14 September 2015

REFERRAL RESPONSE – TREES & LANDSCAPING

FILE NO: DA 315/2015/1

ADDRESS: 163A Victoria Road BELLEVUE HILL 2023

PROPOSAL: Alterations and additions to existing Bellevue Hill Public School including the demolition of buildings, the construction of a new school building and the refurbishment of the existing building to provide accommodation for an additional 450 students. The location of temporary demountables within Bellevue Hill Park during the construction period.

FROM: Andrew Simpson Tree Management Team Leader

TO: Mr D Booth

I refer to the following documents received for this report:

- Architectural Drawing set prepared by Group GSA, dated 18.06.15
- Arboricultural Appraisal and Root Investigation prepared by Naturally Trees, dated 1 September 2015
- Arboricultural Impact Assessment written by Bluegum tree care and consultancy, dated June 2015
- Landscape Plan Sheets 1 and 2, dated 18.06.15
- Impact Assessment Prepared by ACS Environmental, date September 2015

Relevant Control:

- Woollahra Local Environment Plan 2014

- Woollahra Residential Development Control Plan 2015

- Woollahra Street Tree Master Plan 2014 – Part 1, Part 2 (Precinct Plans), Part 3 (appendices)

- Significant Tree Register 1991 Volume 1 Significant Trees Under Private Ownership, Volume 2 Significant Trees Under Private Ownership, Volume 3 Significant Trees, Volume 4 Significant Trees in Public Parks

- The comments and recommendations within this Referral Response have taken into consideration the guidelines established within Australian Standard AS 4373 – Pruning of amenity trees and Australian Standard AS 4970 – Protection of trees on development sites

SUMMARY

- If design modifications are not made refusal recommended due to loss of four (4) significant Fig trees
- If design modifications are made recommend pruning Trees 3, 4 & 6 and removal of Tree 5
- Compensatory planting required for each tree removed. Replacement trees can be installed within Bellevue Park.

GENERAL

The supplied documentation shows there are five (5) trees that will be directly impacted by the proposed works and that these trees will be required to be removed. Two (2) of these trees are Council-managed with one (1) located within Bellevue Park and the other on the road reserve of Birriga Road. The remaining three (3) trees are located within the school grounds. These trees are discussed in detail below.

Two arboricultural reports and one environmental report have been provided, which comment on the trees. There are inconsistencies between these reports and conclusions have been made based on inaccurate information and changed positions.

Bluegum Report

The Bluegum Report was the first provided to Council for assessment. The plans which the Bluegum report relied upon (refer 4.2 Plans and Diagrams) for its assessment are not the plans which have been submitted within the Architectural Drawing set prepared by Group GSA, dated 18.06.15. The plan descriptions and plan reference numbers within the Bluegum Report do not correlate with those supplied as part of the assessment.

There is also evidence throughout the Bluegum report which suggests that this arboricultural consultant was provided insufficient information for a comprehensive assessment on the impact to the trees. It is for this reason that the assessment of the impact of the works on the trees supplied within the Bluegum report have not been taken into consideration as part of this referral response.

Naturally Trees

The second Arboricultural report supplied to Council was the Root Investigation prepared by Naturally Trees (dated 1 September 2015). This report provided comprehensive and useful information into the presence and extent of root spread of Trees 3-6. Within this report comments were also made on the pruning of Tree 6 in that:

> *Consideration should be given to the significant canopy pruning that will be required to accommodate the building. Based on observations on site, the current structure of the canopy will cope with pruning quite well and the overall amenity of the tree will not be diminished.*

I disagree with the above assessment on the impact of the pruning on Tree6. My position has been consistent, in that approximately 50% of the crown of the tree will be required to be pruned which will have a significant impact on the tree's short-term health and structural condition. Removal of Tree 6 will be required.

I discussed the above with Naturally Trees (Andrew Scales) on site. Mr Scales acknowledged that he was given incorrect advice from staff and he agreed that the extent of pruning would be detrimental to the viability of the tree. However, the changed position of Naturally Trees has not been forthcoming in an amended report or annexure.

ACS Environmental

The Impact Assessment Prepared by ACS Environmental (date September 2015) describes the pruning of Tree 6 as *limited* and *minor*. This is a gross underestimation and in contradiction to the agreed assessment by Naturally Trees and Council's arborist.

Tree 2 *Liquidamber styraciflua* (Liquidambar)

This Liquidambar is a Council-managed street tree positioned on the Road reserve of Birriga Road. This tree provides a moderate contribution to the amenity of the surrounding area.

The works impacting this tree include demolition of the concrete batter and re construction of the foot path.

The suppled Landscape Plan shows that five (5) *Lophostemon confertus* (Brush Box) are proposed to be installed within the road reserve of the northern frontage of the site. These trees will, in time, compensate for the loss of the Liquidambar and there is no issue with the removal of this tree as part of the works.

Trees 3, 4 & 5 *Ficus microcarpa var. 'Hillii'* (Hills Weeping Fig)

These Hills Weeping Fig trees are positioned within the school grounds in the eastern area of the site and adjacent to the southern boundary. These trees are in excess of 60 years old as aerial imagery in 1943 show they were present on the site at this time. The footprint of the proposed building is positioned within the same location as Tree 5. This tree will be required to be removed as part of the proposed works and there is no issue with this.

Trees 3 and 4 are indicated as being retained within the architectural plan set. However, cross sections show the footprint of the 1m deep excavations for the amphitheatre are proposed on both sides of these trees (Refer cross sections E & F Plan reference DA3101B). Based on this, Trees 3 & 4 will be required to be removed.

At the 2nd September onsite meeting with the applicant's current arborist (Mr Scales), it was agreed that the element of the proposal with the most impact to Trees 3 & 4 is the excavation for the amphitheatre. The setback of the building from these trees was tolerable with regards to their long-term viability.

The applicant's architect indicated at the 2nd September JRPP meeting that design modifications of the amphitheatre could be undertaken to minimise excavations and therefore facilitate the retention of Trees 3 & 4.

Following instruction from the JRPP, I met on site with Mr Scales. In part, the purpose of the meeting was to reach agreement on a strategy to facilitate the retention of Trees 3 & 4.

It was agreed that Trees 3 & 4 could be retained if the amphitheatre was constructed in a tree/soil sensitive way. Some acceptable pruning of the crowns' of the trees would be required.

The above was discussed at the onsite meeting (7th September) with relevant Council Officers and the applicant's design team. The City Plan Services Response to council's request for additional information (dated 10 September - Ref: 14-170) outlines that:

> *In order to retain these trees* (Trees 3, 4 & 6) *significant alterations to the design of the building would be required. This would result in a substantial reduction in the floorspace of the new school building, equating to a reduction in the school's educational capacity. It will also compromise the design and functionality of the building, as a significant portion will need to be deleted from the building.*

From this, it is understood that a modification in the design is not being considered to facilitate the retention of Trees 3 & 4.

Tree 6 *Ficus rubiginosa* (Port Jackson Fig)

This Port Jackson Fig tree is Council-managed tree as it is positioned within Bellevue Park in the northern boundary. This tree is estimated to be in excess of 80 years old as aerial imagery in 1943 show it to be present and of dimensions suggesting it was mature at that time. This tree has high landscape significance as it provides a high contribution to the canopy cover and amenity to the surrounding area. The tree is listed within Council's Register of Significant Trees. The two arboricultural consultants engaged by the applicant have also assessed this tree as having High landscape significance.

Extract from Statement of Significance (*Register of Significant Trees Volume 4 -p.32*):

> *The Fig plantings, a mixture of Moreton Bay Figs and Port Jackson Figs, form a major grove of trees in the park. These trees surround the crown of the Hill and with their sparse canopies frame the magnificent views. Furthermore, large Port Jackson Figs and a single Hill's Weeping Fig (F. hillii) line the southern boundary and two large individual specimens of this species dominate the lower north-western boundary to Bellevue Hill Public School. One of these specimens is a particularly fine, dense and broadly spreading tree of note.*

This Port Jackson Fig has a calculated Tree Protection Zone (TPZ) of 15m. The TPZ is defined by the Australian Standard The Protection of Trees on Development Sites (AS 4970 - 2009) as '*a specified area above and below ground and at a given distance from the trunk set aside for the protection of a tree's roots and crown to provide for the viability and stability of a tree to be retained where it is potentially subject to damage by development*'.

This tree also has a calculated Structural Root Zone (SRZ) of 4m. The SRZ is the '*area around the base of the tree required for the tree's stability in the ground. The woody root growth and soil cohesion in this area are necessary to hold the tree up right*' as defined by AS 4970 – 2009.

The supplied plans show that works adjacent to this tree include excavations beyond a depth of 1m for the amphitheatre and the construction of the proposed school building. These works are shown approximately 5.3m from the centre of the tree's base and are within the TPZ. Upon request from Council an exploratory root map was undertaken along the line of the proposed excavation to determine the presence and extent of root spread. The root mapping was undertaken by Naturally Trees.

The results of the root mapping found that one root with an approximate diameter of 105mm was exposed. The Naturally Trees Report concludes that the existing retaining wall is preventing root growth from entering the subject property. Based on this evidence the below ground impact to the tree will be minimal and acceptable.

However, as outlined above the TPZ also includes the above ground parts of the tree and the extent of crown pruning needs to be taken into consideration. The supplied plans show the proposed school building as being four storeys, approximately 13.5m in height and approximately 5.3m from the tree. There was conflicting opinion between the two supplied arborists reports on the extent of pruning and the subsequent impact to the tree.

Following instruction from the JRPP, on the 2nd September I met on site with Mr Scales (Naturally Trees). In part, the purpose of the meeting was to reach agreement on the impact of the pruning on the Port Jackson Fig. At this meeting it was agreed that the pruning to accommodate the building and works/structures associated with construction would be approximately 50% of the crown. It was also agreed that this extent of pruning would have a detrimental effect on the short-term viability of this tree.

This tree is mature and will not be able to respond and adapt to a significant loss of foliage. The tree will unlikely have the energy reserves to resist wood decay pathogens at the sites of the large pruning wounds resulting in an increase in the risk of failure of branches. The health of the tree will also decline in the short-term as energy reserves will be allocated to the pruning wound sites. Based on this, the tree should be removed.

From this, I suggested to Mr Scales that we come to an agreed extent of pruning which would enable a building to be constructed close to the tree. We established that the position of an acceptable offset of a building would be no closer than the same alignment as the east face on the existing easternmost de-mountable. Some pruning of Tree 6 would be required however the tree could be retained.

The agreed setback was discussed at the onsite meeting (7th September) with relevant Council Officers and the applicant's design team. The City Plan Services Response to council's request for additional information (dated 10 September - Ref: 14-170) outlines that:

> *In order to retain these trees* (Trees 3, 4 & 6) *significant alterations to the design of the building would be required. This would result in a substantial reduction in the floorspace of the new school building, equating to a reduction in the school's educational capacity. It will also compromise the design and functionality of the building, as a significant portion will need to be deleted from the building.*

From this it is understood that a modification in the design is not being considered.

RECOMMENDATIONS

Council's Tree and Landscape Officer has determined that the proposal is not satisfactory in its current form. Refusal of this application is recommended as no conciliatory attempt has been made by the applicant to retain Trees 3-6. The loss of these trees will have a significant and long-term impact on the canopy cover and amenity to the surrounding area.

- The removal of one Council-managed park tree (Port Jackson Fig - Tree 6) located within Bellevue Park. This tree is at least 80 years old, has high landscape significance and is listed within Council's Register of Significant Trees. The works as proposed will require the removal of approximately 50% of the crown of this tree resulting in a reduction in its viability. The health of the tree will be significantly impacted resulting in a reduction in its life expectancy. The structural stability of the tree will also be compromised.
- The removal of three large trees (Hill's Fig Trees 3, 4 & 5) within the south-eastern area of the school. These trees are in excess of 60 years old and provide a high contribution to the canopy cover and amenity to the surrounding area.

Conditions have been drafted below which reflect three possible outcomes.

1. The proposal is approved as per the supplied drawings and Trees 2, 3, 4, 5 & 6 are removed. Replacement plantings form part of these conditions.
2. The proposal is approved with modifications to the building to facilitate the retention of Trees 3, 4 & 6. Replacement plantings form part of these conditions.
3. The proposal is approved with modifications to the building to facilitate the retention of Tree 6. Replacement plantings form part of these conditions.

Conditions for scenario of approval given for plans as submitted

A. General Conditions

A.1 Tree Preservation & Approved Landscaping Works

All landscape works shall be undertaken in accordance with the approved landscape plan, arborist report, tree management plan and transplant method statement as applicable.

a) The following trees shall be retained

- Trees on Council Land

Council Ref No.	Species	Location	Dimension (metres)	Tree Value
A	*Liquidamber styraciflua* (Liquidambar)	Road reserve - Birriga Road - south	15 height x 20 crown spread	$18,000
C	*Ficus microcarpa var. 'Hillii'* (Hills Weeping Fig)	Road reserve - Birriga Road	20 height x 20 crown spread	$50,000

Note: The tree/s required to be retained should appear coloured green on the construction certificate plans.

b) The following trees may be removed:

Council Ref No.	Species	Location	Dimension (metres)
A	*Ficus microcarpa var. 'Hillii'* (Hills Weeping Fig)	Road reserve - Birriga Road	20 height x 20 crown spread
1	*Ficus microcarpa var. 'Hillii'* (Hills Weeping Fig)	Road reserve - Birriga Road	20 height x 20 crown spread
2	*Liquidamber styraciflua* (Liquidambar)	Road reserve - Birriga Road - north	20 height x 20 crown spread
3	*Ficus microcarpa var. 'Hillii'* (Hills Weeping Fig)	Within School - Northern area	20 height x 20 crown spread
4	*Ficus microcarpa var. 'Hillii'* (Hills Weeping Fig)	Within School - Northern area	20 height x 20 crown spread
5	*Ficus microcarpa var. 'Hillii'* (Hills Weeping Fig)	Within School - Northern area	20 height x 20 crown spread
6	*Ficus rubiginosa* (Port Jackson Fig)	Bellevue Park northern boundary	20 height x 20 crown spread

Note: Tree/s to be removed shall appear coloured red on the construction certificate plans.

A.2 Approved Plans and supporting documents

Reference	Description	Author/Drawn	Date(s)
Sheets 1 and 2	Landscape Plan	N/A	dated 18.06.15

B. Conditions which must be satisfied prior to the demolition of any building or construction

B.1 Establishment of Tree Protection Zones (TPZ)

Tree Protection Zones shall be established for all trees to be retained and in accordance with Section 4 of the *Australian Standard Protection of Trees on Development Sites* (AS 4970- 2009). Tree protection zones must also comply with the following requirements;

a) Trunk protection shall be installed around the trunks of the following trees:

Council Ref No.	Species
A	*Liquidamber styraciflua* (Liquidambar)
C	*Ficus microcarpa var. 'Hillii'* (Hills Weeping Fig)

Trunk protection shall consist of a padding material such as hessian or thick carpet underlay wrapped around the trunk. Hardwood planks (50mm x100mm or similar) shall be placed over the padding and around the trunk of the tree at 150mm centres. The planks shall be secured with 8 gauge wire at 300mm spacing. Trunk protection shall extend a minimum height of 2 metres or to the maximum possible length permitted by the first branches.

d) A sign identifying the Tree Protection Zone shall be erected on each side of the protection fence indicating the existence of a TPZ. Signage must be visible from within the development site.

e) No excavation, construction activity, grade changes, storage of materials, stockpiling, siting of works sheds, preparation of mixes or cleaning of tools is permitted within Tree Protection Zones, unless specified in Condition B.2 of this consent shall be undertaken within 8m of the base of these trees.

f) All site personnel and contractors must be made aware of all tree protection requirements associated with these conditions of consent.

g) The project arborist shall provide written certification of compliance with the above condition.

B.2 Demolition and Construction Management Plan

A Demolition and Construction Management Plan in relation to existing trees on/adjacent the subject site must be prepared as part of the Construction Certificate. The plan must consider and make allowance for all construction operations which will be undertaken within the vicinity of trees to be retained. In particular the plan is to include:

a) Drawings and method statement showing details and the location of hoarding and scaffold and any pruning required to accommodate the hoarding and scaffolding;
b) The movement and positioning of heavy machinery, lifting cranes, pier drilling gantry etc.;
c) Site construction access, temporary crossings and movement corridors on the site defined;
d) Contractors car parking;
e) Phasing of construction works;
f) The space needed for all foundation excavations and construction works;
g) All changes in ground level;
h) Space for site sheds and other temporary structures such as toilets;
i) Space for sorting and storing materials (short or long term), spoil and fuel and the mixing of cement and concrete; and
j) The effects of slope on the movement of potentially harmful liquid spillages towards or into tree protection areas.

B.3 Arborists Documentation and Compliance Checklist

The site arborist shall provide written certification that all tree protection measures and construction techniques relevant to this consent have been complied with. Documentation for each site visit shall include:

- A record of the condition of trees to be retained prior to and throughout development
- Recommended actions to improve site conditions and rectification of non-compliance
- Recommendations for future works which may impact the trees

All compliance certification documents shall be kept on site by the Site Foreman.

As a minimum the following intervals of site inspections must be made:

Stage of arboricultural inspection	Compliance documentation and photos shall be included
Installation of tree protection fencing	Compliance with tree protection measures
Prior to the issue of a Final Occupation Certificate	Supervise the dismantling of tree protection measures

Inspections and compliance documentation shall be made by an arborist with AQF Level 5 qualifications.

Additional site visits shall be made when required by site arborist and/or site foreman for ongoing monitoring/supervisory work.

C. Conditions which must be satisfied prior to the issue of any construction certificate

C.1 Tree Management Plan

The *Construction Certificate* plans and specifications required by clause 139 of the *Regulation* must show the following information:

a) Trees to be numbered in accordance with these conditions:

- shaded green where required to be retained and protected
- shaded red where authorised to be removed
- shaded yellow where required to be transplanted
- shaded blue where required to be pruned

b) References to applicable tree management plan, arborists report, transplant method statement or bush regeneration management plan.

This plan shall be kept on site until the issue of the final occupation certificate.

C.2 Payment of Security, Levies and Fees (S80A(6) & S94 of the Act, Section 608 of the Local Government Act 1993)

Description	Amount	Indexed	Council Fee Code
LONG SERVICE LEVY under Building and Construction Industry Long Service Payments Act 1986			
Tree Damage Security Deposit – Making good any damage caused to any public tree as a consequence of the doing of anything to which the consent relates.	$68,000	No	T600
INSPECTION FEES under section 608 of the Local Government Act 1993			
Public Tree Management Inspection Fee	$180.00	No	T95

D. Conditions which must be satisfied prior to the commencement of any development work

Nil

E. Conditions which must be satisfied during any development work

E.1 Tree Preservation

All persons must comply with Council's Development Control Plan (DCP) 2015, Tree Management Chapter E3 other than where varied by this consent. The DCP applies to any tree with a height greater than 5 metres or a diameter spread of branches greater than 3 metres.

General Protection Requirements

a) There shall be no excavation or work within a Tree Protection Zone (TPZ). The TPZ must be maintained during all development work unless otherwise specified within these conditions of consent.

b) Excavation must cease where tree roots with a diameter exceeding 30mm are exposed. The *principal contractor* must procure an inspection of the exposed tree roots by an arborist with a minimum AQF Level 5 qualification. Excavation must only recommence with the implementation of the recommendations of the arborist.

c) Where there is damage to any part of a tree the *principal contractor* must procure an inspection of the tree by a qualified arborist immediately. The *principal contractor* must immediately implement treatment as directed by the arborist. The arborist is to supply a detailed report to the appointed certifier.

Note: Trees must be pruned in accordance with *Australian Standard AS 4373 "Pruning of Amenity Trees"* and *WorkCover NSW Code of Practice Amenity Tree Industry*.

E.2 Replacement/Supplementary trees which must be planted

Any replacement or supplementary tree shall be grown in accordance with NATSPEC Specifying Trees. The replacement tree shall be maintained in a healthy and vigorous condition. If the replacement tree is found to be faulty, damaged, dying or dead before it attains a size whereby it is protected by Council's Development Control Plan (DCP) 2015, Tree Management Chapter E3, it must be replaced with another of the same species which complies with the criteria outlined below. All trees installed within the road reserve shall comply with the guidelines set out in the Street Tree Master Plan (2014).

Species/Type	Planting/Location	Container Size/Size of Tree (at planting)
4 x *Lophostemon confertus* (Brush Box)	Bellevue Park – as directed by Council arborist	400 litre
1 x *Araucaria cunninghamii* (Hoop pine)	Bellevue Park – as directed by Council arborist	400 litre
3 x *Lophostemon confertus* (Brush Box)	Birriga Road (road reserve) slipway	100 litre

The project arborist shall document compliance with the above condition.

E.3 Level changes in the vicinity of trees

No level changes shall occur within the specified radius from the trunks of the following trees.

Council Ref No.	Species	Radius from Trunk (metres)
A	*Liquidamber styraciflua* (Liquidambar)	6
C	*Ficus microcarpa var. 'Hillii'* (Hills Weeping Fig)	6

The project arborist shall document compliance with the above condition.

E.5 Hand excavation within tree root zones

Excavation undertaken within the specified radius from the trunks of the following trees shall be hand dug.

Council Ref No.	Species	Radius from Trunk (metres)
A	*Liquidamber styraciflua* (Liquidambar)	6
C	*Ficus microcarpa var. 'Hillii'* (Hills Weeping Fig)	6

Small hand tools such as mattocks or using compressed air or water jetting only shall be used. Roots with a diameter equal to or in excess of 30mm shall not be severed or damaged unless approved in writing by the project arborist.

Mechanical excavation is permitted beyond this radius when root pruning by hand along the perimeter line is completed. Exposed roots to be retained shall be covered with mulch or a geotextile fabric and kept in a moist condition and prevented from drying out.

All root pruning must be undertaken in accordance with the Australian Standard 4373 "Pruning of Amenity Trees" and carried out by a qualified Arborist (minimum qualification of Australian Qualification Framework Level 4 or recognised equivalent).

The project arborist shall document compliance with the above condition.

F. Conditions which must be satisfied prior to any occupation or use of the building (Part 4A of the Act and Part 8 Division 3 of the Regulation)

F.1 Amenity Landscaping

The *owner* or *principal contractor* must install all approved amenity landscaping (screen planting, soil stabilisation planting, etc.) prior to any occupation or use of the site.

Note: This condition has been imposed to ensure that the environmental impacts of the development are mitigated by approved landscaping prior to any occupation of the development.

G. Conditions which must be satisfied prior to the issue of any Subdivision Certificate

Nil

H. Conditions which must be satisfied prior to the issue of a Final Occupation Certificate (s109C(1)(c))

H.1 Landscaping

The *principal contractor* or *owner* must provide to *PCA* a works-as-executed landscape plan and certification from a qualified landscape architect/designer, horticulturist and/or arborist as applicable to the effect that the works comply with this consent.

Note: This condition has been imposed to ensure that all Landscaping work is completed prior to the issue of the Final Occupation Certificate.

I. Conditions which must be satisfied during the ongoing use of the development

Nil

J. Miscellaneous Conditions

Nil

K. Advisings

K.1 Pruning or Removing a Tree Growing on Private Property

Woollahra Municipal Council's Development Control Plan (DCP) 2015, Tree Management Chapter E3 may require that an application be made to Council prior to pruning or removing any tree. The aim is to secure the amenity of trees and preserve the existing landscape within our urban environment.

Before you prune or remove a tree, make sure you read all relevant conditions. You can obtain a copy of the DCP from Council's website www.woollahra.nsw.gov.au or you may contact Council on 9391-7000 for further advice.