Level 3 101 Sussex Street Sydney NSW 2000
t: (02) 9529 3800

Mahady Management
Communication via email

Date: 07/05/2020

Our ref: 20SYD - 16048

Attention: Terry Mahady

Dear Terry,

RE: Biodiversity Assessment – Kincoppal School, Rose Bay

Eco Logical Australia (ELA) were engaged by Mahady Management to provide a biodiversity assessment of the proposed development within The Kincoppal School, Rose Bay.

This biodiversity assessment accompanies an Environmental Impact Statement (EIS) in support of State Significant Development Application (SSD-10325) for the Kincoppal Rose Bay School (Concept and Stage 1) development located at 2 Vaucluse Road, Vaucluse. Kincoppal – Rose Bay School of the Sacred Heart is the proponent.

In accordance with Clause 7.9(2) of the *Biodiversity Conservation Act 2016* (BC Act), an application for State Significant Development is *to be accompanied by a biodiversity development assessment report unless the Planning Agency Head and the Environmental Agency Head determine that the proposed development is not likely to have any significant impact on biodiversity values.*

Additionally, the development is not located on land mapped on the Biodiversity Values Map.

The following attachments describe the biodiversity values of the site in relation to clause 1.4 of the BC Regulation and 1.5 of the BC Act (Table 1).

The proponent may therefore seek a waiver from the Department of Planning for the preparation of a Biodiversity Development Assessment Report. This letter should be submitted in support of that application for a BDAR waiver.

Regards,

Roshan Kalugalage
Environmental Consultant

Requirement	Description
Admin	Proponent: Kincoppal – Rose Bay School of the Sacred Heart Contact: terrymahady@gmail.com Project ID: SSD-10325 – Prepare EIS Completed by: Roshan Kalugalage – Environmental Consultant (Eco Logical Australia) – B.Sc. (Environmental Science)
Site Details	Site address: 2 Vaucluse Road, Vaucluse Study Area Size: 0.6046 ha Location Map: Refer to Figure 1. Site Map: Refer to Figure 2.
Proposed Development	The proposed development comprises both new development and alterations to the existing school infrastructure. The works include: • Internal refurbishment of the Senior School to facilitate a circulation hub. • Internal alterations to the Hughes Centre. • Provision of on on-site bus parking bay and associated parking area adjacent to the main entrance. • Extension and expansion of the student boarding house. • Alterations and additions to the Junior School and expansion of the Early Learning Centre. • New driveway crossing at Vaucluse Road to provide for an internal circulation road. • Alterations and additions to the Senior School, including expansion and refurbishment of the North Wing. • Upgrades to the main entry to the Senior School including reconfiguration of the core admin and office admin facilities. • Improvements and re-configuration of the main forecourt to provide greater landscaped areas, pedestrian-only zones, and dedicated areas for bus parking (set down/pick up) and car parking. An arborist report was developed by Botanics Tree Wise People Pty Ltd (2020) (Appendix A), which assessed the retention values of 26 trees within the subject site. It was determined that 12 exotic and native planted trees will be removed in order to undertake the above works. This will consist of 4 native planted trees (1 *Grevillea robusta*, 3 *Podocarpus elatus*) and 8 exotics (1 *E.sykesii,* 1 *Celtis sinensis,* 1 *H.caffrum,* 4 *Harpephyllum caffrum,* 2 *Poplar alba)*. Analysis of the impacts to biodiversity values as a result of their removal Is provided below and further mapping of trees to be removed is provided in Appendix A.

Table 1 Criteria to assess biodiversity under the BC Act and BC Regulation

Biodiversity Value	Meaning	Relevant	Discussion of values within subject site
Biodiversity Conservation Regulation (Clause 1.4)			
a) Threatened Species Abundance	The occurrence and abundance of threatened species or threatened ecological communities, or their habitat, at a particular site.	Yes	No threatened ecological communities are present within the site. The sparsely distributed vegetation present throughout the site Is not consistent with any listed Plant community Type (PCT). This is primarily due to the lack of connectivity between individuals, which are distributed between buildings and existing fencing. Some connectivity exists between individuals, particularly in the case of the three *Harpephyllum caffrum* required for removal. These however, are an exotic species and planting of more appropriate species following removal will be considered. Limited foraging habitat is available for the Grey-Headed Flying Fox (GHFF) within the subject site. The proposed development will remove a small number of flowering plants such as the three *Podocarpus eleatus* that may provide a source of food for the species, However, given the abundance of similar vegetation in the surrounding locality and small number of trees to be removed, this loss of vegetation is unlikely to adversely affect GHFF such that its population will be placed at risk of extinction. No roosting habitat is available within the subject site for hollow-dependent threatened fauna species due to the absence of hollow-bearing trees.
b) Vegetation Abundance	The occurrence and abundance of vegetation at a particular site.	N/A	Vegetation within the subject site is of relatively low abundance and biodiversity quality. The majority of the subject site has been cleared for existing infrastructure within the Kincoppal School. Vegetation within the subject site is comprised of both native and exotic plantings, which predominantly lack connectivity and natural resilience or will lose structural integrity and pose a potential risk if not removed. Vegetation within the site is not consistent with any remnant native vegetation communities and did not conform to any listed PCTs.
c) Habitat Connectivity	The degree to which a particular site connects different areas of habitat of threatened species to facilitate movement of those species across their range.	N/A	Vegetation within the subject site is highly fragmented and does not contribute to habitat connectivity across the local landscape. There is a lack of connectivity between individual plantings, as they are separated by fences and existing infrastructure such as buildings and roads. The site does not provide any significant level of connectivity to facilitate movement of threatened species across their range.
d) Threatened Species Movement	The degree to which a particular site contributes to the movement of threatened species to maintain their lifecycle;	Yes	The site contains limited vegetation, which lacks connectivity and has predominantly been cleared for the existing school. Movement for less mobile threatened fauna such as mammals across the site is highly unlikely due to the lack of foraging or roosting habitat. Potential foraging habitat exists for the GHFF; however, the removal of the trees will not significantly impact this species as similar foraging habitat exists

Biodiversity Value	Meaning	Relevant	Discussion of values within subject site
			within the vicinity of the works. The nearest GHFF camp exists approximately 5 km from the subject site. As GHFF may forage up to 50 km from their camps, the removal of the small number of potential feed trees is not anticipated to infer a significant impact on this species. Due to the small amount of disconnected vegetation, the site is not considered to be significant for the movement of any threatened species to maintain their lifecycle.
e) Flight Path Integrity	The degree to which the flight paths of protected animals over a particular site are free from interference.	N/A	The landscape within and surrounding the site is predominantly cleared of vegetation. The flight paths of protected animals over the site is unlikely to be impacted by the proposed development, and no facilities which may significantly inhibit flight over the development site are proposed.
f) Water Sustainability	The degree to which water quality, water bodies and hydrological processes sustain threatened species and threatened ecological communities at a particular site.	N/A	No natural water courses are present within the site. In its current state, the site does not contain water bodies or contribute to hydrological processes that sustain threatened species or ecological communities within or adjacent to the site.
Biodiversity Conservation Act (Clause 1.5 (2))			
a) Vegetation Integrity	The degree to which the composition, structure and function of vegetation at a particular site and the surrounding landscape has been altered from a near natural state.	N/A	Due to previous and current land management, vegetation and soils within the subject site have been highly modified or disturbed and lack natural resilience. Vegetation within the site is comprised of both native and exotic plantings. Due to the fact that these individuals show a lack of connectivity as a result of the existing infrastructure and fencing and are comprised of both native and exotic plantings these trees are not representative of any remnant PCTs that would have been present within the development site. Therefore, the development will not compromise the vegetation integrity of the site.
b) Habitat Suitability	The degree to which the habitat needs of threatened species are present at the particular site.	N/A	Suitable habitat for threatened species is highly limited within the site. Potential foraging habitat for the GHFF exists on site in the form of flowering trees. As there is similar foraging habitat within the vicinity of the subject site, the removal of these trees is not deemed likely to have a significant impact on this species. No roosting habitat is available within the subject site for hollow-dependent threatened fauna species due to the absence of hollow-bearing trees. The proposed development will not significantly compromise habitat suitability for threatened species. The proposed development will not impact on any habitat features specified under Clause 6.1 (1) (a) of the Biodiversity Conservation Regulation.

Biodiversity Value	Meaning	Relevant	Discussion of values within subject site
			The removal of 12 trees will be required to undertake the works. However, due to a lack of connectivity and roosting habitat features, these trees would not provide sufficient habitat for threatened species within the site. As the human-made structures which are proposed for redevelopment have been recently maintained and used for the school, they provide no habitat for threatened species within the subject site.

Figure 1: Study area location

Figure 2: Proposed Site Layout (from Urbis 2019)

References

Urbis (2019), Request for Secretary's Environmental Assessment Requirements – Kincoppal Rose Bay School. Prepared for Kincoppal – Rose Bay School of the Sacred Heart.

Appendix A Arborist Report

Construction Impact Assessment and Management Plan

Kincoppal School, Rose Bay.

Prepared For: Terry Mahady.
Prepared By: George Palmer, BOTANICS P/L.

Site Address: New South Head Road, Rose Bay.

Dated: April, 2020.

Table of Contents

1. Summary

1.1 This report has been requested by Terry Mahady at Kincoppal School to better understand the arboricultural implications associated with the proposed reconfiguration of the site's southern boundary, and this portion of the site's vehicular and pedestrian access. The School is in the design stages of the reconfiguration that will focus on improving the way the school is accessed.

1.2 A total of twenty six (26) trees have been individually assessed for the purpose of this report. These are located within 15m of the proposed construction footprint. Additional trees over 20m from the proposed Construction Impact Zone (CIZ) have not been assessed.

1.3 There are four (4) High value and significant trees documented within this portion of the school grounds. These have been seen as a material constraint to this or any proposed development and will be preserved.

1.4 The proposed works will require the removal of four (4) well established and mature Kaffir Plum trees. These have been planted adjacent to the site's southern sandstone boundary wall.

1.5 The proposed development will require the removal of twelve (12) trees. Of these eight (8) have been considered as Low Value and would be recommended for removal irrespective of this or any proposed development. These include well recognised noxious weeds and exempt tree species. An additional four (4) trees have been seen as being of Moderate value and are required for removal to allow for the proposed construction. These include three (3) well established Kaffir Plums located on the upper edge of the site's southern boundary wall.

1.6 Although located outside the Construction Impact Zone of the proposed development, this report will recommend the removal of the Silky Oak tree located adjacent to the school's front entrance. The tree's foliage is a well known irritant that has and will continue to affect the students, staff and carers.

1.7 Preservation recommendations have been made based on *Australian Standard AS4970 for the Protection of Trees on Development Sites* and will be implemented accordingly. All tree pruning recommendations will be made based on *AS4373 for the Pruning of Amenity Trees* and will be undertaken where appropriate.

2. Background

2.1 The school has made an ongoing commitment to improve both the safety and efficiency of movements throughout the school grounds. A primary focus of this is vehicular access through the School's front gates and the parking of staff cars and school buses.The proposed works will better utilise this southern boundary space as detailed.

3. Aims

3.1 The aims of this report are to;

- Review Council Policies for applicable conditions regarding the site and documented trees;
- Conduct a visual assessment of the documented trees and their growing environment;
- Provide a detailed list of Tree Preservation Recommendations aimed at preserving those trees documented for preservation.

3.2 There is no warranty or guarantee, expressed or implied that health, pests, disease, deficiencies, decay or any structural failures may occur at any time following documentation. Information contained in this report covers only the documented trees and reflects their health and condition at the time of inspection.

4. Methodology

4.1 A Visual Tree Assessment (VTA) was performed from ground level and consideration was given to the overall health of each tree, percentage of canopy, epicormic growth, deadwood and form for this species. The tree heights and canopy spreads have been estimated and where relevant the orientation of the canopy spread noted. The trunk diameters of each tree has been estimated at breast height of 1.4meters (DBH) and measured with a diameter tape where required to calculate Tree Protection Zones. The site was inspected by consulting arborist George Palmer in March, 2020.

5. Observations

5.1 This report focuses on an area of the school grounds defined in **Figures 5** and **6**. This is the portion of the site's southern boundary that runs from the entrance gates on the corner of Vaucluse and New South Head Roads to the embankment that forms the site's south western corner.

5.2 The site's southern boundary wall and existing building footprints have affected the distribution of trees on site and have limited the arboricultural impacts of the proposed works. These include some well established and mature Kaffir Plum trees that provide a moderately significant amenity contribution.

6. Tree Data

6.1 A total of twenty six (26) trees have been assessed for the purpose of this report. These range in significance from early, or original plantings of Magnolia grandiflora and Ficus rubiginosa, to Olive and Hackberry trees that would be recommended for removal irrespective of the proposed development. A total of twenty (20) trees have been assessed using Visual Tree Assessment (VTA) criteria and notes. As required under Clause 2.3.2 of the *Australian Standard 4970 (2009) for the Protection of Trees on Development Sites,* each tree has been allocated a Retention Value based on the tree's Useful Life Expectancy and Landscape Significance with consideration to its health, structure, condition and site suitability. The Retention Value does not take into account any proposed development. All trees have been allocated 1 of 4 Retention Values;

- High Value - Priority for Retention.
- Moderate Value - Consider for Retention.
- Low Value - Consider for Removal.
- Remove - Recommended for Removal Irrespective of works.

Refer to Tree Table and Tree Assessment Schedule.

6.2 The site's most arboriculturally significant trees have been seen as essential for retention and the proposed construction set back to allow for this. These include Tree 1, this is a mature *Magnolia grandiflora,* or Bull Bay Magnolia. It has a canopy height and spread of over 12m and is supported on a trunk of over 1m in diameter. This tree will have been planted here over one hundred (100) years ago as part of the early or original landscape works on site. Considered as High value and documented for preservation.

6.3 Tree 2 is a semi mature to early mature *Grevillea robusta,* or Silky Oak. This tree has been planted directly adjacent to the front entrance of the school. The tree has been planted too high in the soil profile and has exposed structural roots. Several of these sit above the soil surface with visible surface decay noted. The tree's canopy has grown to a height of over 12m and is supported on a co dominate trunk that forks at approximately 2.8m above ground level. The tree appears to have had a number of upper canopy limbs fail.

6.4 Tree 3 is a well established *Erythrina x sykesii,* or Coral tree. This tree has grown to a height of approximately 8m and is supported on a co dominate trunk that forks at 40cm above ground level. The tree is on Woollahra Council's noxious and exempt tree species list and can be removed without seeking formal approval.

6.5 Trees 4, 5 and 6 are all semi mature *Podocarpus elatus* or Plum Pines. These are a well suited native tree species that have established here. The largest of these (Tree 6) is supported on a trunk of over 90cm in diameter and all can be described as mature examples of this native tree species. All are required for removal to allow for the proposed.

6.6 Tree 7 is a juvenile *Celtis sinensis,* or Hackberry. These are another well recognise invasive tree species that is exempt from Woollahra Council's tree preservation legislation and should be removed irrespective of this, or any proposed development.

6.7 Tree 8 is a semi mature *Howea forsteriana,* of Kentia Palm located directly adjacent to the site's southern boundary. These are a native (Norfolk Island) palm species that will have been planted as part of earlier landscape works. English Ivy has been allowed to grow over the tree's lower trunk limiting its visual amenity. Required for removal.

6.8 Tree 9 is a clump of *Nerium oleander,* or Oleander that will have been planted on the lower embankment and directly adjacent to the site's southern boundary. Another noxious and exempt tree species recommended for removal irrespective of the proposed development.

6.9 Tree 10 is one of the smaller *Harpephyllum caffrum,* or Kaffir Plum trees on site. This one is again located on the lower embankment adjacent to the site's southern boundary. This tree has grown over the neighbouring boundary due to partial suppression. Although located outside the CIZ of the proposed works this tree has been recommended for removal.

6.10 Trees 11,12 and 13 are all *Harpephyllum caffrum* species. All are well established and mature examples of this exotic tree species. Tree 12 is the largest and will likely have been the first planted. All have grown to over 10m and remain a fraction of their biological potential. All are within 1.5m of the sandstone retaining wall that supports this elevated parking area. Moderate significance but required for removal.

6.11 Trees 14 and 15 are both *Populus alba,* or Silver Poplars. Tree 14 has declined and died, while Tree 15 continues to grow here. This tree supports three (3) leaders and has developed a broad canopy rather that the tall conical structure of unpruned trees. The tree is poorly suited for this location and is largely out of context. Low value and recommended for removal irrespective of the proposed.

6.12 Tree 16 is a well established *Olea europea,* or Wild Olive. This is a hardy and long lived tree species that will have established here over twenty (20) years ago from a bird or bat dropping. The tree has been cut to ground level and allowed to regrow, a practice formally known as coppicing. The tree is on Woollahra Council's noxious and exempt tree species list and can be removed without seeking formal approval. The tree is however located well outside the site's CIZ and may be retained.

6.13 Trees 17 and 18 are both *Banksia integrifolia,* or Coastal Banksia. Both will have been planted at the base of the sandstone retaining wall over fifteen (15) years ago and both have established well. Both are over 8m in height and are supported on well structured trunks of over 35cm. They remain semi mature examples of this locally native tree species that are of moderate significance and documented for preservation.

6.14 Trees 19 and 20 are both mature and well established *Washingtonia robusta,* or Californian Fan Palms. These have both grown to over 18m in height and will likely have been part of the site's original or early plantings and provide an important link to the site's horticultural past. Both have been considered as High value and documented for preservation.

6.15 Trees 21, 22, 23 and 24 are all well established *Phoenix canariensis,* or Canary Island Date Palms. These may have been part of the early site plantings, but are just as likely to have established from a bird or bat dropping. All now stand over 8m tall and provide a Moderate to High arboricultural contribution to this portion of the site. All are located outside the CIZ and documented for preservation.

6.16 Arguably this reports most significant tree is a well established *Ficus rubiginosa,* or Port Jackson Fig tree documented as Tree 25. This tree has self seeded into the sandstone retaining wall and has produced a network of surface feeder roots that spread throughout this. This is an important locally native tree species that has been considered as High value.

6.17 The final tree documented is another semi mature *Harpephyllum caffrum,* or Kaffir plum. This has been documented as Tree 26 and is located on the site's south western corner. This is a semi mature example of the species that has grown to a height of less than 12m. This is a small fraction of its full biological potential and given its current good health it can be expected to continue to grow towards this in time. This will effectively block visual access to the harbour and foreshore. Low value and recommended for removal.

7. Discussion

7.1 The proposed works recommend the removal of a number of trees that are located outside the CIZ. The first of these is the *Grevillea robusta,* or Silky Oak tree at the front entrance. The tree is a semi mature example of the species that has a poorly structured basal root plate. This will have developed following it being planted too high in the soil profile. Surface erosion may have also contributed to this. The result is that the tree has a structural root network that is shallow rooted and partially exposed. This and the visible surface decay noted (See **Figure 1**) have compromised the tree's structural integrity.

7.2 The *G. robusta* species is better suited for riverside gullies and wet forests. This location is high in the local topography and set within an area providing limited access to appropriate soil moisture and nutrient requirements. The tree will continue to struggle to form a well structured canopy and will be prone to both canopy and total basal failure.

7.3 The foliage and fruit of *G. robusta* also contain hydrogen cyanide and is know to be responsible for contact dermatitis. https://en.wikipedia.org/wiki/Grevillea_robusta. The location of the tree, adjacent to the front entrance increases exposure to a larger target, it is of limited amenity and Low Value. Recommended for removal irrespective of the proposed development.

7.4 The adjacent *E. sykesii,* or Coral tree is an exempt tree species under Woollahra Councils Tree Preservation Legislation and can be removed without seeking formal approval. The tree is however a well structured example of the species and is a cultivar that is less vigorous.

7.5 Trees 4, 5 and 6 are well established examples of their species located on the upper edge of the boundary wall. The proposed works will require their removal. The arboricultural amenity of these should be considered and replacement trees installed to maintain this over time.

7.6 Trees 7 is a *Celtis sinensis,* or Hackberry tree. This is another exempt tree species and should be removed. Trees 9 and 10 are also located outside the CIZ but documented for removal. Tree 9 is an African Olive and again on the exempt tree species list. The neighbouring *H. caffrum*, or African Plum (T10) has a poorly structured canopy and a biological potential that will see it continue to grow over the neighbouring property. This will require ongoing and difficult management and should be removed to eliminate this.

7.7 Trees 11,12 and 13 are the largest trees recommended for removal. As noted, these are all *Harpephyllum caffrum*. This is an exotic tree species and they remain a fraction of their full biological potential and will continue to grow beyond the size suitable for this location. This has affected the historic sandstone boundary and retaining wall and will force it out further in time.

7.8 Tree 12 has developed with a partially included base. This is a structural fault that can lead to the failure of the sub dominant leader. This is a large diameter portion of the tree and will impact on a neighbouring residence. All trees have been considered as being of Moderate value and are required for removal to allow for the proposed development.

7.9 Trees 14 and 15 are *Poplar alba,* or Silver Poplars. These are a poor tree species for this location. Tree 14 has declined and died while Tree 15 has forked into three (3) with a short and broad canopy. This remaining tree is a poor example of the species and it should be removed to both eliminate the multiple hazards associated with retention and to enable alternative plantings to be considered.

7.10 The final tree recommended for removal is a semi mature *Harpephyllum caffrum* located on the lower embankment adjacent to the site's southern boundary. This tree remains a small fraction of its full biological potential and the nature of the canopy will block all visual access to the harbour and foreshore for this area. As noted, this is an exotic tree species that is out of context in this portion of the site that currently supports several well established and significant palm species forming a grove that will allow visual access to the harbour, as they continue to grow towards full maturity.

Retention Value 1 High- Essential		Retention Value 2 Moderate		Retention Value 3 Low		Retention Value 4 Remove	
Retain	**Remove**	**Retain**	**Remove**	**Retain**	**Remove**	**Retain**	**Remove**
1, 19, 20, 25		17, 18, 21, 22, 23, 24	2, 4,5,6, 8, 11, 12, 13		3, 10, 15, 26		7, 9, 14, 16
Total: 4	**Total: 0**	**Total: 6**	**Total: 8**	**Total: 0**	**Total: 4**	**Total: 0**	**Total: 4**

8. Tree Protection Plan

8.1 This report will recommend the retention of Trees1, 17, 18, 19, 20, 21, 22, 23, 24 and 25. These will be retained via the implementation of the following list of recommendations. These have been based on our national standard for the *Protection of Trees on Development Sites AS4970.*

8.2 Removal recommendations have been made for Trees 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 and 26 for the following trees based on their location in relation to the construction. Additional removal recommendations have been made based on poor species characteristics and structure. These include Trees 3, 7, 9, 10, 14, 15, 16 and 26.

8.3 All construction works should be done from within the construction impact zone to limit the indirect impacts of the development process. No works are to be undertaken outside those detailed here. All Tree Protection Zones will be fenced off, marked as a Tree Protection Zone (TPZ) and mulched in accordance with the following conditions.

8.4 All documented trees have been assessed to identify construction impacts on adjacent and affected trees to assess both the health and condition, determine landscape significance and life expectancy. A determination for preservation, removal or transplantation will then be made based on sustainability and suitability within the setting. For the purpose of this report *Botanics* has assessed the likely impacts that the proposed development will have on the subject trees. This report has then provided recommendations in relation to the management of these, in accordance with Australian Standard *(AS) 4970 for the Protection of Trees on Development Sites.* Pruning and removal works will be based on *AS4373 for the Pruning of Amenity trees* where applicable.

8.15 All other trees documented for removal has been done to allow both the proposed works to occur and provide the opportunity for more appropriate replanting.

8.6 Any roots located in the excavation process will be cut cleanly at the edge of the proposed construction to limit the spread of decay and their exposure to the air and atmosphere.

8.7 All trees documented for preservation will be preserved with the implementation of the following list of *Tree Preservation Recommendations.* These have been based on our *National Standard for the Protection of Trees on Development Sites AS4970* and should be implemented during the construction process, where applicable.

8.8 Appointment of Site Arborist

A site arborist shall be appointed prior to the commencement of work on site. The Site Arborist shall clearly mark out all trees to be removed and ensure that all trees documented for retention are preserved with the implementation of the following tree protection measures. The Site Arborist shall have a minimum qualification equivalent to a NSW TAFE Certificate Level 5 or above in Arboriculture.

8.9 Inspection Points

Give 5 working days notice to allow inspections to be undertaken at the following stages;

Inspection Point	Inspection Personnel
Installation of Tree Protection Zones including Tree Protection Fencing, Silt Fencing and Signage	Site Arborist
Modification of the Tree Protection Zone	Site Arborist
Works within the Tree Protection Zone	Site Arborist
Completion of Construction Works	Site Arborist Site Supervisor.

8.10 Education

Contractors and site workers shall receive a copy of these specifications prior to the commencement of work. Contractors and site workers undertaking any works within a TPZ shall sign the site log to confirm that they have read and understand these specifications prior to their undertaking.

8.11 Tree Protection Zones

Where applicable, all trees to be retained through the construction process shall be protected from mechanical damage and the indirect impacts of the construction process with the installation of Tree Protection Zones. Unless otherwise stated, the following activities must not be carried out within a TPZ;

- modification of existing soil levels
- excavation or trenching
- cultivation of soil
- mechanical removal of vegetation
- movement of natural rock
- storage of materials, plant or equipment
- erection of site sheds
- affixing signage or hoarding to trees
- disposal of chemical waste or construction material
- any activity that may directly or indirectly affect the health of these or surrounding trees.

Note: If access to a TPZ is required as part of the approved development, prior authorisation is required by the Site Arborist.

8.12 Tree Protection Fencing

Tree Protection Fencing shall be installed at the perimeter of the TPZ. As a minimum the Tree Protection Fencing shall be 1.8 meters high temporary chain supported by steel stakes. This shall be fastened and supported to prevent sideways movement. The trees woody roots shall not be damaged during the installation of this Tree Protection Fencing.
This Tree Protection Fencing shall be erected prior to the commencement of works on site and shall be maintained for the duration of the construction process.

8.13 Signage

Tree Protection Signage shall be attached the the PTZ and displayed in a prominent location. These signs shall be repeated in 10m intervals or closer where the fence changes direction. These shall be a minimum of a 72 font size and each sign at-least 600 x 500mm.

8.14 Mulching

The area within the TPZ shall be mulched and maintained with 80mm of leaf litter mulch for the duration of the construction process. This mulch shall be spread by hand to limit the impact on underlying roots and shall be installed prior to the commencement of works on site.

8.15 The Site Arborist shall inspect and approve the TPZ including mulching. signage, Tree ProtectionFencing, Silt fencing and Signage prior to the commencement of works on site.

8.16 Site Management

Materials and waste storage, site sheds and temporary services shall not be located within the TPZ unless specified. Storage points shall be covered when not in use and be no greater than 2m in height.

8.17 Works within the TPZ

The TPZ may need to be modified during the works to allow access between the protected tree and the proposed construction. The TPZ shall remain as specified and only those works detailed in the proposed construction undertaken.

8.18 Completion of Works within specified TPZ

Upon the completion of works within a TPZ the protective fencing shall be reinstated as specified. Where the construction of new structures does not allow for the reinstallation of fencing the TPZ shall be modified by the Site Arborist.

George Palmer
Diploma Horticulture- Arboriculture (Level 5)
Associate Diploma Horticulture- Landscape.

Figure 1 Shows the poor basal development of the Silky Oak documented as Tree 2.

Figure 2 Shows the Podocarpus and Coral trees documented as Trees 3, 4 and 5.

Figure 3 Shows the African Plum trees documented as Trees 11,12 and 13 required for removal.

Figure 4 Shows the Banksia and African Plum on the site's southern boundary.

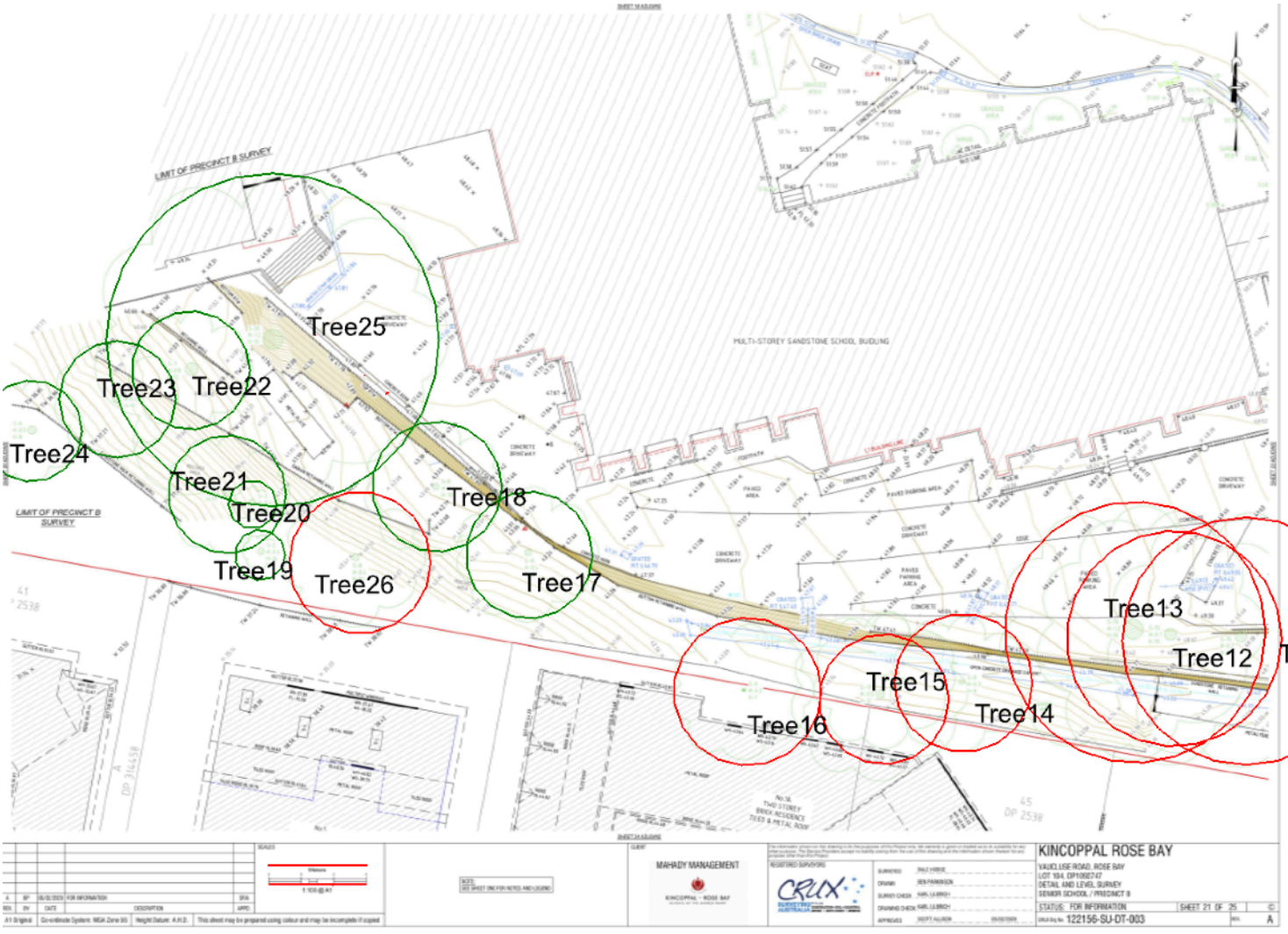

Figure 5 Shows the locations of the documented trees in relation to existing driveway.

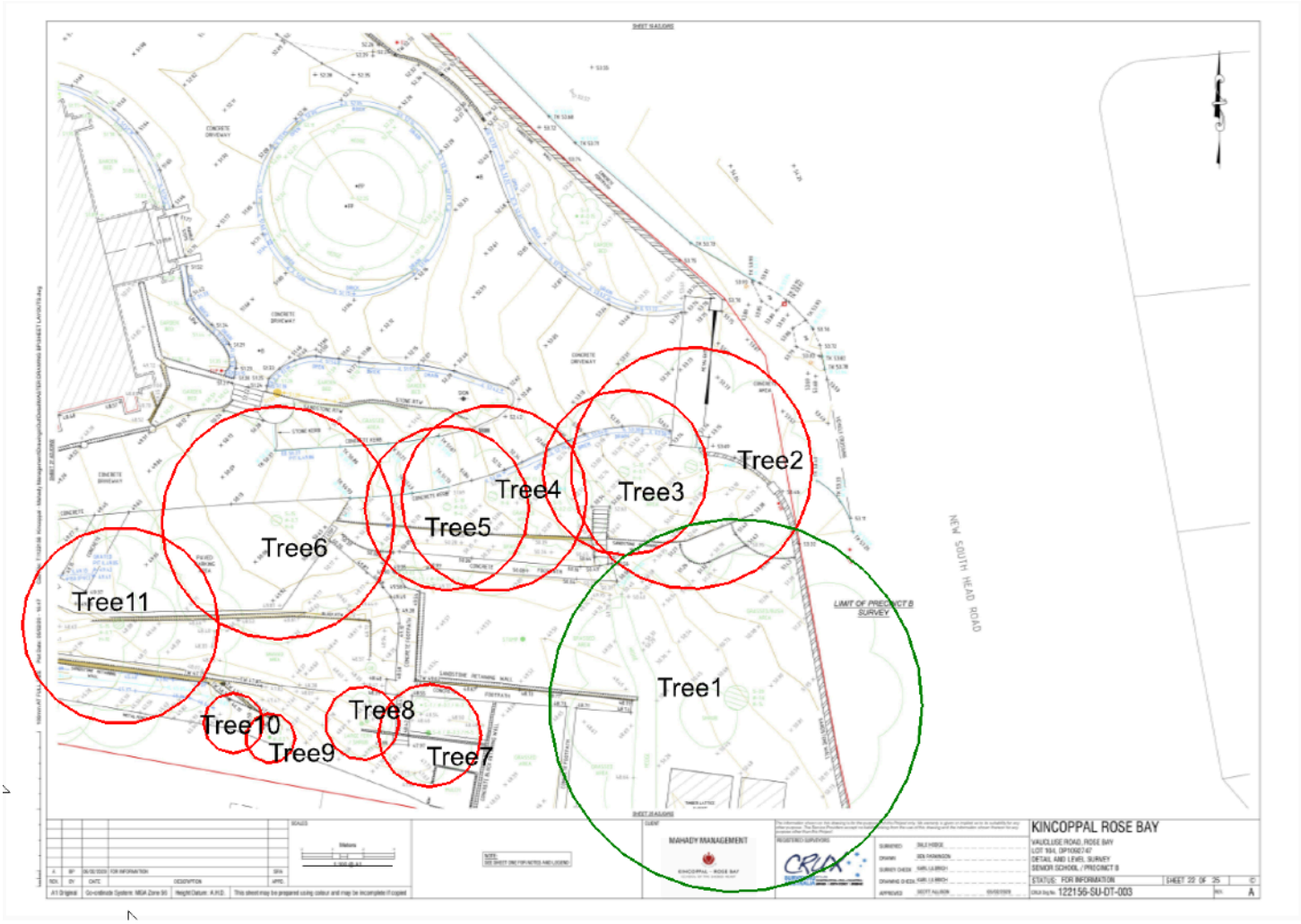

Figure 6 Shows the remainder of the trees documented in relation to the existing structures and topography.

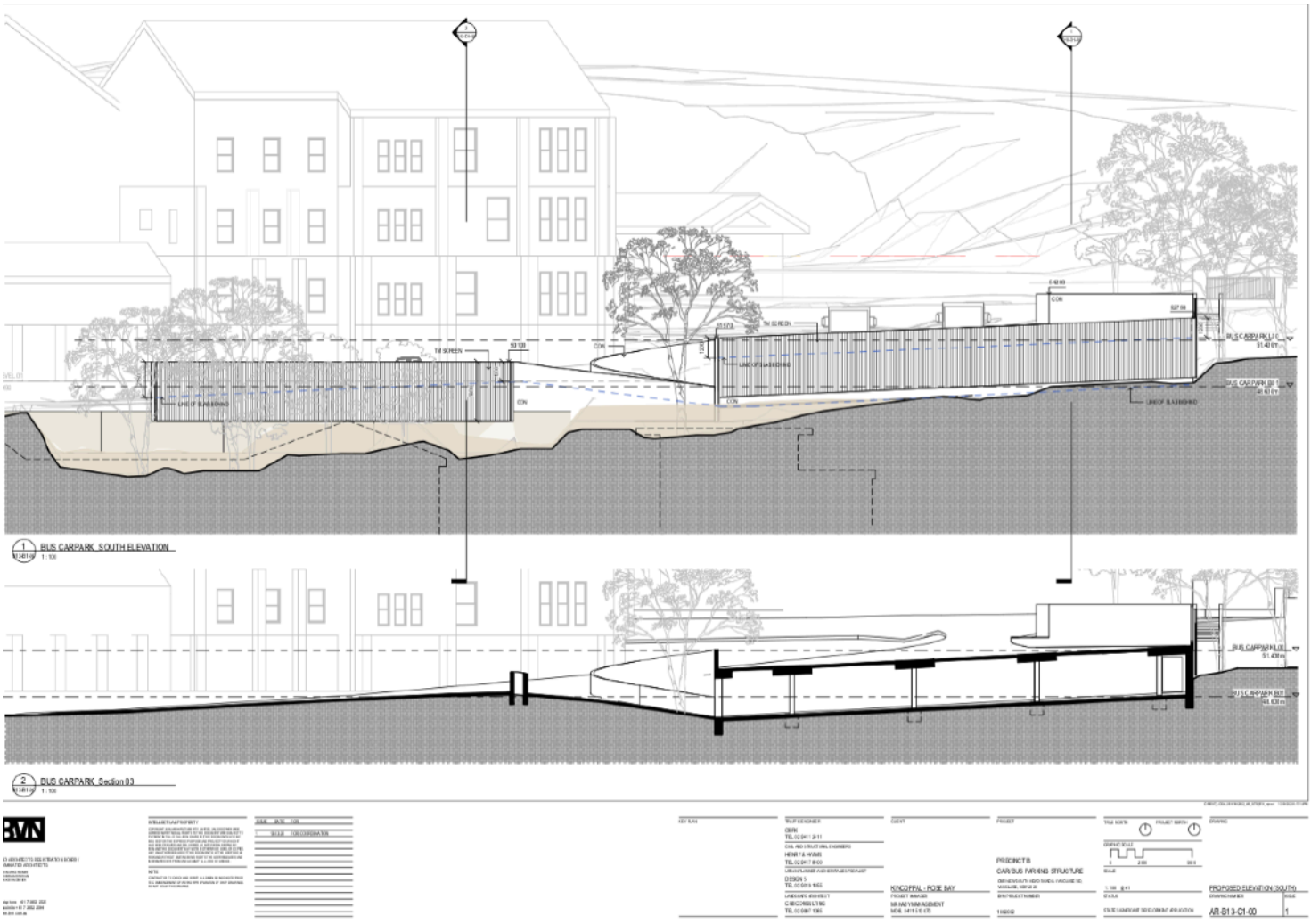

Figure 7 Shows the contour level changes proposed.

DEFINITIONS

COMMON NAME/GENUS SPECIES CULTIVAR – Common names can vary with selected texts. Where species is unknown, “sp.” indicated after genus. Where cultivar is unknown “cv” indicated after species. The number in brackets e.g. (x9) after the species indicates the number of trees in this tree group.

DBH – Diameter at Breast Height. Tree trunk diameter measured at breast height (1.4 metres above ground level). Fabric diameter tape is used which assumes a circular cross section. Multiple measurements indicate multiple trunks. More than three trunks are indicated as “multi”. Where DBH measurement cannot be taken at 1.4m the height at which it has been taken is indicated in the Comments column.

CANOPY SPREAD RADIUS – Average canopy radius (widest + narrowest 2). Circular canopy depictions on Tree Plan/ Survey are indicative only. Where canopy spread was significantly skewed, all four cardinal point measurements were recorded.

AGE CLASS – Immature (IM), Semi-mature (SM), Mature (M), Over-mature (OM). Assessment of the tree’s current Age. A Mature (M) tree has reached a near stable size (biomass) above and below ground. Trees can have a Mature age class for >90% of life span. Over-mature (OM) trees show symptoms of irreversible decline and decreasing biomass.

VIGOUR–Good(G),Fair(F)orPoor(P). The general appearance of the canopy/foliage of the tree at the time of inspection. Vigour can vary with the season and rainfall frequency. A tree can have Good vigour but be hazardous due to Poor condition. A tree in Good vigour has the ability to sustain its life processes. Vigour is synonymous with health.

CONDITION – Good (G), Fair (F) or Poor (P). The general form and structure of the trunk/s and branching. Trunk lean, trunk/branch structural defects, canopy skewness or other hazard features are considered.

SRZ RADIUS – Structural Root Zone. The area around a tree required for tree stability. Earthworks should be prohibited within the SRZ.. The area is calculated from the formula and graph at Figure 1 of AS4970-2009. The SRZ graph has been adapted from the work of Claus Mattheck (1994). DBH has been used instead of stem diameter above root buttress in the calculation of SRZ. 0.1m has been added to SRZ to allow for minor increases in stem diameter.

TPZ RADIUS – Tree Protection Zone. Radial offset (m) of twelve times (12X) trunk DBH measured from centre of trunk (for trees less than 0.3 metre DBH minimum TPZ is 2.0 metres). To satisfactorily retain the tree construction activity (both soil cut and fill) must be restricted within this offset. TPZ offsets are rounded to the nearest 0.1 metre. Existing constraints to root spread can vary TPZ. Generally an area equivalent to the TPZ should be available to the tree post development. Encroachment occupying up to 10% of the TPZ area is acceptable without detailed root zone assessment. Encroachments greater than 10% require specific arboricultural assessment.

SULE – Safe Useful Life Expectancy. A systematic pre-development tree assessment procedure developed by Jeremy Barrell, Hampshire, England. The SULE method used in this assessment has been adapted forsimplified use within the field. It gives a length of time that the Arborist feels a particular tree can be retained with an acceptable level of risk based on the information available at the time of the inspection. SULE ratings are Long (retainable for 40 years or more

with an acceptable level of risk), Medium (retainable for 16-39 years), Short (retainable for 5-15 years) and Removal (tree requiring immediate removal due to imminent hazard or absolute unsuitability).

RECOMMENDATIONS – Retain (R), Retain Plus (R+), Transplant (T) or Remove (Rm).

COMMENTS – Comments relating to the location, surroundings and hazard potential of the trees at the time of inspection and where applicable the reason for removal.

Planning, Industry & Environment

Dayle Bennett
Senior Consultant
Urbis

Our ref: SSD-10400

-via email-
dbennett@urbis.com.au

Dear Mr Bennett

Subject: Saint Patrick's College Science and Learning Building (SSD-10400) – Request to waive the need for a BDAR under the *Biodiversity Conservation Act 2016*

I refer to your request submitted on 26 February 2020 for the issue of a waiver for the requirement for a Biodiversity Development Assessment Report (BDAR) to be submitted as part of the State significant development (SSD) application for the Saint Patrick's College Science and Learning Building (SSD-10400).

Section 7.9(2) of the *Biodiversity Conservation Act 2016* (BC Act) provides the following in relation to an application for SSD:

> *"Any such application is to be accompanied by a biodiversity development assessment report unless the Planning Agency Head and the Environment Agency Head determine that the proposed development is not likely to have any significant impact on biodiversity values."*

The authority of the *"Planning Agency Head"* to determine whether a proposed development is *"not likely to have any significant impact on biodiversity values"* has been delegated to Directors within the Planning Services Division on 21 December 2017.

Accordingly, I have reviewed the application of the test of significance under sections 1.5 and 7.3 of the BC Act and clause 1.4 of the Biodiversity Conservation Regulation 2017 and considered the information provided in the letter prepared by Ecological Australia dated 24 February 2020. I have determined that the development is not likely to have any significant impacts on biodiversity values and that the application does not need to be accompanied by a BDAR. A waiver under section 7.9 is granted for the proposed development (being the Saint Patricks College Science and Learning Building – SSD-10400).

The delegated *Environment Agency Head* in the Environment, Energy and Science Group of the Department has also granted a waiver in a letter dated 13 March 2020, and a copy of that letter is attached.

This waiver is issued in respect of the proposed development detailed in a request for Planning Secretary's environmental assessment requirements (SEARs) dated 7 January 2020. Amendments to the development may require a further waiver to be sought and issued.

Should you have any enquiries regarding the above matter, please contact David Way on 8275 1324 or via email to david.way@planning.nsw.gov.au.

Yours sincerely,

Karen Harragon
Director, Social and Infrastructure Assessments
As delegate of the Secretary