarralumla Bay.

This SARC references the following elements of the NCA National Capital Plan:

- 14.12 Lake Burley Griffin and Foreshores Precinct Code

NATIONAL CAPITAL PLAN – 4.12 LAKE BURLEY GRIFFIN AND FORESHORES PRECINCT CODE

4.12.3 OBJECTIVES	Response
<p>To conserve and develop Lake Burley Griffin and Foreshores as the major landscape feature unifying the National Capital's central precincts and the surrounding inner hills and to provide for National Capital uses and a diversity of recreational opportunities.</p>	<p>The CGGS Aquatic Facility is in line with both the NCP and the Yarralumla Bay Recreation Hub Master Plan in providing a multiuse facility that promotes and encourages the use of Lake Burley Griffin.</p> <p>The ancillary restaurant included in this proposal will stimulate the adjacent parkland, increase the public surveillance and participation in the Lake edge and promote use of the Lake and its surrounds.</p>
<p>Lake Burley Griffin and Foreshores should remain predominantly as open space parklands while providing for existing and additional National Capital and community uses in a manner consistent with the areas national symbolism and role as the city's key visual and landscape element.</p>	<p>The CGGS Aquatic Facility will provide a prestigious outcome appropriate with the national significance of the site. This will be achieved primarily through built form, site use and material.</p> <p>The building form seeks to redefine the aesthetic of lake front aquatic facilities. A strong grounding base and delicate lightweight upper floor are prominent design features; distinguishing this development from the surrounding buildings of similar use.</p> <p>Precast concrete is a feature of the surrounding Central National Area, and will form the robust base that addresses the lake. Delicately perched atop this distinct form is an exposed structure with light weight infill cladding. A floating pavilion-style roof is achieved through a ribbon of glazing directly under the eaves, providing the roof with a buoyant aesthetic.</p> <p>Existing parklands are retained and supported.</p>
<p>Lake Burley Griffin and Foreshores are intended to provide a range of recreational, educational and symbolic experiences of the National Capital in both formal and informal parkland settings with particular landscape character and themes.</p> <p>These should be maintained and further developed to create a diversity of landscape and use zones which are integrated into the landscape form of the city and reflect the urban design principles for the National Capital.</p>	<p>The proposal provides a multi-use facility that is compliant with the land use opportunities outlined in the NCP. The proposal identifies the support and activation of the surrounding informal and formal parkland settings, through encouraged use, passive surveillance, and supplementary planting. The proposal presents an integration opportunity, and a catalyst, for the development of the pedestrian/cycle way nodal extension, in order to further encourage the use of the parkland and lake's edge.</p> <p>The development proposal is in accordance with the design and siting requirements of the National Capital Plan including building height, setback and scale.</p>
<p>The water quality and hydraulic operation of the lake should be maintained in a manner designed to protect Lake Burley Griffin and Foreshore's visual and symbolic role.</p>	<p>The proposal allows for aquatic practices that educate users to the symbolic, visual and environmental asset that is Lake Burley Griffin. All washing down of boats outside is to be water only, as the facility has two internal wash down bays for the exclusive use of soaped water. This runoff is then treated and processed within the facilities hydraulic operation.</p> <p>This being an excellent opportunity to educate students and young members of the community in the practice of water quality management, and the modifications of sustainable practice from contrived to habitual, in order to promote and encourage healthy ecosystems.</p>
4.12.4 LAND USE POLICY	Response
<p>Land use for the Lake Burley Griffin and Foreshores Precinct should be in accordance with the Land Use Diagram (located above, refer Section</p>	<p>Complies. This proposal is predominantly an aquatic recreation facility, with ancillary café and educational teaching spaces, and</p>

4) and as detailed below.

therefore complies with the permitted land uses.

Permitted land uses are:

Aquatic Recreation Facility;
 Club (related to lake use only);
 Community Facility;
 Landscape Buffer;
 National Capital Use;
 Outdoor Education Establishment;
 Park;
 Pathway Corridor;
 Public Utility;
 Reserve;
 Restaurant;
 Restricted Access Open Space;
 Road;
 Scientific Research Establishment; and
 Tourist Facility (not including a service station).

4.12.5 DETAILED CONDITIONS OF PLANNING, DESIGN AND DEVELOPMENT	Response
Parkland recreation	Complies. Although not identified as an action area, the parkland located immediately north of the site is incorporated and engaged through the outdoor terrace and café. Passive surveillance and pedestrian stimulation will ensure this parkland is activated and utilised for the full benefit of the public.
The Lake	Complies. In accordance with the NCP, the proposal intends to create little to no disturbance at the lake's edge, retain existing reed systems and promote public use of the lake.
Development Nodes	Complies. Identified in both the NCP and YBRHMP, this site is located within the Yarralumla Bay Development Node and complies with all criteria.
Conservation	Not applicable
Location Specific	Not applicable
Guidelines for Lakeshore Development	Complies. The proposal is in accordance with all character, material and type criteria outlined in the National Capital Plan, and is appropriate for the scale, use and intent of the area.
Guidelines for siting buildings in the Lake Flood Zone	Complies. Lower Ground floor is above the 100 year flood level.
4.19 GENERAL CODES	Response
General Codes	Not Applicable

Meeting held at TCCS offices at 11am on the 4th August 2016 between the following parties:

Lingam Jatheendran (LJ) – TCCS
Frank Yu (FY) – TCCS
Grant Thomas (GT) – TCCS
Lauren Couter (LC) – Construction Control
Hannah Walsh (HW) – Stewart Architecture
Neil Hobbs (NH) – Harris Hobbs Landscapes
Alex McLennan (AM) – Sellick Consultants

- LC gave an overview of the job in relation to the proposed works
- LJ confirmed that a 1.2m footpath will be required at the edge of the lake wall. This footpath (and the driveways) have not been constructed to date. These have both been documented on WAE plans from Indesco. Construction Control to find out the status of these works and who is to pay should they need to be constructed now.
- LJ confirmed that AC would be acceptable for the verge treatment between the western boundary and the lake edge (to edge of 1.2m concrete footpath)
- The existing Ranger gate is to be shown to be relocated on civil documentation. LJ to confirm internally any preferred location.
- Battering across boundary to be covered within the RoadsACT temporary traffic management submission.
- Several additional trees are proposed to be removed. LJ to forward onto tree protection unit for approval.
- LC proposed that the verge maintenance of the eastern boundary would be undertaken by Canberra Girls Grammar School. LJ confirmed this could work in a similar way as residential verges are maintained by the individual owners.
- LJ to confirm whether TCCS would accept taking ownership of the relocated pontoon on lake edge.
- LJ advised that a turning demonstration for and vehicle with a trailer would be required to demonstrate that users of the development would be able to manoeuvre without compromising the use within the existing carpark.
- Roofline over boundary will need to be confirmed through EPD. LC to confirm.
- LJ confirmed that standard sediment and erosion control measures would be acceptable within close proximity to lake.
- Site Establishment is to be included on the Landscape Management and Protection Plan (LMPP).



Preliminary Tree Report

Project Title:	Preliminary Tree Report
Address:	Alexandrina Drive Blocks 15 & 16 section 17 Yarralumla Bay Act 2600
Assigned by:	Lauren ; Construction Control Ph. 0406538265
Email address:	lcouter@ccontrol.com.au
Author:	Steve Griffiths Senior Arborist Treeworks
Date:	21/07/2016
Delivery:	Emailed
Work number :	418103



Important Notes

Developers/builders should consult a Consulting Arborist before preparing site building drawings, hydraulic designs, and landscaping drawings.

A Consulting Arborist can supply information on the Tree Protection Zones (TPZ) for significant trees on a site, saving concerned parties time and money.

A majority of trees have defects which may or may not be detectable without invasive diagnostic methods. These defects could be from environmental, human or genetic factors and may be hazardous to people and property.

Brief

The author of this report has been asked to;

- Visit the site
- Give genus/species of tree close to development
- Observe health of the trees
- Provide a Preliminary Tree Assessment
- Assess the existing site conditions

This Preliminary tree report is to focus on trees that are best removed and trees that to be retained. Retained trees require protection during the proposed construction. Both regulated and non-regulated tree are considering; neighbours tree are also in consideration, before excavation stage. This report is intended to be viewed by Lauren of Construction Control and the Tree Protection Unit, Department of Territory and Municipal services.

Information Provide

Project Name	Date	Project Number	Drawn By
CGGS Multi-Purpose Water Sports facility	2016	1575	Stewart Architecture

CGGS Multi-Purpose Water Sports Facility Page 2 of Tree Works 418103. Dated 20th July 2016



METHOD AND LIMITATIONS

A Visual Tree Assessment (VTA)¹ was made for each tree, being an on the ground inspection of only external features, conducted on the 17th July 2016. An aerial inspection was not required or needed for this site.

Tree identification was made from broad features visible from ground level, at the time of inspection. There was no full taxonomical identification.

Tools used to collect data for this report were:

- Soft hammer (nylon type) for detecting acoustic variances in the trunk.
- Tape measure for measuring Trunk diameters at breast height (DBH)
- A hand loupe for magnification.
- Camera for data documentation of photos for further examination.
- Data sheet to record findings. This data sheet is stored if needed for future reference.

The Arborist will use discretion on which trees will be retained, and on what trees are to be removed, to ensure the best outcome for this site.

Observation findings are documented on page 6,7.

¹Matteck, C & Breloer, H 1994. Field Guide for a Visual Tree Assessment



Trees on this site; Genus/Species and discussion.

Quercus robur; commonly known as English Oak, this tree has a broad, irregular crown. The bark is grey and fissured, developing burrs as it ages. The main branches development is low on the trunk, more so than on other oaks, English oaks grow well in the Canberra clay soils.

The leaves of the English oak have seven pairs of lobes, forming into a typical 'wavy-edged' outline. The top blade of the leaf is dark green, the underside being paler. The young leaves are often covered with fine downy hairs

Alnus glutinosa; commonly named Black Alder. This tree thrives in wet locations; It is a medium size, short-lived tree. It has short-stalked rounded leaves with separate male/female flowers which are in the form of catkins. *Alnus glutinosa* has rounded cone-like fruit, and its seeds dispersed by the wind and water.

Platanus x acerifolia; commonly named The London plane, is a fairly large deciduous tree growing around 20m in Canberra conditions. The bark is a pale grey-green, mostly smooth and exfoliating. The leaves being thick with a stiff-textured and broadly lobed.

Casuarina cunninghamiana; commonly known as She-oak, or River Oak, an attractive evergreen tree with greyish green needle-like foliage. Grows to a height of 10–25 m in Canberra soils. This tree is often found in sunny locations near stream banks and damp areas. An important tree for stabilising riverbanks and soil erosion prevention.

Cupressus arizonica; commonly known as Cypress pine, its origin is North American. The conifer leaves are scale-like, 2–5 mm long, grow in dense sprays, dull in colour, to gray-green and bright glaucous blue-green. *Cupressus arizonica* grows well in Canberra . However, this tree does not thrive well in shaded areas.

Further Discussion

The observations and discussions are only for the related trees mentioned on this tree report and reflects the condition of the trees at the time mention on the report. Refer to Trees assessed on this site pages 8,9 and 10.

The most severe damage caused by construction is usually underground. The root system of trees growing in a wooded area often spreads two times the height of the tree. Fine absorbing roots are generally concentrated in the upper 300mm of the soil. These roots can easily be crushed or killed by construction equipment. Symptoms of



this action may appear within a few months, or may take a few years to develop.
<http://www.arbornature.com/arborist-services/arborist-reports>

Trees are important elements of green infrastructure, contributing to urban cooling through evapotranspiration and providing micro-climatic effects that can reduce energy demands on buildings. They represent a key resource that can significantly contribute to climate change adaptation. British Standards (BS 5837:2005 Trees in relation to construction- recommendations) page 2.

Trees have many benefits, including:

- Visual amenity, softening or complementing a man-made structure, adding maturity to new developments.
- Making places for screening and shade, reducing wind speed and gusts, intercepting hail and rainfall, and UV glare.
- Displaying the different seasons, and providing homes and food for wildlife in built-up areas

A regulated tree is in the ACT

A regulated Tree in the ACT is a tree located on leased territory land. Also in area's declared as a Tree Management Precinct.and if the tree is either:

- 12 metres or greater in height; or
- 1.5 metres trunk circumference at 1 metre from natural ground level; or
- having two or more trunks totalling a circumference of trunks greater or equal to 1.5 m or more, from 1 metre above ground level, or
- 12 metres or more in crown canopy.

*Trees numbered 1,2,14,15,21,and 22 are regulated trees that are on this proposed building site



Recommendations

Trees to be Removed

Having observed where the Contiguous Bore Piles are to take place, there are some trees that will not suit this encroachment, that is greater than 10% of trees root zone removed. Tree Numbered 1,2,7,15, and 16 will be mostly effected and should be removed and stumps ground.

Tree numbered 17 and 18 are also advised to be removed due short life expectancy these trees show dead branches due to lack of sunlight. With the removal of these two trees this will in turn greatly help other trees nearby allow more light in for other trees.

Trees to be Retained

We recommend the protection and retainment of trees numbered 3,4,5,6,8,9,10,11,12,13,14,19,20,21 and 22. These trees are recommended to be protected during the phases of various activities on the building site. They require a 1.8m high steel messed fencing. Around their root zones (refer to observation Table on page 6 for various zones needed).Tree protection fencing are to be pegged down, protecting as much of the trees Primary root zone.

Observation Table

Tree #	Tree Name	Height (m)	Circ (mm)	DBH (mm)	TPZ (Radius)	SRZ (radius)	Crown Spread
1	<i>Quercus robur</i>	15	1300	410	4.9	2.2	5m
2	<i>Quercus robur</i>	13	1750	550	6.6	2.5	15m
3	<i>Quercus robur</i>	11	590	190	2.8	1.6	4m
4	<i>Quercus robur</i>	13.5	780	250	3	2	6m
5	<i>Quercus robur</i>	13	790	250	3	2	6m
6	<i>Quercus robur</i>	12.5	700	220	2.6	1.8	5m
7	<i>Quercus robur</i>	14	1240	380	4.6	2.1	10m
8	<i>Alnus glutinosa</i>	10	1105	350	4.2	2	6m
9	<i>Platanus x acerifolia</i>	9	740	230	2.8	2	6.5m



10	<i>Quercus robur</i>	14	1320	420	5	2.3	13m
11	<i>Quercus robur</i>	12	1170	370	4.4	2.1	10m
12	<i>Quercus robur</i>	13	1080	340	4.1	2.1	10m
13	<i>Quercus robur</i>	10	790	250	3	2	8m
14	<i>casuarina cunninghamiana</i>	16	1450	460	5.5	2.7	7m
15	<i>Cuppressus arizonica</i>	15	1190	380	4.6	2.1	6m
16	<i>Cuppressus arizonica</i>	10	910	290	3.5	1.9	4m
17	<i>Cuppressus arizonica</i>	12	1020	320	3.8	2	4m
18	<i>Cuppressus arizonica</i>	14	1270	400	4.8	2.2	6m
19	<i>Quercus robur</i>	10	800	250	3	1.9	7.5m
20	<i>Cuppressus arizonica</i>	14	970	300	3.6	2	5.5m
21	<i>Cuppressus arizonica</i>	15	1080	340	4.1	2.1	5m
22	<i>Cuppressus arizonica</i>	15	2100	660	7.2	2.7	5m



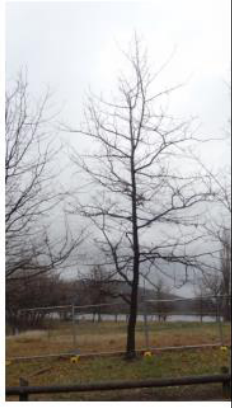
Tree #	Common Tree name	Observation comments
1	English oak	In good condition, evidence of dead branches and stubs
2	English oak	In good condition, evidence of dead branches
3	English oak	Healthy tree
4	English oak	Healthy tree, minor dead branches noticed, mechanical damage at base of trunk in the form of possible mower damage
5	English oak	Excellent tree
6	English oak	Good condition, evidence of <i>Phellinus sp.</i> activity. Recommend monitoring in 12 months.
7	English oak	Healthy and sound
8	Black alder	Fair condition, bifurcated (co-dominant stem) with a bark included fork, possibly weaken the structure.
9	London plane	Healthy tree
10	English oak	Excellent tree
11	English oak	Excellent tree
12	English oak	Good condition, minor dead branches present
13	English oak	Good condition, minor dead branches present
14	She-oak	Good condition, minor bark included fork
15	Arizona cypress	Fair condition tree is in need of more light on foliage



16	Arizona cypress	Fair condition tree is in need of more light on foliage, poor pruning noted, minor deadwood evident
17	Arizona cypress	Fair condition tree is in need of more light on dead foliage branches greater than 25mm in diameter
18	Arizona cypress	Fair condition tree is in need of more light on foliage; tree has weakened compression unions.
19	English oak	Good condition
20	Arizona cypress	Minor bark included fork, tree is stressed due to lack of light but ok
21	Arizona cypress	Good condition
22	Arizona cypress	The tree has compression unions recommend monitoring this tree in 12 months.

Appendix 1

Trees assessed on this site



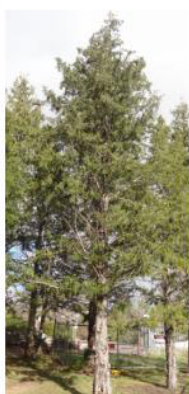

			
Tree # 1	Tree # 2	Tree # 3	Tree # 4


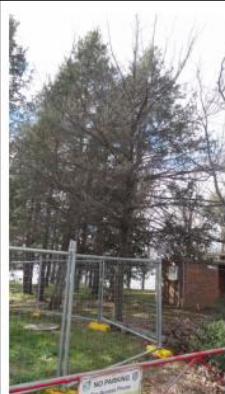




			
Tree # 1	Tree # 2	Tree # 3	Tree # 4

			
Tree # 9	Tree # 10	Tree # 11	Tree # 12

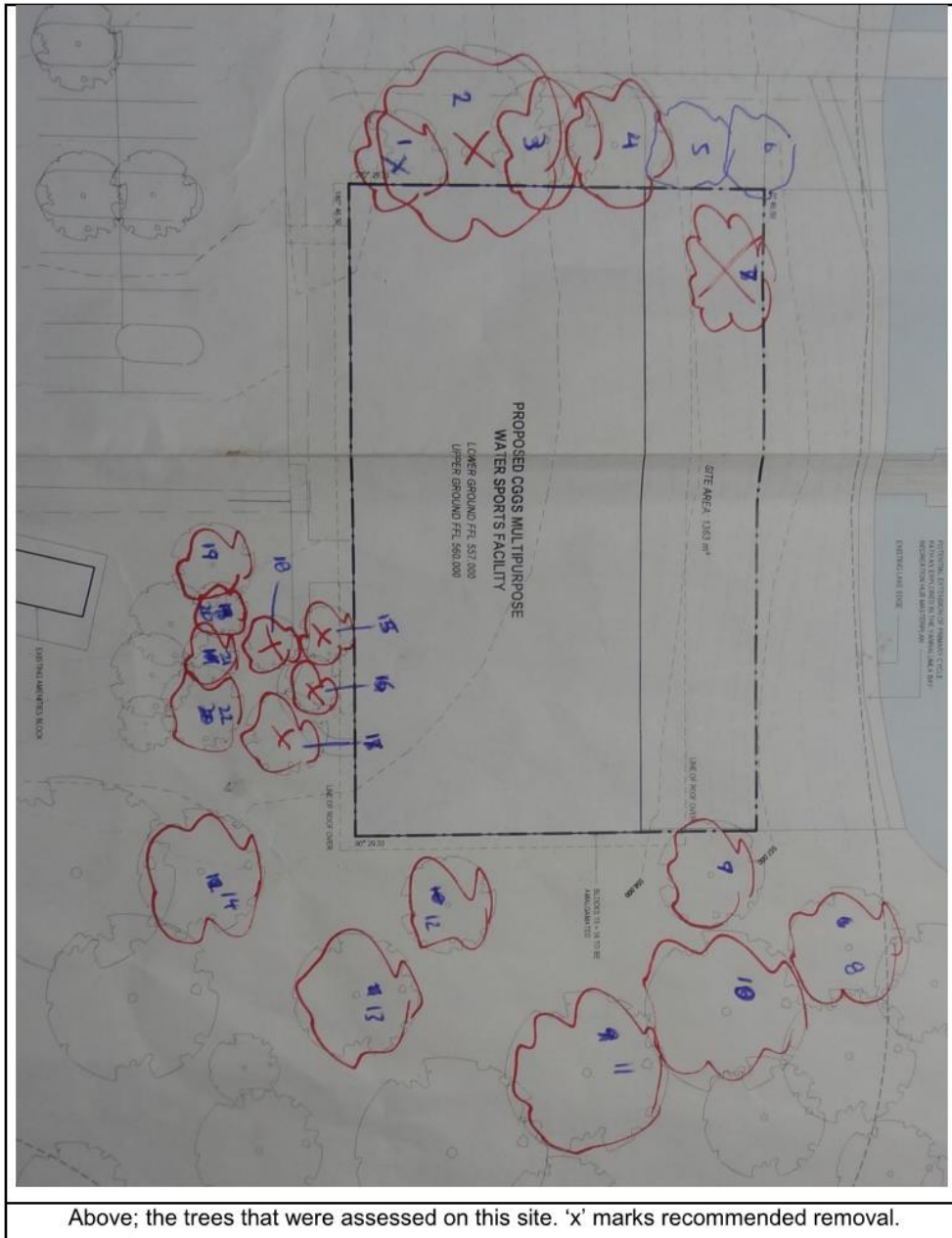


			
Tree # 13	Tree # 14	Tree # 15 and Tree # 16	Tree # 17

			
Tree # 18	Tree # 19	Tree # 20	Tree # 21 and Tree # 22



Appendix 2 Site plan used to mark trees for this Preliminary Tree report



Above; the trees that were assessed on this site. 'x' marks recommended removal.



This report is submitted and acknowledged by the client to be prepared by Treeworks (ACT/NSW) Pty Ltd, as instructed, on a limited basis after visual inspection of the tree at ground level only, and following due consideration of the appearance of the tree by a qualified Arborist.

Acknowledgements

The client acknowledges:

- (a) That Treeworks (ACT/NSW) Pty. Limited has not conducted any invasive procedure or ultrasound test on the tree, nor inspected it at crown level or below surface level;
- (b) This report does not and cannot make comment upon, determine or assess defects that may exist in the tree internally, whether arising from decay, disease, effect of drought, insect infestation or any other inherent condition that may exist.

No Warranty for Non discernible Defects or Damage

Accordingly, this report cannot and does not warrant that defects or damage do not exist within the tree that may not be discernible to a competent Arborist making an inspection at ground level.

Reliance Period

The client acknowledges that no reliance may be placed on this report after the date three months following the date of inspection.

Disclaimer of Liability to Third Parties

To the extent permissible by law, Treeworks (ACT/NSW) Pty. Limited is not liable for any loss, damage, personal injury, costs or expenses suffered by any person or persons other than the recipient of this report.

Thank you for the opportunity to provide this report. Should you have any questions relating to this report please feel free to call the undersigned on 6282 1244. Alternatively, you can reach me on my mobile 0416 177 134 or my email sgriffiths@treeworks.net.au

Kind Regards



Stephen Griffiths
Arborist

