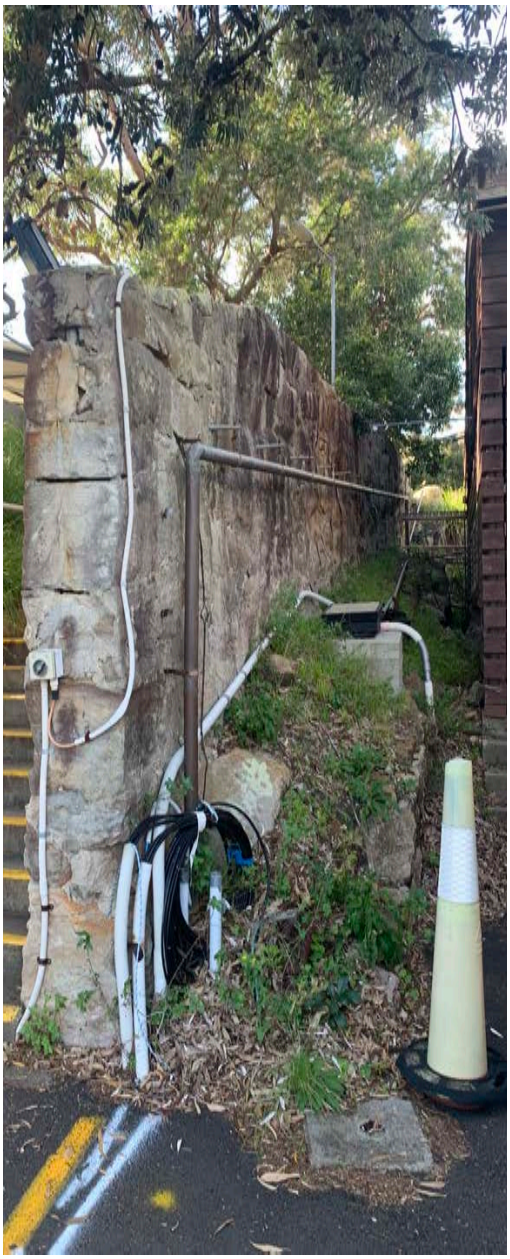
Proposed Taronga Wildlife Hospital, Sydney
Nutrition Centre
Heritage Impact Assessment

FINAL REPORT
November 2021

for the Taronga Conservation Society Australia



LEFT The area between the bulk storage sheds and the western car park featuring a line of *Eucalyptus globulus* subsp. *maidenii* from the 1960s. RIGHT A remnant section of the Interwar period stone wall indicating the original northern perimeter of the zoo site. Both features fall within an area that is the subject of this cultural heritage impact report.

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Contents

Tables

Figure 1 Location plan showing the area of Taronga Zoo potentially affected by the proposed Animal Nutrition building project and associated development. Refer to **Figure 3** for more detail of the listed heritage items included within this area. (*Source: NSW Land & Property Information SIX Viewer*)

1 Introduction

1.1 Site Location

Taronga Zoo is located at the southern edge of Mosman overlooking Sydney Harbour and is accessed principally from Bradley's Head Road (as well as by ferry from the harbour). The proposed development precinct is located in the upper part of the zoo across the central ridge line (**Figure 1**). The proposed site area includes sections of the early zoo site boundary stone wall, the area behind the existing bulk storage sheds where there is a row of 1960s plantings of Maiden's Gum (*Eucalyptus globulus* subsp. *maidenii*), a key access road into the back-of-house area and much of the back-of house area west of this road up to the current horticultural, pest control and facilities buildings.

1.2 The Project

This report was commissioned by the Taronga Conservation Society Australia (TCSA) to review the potential for heritage impact arising from the proposal to build a new Animal Nutrition building at Taronga Zoo, Mosman. The review focuses mainly on European cultural heritage relevant to the precinct. The TCSA has sought separate informed advice regarding Aboriginal cultural heritage.

The commission originally began as a combined Wildlife Hospital and Animal Nutrition Centre project with an additional Conservation Precinct appended to the general site area however, for various pragmatic reasons, the overall project was split into three separate stages with the Animal Nutrition building becoming Stage 1 (see **Figure 2**).

Figure 2 A project overview plan showing the area relevant to this heritage impact assessment report as the middle site identified in red (Stage 1 Nutrition). Refer to **Figure 3** for more detail of the listed heritage items included within this area. (*Source: Taronga Conservation Society Australia*)

The site planning and design of the proposed precinct that is the subject of this HIA report is described in 2021 documentation by dwp architects (refer to Section 5).

1.3 Background

The entire Taronga Zoo site (Lot 22, DP 843294) is listed as an item of local environmental heritage (Item 34) on Schedule 5 of the Mosman Local Environmental Plan 2012 (Figure 3) as Taronga Zoological Gardens, Bradleys Head Road. The LEP listing also specifically mentions the following components: Rainforest Aviary, Elephant House, bus shelter and office, floral clock and upper and lower entrance gates, Gardens.

While not currently listed on the NSW State Heritage Register (SHR), various specialist heritage-related studies over the past two decades have consistently assessed Taronga Zoo, as well as some individual components, as being of State cultural significance. The Zoological Parks Board of NSW nominated Taronga Zoo for SHR listing in 2002 but the listing was not finalised as site specific exemptions were not developed. Studies that assessed the site as State significant include the:-

* Section 170 Heritage and Conservation Register, 1998 (DPWS and as subsequently amended to the present);
* Taronga Zoo Conservation Strategy, 2002 (GML), Endorsed July 2002;
* Taronga Zoo Archaeological Management Plan, 2004 (GML), Endorsed February 2004;
* Taronga Zoo Landscape Management Plan, 2006 (Design 5 Architects *et al*); and
* Taronga Zoo African Precinct, Strategic Heritage Advice, 2006 (GML).

Nevertheless, whether sites are listed on the SHR or not, the Heritage Act, 1977 (NSW), at Section 170, requires all State government instrumentalities to establish and maintain a Heritage and Conservation Register as part of their responsible management of public assets (Clauses 3 and 4). The Act requires that the register is reviewed and, if necessary, amended at least annually (Clause 5) and ensure it is publicly (and freely) available for perusal (Clause 7). Consistent with Section 170A (Clause 3) of the Act, both NSW Treasury and the Heritage Council of NSW have issued guidelines to government instrumentalities to assist in the effective management of public heritage assets.[1] Also consistent with s170A (Clause 1) is the need for the Heritage Council of NSW to be notified in writing before any items on the register are removed from the register or demolished.

With respect to the NSW Heritage Act, 1977, the TCSA does hold a s170 Heritage and Conservation Register for Taronga Zoo though this appears not to be publicly accessible at present (at least in relation to the TCSA website). The register lists a number of components in the vicinity of the proposed Animal Nutrition Centre precinct with the Interwar period zoo site boundary wall (Item 07L) within the precinct along with some view lines. The wall has been assessed (both in the past and as part of the present assessment) as having high cultural value.

The overall Wildlife Hospital and Nutrition Centre project is a State Significant Development (SSD-17655146). Under Section 4.12(8) of the NSW Environmental Planning and Assessment Act, 1979, the Planning Secretary's Environmental Assessment Requirements (SEARS) were issued for the project on 10 May 2021. Part 4 of the SEARS requires the heritage component

of the Environmental Impact Assessment to take into account "the relevant Conservation Management Plan and Taronga Zoo Conservation Strategy, prepared by GML, dated 2002". While there is no CMP for the overall zoo site, there is a Landscape Management Plan (2006) that fulfils the same purpose. Both the LMP (2006) and the GML Conservation Strategy (2002) have been taken into account in writing this heritage impact assessment.

[1] The guidelines are *Heritage Asset Management Guideline, 2004* (TAM04-9) from NSW Treasury and *State Agency Heritage Guide, 2005* from the Heritage Council of NSW.

1.4 Approach

The Mosman LEP, 2012 Dictionary describes a ***heritage impact statement*** as "a document consisting of:-

(a) a statement demonstrating the heritage significance of a heritage item, archaeological site or place of Aboriginal heritage significance, and,
(b) an assessment of the impact that proposed development will have on that significance, and
(c) proposals for measures to minimise that impact".

The present report is largely structured accordingly. It also follows the standard procedure for reviewing the heritage context of places and potential for heritage impact based on recommendations by the Heritage Division of the NSW Office of Environment and Heritage. A review of the site – historically and physically - is undertaken in order to understand what it is that gives it its cultural value. After considering the nature of the site's cultural significance, the proposed works are then tested against various benchmark criteria such as how would the works affect the assessed cultural significance and would they comply with relevant expectations arising from the LEP heritage listing and those for the s170 register. Finally, in those instances where impacts on the precincts' cultural value are unavoidable, mitigatory measures are proposed in an effort to reduce the nature and degree of potential impact. European and Aboriginal archaeological resources are the subject of separate reporting by Urbis. Normally, issues concerning aesthetic values would be taken into account in any assessment of heritage impact. In this case a specific visual impact assessment encompassing views beyond the zoo, and relating to the harbour setting, has been undertaken by others.

1.5 Authorship

This heritage impact assessment report was written by Geoffrey Britton in 2021. In 2017 another heritage impact assessment report was undertaken for the African Waterhole project (now completed) and in that report an account of the historical development of the overall zoo and specific precincts was written by consultant historian and historical archaeologist Nicholas Jackson. With acknowledgement, parts of that historical account – particularly those dealing with the initial overall zoo development - have been used for Section 2 of the present report.

Unless acknowledged otherwise, site photography was taken in Autumn 2021 by Geoffrey Britton or Isabella Britton.

1.6 Acknowledgements

Jean Rice, Consultant Heritage Architect and Senior Project Manager, Heritage, TCSA
Kristine Marshall, Senior Project Manager, TCSA
Kevin Crow, Horticultural Supervisor, TCSA

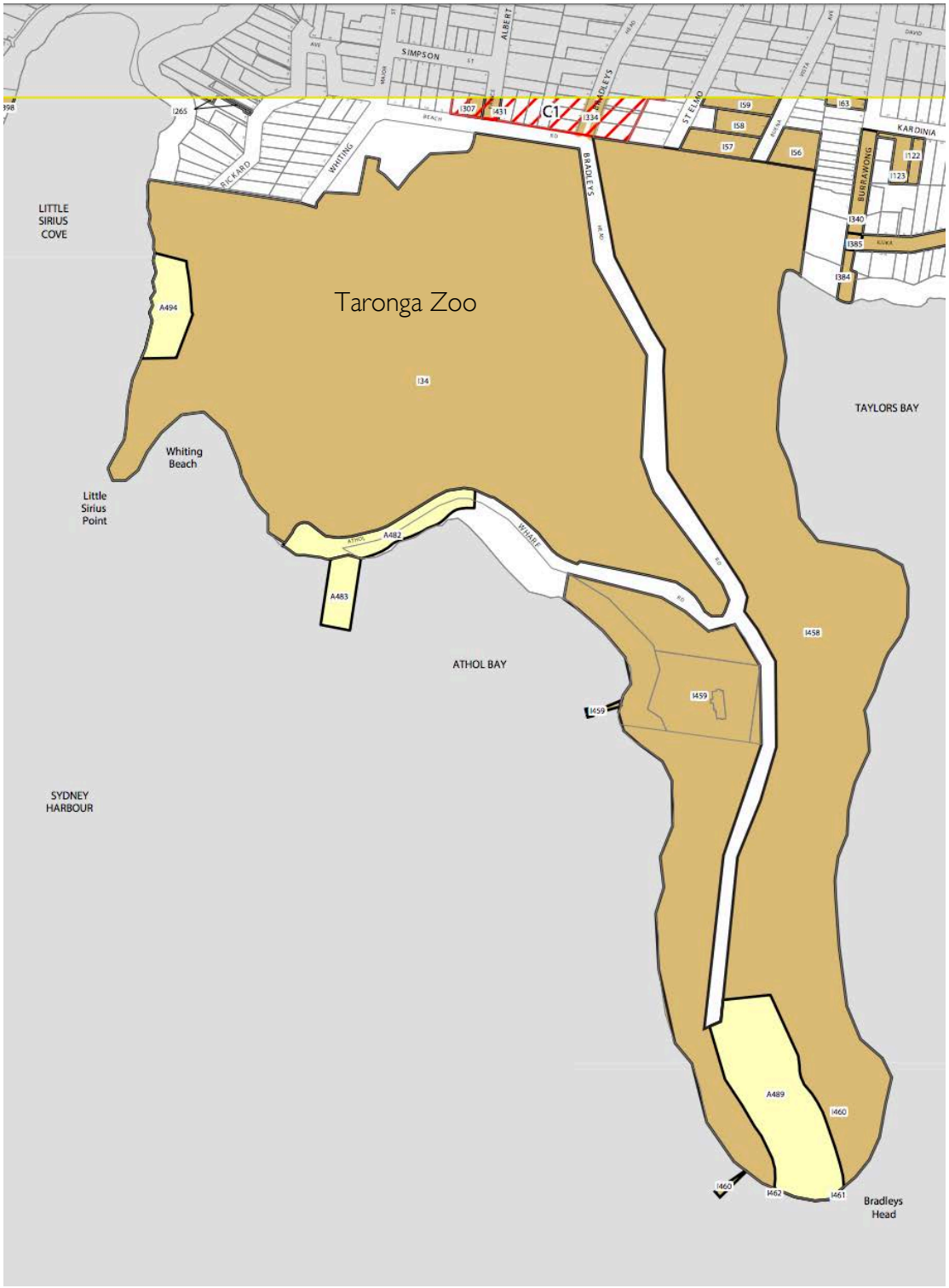


Figure 3 Extract from Heritage Map Sheet HER-003 from the Mosman LEP 2012 indicating the Taronga Zoo site as heritage Item 34 (I34). No Conservation Areas directly relate to the site with the closest - Bradley's Head Road Conservation Area (C1) - immediately to the north. The yellow areas identified on the LEP map relate to historical archaeological sites though none of these would be affected by the proposed development for the new Animal Nutrition building. Aboriginal archaeological resources are the subject of separate advice to the TSCA.

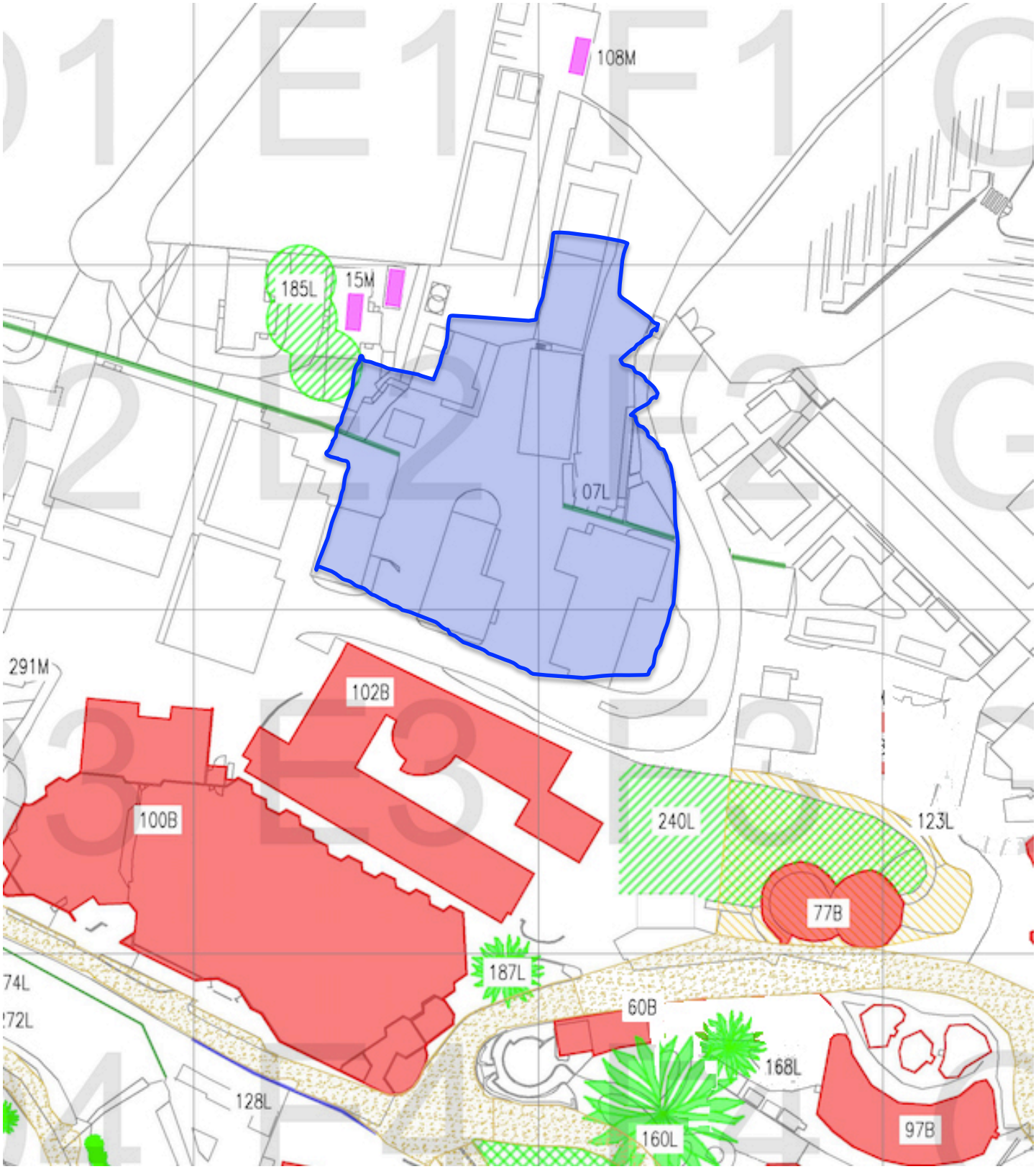


Figure 4 Outline of the present study area (blue) in relation to listed s170 heritage items that are further explained in detail in **Sections 3** and **4** of this report. Only one listed heritage item falls within the proposed project zone – the remnant boundary wall section (s170 Item 07L). Numerous other s170 items adjoin the site on most sides. (Source: TCSA 2021)

2 Historical Overview

2.1 Preamble

In this section of the report, a brief review of the historical development of the site is outlined to help understand the nature and historical significance of the various remnant 'layers' and their relationship to adjacent zoo structures and landscape areas. This review makes liberal use of material in the historical overview written by Nicolas Jackson from the 2017 Heritage Impact Assessment report for the African Waterhole and Congo precincts. This latter report contained a substantial history of both the overall zoo development as well as more detailed historical accounts of the two specific zoological thematic precincts for that report. For the overall zoo development history, reference is made to the 2017 report for any general context. In the case of the present report, the overall zoo's contextual history is dealt with briefly before focusing on the immediate site area and proposal that is the subject of this heritage impact review.

2.2 Initial Basis of Taronga Zoo Development

Land resumed by the Government at Bradleys Head in 1908 and 1912 became the basis of the new Taronga Zoo – replacing an earlier, inadequate zoo at Moore Park - with additional land added in subsequent years as the site continued to develop and expand. The earliest planning and development was by Albert Sherbourne Le Souef (1877-1951), who had been secretary of the Zoological Society since 1903 and, after touring and observing various zoos and parks in England and Europe, formulated a vision for a new zoo in Sydney. This vision was particularly influenced by the recently opened Tierpark Hagenbeck at Stellingen, near Hamburg, Germany, where, as much as possible, animals were kept in barless enclosures that were designed along more 'naturalistic' lines and where a more informed approach to zoo keeping was practiced.

Le Souef described his vision for the new zoo in early 1910, with visitors arriving by ferry and walking to the nearby zoo entrance then:

'*following winding paths through the trees, the striking observation will be made that there is scarcely any sign of cages, for the enclosures are masked by thick bushes and the natural contour of the ground, which gives more the appearance of a park, and not by any means of a menagerie; and in this respect the grounds will be unique in Australia for the bold plan of keeping the carnivora in bounds without recourse to iron bars can be carried out perfectly. Sheep and goats will be seen rejoicing on their natural rocks, and monkeys in their spacious wire compartments enclosing large trees, everything living happily under natural conditions in our ideal climate*'.[2]

A major factor in the layout of both animal precincts and the path network throughout the zoo site, was – and remains – the sloping topography towards the harbour. This provides challenges in the design and planning of the place though also enables the dramatic harbour setting to be exploited to stunning effect.

The earlier character of the zoo site was described as:

'*a series of plateaus or grassy slopes, rising one above the other to a height of some 340 feet from water level, in a succession of terraces faced with precipitous rock or weather-worn masses of boulders, well wooded with angophora, eucalyptus, eugenia, banksia, grevillea, and other trees ..*'[3]

To illustrate the complex nature of the harbourside topography, a detailed contour plan of 1912 survives (**Figure 4**). A site planning response to this landscape is shown at **Figure 5**.

[2] 'New Zoo at Athol', *Sydney Morning Herald*, 11/2/1910, p. 7
[3] Taronga Zoological Park, *Australian Zoologist*, Vol 1

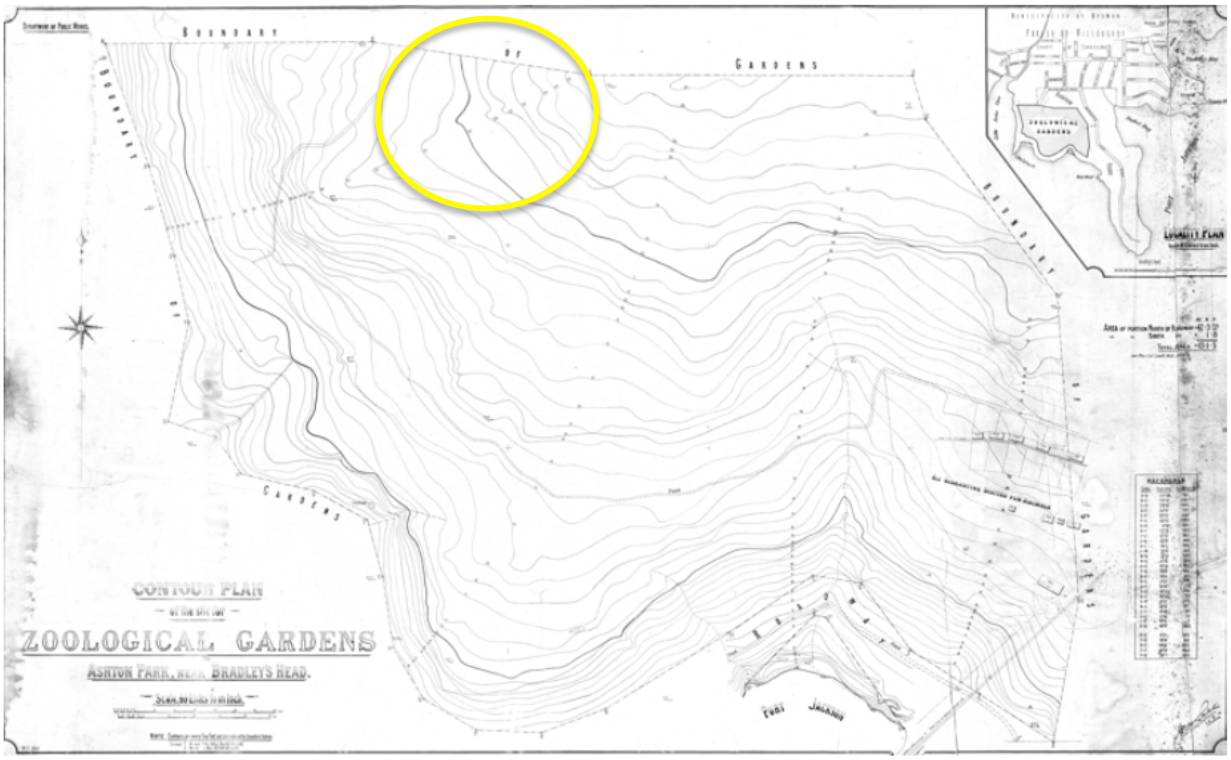


Figure 4 A detailed contour plan of the new zoo site by the Public Works Department (September 1912). The majority of the site remained as bushland, with the exception of the stock quarantine compound at the southeast corner. The approximate location of the present focus for this heritage impact review is shown circled. (*Source: NSW Public Works - Plan Room*)

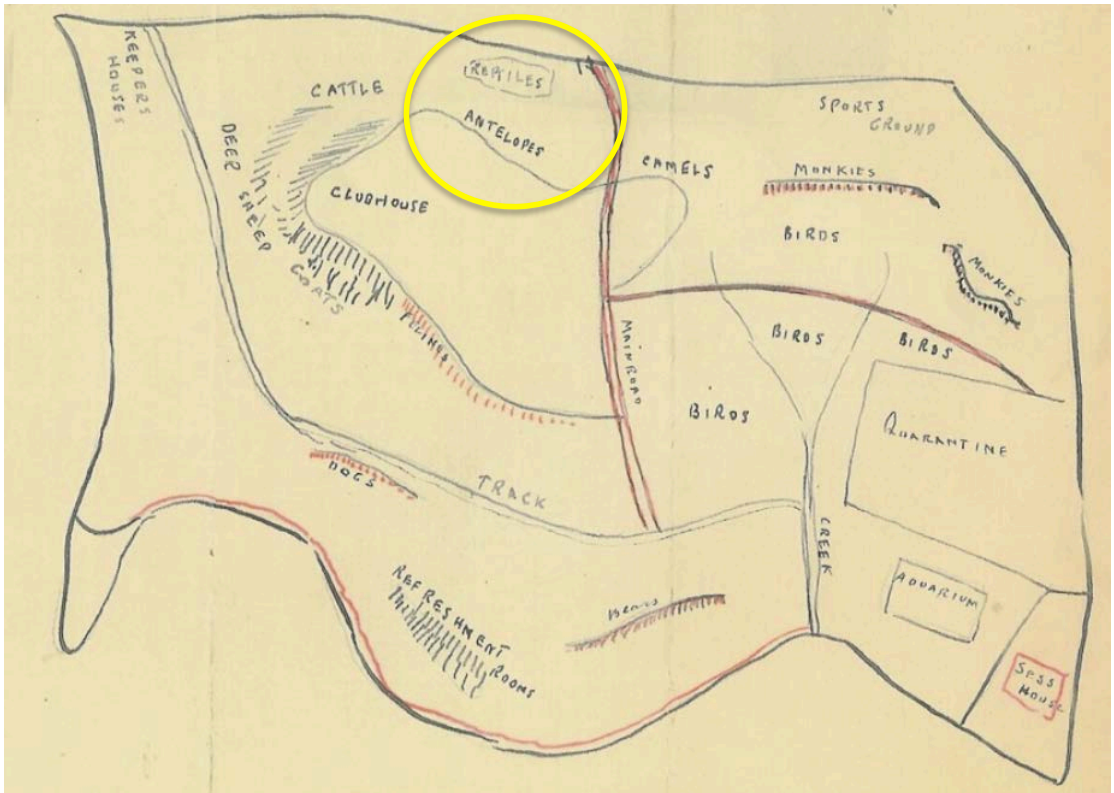


Figure 5 A rudimentary layout sketch – presumably by Le Souef - dated December 1912 shows the proposed division of the zoo site into discrete compartments (animal enclosures with ample reserves for parkland though surprisingly few paths). The main vertical line denotes an intended access spine along the central ridge line. (*Source: Taronga Zoo Archives (with Holding SE/81 newspaper clippings*)

As Nick Jackson notes in the 2017 HIA report "Le Souef had approached the planning [of the zoo] with some scientific rigor for in 1939 he recalled:

'The actual planning of the grounds took six months. Several thermometers were hung about the park, temperatures noted and wind velocities recorded. Every section was worked out in detail, and when the general scheme was in mind, numerous different coloured pegs were prepared, and each separate enclosure, lawn, pond, and path, were lined out its respective colour. The trustees carefully checked this over, taking into consideration all available data that could be obtained at that time'."[4]

Taking into account these microclimatic considerations, an early layout plan of 1913 (**Figure 6**) records how the sketch of 1912 had been further detailed with discrete areas and intended structures distributed across the site ready for staged implementation.

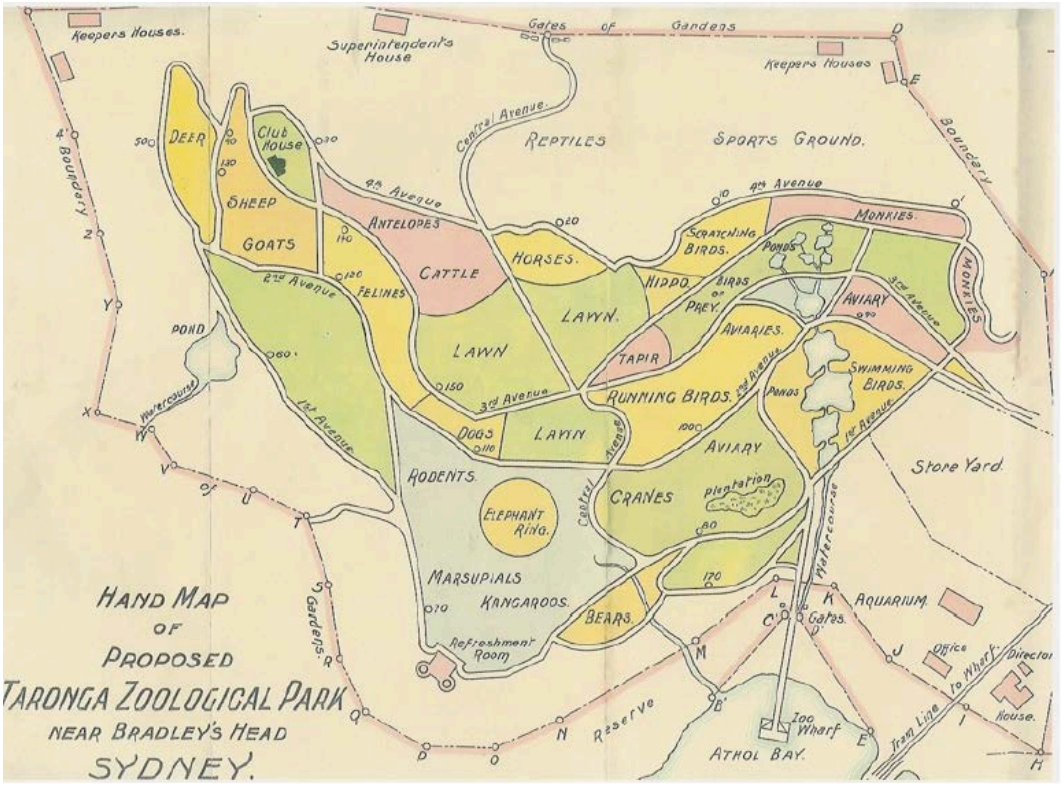


Figure 6 The 1913 'hand map' of the proposed site layout of Taronga Zoo. Most of the currently proposed Nutrition Centre development relates to the area north of the designated "4th Avenue" on this plan (between the 'Superintendent's House' and the pink area to the south for ungulates). (*Source: Taronga Zoo Archives (with Holding SE/81 newspaper clippings*)

Nick Jackson continues: "Initial site works included blasting and levelling the bedrock,[5] and selective culling of native flora. The native eucalyptus trees were removed for they did not provide sufficient shade, while the angophoras were retained.[6] Technical assistance in regard to the planting was provided by JH Maiden, director of the Botanic Gardens,[7] and indeed Maiden arranged for the supply of all the plants needed.[8] James Dawes, superintendent of Centennial Park, was also involved in providing advice on horticultural matters."[9] **Figure 7** shows an early

[4] 'Stormy fight for Taronga Park', *Sydney Morning Herald*, 14/10/1939, p. 11
[5] 'Making Sydney's New Zoo', *Sun*, 11/2/1914, p. 42
[6] Undated typewritten report included Taronga Zoo Archives Record Holding SE81
[7] Taronga Zoological Park Trust, Report for 1916, p. 2
[8] Min, 16/8/1912
[9] M 21/2/13

track through remnant woodland within the Mosman zoo site. A 1916 *Sydney Morning Herald* article noted the early approach to the indigenous vegetation:

'the park is well covered with native trees, principally angophoras, eucalyptus, eugenias, banksias, etc. Many of these have had to be thinned out to make room for roads and enclosures, but hundreds more had been planted. Apart from herbaceous plants, which are necessary to give colour effect, only Australian material has been use, this will give a special interest to the gardens'.[10]

Figure 7 A photograph taken to record the natural state of the Zoo site prior to implementation of the works program. (*Source: Taronga Zoological Park Trust, Report for 1916, p. 9*)

2.3 Specific Study Site Development

The following account now concentrates more particularly on the progressive changes to the general area proposed for the Nutrition Centre from the early planning to the present.

2.3.1 Interwar Development Priorities (1910s-1930s)

Early sketches, such as those from 1912 and 1913, and site plans (1916 (Figure 8) and 1920) indicate various intentions for the northwestern part of the zoo site but these remained largely unrealised until the 1920s when the access system was extended including a loop – previously not indicated on the concept plans - that was introduced around an area used for ungulates over many decades (later becoming the Chimpanzee Park).[11] In relation to the 1927 site plan (Figure 13), the area to the north of the former ungulate precinct is the specific focus of this report. The 1927 site plan shows that the new upper roadway now linked the main upper east-west path to the back-of-house 'Yard' area shown originally on the 1916 site plan. This 'Yard' area, with access from the north via Whiting Beach Road, comprised a group of buildings (built or relocated by 1916) to house maintenance functions, a central incinerator and a small

[10] 'The Old and Zoo and the New', *Sydney Morning Herald*, 14/9/1916
[11] Compare for example the zoo guides from 1920 and 1927.

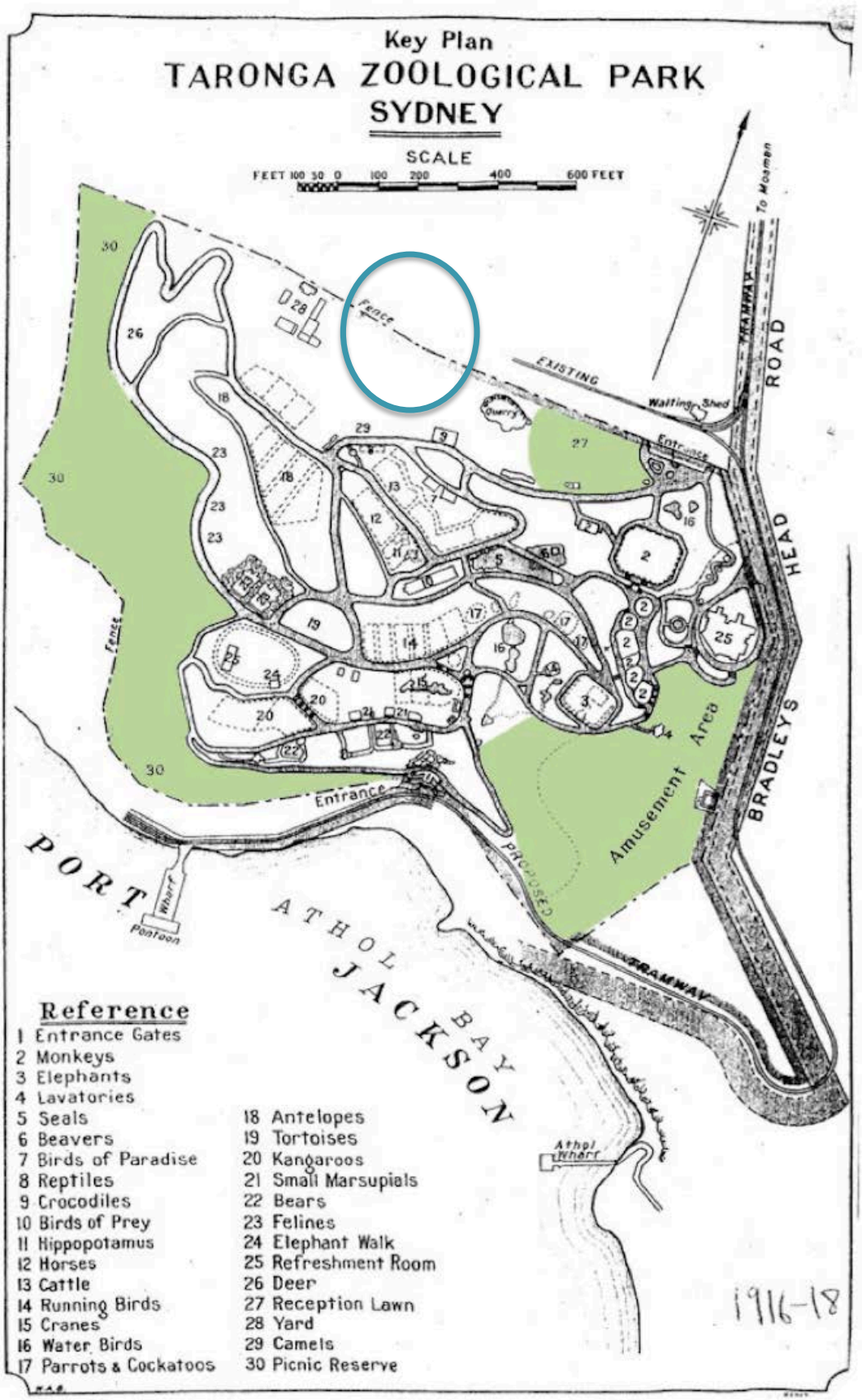


Figure 8 A layout plan of Taronga Zoo from 1916 indicating what had been built by this date. The approximate area relating to the present heritage impact assessment is circled and includes land to the north and south of the zoo boundary. (*Source: Design 5 Architects et al, Landscape Management Plan, 2006*)

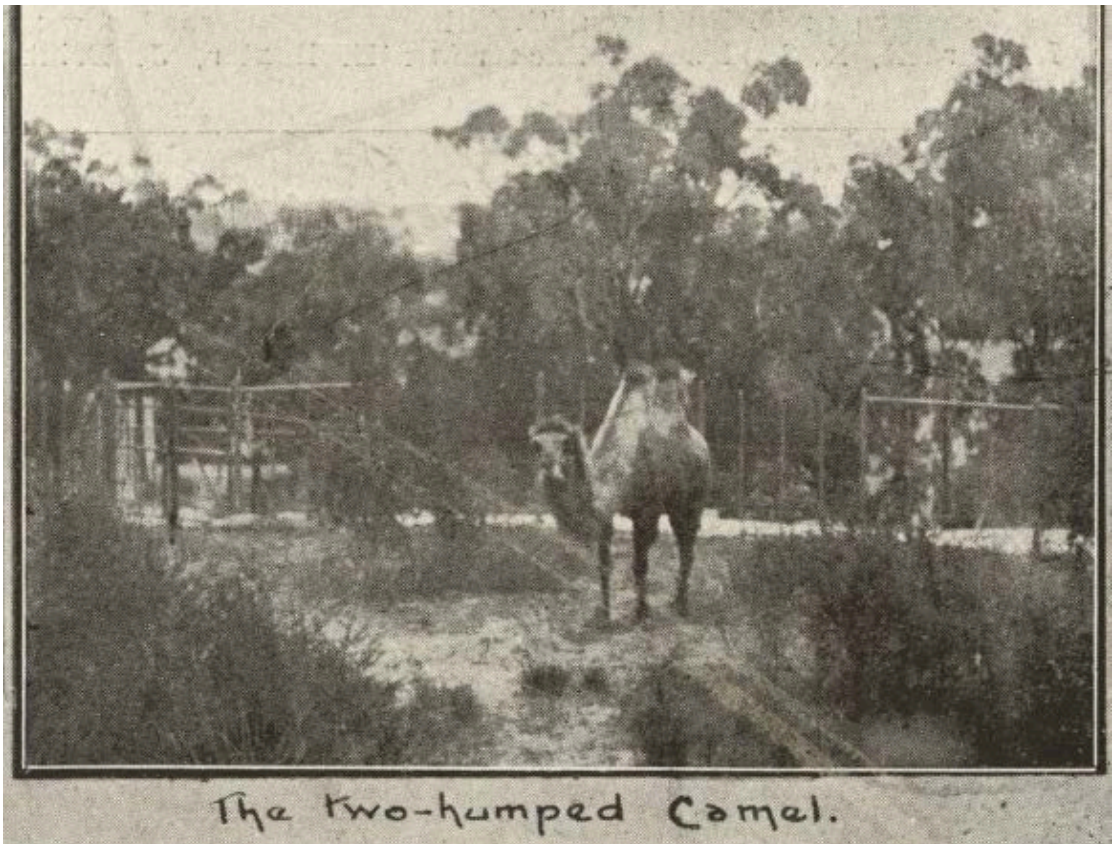
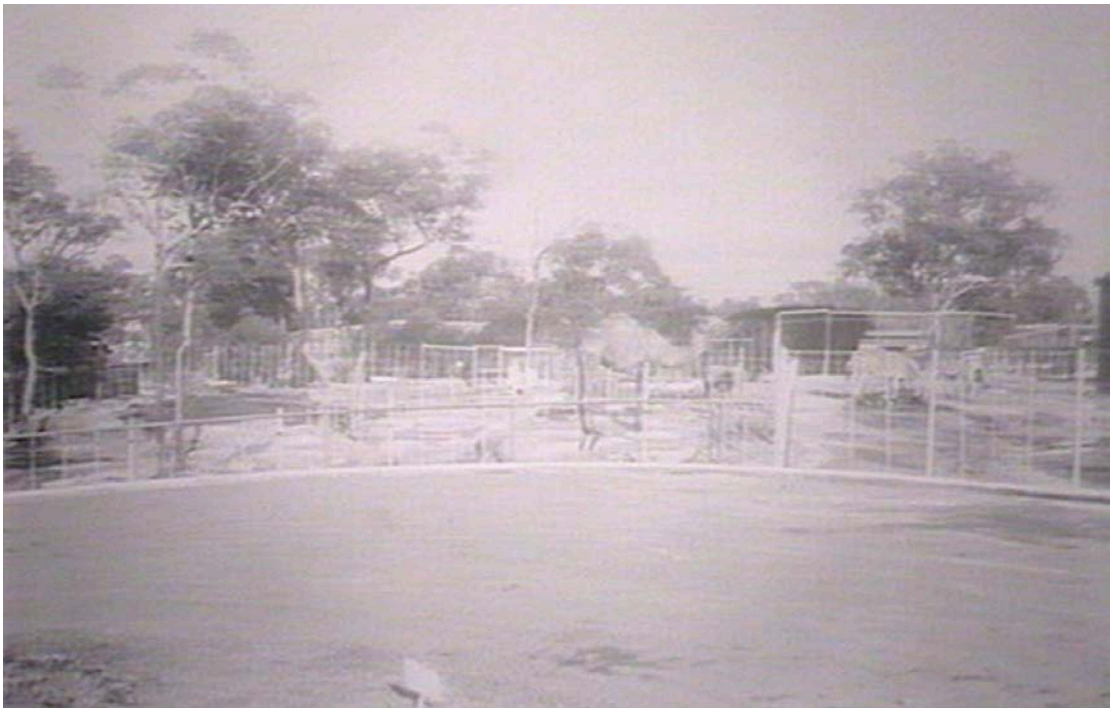


Figure 9 ABOVE A 1917 view through the Camel yard showing remnant woodland beyond and even some remnant understorey species within the yard. (*Source: The Queenslander, March 1917 TCSA Archives*)
Figure 10 BELOW One year later and from further back, the Camel yard is looking sparser though rock outcropping is plainly evident. (*Source: Government Printing Office, 31 March 1918, GPO 1-13308 TCSA*)

Figure 11 ABOVE The Camel yard in 1924 showing surviving woodland vegetation beyond with an edging garden to the western end of the large ungulates section (now Chimpanzee Park). The image suggests that the large surviving Bangalay may have been planted (or retained) within a decade earlier. (*Source: Government Printing Office, 1 February 1924, GPO 1-19169 TCSA Archives*) **Figure 12** BELOW Looking north into the Camel yard a year later showing some of the remnant *Angophora* woodland at the back of the enclosure. (*Source: Government Printing Office, 1 June 1925, GPO 1-15945 TCSA Archives*)



operating theatre and hospital shelter sheds (**Appendix A**). The group formed a rectangular block plan around a central courtyard and was defined along the eastern side by a lofted timber hay and fodder shed relocated from the Moore Park Zoo site. To the south of this food store building was the first zoo hospital (**Figure 16**). The form of this group remained much the same from 1916 until the late 20th century when the smaller building 'footprints' were replaced by large plate buildings in tandem with expanding zoo functions. Although not within the present study area, this group – both the original buildings and those replacing them - has traditionally formed the western edge of the site.

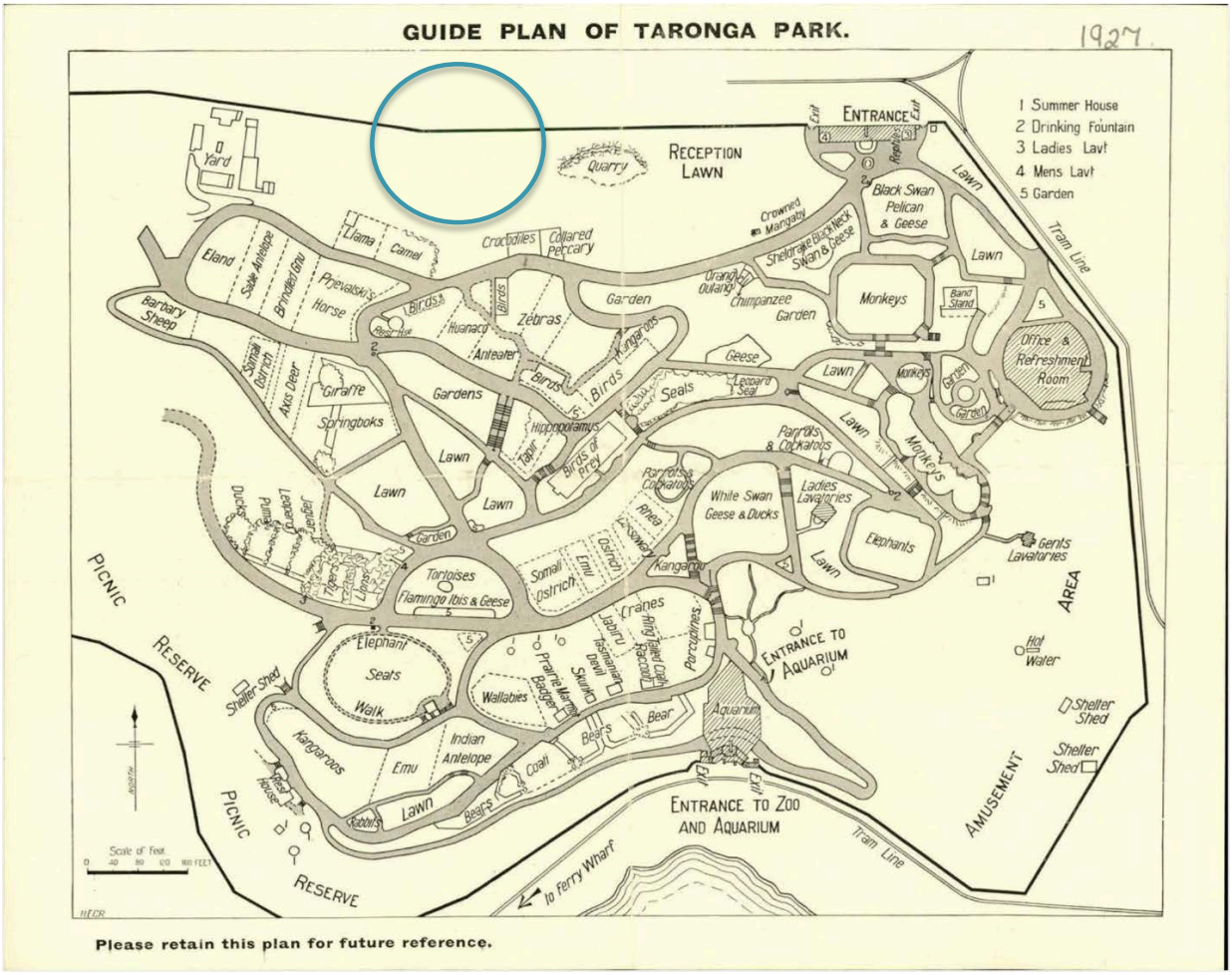


Figure 13 The 1927 site plan with the approximate area of the present study focus circled. The buildings shown at the southeast corner of the 'Yard' group comprised the zoo's early hospital and operating theatre. (*Source: TCSA Archives*)

By 1927 a number of animal 'exhibits' had been built along the main east-west public pathway. These included yards for Llamas and Camels (**Figures 9** to **13**)(basically where the present reptile complex is located) and, further to the east, enclosures for 'Crocodiles' (although the 1920 site plan had Alligators here!) and Collared Peccaries. Two years later the layout remained the same except that a section for reptiles had been added between the Camel yard and the (once again) Alligators.

With a severe contraction in the world economy in the early 1930s the NSW Government introduced welfare schemes to provide work for unemployed men. In the case of Taronga Zoo unemployed men were engaged from 1930 under Schedule 3 of the Prevention and Relief of

Unemployment Act and by the second half of 1932 some 45 men were employed at the zoo.[12] A year later there were 70 men receiving such assistance[13] while in September 1934 additional funding was provided for:

'*construction of new and additional bird aviaries, construction of new carnivora dens and demolition of old carnivora houses; construction of new yard for horses, and* ***new hospital quarters for sick animals***[14]*, formation of path from compressor house and pump house on Harbour front; construction of Lyre Bird enclosure and formation of necessary paths thereto; and works required in connection therewith*'.[15]

The supervision of these men was left to professional architect Alfred Spain (1868-1954) who was also Chairman of the Zoological Park Trust in the 1930s (and since 1928).[16] The new hospital quarters mentioned above subsumed the area used for Llamas in the 1920s and included a further group of buildings to the north and extending further to the west as part of new, expanded quarantine facilities (**Figure 14** and compare **Figures 15** and **16** below).

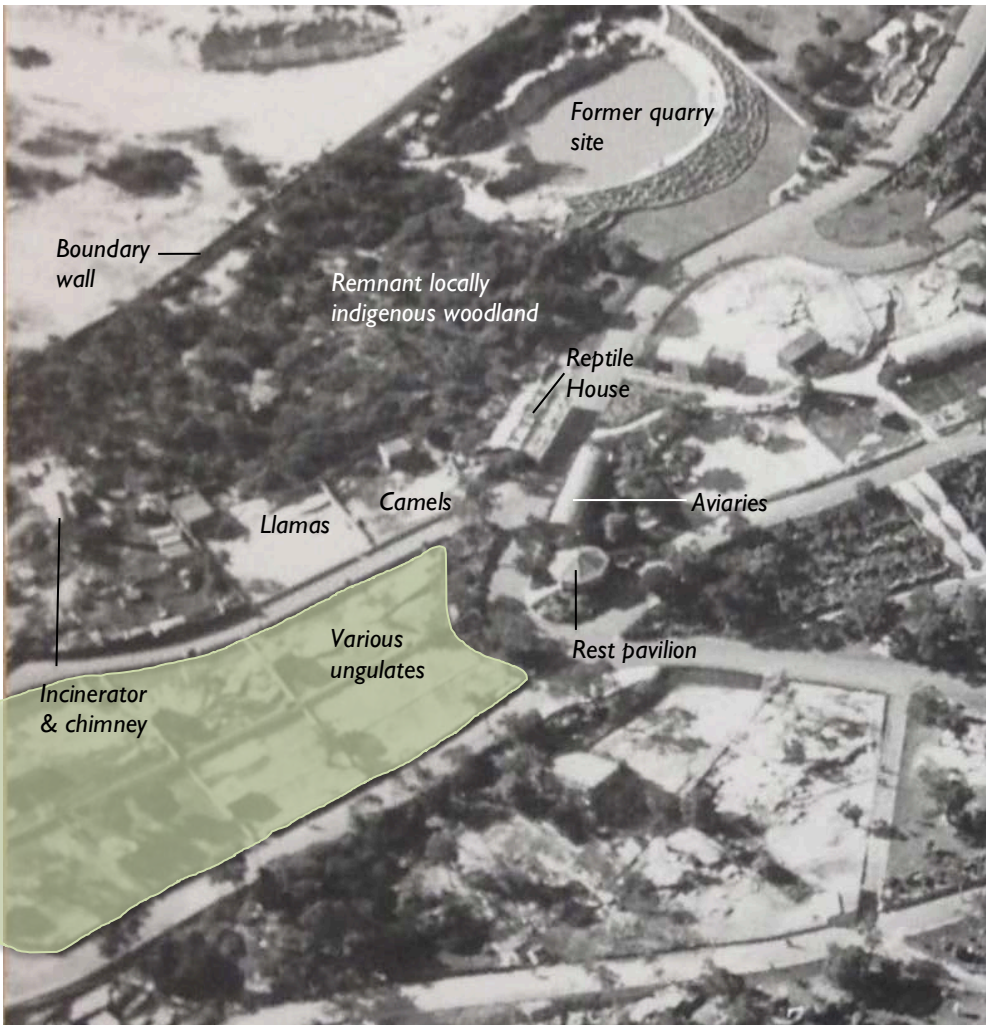


Figure 14 An annotated detail of a 1930 oblique aerial photograph showing part of the present study area either side of the site boundary wall. The view is looking approximately to the northeast. Note that the northern boundary stone wall is shown as complete at this date. (*Source: TCSA Archives*)

[12] Notes and News, *Sydney Morning Herald*, 9/8/1932, p. 6
[13] 'Several Big Contracts', *Sydney Morning Herald*, 25/7/1933, p. 6
[14] Emphasis added to indicate a component of this funding directed to the former hospital within the study site.
[15] *New South Wales Government Gazette*, 2/9/1934
[16] 'Several Big Contracts', *Sydney Morning Herald*, 25/7/1933, p. 6

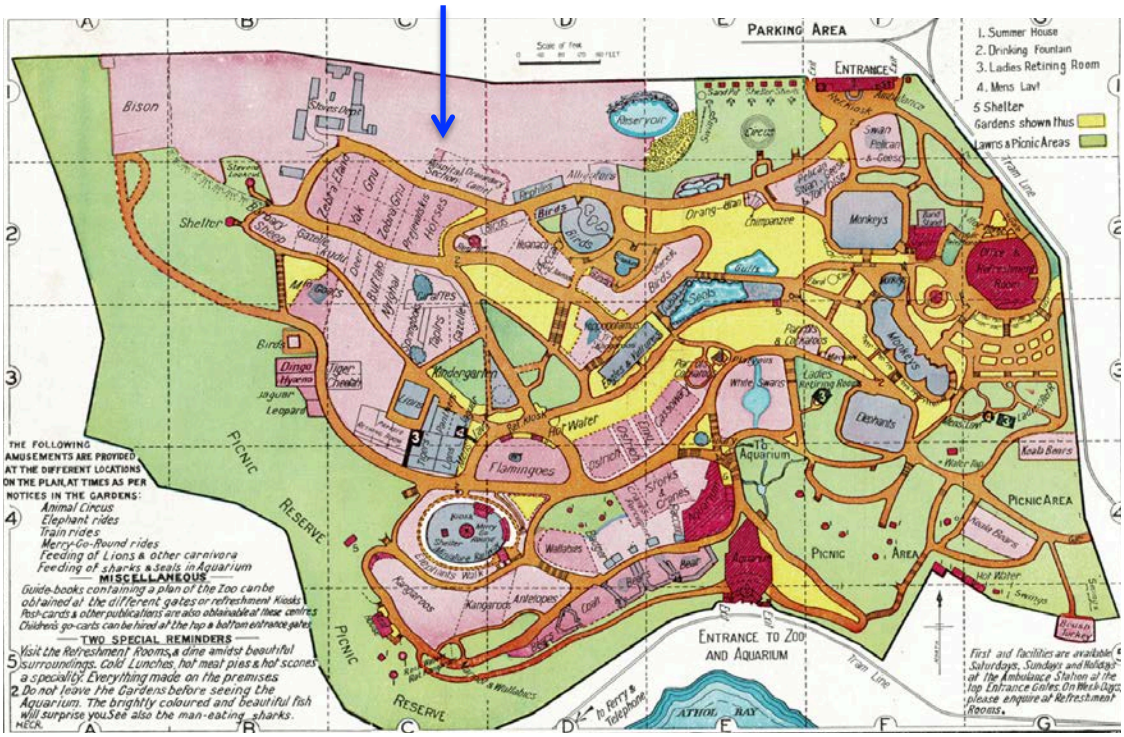


Figure 15 The 1939 guide plan showing the new 1934 hospital section (arrow) where the Llama enclosure had previously been (next to the Dromedary and Camel yard). (*Source: TCSA Archives*)

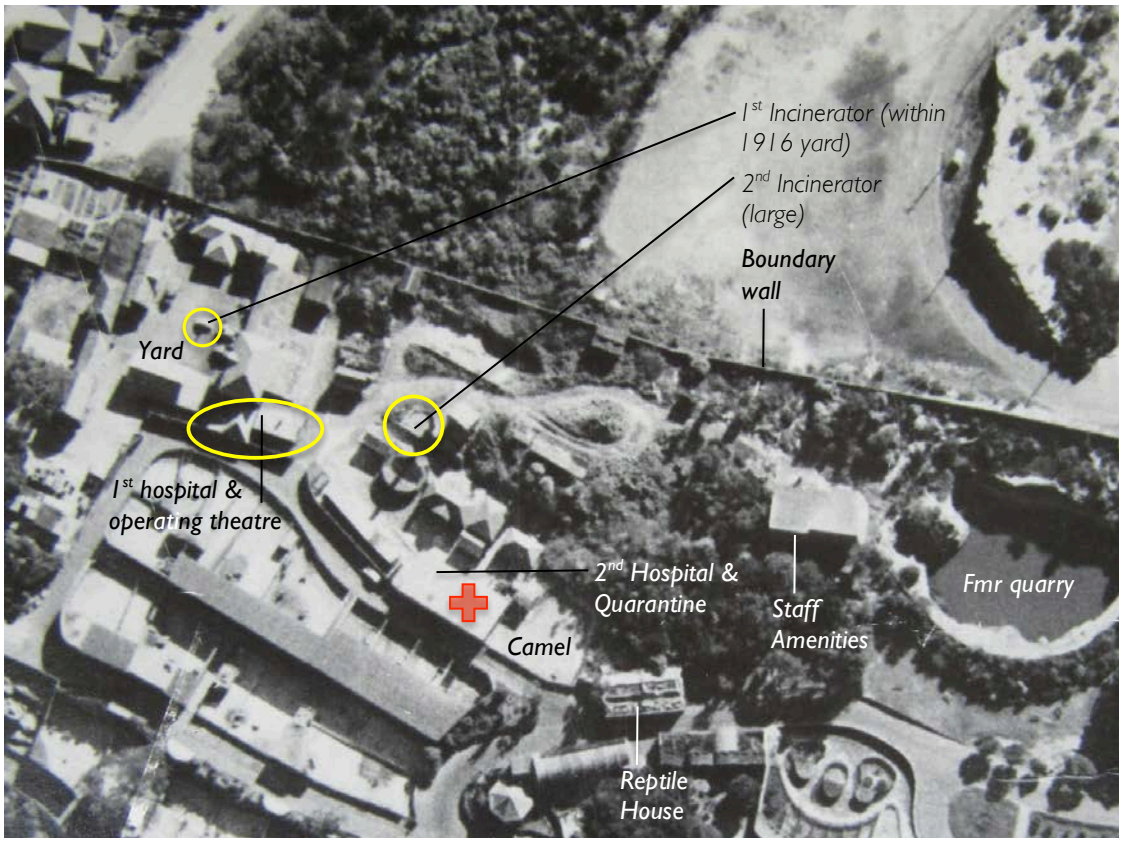


Figure 16 An annotated detail of a 1950 aerial photograph showing key development to this point in the vicinity of the present study site. Some of the structures comprising the 1934 hospital and quarantine complex may have been designed by prominent architect and Chairman of the Zoological Park Trust, Alfred Spain. Note the building attached to the boundary wall. (*Source: TCSA Archives*)

2.3.2 Post-War Development (1940s-1950s)

By 1950 (**Figure 16**) there had been a further extension to the hospital building but little else since the mid-1930s work to build the new hospital/quarantine complex. The 1954 Taronga Zoological Park and Aquarium site plan (**Figure 17**) described this entire expanded complex as a 'Quarantine Area'. Consistent with earlier site plans, the 1954 guide plan shows various bird aviaries south of the main public pathway with an alligator enclosure to the north. The former quarry site is described as a 'reservoir' and the former reptile enclosure is now shown as a shelter structure.

In 1959 Sir Edward John Lees Hallstrom was appointed honorary director of Taronga Zoo. Hallstrom (1886-1970) had previously been appointed a trustee of the Zoo in 1941, was vice-chairman (1945-51), and then president from 1951 until 1959. Professionally, Hallstrom had made his name as a manufacturer and had no formal training in the sciences – something for which his tenure was eventually negatively viewed - though he had a profound interest in animals and gave liberally both in monetary and material terms to the zoo.[17] (An example of his considerable largesse at the zoo was the 1945 administrative block paid for by Hallstrom.) During Hallstrom's tenure little appears to have changed within the area of the zoo that is the focus of this study – the 1960 guide plan is basically unchanged since that of 1954. Also at this time development remained within the original northern zoo boundary (**Figure 18**). Sometime in the 1960s (after 1962) an employee of the zoo, David Thomas, planted the line of Maiden's Gums (*Eucalyptus globulus* subsp. *maidenii*) along the western edge of the cleared area beyond the boundary used as an *ad hoc* car park.[18]

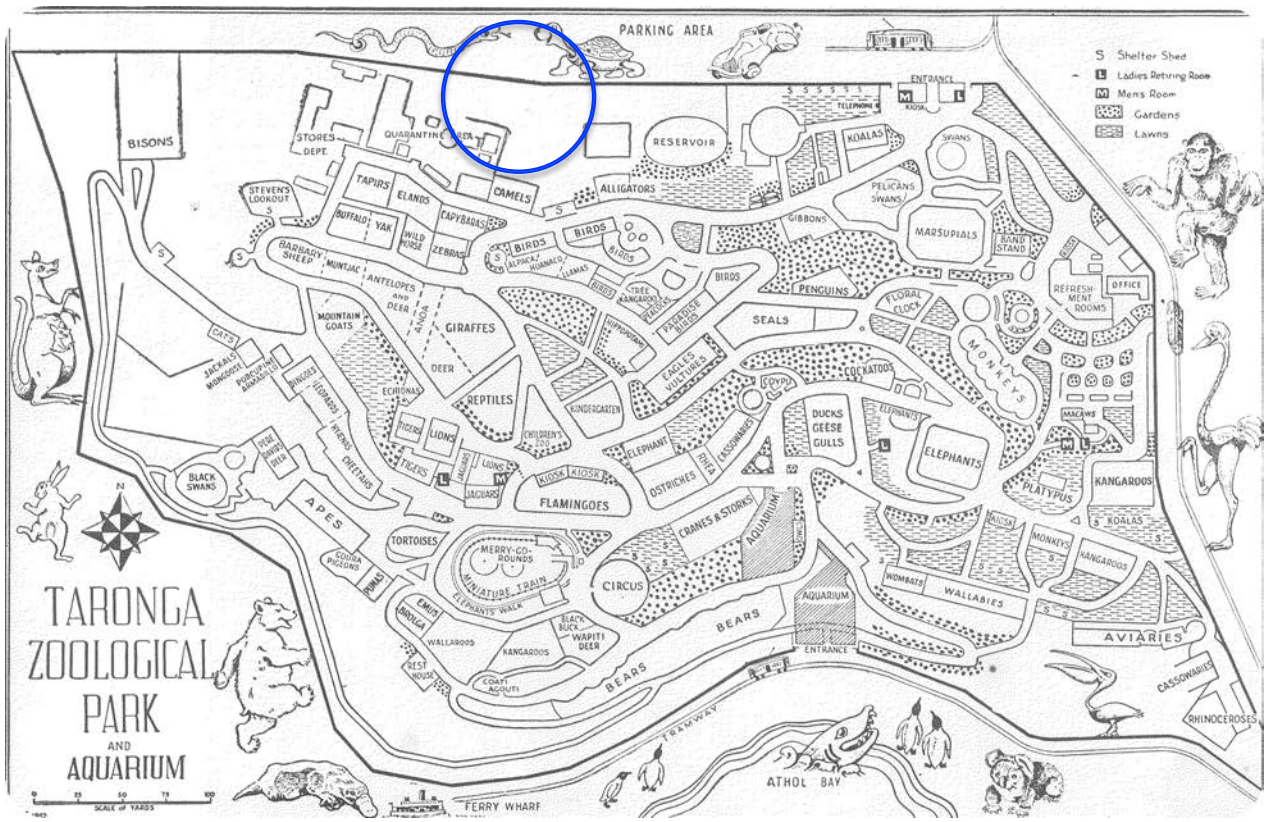


Figure 17 The 1954 guide plan showing much of the present study site described as a 'Quarantine Area'. The earlier Reptile House on the main path is now described as a 'shelter' and the new building shown west of the reservoir is the late 1940s former staff amenities building. (*Source: TCSA Archives*)

[17] Audrey Tate, 'Hallstrom, Sir Edward John Lees (1886–1970)', *Australian Dictionary of Biography*, Melbourne University Press, 1996
[18] Pers. Comm. Kevin Crow with Geoffrey Britton, 20 April, 2021.

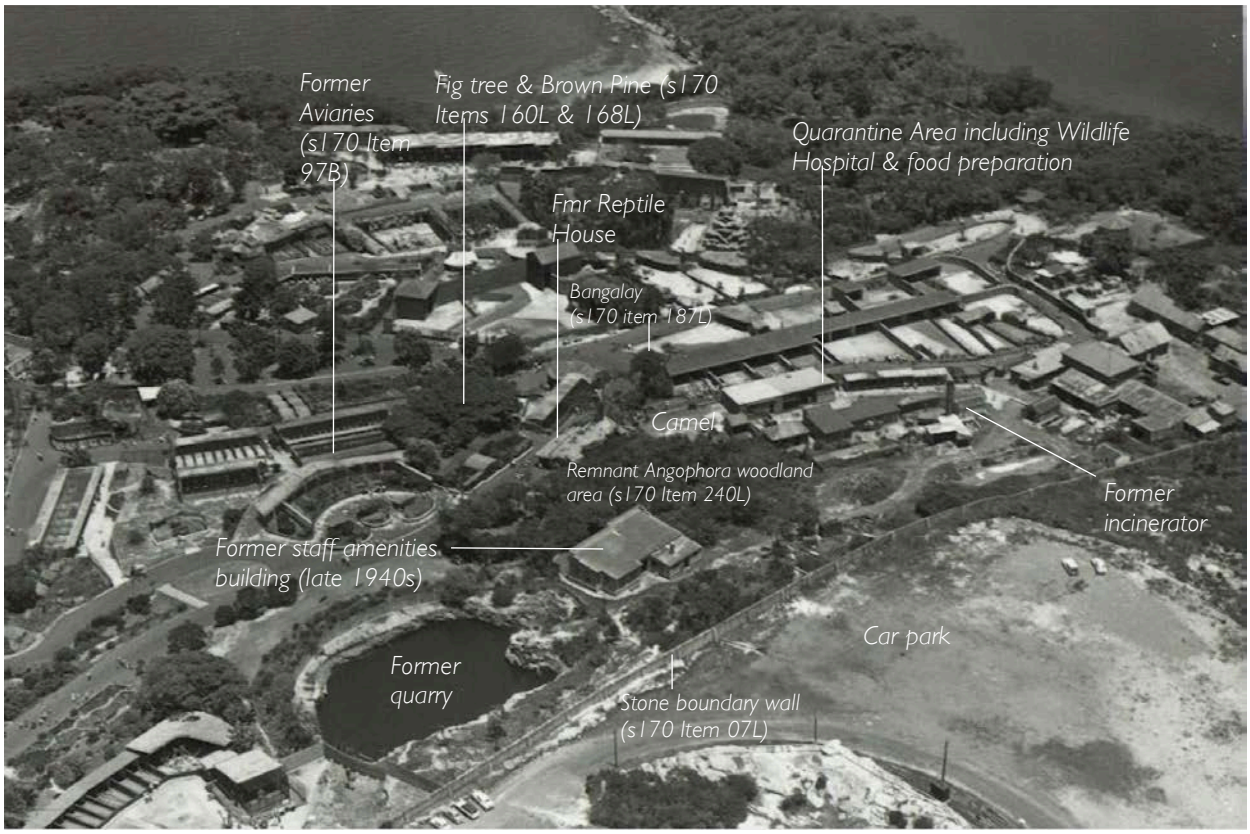


Figure 18 An annotated detail of the c. 1962 oblique aerial photography looking across the northern boundary wall to the southwest and Whiting Beach (centre top). (*Source: TCSA Archives*)

2.3.3 Major Push towards Australian Themes (1960s-1980s)

With the commissioning and submission of Dr Heini Hediger's report on the management and conditions of Taronga Zoo in 1966, there was an impetus for the progressive development at the zoo that put more focus on the wellbeing of the animals (including removing concrete enclosure floors) and reviewed relationships between humans (as zoo visitors) and the animals (generally regarded as 'exhibits') where new enclosures were planned.[19] Shortly after this Dr Ronald Strahan replaced Hallstrom as director of the zoo in 1967. Strahan (1922–2010), a graduate in zoology, had studied in Western Australia then at Oxford University, followed by the universities of Hong Kong and New South Wales. His was the first full-time directorship of the zoo and marked a significant departure from 'keenly interested amateur' directors to those with widely recognized credentials in zoological science. Strahan remained in this position until 1974 and, among other achievements, is remembered as a pioneer in advocating zoos as cultural scientific institutions.[20] Consistent with this emphasis, Strahan sought to appoint scientifically qualified curators for each of the zoo's mammal, bird, reptile and fish sections.[21]

Also consistent with Strahan's concern to review the overall planning and functioning of the zoo and Hediger's earlier recommendations, a Planning Committee was established to oversee preparation of a master plan of redevelopment of the Zoo in March 1967. The Committee included two representatives from the then Government Architect's Branch of NSW Public Works Department: Geoffrey Phillip (Peter) Webber (Assistant Government Architect) and Donald Murray Coleman (project architect).[22] Another member of the committee was trustee

[19] Hediger was director of the Zurich Zoological Gardens with a particular interest in human-animal relationships and the author of *Wild Animals in Captivity*, Baratay & Hardoun-Fugier, 2004, p. 262
[20] australianmuseum.net.au/tribute-to-ron-strahan-am
[21] Taronga Zoological Park Trust, *Annual Report for 1967/68*, p. 2
[22] Taronga Zoological Park Trust, *Annual Report for 1967/68* p. 2

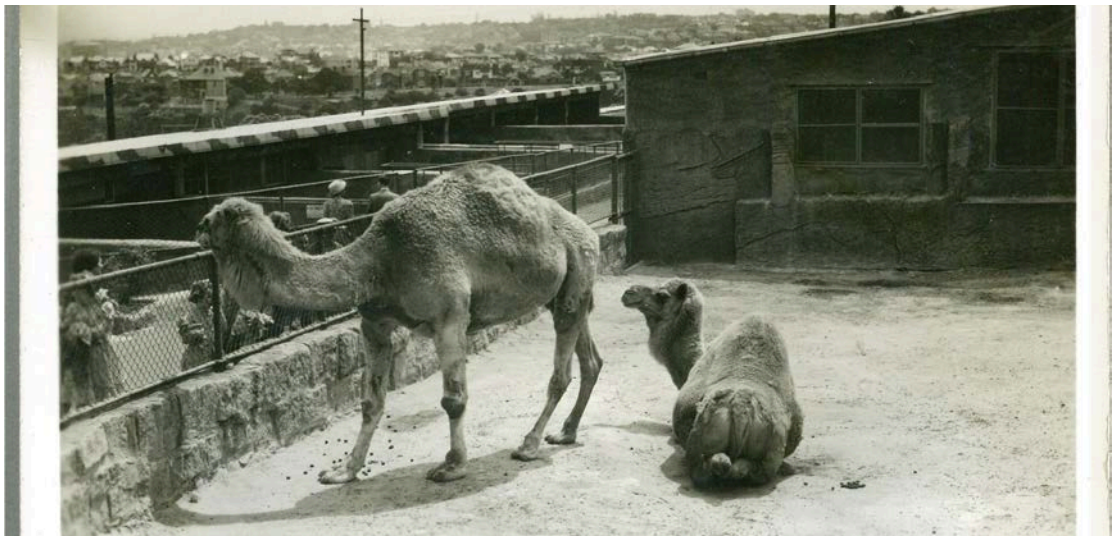
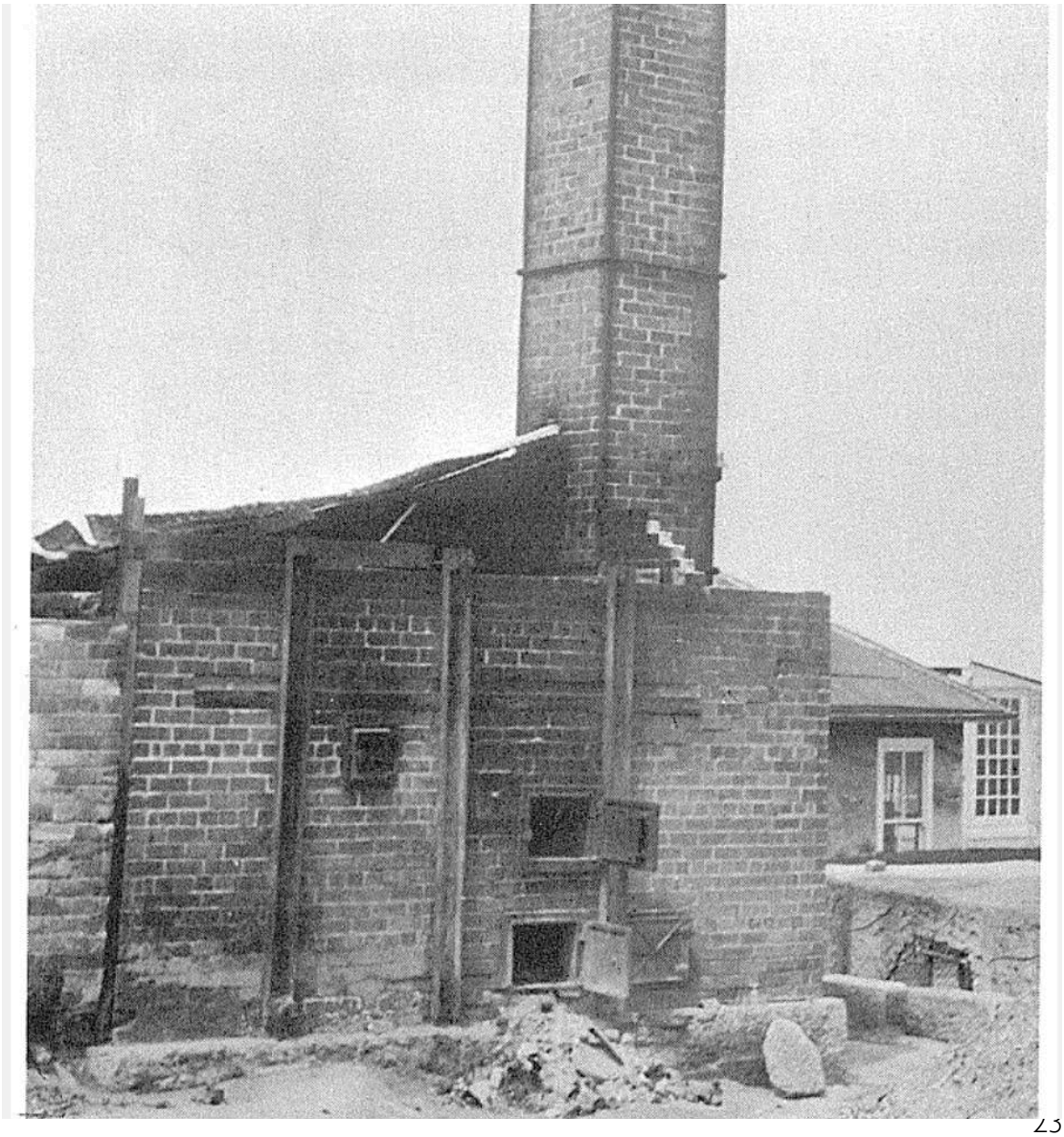


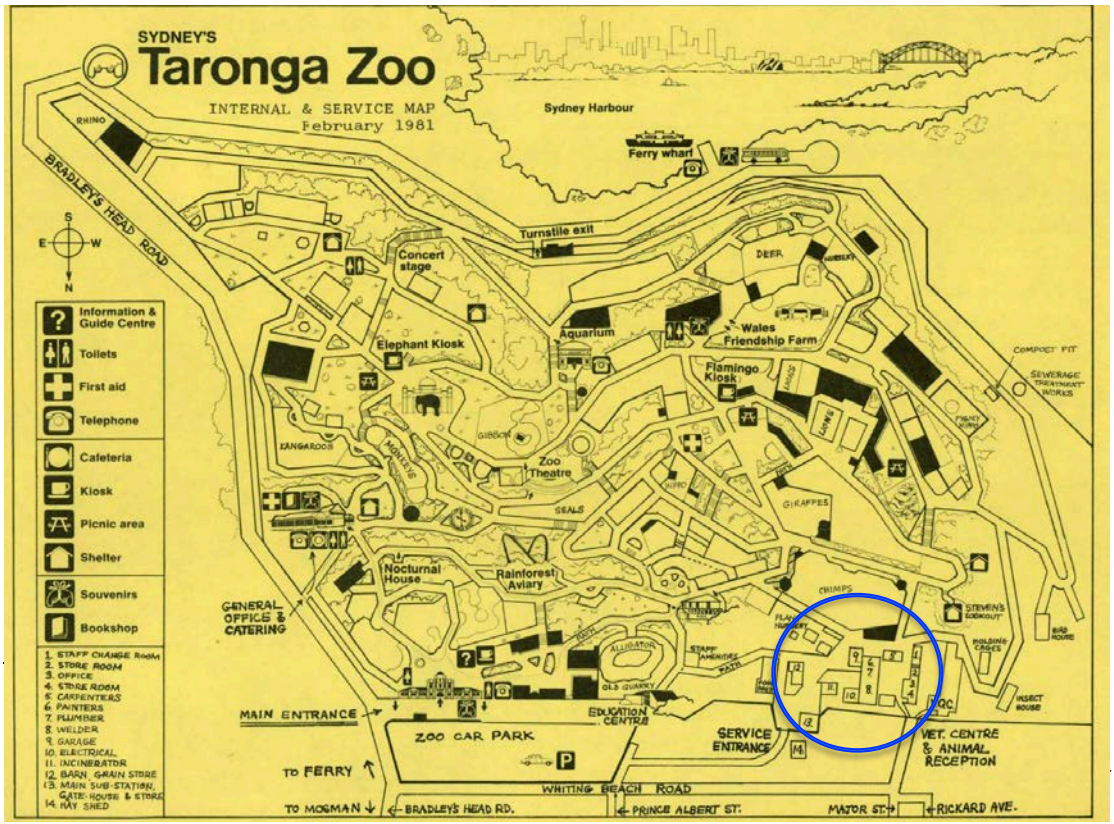
Figure 19 ABOVE A c. 1960s view of the Camel yard showing a somewhat dour, featureless yard environment. The eastern end of the 1934 hospital building forms an edge to the yard. (*Source: TCSA Archives*) **Figure 20** BELOW The former incinerator possibly within the old quarantine area. Note, to the right, original 1915 service yard buildings with their multi-pane windows. (*Source: Hediger report, 1966*)



CB Maclurcan, a senior partner in the well-known Sydney architectural firm Fowell, Mansfield, Maclurcan and Jarvis.[23] The Master Plan was completed in March 1970[24], and it set out the basic principles guiding redevelopment policy, an important objective of which was a new emphasis on Australian fauna. As a result of this master planning, many new initiatives were undertaken including the building of various new purpose-built structures and major upgrades to both public and back-of-house areas.

Many of these structures were the result of a close and productive collaboration between Ron Strahan (as scientific consultant) and Don Coleman (as chief designer). A legacy of this formative zoo development period is a series of fine buildings representative of some of the best design of the 'Sydney School' style. With the relocation of the hospital and quarantine area to its present site near the northwestern corner of the zoo lands, the former veterinary-quarantine centre became the site of the zoo's plant nursery and horticultural section (**Figures 21** to **23**) until redeveloped in the early 1990s.

Figure 21 ABOVE Detail from the 1979 oblique aerial photography with the Chimpanzee Park under construction. The approximate study area is shown. (*Source: TCSA Archives*) **Figure 22** BELOW A 1981 guide plan with the present study site circled. Note that the plan has been inverted to orientate visitors south to the harbour in the general direction of movement through the zoo. (*Source: TCSA Archives*)



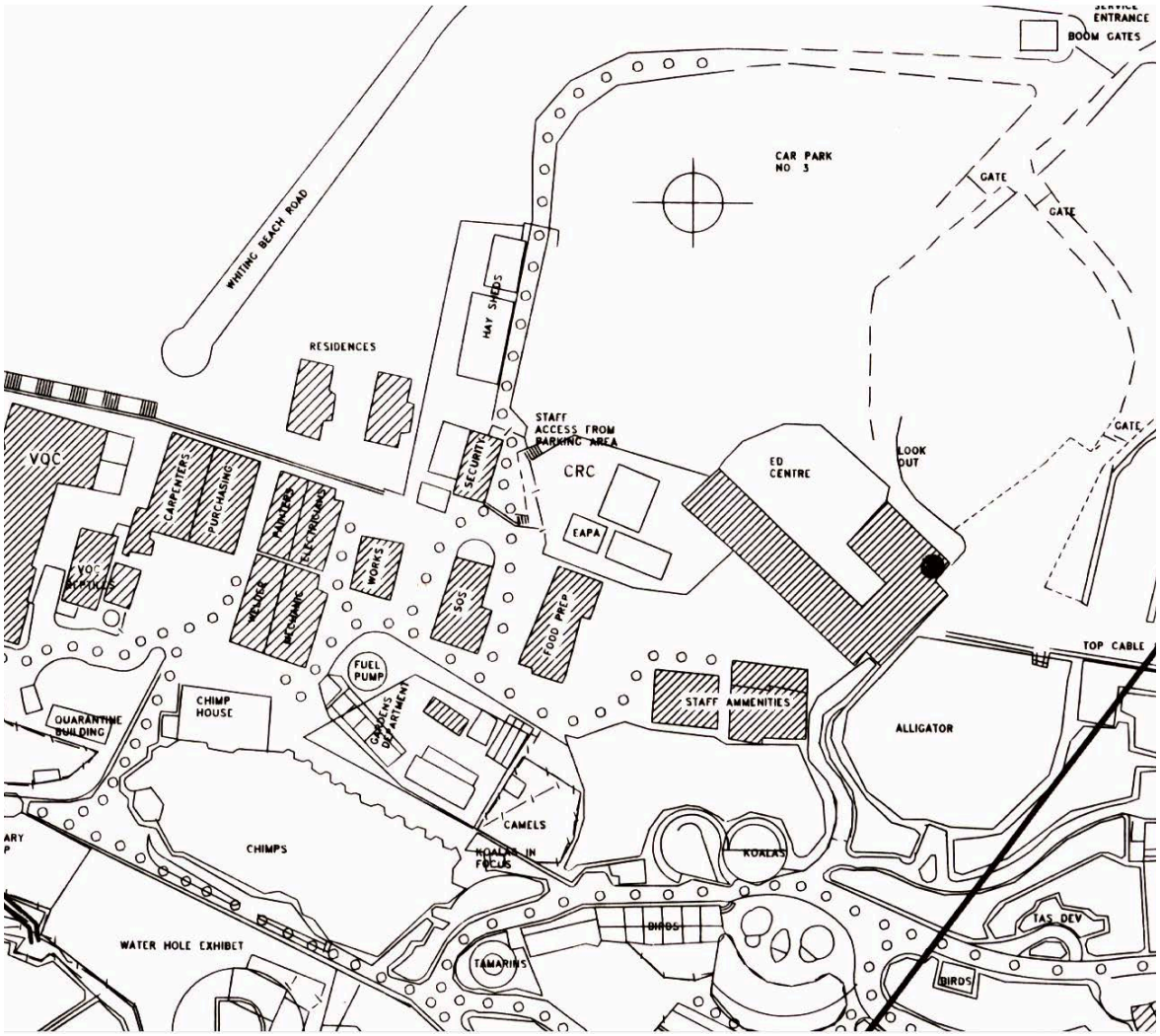


Figure 23 Part of a 1992 site plan showing the present study area immediately prior to the construction of the current reptile complex. Note the breach in the former northern boundary wall and the addition of food storage buildings (the present metal sheds) along the western side of the earlier *ad hoc* northern car park. (*Source: TCSA Archives*)

A number of back-of-house service buildings were built from the mid-1970s through the 1980s to the north of the present reptile complex. These include the present clerestoried, reverse-skillioned building (in 'Sydney School' style) used for food preparation and the two storey, gabled barn building further to the west – both chocolate brown brick utilitarian structures (Figure 24). With a wide breach through the former stone boundary wall, a gatekeeper's office (more recently used as a pest control office) was built just beyond the line of the northern wall. Further to the north the existing large metal shed (formerly a hay shed now used by the horticulture section) was built in the 1970s (Figures 21, 22 and 23).

2.3.4 Later Development (1990s-2000s)

Under Dr John Kelly's directorship (appointed 1987) the Government Architect's Office produced its second Master Plan for Taronga Zoo in June 1989. To the immediate south of the present study area, the Master Plan's most substantial project was a new complex to accommodate reptiles and amphibians. This became known as 'Serpentaria' (Figures 26 and 27) and subsumed a large area that formerly accommodated the Camels (being basically in this location since the zoo's inception) and a substantial part of the 1934 hospital and quarantine

area. The 'Serpentaria' complex was designed by NSW Public Works Department architect Paul Bardsley for the Government Architect and was completed in 1993 though not opened to the public in time to be noted as such on the 1993 zoo guide plan.

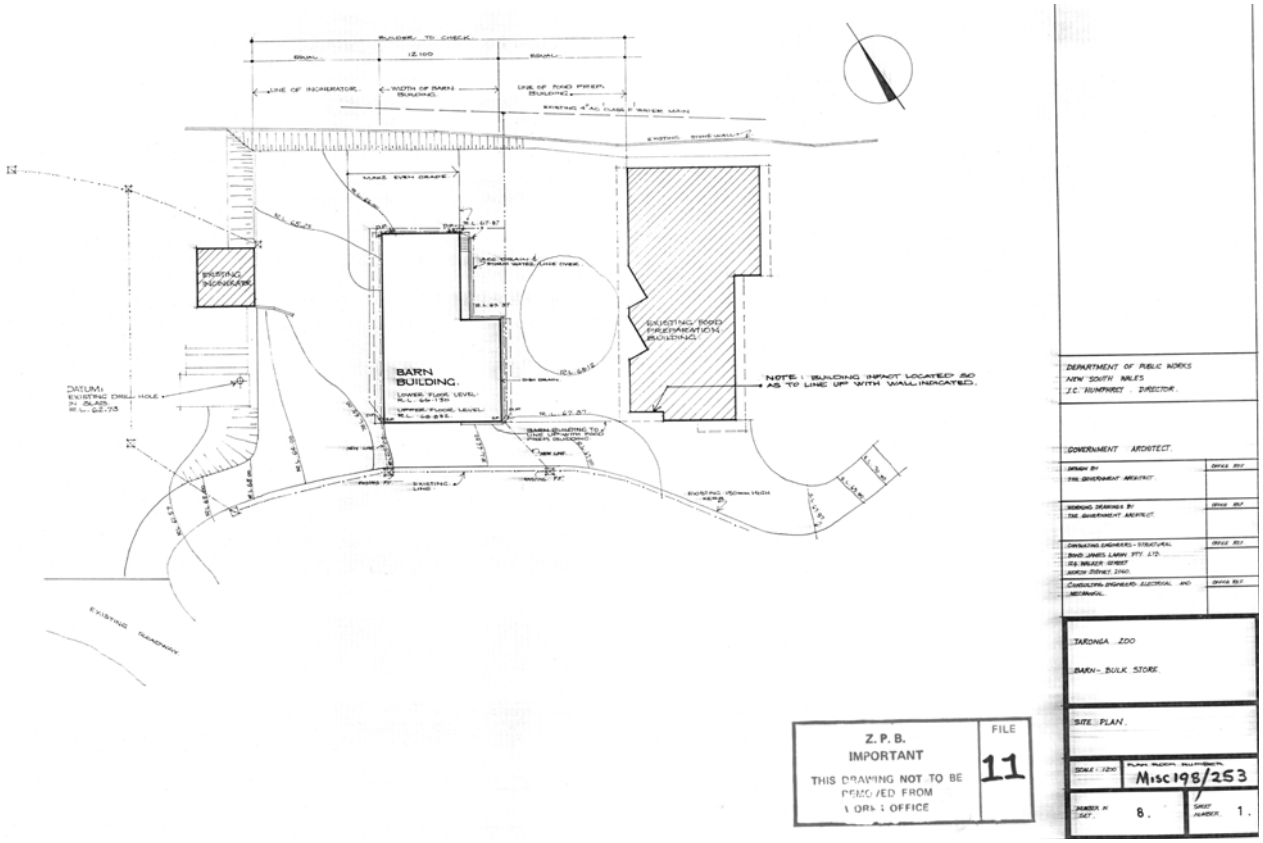


Figure 24 ABOVE An undated (probably 1970s) site plan showing the food preparation building (right) and the incinerator (left) with the 'barn building' in between. The latter structure was documented in two very different use options – as a split level storage building but also as a staff amenities building. (*Source: TCSA Archives*) **Figure 25** BELOW A view of the woodland remnant north of the Koala House and to the immediate south of the proposed Nutrition Centre development.

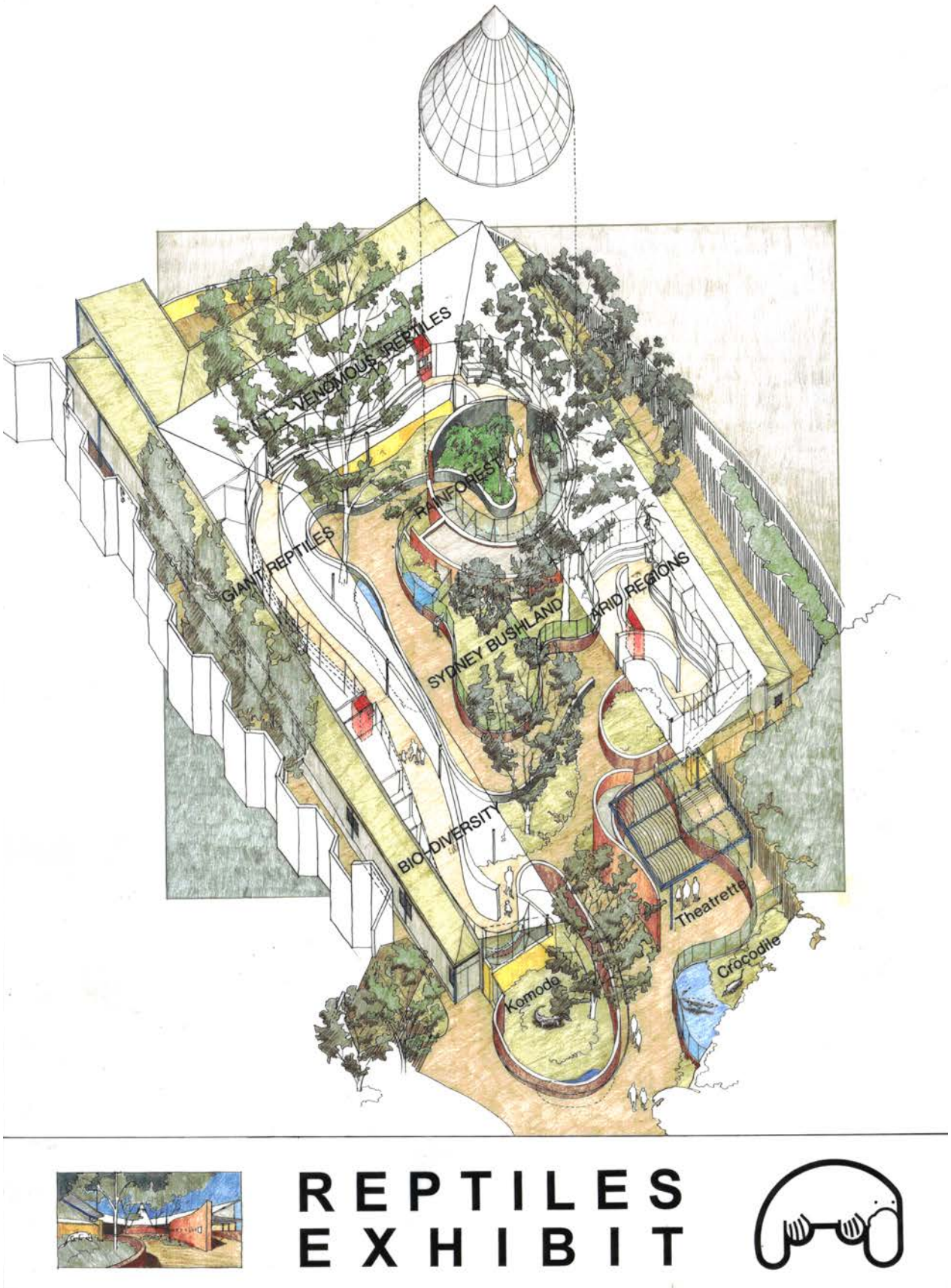


Figure 26 Presentation perspective of the 'Serpentaria' complex with the articulated brick boundary wall of the Chimpanzee Park at left. The original thematic zones are indicated while the drawing clearly conveys the 'exhibit's' characteristic curvilinear and coiled 'reptilian' internal layout. (*Source: TCSA Archives*)

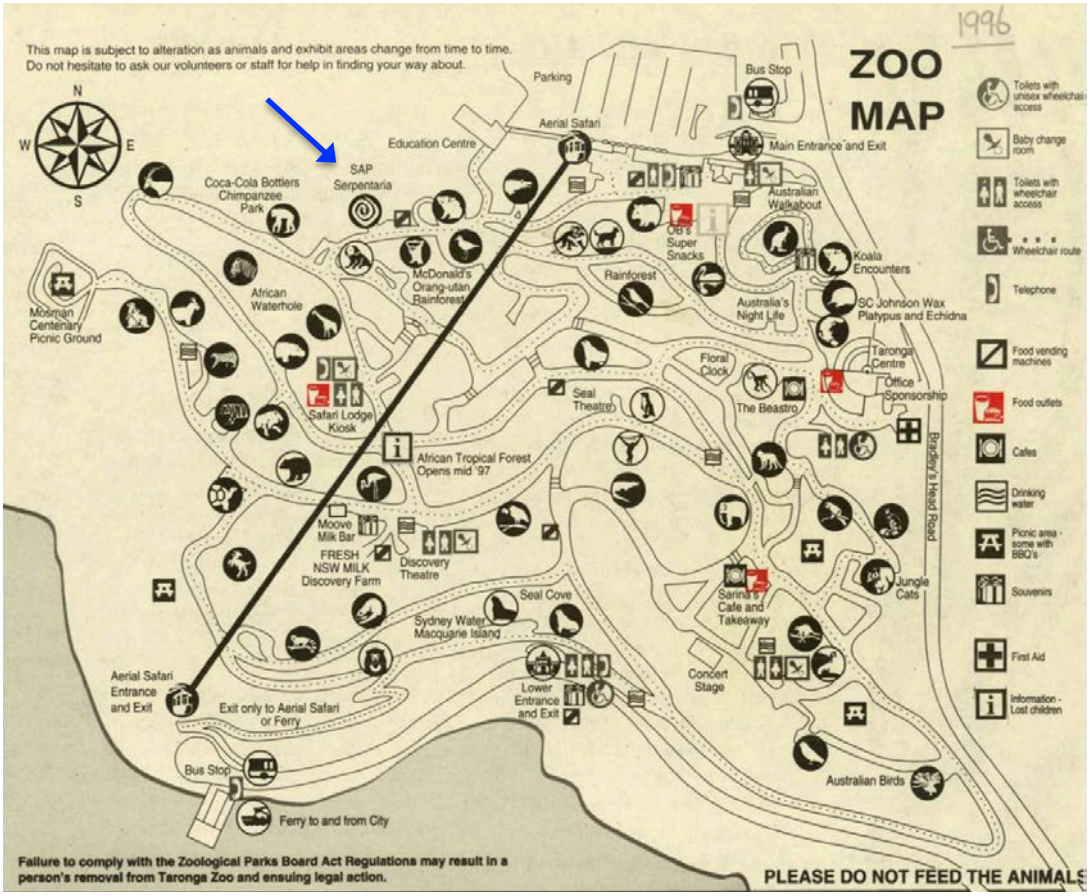


Figure 27 Taronga Zoo guide map from 1996 with the completed 'Serpentaria' complex indicated. (*Source: TCSA Archives*)

2.3.5 Recent Development (2010s)

To the north of the existing food preparation building a further two large metal food and supplies storage sheds were built between 2004 and 2014 (opposite the existing horticulture shed). The installation of these bulky structures necessitated cutting back the adjacent bank supporting the line of Maiden's Gums (probably planted about the 1960s) and 'shotcreting' the resultant steep bank to maintain stability (**Figure 28**).

Figure 28 View behind the current metal warehouse and hay shed buildings of the concrete stabilised bank with the line of Maiden's Gums above (extreme right).

3 Current Site Context

This section considers the current status of the study area and particularly those remaining or persistent aspects of the site that have the potential to contribute to the cultural value of Taronga Zoo. Where such aspects are identified they are further classified in the following section (**Section 4**).

3.1 Pre-Zoo Landscape

3.1.1 Site Morphology

Of the many components of the Taronga Zoo site assessed as having cultural value, the most fundamental relate to its basic landscape morphology (so dictating drainage patterns), geology and ancient vegetation remnants. The basic landform of the site is characterised by descending terrain from the north towards the harbour to the south. Several ridges define valleys of varying size providing a more protected environment. The southerly orientation of the descending topography has facilitated the zoo's spectacular views across the harbour to the city and beyond and this important cultural (visual) asset has been widely recognised since the zoo's inception 100 years ago. The present study area centres on one of the more elevated parts of the site – on and mostly west of the main ridge line - (**Figure 29**) from which there are spectacular scenic view prospects across the harbour to the Sydney Opera House, CBD and Harbour Bridge (**Figures 30** and **31**).

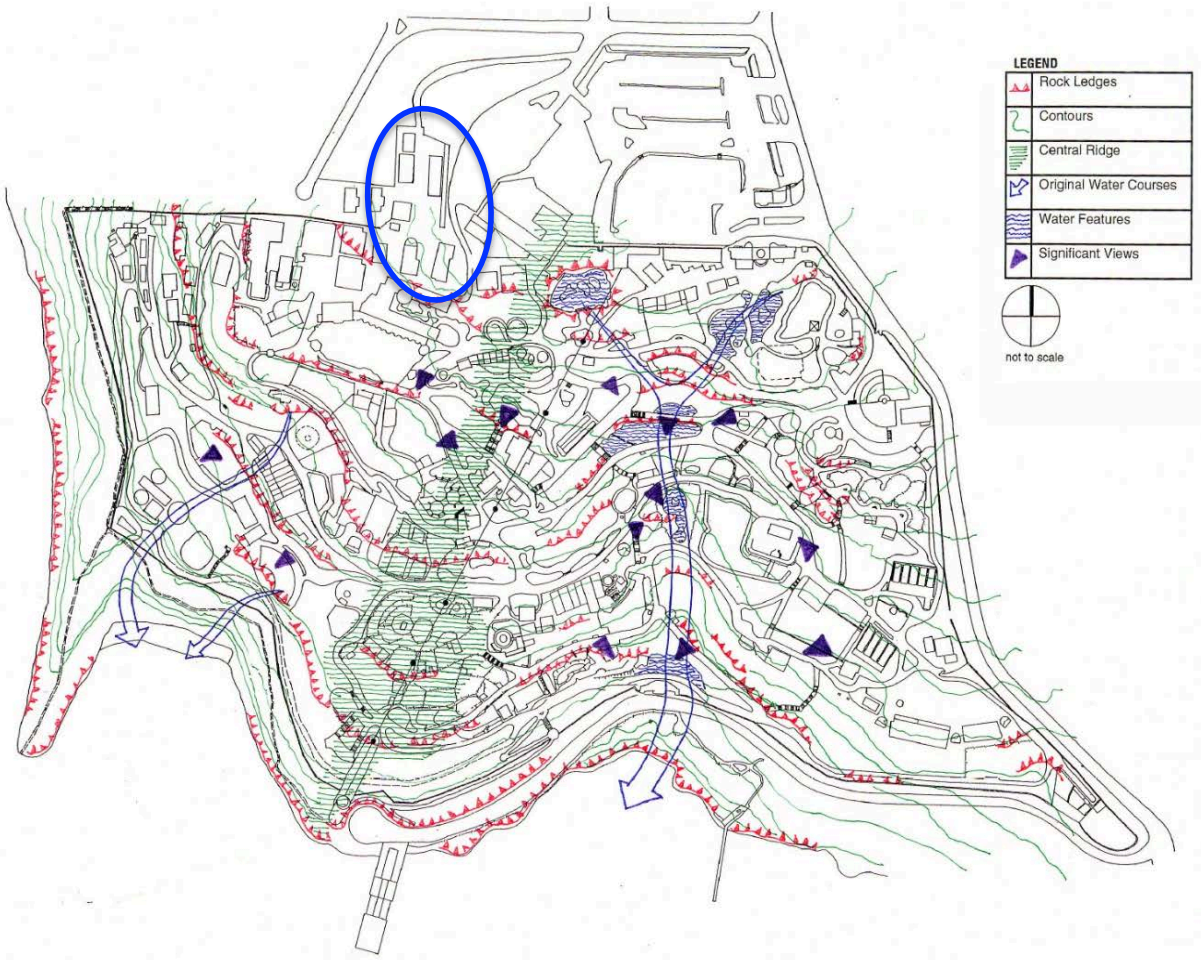


Figure 29 Overall site plan showing the zoo's basic landform. The hatched green area denotes the central ridgeline that defines the principal valleys either side while the red graphic indicates the main rock ledges though this is not meant to be exhaustive. (*Base courtesy: GML Conservation Strategy, 2002*)

Figure 30 BELOW An incidental scenic view from the road above the current reptile complex.

Figure 31 A similar view to Figure 30 with a broader sweep across the harbour. The low elevation of the current reptile complex allows this unexpected but impressive back-of-house panorama.

3.1.2 Distinctive Sandstone Outcropping

An outstanding intrinsic feature of the Taronga Zoo landscape is the layered embedded sandstone benching and intermittent outcropping. The characteristic Hawkesbury Sandstone outcrops and cliffs have featured in many zoo exhibits since 1913 and within the study area the pervasive presence of the underlying sandstone bedrock is evident to the north and east of the food preparation building.

The same *in situ* features have provided quarried stone faces of varying scale and worked stone blocks for structures within the zoo. One of these structures is the remnant boundary wall where sections remain within the northern part of the study area. Natural sandstone site features continue to offer opportunities as part of new designs as well as having a role as an overall unifying element throughout the zoo landscape.

Figure 32 Approximate areas of significant remnant indigenous vegetation within the zoo. The area of *Angophora* woodland in proximity to the Koala House is probably more extensive than indicated on this plan originally drawn in 2006 from initial basic mapping by botanist Dr Ben Wallace. However the same woodland may be less well represented with key indicator species. Similar woodland shown to the north has been impacted (reduced) by the multi-storey car park development (*Source: Design 5 et al LMP, 2007*)

3.1.3 Local Indigenous Vegetation Community Remnants
s170 Register Item 240L

Three distinct remnant vegetation communities have been identified within the overall zoo lands – *Glochidion/Acmena* Closed Forest (behind the beach areas); *Elaeocarpus/Glochidion/ Eucalyptus botryoides* Open Forest; *Angophora costata* Shrubby Woodland (formerly occupying the greater part of the zoo lands) - with a fourth transitional type having occurred between the communities (**Figure 32**). Of these, a persistent remnant of the *Angophora costata* shrubby woodland type (s170 Heritage Item 240L) occurs to the north and west of the Koala House (**Figure 25**).

In the context of all of these vegetation communities being much reduced within the zoo as well as across the broader suburb of Mosman (excepting the fringing National Park lands), it is important to retain all remnants – particularly so where a major educational principle of the zoo revolves around the active conservation of surviving habitat in order to maintain local biodiversity.

3.2 Early Zoo Elements (Interwar)

3.2.1 Northern Boundary Wall
s170 Register Item 07L

The existing sections of stone boundary walling were probably built during the 1920s (see the 1930 aerial at **Figure 14** as well as note the solid graphic showing the site boundaries for plan at **Figure 13**) as a result of special government funding. While the physical evidence of this era is important to retain and interpret, the principal significance of this wall lies in its record of the alignment of the original zoo boundary from the 1910s. The zoo's site boundary was likely first defined by a basic timber fence (see **Figure 8**, 1916). This northern alignment of the boundary

wall remained intact for many decades before being finally breached for buildings in the 1970s to facilitate the zoo's functional expansion. Remaining sections of the wall are important to retain and should be conserved as a direct record of the original zoo site area (**Figures 33** and **49** to **51**). The boundary wall was added to the zoo's s170 Register in 1998. Remnant blocks from previous breaches of the wall are to be found at either end of the remaining section within the study site (see for instance cover photograph (left frame) and **Figure 50**).

Figure 33 RIGHT A section of the former northern zoo site boundary wall from the Interwar period (probably 1920s) – the 1930 aerial view (**Figure 14**) shows it already complete at this date.

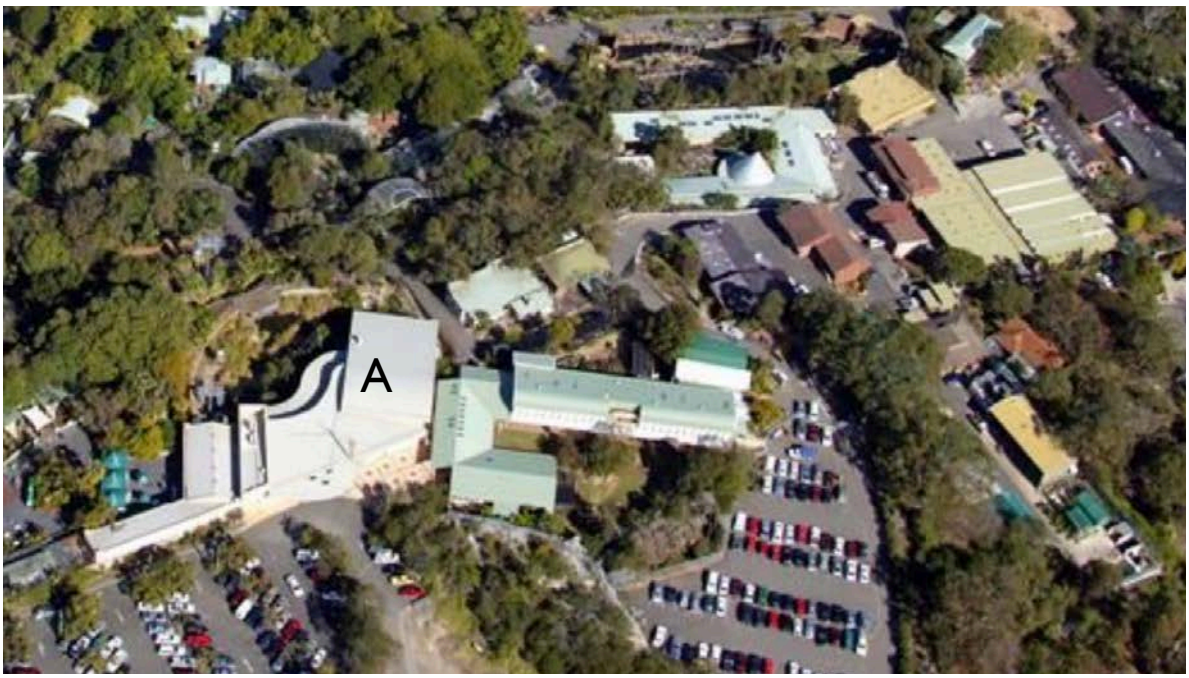


Figure 34 Detail from the 2004 oblique aerial photography showing the current Taronga Institute of Science & Learning Theatre (**A**) with the study site to the right of, and above, the adjacent car park.

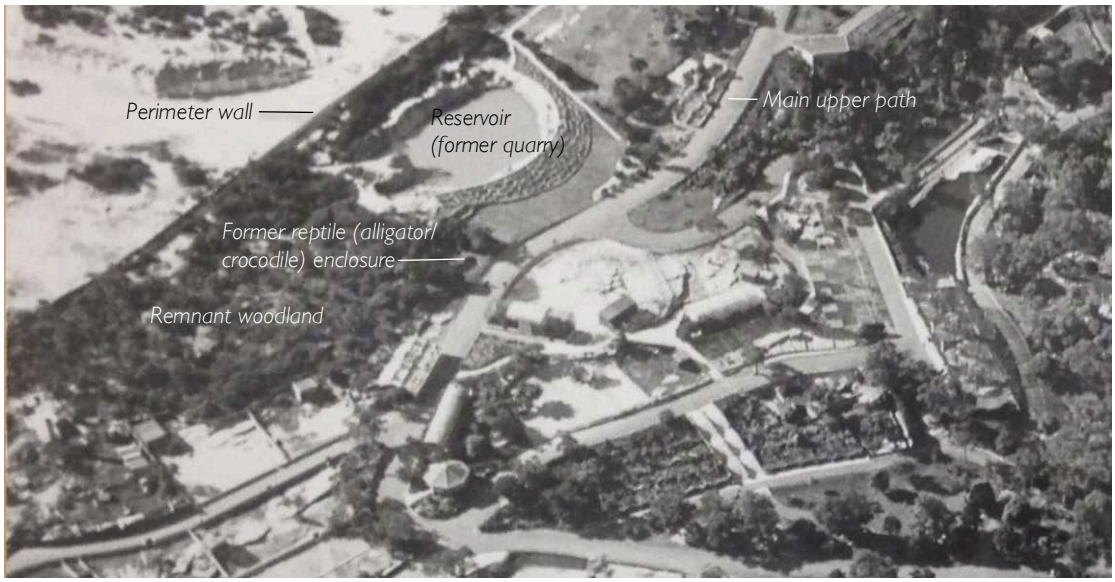


Figure 35 Detail of the 1930 oblique aerial photography with annotations. It clearly shows the former northern boundary wall intact by this date as well as considerable remnant woodland to the south but much clearing to the north. (*Source: TCSA Archives*)

3.2.2 Former Hospital/Quarantine Area

This area was initially developed to provide updated and expanded hospital and operating theatre facilities as well as animal quarantine enclosures from 1934 as part of a Depression era unemployment relief funding program. It subsumed part of the camel yards (Llama) and after various extensions and additional facilities the entire hospital/quarantine complex was replaced and relocated in the 1980s. The former site was then repurposed as the base for the zoo's horticulture section and plant nursery before these functions were relocated further north with the site being totally redeveloped for the existing reptile and amphibian complex and completed in 1993 as 'Serpentaria'.

A large section of the natural sandstone bedrock forms an outcrop in this location and both the early enclosures, hospital complex and current reptile buildings have retained much of this feature. The rock shelf is also the base for a remnant area of *Angophora costata* woodland. Both the sandstone outcropping and the woodland remnant are regarded as having high conservation status.

One of the visually prominent elements of the former hospital/quarantine complex was the former incinerator structure with its landmark brick chimney (**Figures 14**, **16** and **20**). While most of the structure has been removed, the shell is still apparent – particularly at the lower level – but the building has been rebuilt and repurposed. It is also located outside the present study area.

3.3 Later Site Development (Post WW II)

3.3.1 Staff Amenities Building

This purpose-built zoo staff amenities building was built in the late 1940s and was located to the immediate west of the former sandstone quarry/reservoir (**Figures 18**, **23** and **34**). It was finished as rendered brickwork and, at a single storey only and skillion-roofed, was visually unobtrusive. It was variously used in more recent years for retail purposes and as an archives

store before being removed in 2017 to make way for the new Taronga Institute of Science & Learning building which is immediately to the east of the present study site.

3.3.2 Gatehouse Building

In the early 1970s there began a move to breach the northern boundary wall and one of the first buildings to be added outside the line of the wall was a gatehouse. This is located to the immediate south of the existing Substation No. 1 and horticulture shed. The dark brick building, with its low profile gabled hip, metal roof, remains though it is now used as a base for the zoo's pest control. It is also just outside of the designated site area for the Wildlife Hospital & Animal Nutrition Centre proposal.

3.3.3 Food Preparation Building

The existing 1980s food preparation building was one of the results of the lengthy and generally productive collaboration between the zoo and architects of the NSW Department of Public Works. The building was designed as a single storey dark brick structure with low-pitched gables and tiled roof cladding (**Figure 36**). As a relatively large plate (quasi-industrial) structure located on one of the higher parts of the zoo site the intention was to make it as visually unobtrusive as possible and to that end it is a successful design. While the building pays homage to the 'Sydney School' style using visually low-key, earthy materials and split rooflines, it is regarded as having low cultural significance.

Figure 36 Southern elevation of the existing food preparation building. Note the remnant rock outcrop behind it to the east. This is part of the exposed bedrock across the upper sections of the Mosman site.

3.3.4 Additional Amenities Building

Within the study area is a two level dark brick, metal gabled purpose-built staff amenities building (west of the food preparation building) added between 1973 and 1979. The 1970s building falls within the area proposed for the Animal Nutrition Centre project site and is regarded as having little heritage value.

Figure 37 ABOVE The 1970s amenities building is shown to the left of the existing food preparation building (foreground and right). Note especially the steep change of level to the former building. **Figure 38** BELOW A panoramic view of the back-of-house area with the two-level 1970s amenities building (centre), the food preparation building to the left and the offices building to the right that subsumed the former incinerator. Beyond these is the low profile (light green) metal roof of the existing reptile building.

3.3.5 Various Storage/Service Structures

Further to the north of the 1970s former gatehouse, another bulk storage shed was added that now functions as a horticulture shed. Green house structures are further to the north though all of these structures fall outside of the designated study area proposed for the new Wildlife Hospital & Animal Nutrition Centre

3.3.6 Mid-20th century Plantings

Between the upper car park terrace and large metal bulk storage sheds to the west is an excavated bank recently stabilised by 'shotcrete'. Above this bank is a line of Maiden's Gums (*Eucalyptus globulus* subsp. *maidenii*) – named in honour of former Director of the Royal Botanic Gardens, JH Maiden (1859-1925) by botanist Baron von Mueller in 1890. It is not known exactly when these trees were planted but they are believed to have been instigated by former zoo employee David Thomas in the 1960s likely from a gift of a batch of such trees from the RBG, Sydney. Mature examples of this species are uncommon in cultivation within the Sydney area although the natural range is throughout southeastern Australia but at the higher elevations. The trees are regarded as having high conservation value and should be retained. The 2006 Landscape Management Plan study found and recorded other Maiden's Gums within the zoo

and noted that all of these plantings were probably from about the same period. The present line of gums was probably part of a longer line around the western edge of the northern car park area.

On the basis of the 2021 arboricultural assessment by Sydney Arbor Trees, all eight of the gums appear to be in good health and vigour.[25] With one exception (Tree 10), all eight are also in good condition. Tree 10 is described as in a fair condition as a result of a fungal infection (*Phellinus robusta*?) caused by a substantial past abrasion (physical impact). However the report also notes that between the two recorded Picus Sonic Tomograph tests in 2013 and 2016 by Australian Tree Consultants, the area of decay appears to be reduced indicating that the tree's vigour has enabled it to successfully fight the pathogen. It is also noted that the last Picus test recommended another such assessment in 5 years time to gauge the further extent of recovery of the tree.

At the southern end of this line of gums is a lone mature Bangalay (*E. botryoides*) – a locally indigenous species - also of unknown age. The arboricultural report indicates that the location of the Bangalay in relation to the Maiden's Gums may be important as all of these trees are growing along one of the most exposed sites of the zoo in relation to southerly winds and the Bangalay appears to be sheltering the gums from excessive wind loading.

Figure 39 Detail of the Maiden's Gums behind the large hay shed with the upper car park at right.

[25] Sydney Arbor Trees 2021, *Taronga Wildlife Hospital - Sydney Nutrition Centre Arboricultural Impact Assessment*, 24 November 2021, pp. 17 – 19, 27.

3.4 Recent Elements (1990s to Present)

3.4.1 Serpentaria
s170 Register Item 102B

To the immediate south of the current project site, the existing reptile/amphibian complex from the early 1990s (known then as 'Serpentaria') is one of the zoo's principal attractions with an impressive range of reptilian and amphibian animals housed in a well-designed and detailed, purpose-built structure. It effectively subsumed most of the area formerly used as the 1930s hospital/quarantine complex and demonstrates a well-considered design response to the site. The building is particularly compact and manages to retain the substantial sandstone rock outcrop adjacent to it. Internally, the circuitous (reptilian) thematic route is compelling making ample use of hidden skylights and clerestorey windows culminating in the dramatic conical space. It is instructive to compare this scheme with a slightly earlier design proposal by prominent architects Daryl Jackson Robin Dyke where that unrealised concept appears more sprawling and less cohesive.

A considerable archive of documentation drawings describe the existing building characterised by its simple brick construction and metal skillion roofs. Architecturally, it achieves a certain understated sophistication while relying on a reduced palette of materials. The scheme unifies the site well and successfully manages the balance between providing visitors with an intriguing complexity yet controlling the serial experience with clarity. The overall site design is regarded as being a particularly fine example of late 20th century institutional architectural planning and design from the NSW Government Architect's Office and well deserving of its recognition and listing on the zoo's s170 Register.

Figure 40 ABOVE View of the distinctive conical space of the existing reptile/amphibian complex with part of the circuitous, convoluted circulation system evident. The brick paving and brick and painted/ bagged plinth and dwarf walling are used as unifying devices throughout the building. **Figure 41** LEFT A view of the small active display/animal handling area with the natural sandstone bedrock and some of its associated indigenous vegetation evident beyond. The compact 'U'-plan arrangement of the building was basically dictated by the site's spatial constraints wedged between the Chimpanzee Park, the rock outcrop and the large retaining wall to the north.

Figure 42 View of the courtyard area of the existing reptile/amphibian complex looking to the remnant woodland vegetation between this space and the Koala House beyond.

3.4.2 Additional Storage Buildings

By 2014 the existing large metal bulk food storage buildings to the west of the Maiden's Gums were added (**Figure 43**). None of these later structures are regarded as having any conservation value yet the 'shotcreted' embankment built to allow the buildings remains as a detracting element within the landscape (**Figure 28**) while it is remarkable that this excavation has not, as yet, deleteriously affected the viability of the significant trees beyond.

Figure 43 Various metal-clad 'industrial' buildings between the Maiden's Gums (background) and the existing horticulture shed (out of view to the right of the photograph).

3.4.3 Taronga Institute of Science & Learning Building

Although outside the present study area, a new TIS & L building has recently been completed to the eastern side of the study area and has subsumed the site area of two earlier staff amenities buildings. An access road to the new building now forms the northern edge of the remnant woodland area associated with the Koala House.

4 Consideration of Significance

4.1 Previous Heritage Studies

Previous heritage studies of Taronga Zoo have provided considered assessments of the overall cultural significance of the zoo as well as its various individual components such as structures, landscape, vegetation, views and layout. As the first of the comprehensive site assessment studies, the 2002 Conservation Strategy (GML Heritage) set the benchmark by describing the Taronga site as having national cultural significance for Australia as an urban zoo. Subsequent studies have come to similar conclusions confirming the status of Taronga Zoo within an Australian context. The 2002 Conservation Strategy's statement of significance for the overall zoo has been adopted for all of the more recent heritage impact assessment reports written through the TCSA.

The 2006 Landscape Management Plan provided a further statement of significance with specific reference to the extensive and complex zoo landscape. It contended that the zoo landscape is an inseparable part of Taronga Zoo, "providing the matrix that binds the [many] significant elements of the zoo together and substantially contributes to the definition of the zoo's character". It also stated "the Taronga Zoo landscape is exceptional in the contribution it makes to the significance of the zoo as a whole". Landscape components therefore provide important context for considerations in relation to the present HIA report.

Social value in connexion with Taronga Zoo has yet to be formally studied however it is highly likely that this aspect of cultural significance would form an important part of its overall significance. There is a small, but compelling, hint of this in a former exhibition board previously mounted at the former Safari Lodge (demolished for the current African Waterhole precinct) where an impressive and diverse group of international personalities are recorded visiting Taronga Zoo. These include Eleanor Roosevelt (1947), Alfred Hitchcock and Albert Namatjira (1960), Queen Elizabeth II (1973), Nelson Mandela (2000), Sir David Attenborough and Prince Harry (2003) and many others more recently: Jane Goodall (2009), Lady Gaga (2013), The Duke and Duchess of Cambridge and Prince George (2014), John Cleese (2015) and former US Vice President Mike Pence and his family (April 2017). Taronga Zoo clearly continues to have recognition at an international level as well as nationally, within NSW and as a major cultural feature of the Sydney metropolis maintaining a continuous use at this Mosman site for well over 100 years.

4.2 Overall Significance of the Zoo

The 2002 Conservation Strategy provides the following overall statement of significance for Taronga Zoo that gives context for the various individually significant elements that follow in the next section. (The last paragraph of the statement comes from the 2004 Archaeological Management Plan):

> *Taronga Zoo is a place of national significance as an urban zoo with unique physical and associative attributes, including links with early modern zoo philosophy, a unique and powerful cultural landscape and a wide range of landscape elements, architectural styles and enclosure designs evidencing the development of zoos in Australia.*
>
> *Features that contribute to Taronga's cultural landscape include the steeply sloping topography of the site; its location on the northern foreshore of Sydney harbour; the exploitation of the natural stone landforms and complimentary faux rock formations; the circulation layout and associated staircase and seating; the exotic and grand built elements used for public buildings and animal enclosures; the native and introduced vegetation on the site, the internal visual corridors within the site and expansive views from the site across Sydney Harbour to the city skyline.*

The original fabric at Taronga demonstrates the earliest example in Australia of Carl Hagenbeck's and early twentieth-century European zoological philosophies. In the differing design and approaches to the animal enclosures and aviaries, Taronga also evidences key aspects of international zoological [planning] philosophy that have influenced the Zoo's development throughout the twentieth century.

As an educational, entertainment and recreational facility, Taronga is a highly revered institution within Sydney's social fabric, evoking memories across generations of visitors. The Zoo is also an important keystone in distinguishing Sydney's sense of place. For the zoological community, Taronga is internationally recognised as a leading centre of biodiversity conservation and for the Zoo's educational focus.

Taronga's archaeological resource has some potential to provide information about the Aboriginal community, the early use of the site as a quarantine station and the development of the zoo. In combination, the extensive archive collection, built structures, landscape features and archaeological features at Taronga have great potential for research and community education.

4.3 Individual Elements of Significance

4.3.1 Items within the Proposed Nutrition Centre Site

Within the Nutrition Centre site there is only one item that is included on the zoo's s170 Register. This is the 1920s northern boundary wall section that has been recorded in the s170 register as having High heritage value at a State level. Adjacent this remnant intact section of walling there are numerous displaced blocks of sandstone that were part of the same line of walling but dismantled for earlier breaches of the northern boundary wall. Those items assessed as having individual significance located *in the vicinity of* the Nutrition Centre site are listed under Table 4.1 below.

4.3.2 Chronology of Items within the Proposed Nutrition Centre Site

A further table (Table 4.3) is provided that helps clarify the timelines for the various surviving and removed landscape and built elements within, and defining, the proposed Nutrition Centre site. This is in order to better understand the relative historical significance of each item.

Table 4.1 ITEM	*Significance*	*Zoo Period/Phase*	*Comments*
15M ZPB Archives and Records (Movable resource)	State/Exceptional	Earliest zoo period As well as earlier (19th c.) material	Very important and substantial documentary resource for the zoo
78B Retail Offices (formerly staff amenity block)	Local/Some (demolished)	Unknown (c. late 1930s-early 1940s)	Noted on 1943 zoo guide & demolished for the recent TIS & L building
102B Serpentaria complex	1995 (PWD Government Architect) Local/Moderate		Paul Bardsley (Project Architect)
108M Moonstone relic (Movable item)	Local/Exceptional	1913-1914	From former monkey pits
185L Remnant Angophora costata woodland	Local/High	Pre-zoo continuum	Locally indigenous vegetation

240L remnant Angophora costata woodland	Pre-zoo continuum Local/High		Part of original site vegetation

Table 4.1 Heritage Items in the Vicinity of the Nutrition Centre site (from s170 Register). Refer to the s170 Register and Landscape Management Plan 2006 for images of the items.

Table 4.2 VIEWS (see Figure 52)	*Significance*	*Comments*
LMP 2006 **View 34/35** *Glimpse [These coincide with views 534V & 535V in the TZ s170 Register]*	High	Views remain as well as elsewhere from within the back-of-house area (see **Figure 46**)

Table 4.2 Previously recorded views in relation to the Nutrition Centre site – to be read with Figure 49. These were noted in the Landscape Management Plan 2006 and significance is solely in terms of local value.

Table 4.3	*Timeline*										
ITEM	***1910s***	***1920s***	***1930s***	***1940s***	***1950s***	***1960s***	***1970s***	***1980s***	***1990s***	***2000s***	***2010s***
Distinctive local landform	*Pre-zoo*										
*Sandstone outcrops**	*Pre-zoo*										
Indigenous Vegetation	*Pre-zoo*										
Boundary fences/walls	*Built Initially timber*	*Stone from late 1920s*					*Wall opened for blg. to north*	*More service blgs added to Nth*			
Early plantings (E. globulus ssp. maidenii)						*Planted*					
Food prep. Blg.							*Built*				
Metal back-of-house blgs											*Built*

***** Hawkesbury Sandstone bedrock occurs as outcropping throughout the project area and most, if not all, of the buildings within the site are presumed to be built directly on to this bedrock. The section of zoo boundary wall to the north of the existing food preparation building is clearly seen to be built over the bedrock.

Table 4.3 Relative timeline for landscape Items within the Nutrition Centre site.

4.4 Historical Archaeology

The Taronga Zoo Archaeological Management Plan, 2004 (Endorsed February 2004) by GML Heritage considered potential archaeological resources relating to the present study area. In relation to historical archaeology, the AMP 2004 mapped most of the study site under the category 'Zone D' indicating that it held no potential for subsurface archaeological evidence and therefore had no archaeological sensitivity. A more detailed review of archaeology has been undertaken in 2021 specifically in relation to the Animal Nutrition Centre site by Urbis and reference is made to that study.

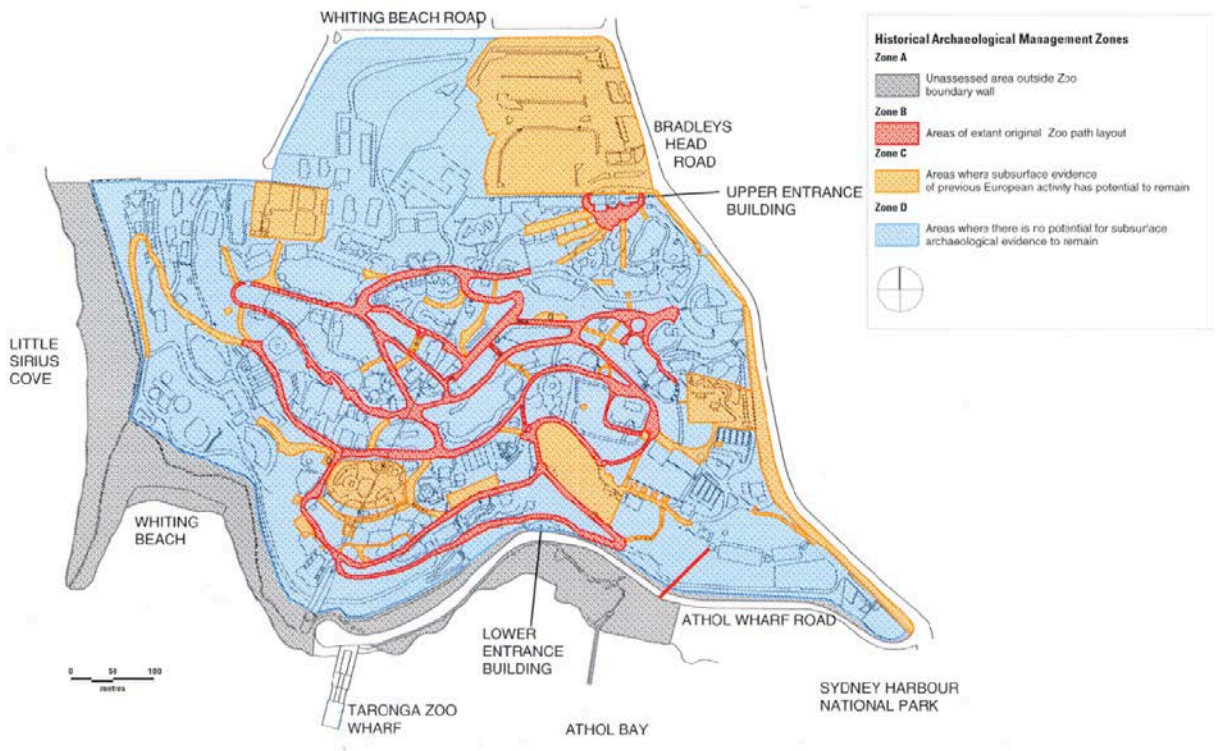


Figure 44 A plan from the 2004 *Archaeological Management Plan* of GML Heritage showing site zones with potential for European archaeology. (*Extract courtesy of GML Heritage*)

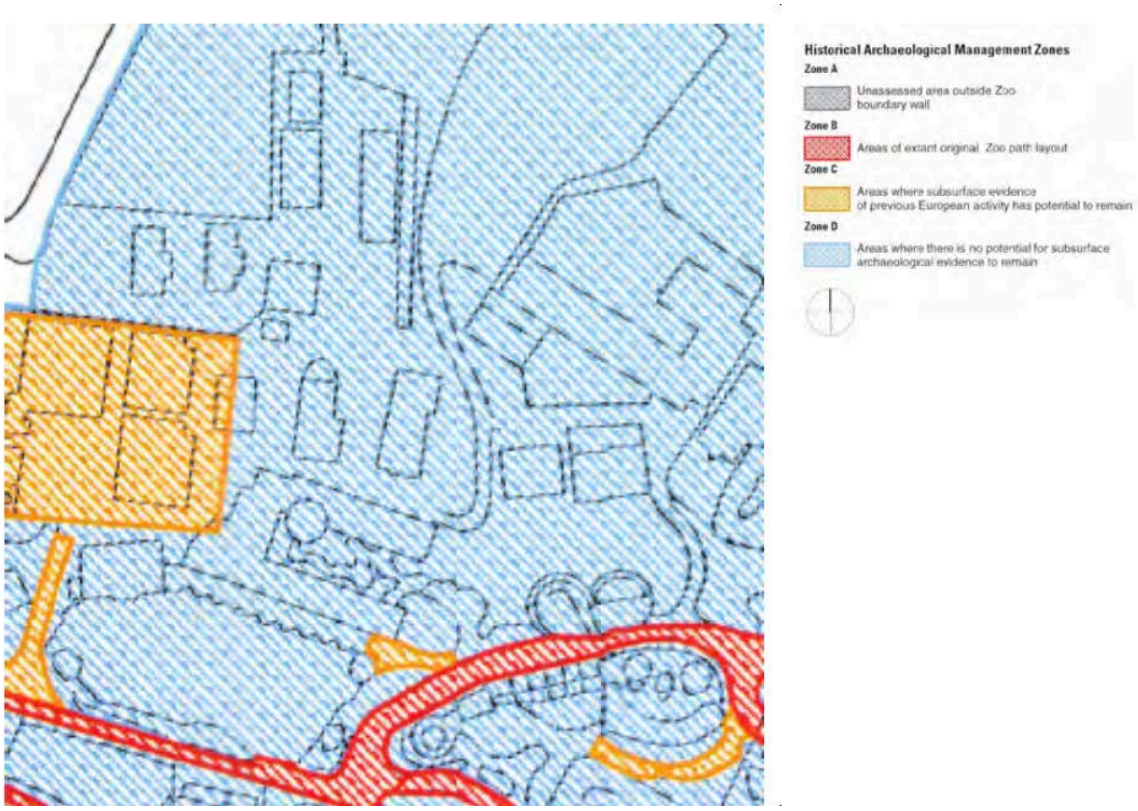


Figure 45 A detail from the plan above showing all of the study area indicated as Historical Archaeological Management Zone D (light blue) where it is considered that there is no potential for subsurface archaeology. Historical archaeology is also the subject of a current study for the site and reference is made to that report for more detailed advice. (*Extract courtesy of GML Heritage with reformatting by Jean Rice*)

Figure 46 An unexpected, incidental vista from along the back-of-house access north of the reptile and amphibian complex. The access is a well-used road to the zoo's service areas and will be an important delivery access route to the Nutrition Centre. This view is a continuation of similar views noted in the 2006 LMP as Views 34 and 35 (or 534V and 535V on the s170 Register).

Figure 47 A section of the northern stone boundary wall with the northern end of the current food preparation building adjacent beyond.

Figure 48 The section of the northern boundary wall within the study site showing its construction over the sandstone bedrock and with a plethora of fixtures and services connected to it. A flight of concrete steps and a landing have been built against it on the northern side. Along with all of the zoo boundary stone walls, this section has been the subject of a recent structural engineering investigation by Sumeer Gohil of Shreeji Consultant (Consulting Engineers). The 2017 report (draft) indicated that this section (referenced to engineering photograph 3474) is in good condition though recommended that the various redundant fixings and biological growth (including a fig tree seedling) should be removed within several years as part of its routine cyclical maintenance (not undertaken to date). The report also recommended the wall be stabilised using a tie-rod and that all non-redundant fixings be replaced with non-ferrous fixings. None of these recommendations appear to have been undertaken to date.

4.5 Views

The Taronga Zoo Landscape Management Plan of 2006 recognised a number of views from within the study area that are likely to hold aesthetic significance for visitors and/or staff. These are indicated in **Figure 49** below and referenced in **Table 4.2** above.

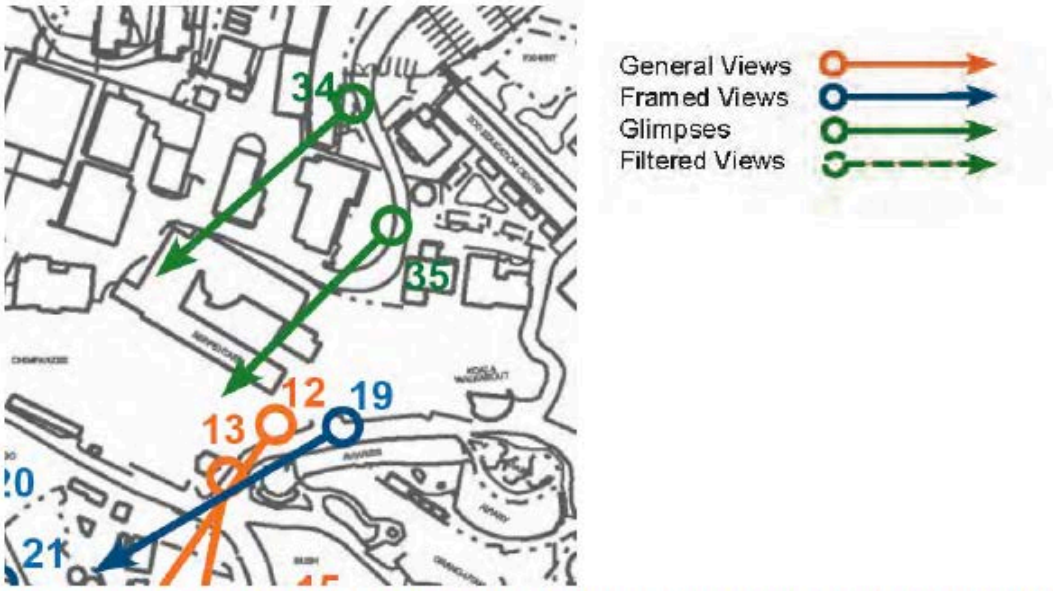


Figure 2.28 Extract of the map in the Landscape Management Plan showing significant views in the vicinity of the site. Views 12,13 and 19 are from the path immediately outside the site. Views 34 and 35 are glimpses of the Harbour bridge and city from the access road. Source: Design 5 & Others.

Figure 49 Extract from the 2006 Landscape Management Plan by Design 5 Architects *et al* describing key views from within the Nutrition Centre site. Refer also to Table 4.2 in this HIA report. (*Courtesy of Design 5 Architects with reformatting by Jean Rice*)

Views from the site such as those indicated in **Figure 49** are discussed in **Section 6** of this report. Views to the project site from the west (such as from parts of Cremorne Point) through to the south (from the harbour) are particularly important. These are discussed in more detail by others in separate reports.

5 The Proposal

5.1 Basis of Assessment

Potential heritage impact has been assessed in this report on the basis of the following information and reference should be made to these in reading the present report:-

* Development Application set provided by **dwp** architects (plans, sections, elevations, sun access diagrams, annotated views and materials board) issued 1 November 2021;

* TZ Wildlife Hospital & Nutrition Centre Landscape SSDA Report, 27 October 2021, Eximia Design; &

* Sydney Arbor Trees 2021, Taronga Wildlife Hospital - Sydney Nutrition Centre Arboricultural Impact Assessment, 24 November 2021 (issued 29 November, 2021).

5.2 Brief Description of Proposal

The proposal for the Animal Nutrition complex involves the construction of a new two storey building to be built generally where the existing animal food preparation building and northern bulk storage shed are located. At the southern end of the building a subterranean access is proposed to eventually link with the ground floor of the future Hospital building across the access road to the south. A modest plant room is located on the roof at the northern extremity of the building. (Refer to drawings AA-N1200 to AA-N1204.)

In relation to façade treatments, DA drawing AA-N8000 indicates that the basic materials scheme for the building is to use recessive-toned dark brown (stacked) brickwork for the ground floor level; grey-toned fine mesh screens for the upper level plant room cladding; grey-green metal panel cladding to frame windows around the first floor level with a repetitive rhythm of vertical, dark grey perforated metal louvres (sunscreens). The roof cladding is proposed as light grey metal Colourbond sheeting.

5.3 Implications of Proposal

In order to build the new Animal Nutrition complex and facilitate its efficient functioning, several of the existing buildings are proposed for demolition (DA drawing AA-N1000). The new nutrition building would effectively entail the removal and replacement of the existing food preparation building group and the large metal bulk (hay) storage shed further to the north. The existing dry feed and office building to the west is proposed for removal to enable sufficient vehicle manoeuvring space to the lower nutrition centre delivery docks. None of these existing buildings have been assessed as having anything beyond little cultural heritage significance.

The remnant section of 1920s stone boundary wall is proposed for retention. It is the TCSA's intention to retain the line of Maiden's Gums and the southern Bangalay pending further assessment regarding safety. However two of the gums along with a recent *Banksia integrifolia* and a bottlebrush (*Callistemon viminalis*) are proposed for potential removal. None of these trees are listed on the zoo's s170 register. It is also noted that the trees are proposed to be replaced by an additional 26 trees at a large size within the project site.

5.4 TSCA Rationale for Proposal

The new nutrition building is planned as an integral part of a larger complex to replace the zoo's existing veterinary, quarantine and animal nutrition facilities that are now inadequate for the current and envisaged future demands placed upon these resources. Taronga Zoo is already the largest contributor to veterinary services in wildlife rescue and rehabilitation in NSW. It is intended that the new nutrition building will allow the zoo to greatly increase its capacity to cater for diverse animal food preparation in up-to-date facilities.

6 Heritage Impact Assessment

In considering potential impacts on the heritage resource arising from a new Animal Nutrition building, this assessment reflects that the current proposal was basically at a schematic design stage at the time of writing of this report.

6.1 Potential for Heritage Impact

6.1.1 Impact on the Taronga Zoo Setting

From numerous locations along the eastern Cremorne Point reserve it is possible to see parts of the study site beyond the tall poles and mesh of the Chimpanzee Park and Serpentaria roofline (**Figures 50** to **52**). The line of Maiden's Gums is clearly visible along the skyline in these views indicating that these plantings are now a prominent and important feature of the zoo landscape and contribute to the zoo's cultural setting. The other site element contributing to the zoo's cultural setting is the remnant 1920s zoo perimeter wall section. Both the remnant wall section and most of the line of gums are proposed for retention (pending further safety risk assessment).

There are a number of impressive views out to Sydney Harbour from current locations along the back-of-house entry road, though the essence of these views is the distant scenery of the Sydney Opera House, Sydney Harbour Bridge, CBD and harbour waterscape rather than any element of the immediate zoo landscape (which is basically utilitarian by nature). Where the existing incidental views out to the harbour and CBD may be lost on account of the new building complex, many more similar, or better, incidental views would replace these from the first floor level of the new building.

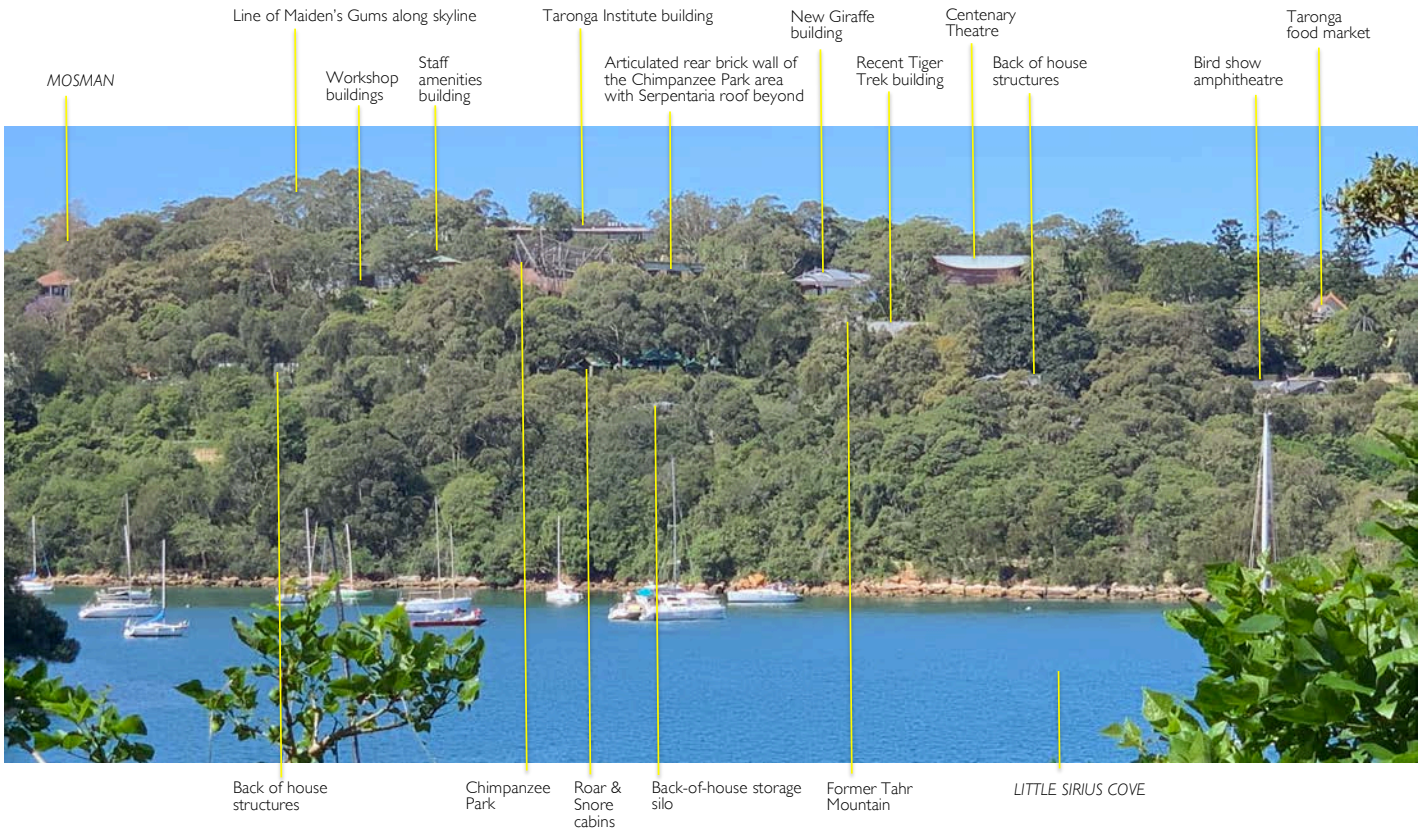


Figure 50 View of western side of the zoo campus from Cremorne Reserve (towards the end of Cremorne Road). The new Animal Nutrition building would be just in front of, and below, the Maiden's Gums.

Figure 51 ABOVE Part of the zoo campus from Cremorne Reserve. **Figure 52** BELOW View from Robertson Point, Cremorne Reserve with an increasing prevalence of buildings within the erstwhile forested landscape setting of the zoo campus. All of these views illustrate the importance of existing mature site vegetation as part of the setting of the zoo and the specific study site as well as the need to reinforce this vegetation wherever possible. *(Images for Figures 53 to 55 courtesy of Dr Anna Britton)*

6.1.2 Impact on Significant Layout

While no significant lines of access relate to the nutrition building site (unlike many other parts of the zoo site), the remnant stone wall section is a culturally significant item as it delineates the alignment of the original zoo site boundary. The wall remnant is proposed for retention so would continue to interpret the zoo's original boundary alignment and extent as part of its significant layout.

6.1.3 Impact on Significant Fabric

Given that the existing buildings within the nutrition project site are either assessed as having little cultural significance or are visually intrusive within the immediate setting, the proposal would result in minimal loss in terms of architectural fabric. However, there are two items within the nutrition project site that have been assessed as having high cultural significance - the line of 1960s gums and the remnant 1920s zoo perimeter wall section. Both of these elements are proposed for retention.

Also in the vicinity of the intact remnant stone wall section are numerous similar stone blocks as a result of earlier breaches of the boundary wall for the purposes of expanding zoo services and infrastructure. Some of these individual stone pieces have been repurposed for a low retaining wall at the western side of the intact section (cover photograph, left frame) while others have been used to loosely line the edge of the eastern service access road (**Figure 47**). All of these remnant stone blocks should be salvaged and either reused in a meaningful way as part of a new design or stored for reuse and repairs of the intact zoo boundary wall sections.

6.1.4 Consistency with Assessed Significance

This section considers the proposal from the perspective of the statement of significance (Section 4.2). That is, do any of the proposed works have the potential to compromise the assessed significance of Taronga Zoo or individual items of cultural significance? In order to affect the assessed cultural significance of the place the proposed works would need to be clearly in conflict with any of the specific aspects outlined in the statement of significance. For convenience, each relevant paragraph from the statement of significance is repeated below.

Taronga Zoo is a place of national significance as an urban zoo with unique physical and associative attributes, including links with early modern zoo philosophy, a unique and powerful cultural landscape and a wide range of landscape elements, architectural styles and enclosure designs evidencing the development of zoos in Australia.

The part of the zoo campus relevant for this study area is a largely utilitarian, back-of-house precinct that still, however, contributes to the zoo's overall "unique and powerful landscape" through the contributions of its line of uncommon Maiden's Gums and the remnant 1920s stone perimeter wall sections. The walling is proposed for retention and incorporation in the present scheme while it is the TCSA's intention to retain as many of the gums as possible pending further safety risk assessment.

Features that contribute to Taronga's cultural landscape include the steeply sloping topography of the site; its location on the northern foreshore of Sydney harbour; the exploitation of the natural stone landforms and complimentary faux rock formations; the circulation layout and associated staircase and seating; the exotic and grand built elements used for public buildings and animal enclosures; the native and introduced vegetation on the site, the internal visual corridors within the site and expansive views from the site across Sydney Harbour to the city skyline.

Here the zoo's traditional relationship to its harbour setting is noted and, in views to the study site from locations beyond the zoo, the prominence of mature site vegetation is an important component of the zoo's traditional landscape character. Within the study site, the line of Maiden's Gums is particularly prominent and so plays a key role in reinforcing the zoo campus as a traditionally forested site defining a part of the harbour setting. Current incidental views out from the study site to the harbour and CBD would be replaced by similar, or better, views from within the new building.

The original fabric at Taronga demonstrates the earliest example in Australia of Carl Hagenbeck's and early twentieth-century European zoological philosophies. In the differing design and approaches to the animal enclosures and aviaries, Taronga also evidences key aspects of international zoological [planning] philosophy that have influenced the Zoo's development throughout the twentieth century.

As all original and early fabric and layout are proposed to be retained within the study site, none of these aspects of significance would be deleteriously affected by the proposal.

As an educational, entertainment and recreational facility, Taronga is a highly revered institution within Sydney's social fabric, evoking memories across generations of visitors. The Zoo is also an important keystone in distinguishing Sydney's sense of place. For the zoological community, Taronga is internationally recognised as a leading centre of biodiversity conservation and for the Zoo's educational focus.

None of these aspects of significance would be deleteriously affected by the proposal.

Taronga's archaeological resource has some potential to provide information about the Aboriginal community, the early use of the site as a quarantine station and the development of the zoo. In combination, the extensive archive collection, built structures, landscape features and archaeological features at Taronga have great potential for research and community education.

This aspect of significance is covered in more detail in a separate archaeological report relevant to the proposed Animal Nutrition building.

So in summary with respect to the statement of significance for Taronga Zoo, fabric and layout are not likely to offer potential for substantive heritage impact. Potential for cumulative visual impact on the zoo and harbour setting is another consideration that would normally be addressed as part of this assessment. In this case it is considered by others in separate reporting.

6.1.5 Reconciliation with Taronga Zoo s170 Register Obligations (Heritage Act, 1977)

Within the proposed Nutrition Centre development area there is one item (remnant stone boundary wall (Item 07L)) listed on the Taronga Zoo s170 Register apart from the overall zoo site (Item 82A). A further five listed items are adjacent to the proposed site area (see Table 4.1 and Figure 4). The latter include Taronga Zoo's archives (s170 Item 15M) currently held in two nearby buildings to the west; a small area of remnant *Angophora costata* woodland (s170 Item 185L) also to the west; the salvaged 1910s 'moonstone' relic (s170 Item 108M) to the north; the existing Serpentaria complex (s170 Item 102B) to the southwest; and another area of remnant *Angophora costata* woodland (s170 Item 240L) to the southeast. None of these adjacent items would be affected by the current Animal Nutrition Centre proposal.

On its website under 'Heritage Registers', the Office of Environment and Heritage (OEH) indicates that each government agency has an obligation to ***conserve*** and appropriately manage its s170-listed assets on behalf of the community.[26] Many items listed on s170 registers are of local heritage significance (as is the case with most of those for Taronga Zoo) although the one listed item within the site (remnant stone boundary wall (Item 07L)) happens to be listed at a State level and having high cultural significance. The wall is proposed for retention.

6.1.6 Consistency with the Taronga Zoo Conservation Strategy 2002

In 2002 the TCSA commissioned Godden Mackay Logan (now GML Heritage) to provide a conservation strategy for the zoo. The purpose of the strategy is expressed in its various project aims that included:-

Providing an integrated, multi-disciplinary framework for the future management of the heritage resources at Taronga Zoo through:-

** reviewing the cultural and natural heritage resources of the site identified in the existing s170 register*

** assessing the relative value or significance of those resources;*

** identifying opportunities and constraints that apply to their management;*

** developing policies for conservation, interpretation, management and use of the site; and*

** developing a framework within which recommendations for conservation works and further investigation and planning should be implemented as part of the management of the Taronga Zoo site.*

Within the policies developed by the Conservation Strategy, the following are specifically addressed to relevant components of the present study site.

Views, Setting

Policy 12.4.1 includes the proviso that "*Significant views to and from the site and visual corridors within Taronga Zoo should be maintained. No new structures or landscape elements should be*

[26] Bold italics added.

erected which would impact on the setting of the place and views to and from the site".

The ground level of the proposed new building is unlikely to be seen from outside the zoo site though the upper levels may be visible in some view prospects from beyond the site including parts of the harbour. This would be a potential issue in the context of numerous other zoo buildings being already visible from these vantage points and so contribute to the overall cumulative impact of the development. This aspect is addressed by others in separate reporting as part of this DA submission.

Some of the existing incidental views from the project site out to the harbour and Sydney CBD (Views 34 and 35 shown in **Figure 49**) may also be lost though it is expected these would be replaced by many more such views – or better – from within the new building.

Built Fabric, Boundary walls

Relating to the conservation management of the zoo's built fabric, Policy 12.4.3 includes the advice that "*Items dating from the early period of the Zoo's establishment which have suffered a loss of integrity or are no longer able to be used for their original purpose, items evidencing the evolution of changes in zoo philosophy or items possessing aesthetic qualities that are important to the cultural landscape of the place have been assessed of High Significance and should be preserved, restored or reconstructed to an earlier known form based on documentary and physical evidence… All works to significant items should be in accordance with the principles of the Burra Charter*".

Policy 12.4.4 of the Conservation Strategy provides much more specific advice for individual elements and, under 'Walls', states that for all perimeter walls (noted in the table as Items 07B (east), 47B (south), 72B (west) and 81B (north) and now all known as Item 07L) "*Maintain fabric. Works to be undertaken in accordance with heritage advice*".

Both 2017 and more recent structural assessments of the remnant boundary wall section have involved recommendations for the conservation of the structure and there is an opportunity to undertake any necessary conservation actions for the remnant wall through the current building program.

Maintenance of heritage assets

Additionally in relation to the remnant stone boundary wall, Policy 12.4.5 advises that "*Appropriate maintenance procedures should be developed, documented and implemented to ensure the ongoing long-term maintenance of the significant built elements of the site. These will include both long-term resourcing and access to relevant expertise*".

As stated above, there is already an approach, available expertise and documented advice for the maintenance of the stone wall section and the appropriate opportunity to undertake this work in accordance with the proposed Nutrition Centre site works.

New Work

Of relevance to the proposed Nutrition Centre is Policy 12.4.8 which states that "*proposals for new development should be considered on the basis of a thorough understanding of the impact on the significance of the place. As a place valued by a wide range of communities, the sense of place and familiarity inherent in the fabric of the Zoo for these communities, within an ever-changing environment, must be considered an important attribute to be retained and reinforced in future development concepts… The potential impact of any new design as a focal point or landmark within the Zoo – and possibly the harbour – should be considered as part of any development. New work*

will need to blend harmoniously with the surrounding environment including the setting of nearby heritage items".

This policy relates back to the need for new structures within the zoo site to take into account individual and cumulative visual effects on the overall Mosman setting, ensuring that new development does not become unduly assertive over the established traditional forested setting of the north shore landscape. This specific consideration is addressed by others in separate reporting for this DA submission.

In a later section of the Conservation Strategy (Implementation Section 13.7.3) fabric conservation is discussed with the recommendation that a long-term strategy is adopted for significant fabric where appropriate works would include:-

* "*repair of structural fabric of buildings;*

* *restoration of non-structural components; and*

* *reconstruction of lost fabric*".

This recommendation further reinforces the need to address the conservation of the remnant stone wall section by removing later accretions to both sides and undertaking the various maintenance works advised previously by the consultant structural engineer.

6.1.7 Consistency with the Taronga Zoo Heritage Asset Management Strategy 2006

In 2006 the Capital Works & Infrastructure Division of the zoo prepared a brief strategy for the management of its heritage assets (HAMS) on behalf of the then Zoological Parks Board (ZPB) of NSW (now Taronga Conservation Society Australia). The strategy states that the "ZPB's commitment to cultural heritage is embodied in its endorsed Conservation Strategy (CS)(2002) and Archaeological Management Plan (AMP) (2004)". The following principles for the ongoing management of its heritage assets reflect the key conservation policies identified in these documents:

(i) ZPB recognises Taronga Zoo as a significant place for the State of NSW and will endeavour to ensure the management of its heritage items is reflective of community values and aspirations for its heritage.

(ii) The Zoo is to be conserved and adapted in accordance with the best practice heritage management principles outlined in the Australia ICOMOS Burra Charter.

(iii) The responsibility for the management of the ZPB heritage assets resides with the General Manager of Capital Works & Infrastructure (CWI) division. The Project Manager, Heritage Specialist, will provide specialist input, and build the heritage management capacity within the CWI Division to account for these responsibilities.

(iv) The retention, conservation and adaptation of items of Exceptional, High and Some significance will be facilitated.

(v) The preparation of further Management Plans and Heritage Impact Statements will continue to inform future development at the Zoo.

(vi) The ZPB will actively seek compatible re-use options for the adaptation of items no longer suitable for the original designed use.

(vii) The CWI Division will be responsible for maintaining those items on the Section 170 Heritage and Conservation Register in accordance with the Minimum Standards of

Maintenance and Repair.

(viii) Heritage asset maintenance requirements will be integrated into the refinement of the Computerised Maintenance Management Strategy (CMMS).

(ix) Procedures for maintenance works will be updated to incorporate conservation principles.

(x) The conservation of the heritage assets will be adequately resourced.

(xi) Where specialist skills or trades, beyond the capacity of the CWI Division, are required, appropriate consultants will be engaged.

(xii) Archaeological resources will be managed in accordance with the endorsed AMP.

(xiii) Maintenance records of significant items will be recorded in the CMMS.

6.1.8 Consistency with the Taronga Zoo Landscape Management Plan 2006

The 2006 LMP represents the most comprehensive document to date dealing with the detailed landscape elements within Taronga Zoo. Apart from recording its many features and assessing their relative significance, condition and integrity, the LMP provided various policies to guide future development at the zoo. While having regard to the zoo as a whole, there are many policies that are pertinent to the present Nutrition Centre study area. These include:-

* (Policy 2.1.5) *The layout, structure, cultural plantings and built landscape elements surviving from Le Souef's original landscape design for the place should be retained, conserved, respected, managed and maintained so that the character of the early zoo landscape is not lost or overwhelmed by new development.*

The only surviving element of the Le Souef-era is the 1920s remnant boundary wall section that is proposed for retention.

* (Policy 2.1.8) *The zoo landscape should continue to evolve and adapt to suit changing zoological management philosophies and practices in order to maintain the zoo's world class standing. However, all changes should respect and accommodate the significant aspects and elements of the existing landscape as identified in this report* [ie. the LMP report].

* (Policy 2.1.9) *In particular, the historic and aesthetic character of the areas identified as significant in fig 5.8 should be conserved and respected in the design of new site developments (including new exhibits, precincts and/or facilities) within or adjacent to those areas.*

* (Policy 2.1.11) *The original path layout should be conserved and respected. New paths may be introduced, but should be sinuous in form and should continue to respect the natural topography of the site.*

* (Policy 2.1.12) *The natural rock outcrops occurring across the site should be retained and respected, and may continue to be integrated into the design of new exhibits and the general landscaping of the zoo. … The surviving early sandstone walling (both ashlar and rustic walling) should be retained, conserved and respected and sandstone should continue to be used as a building material for landscape walling within the site.*
* (Policy 2.1.13) *Both the cultural plantings and indigenous vegetation communities of the zoo should be conserved, managed and maintained as important components of the zoo landscape (*see Figure 53).

* (Policy 2.5.1) *Significant built landscape elements should be conserved in accordance with their significance gradings and the following policies:*

Elements graded Exceptional:
Retain and conserve all elements of exceptional significance in their existing configuration. Removal or demolition of these elements is not permitted.

Retain and conserve the significant qualities of the setting and context of these elements. Changes or alterations to these elements are not encouraged, but if found to be necessary, should be minimal and should only be permitted where the changes will support and strengthen the significance of the elements. The elements should not be obscured nor their significance diminished. The integrity of the elements should be retained and respected. All changes, alterations or repairs must retain and respect as much as possible of the original fabric, detail and significant qualities of the element. These elements should be entered on the Section 170 register for Taronga Zoo.

In the case of the Animal Nutrition building site, there are no attributes currently noted as having exceptional cultural significance within the site and those listed as exceptional in the vicinity of the site (Taronga Zoo's archival records and the salvaged 'moonstone' relic) would not be affected by the proposed development.

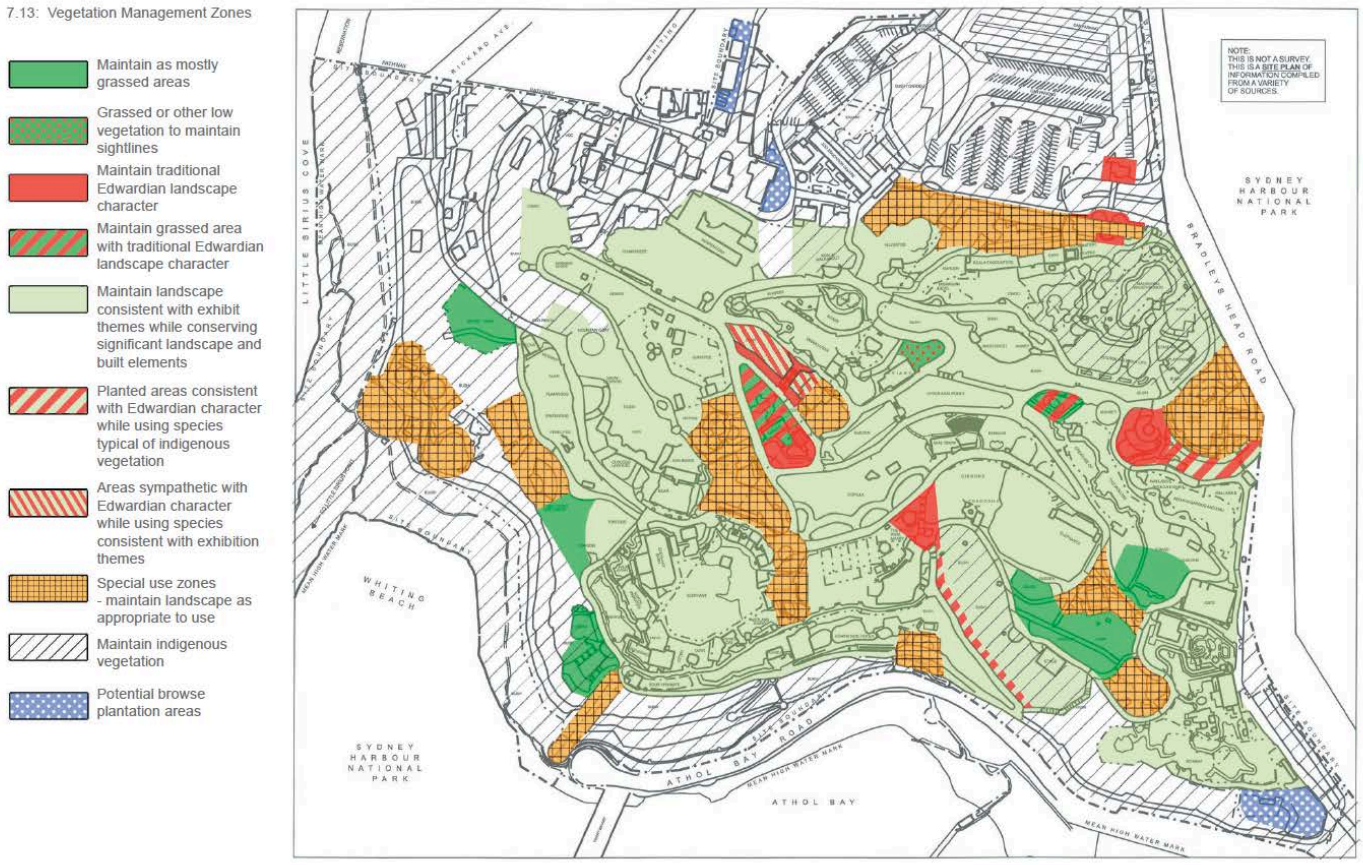


Figure 53 Extract from the 2006 Landscape Management Plan indicating policy recommendations for the various management zones throughout the zoo campus. Of particular relevance to the proposed Nutrition building site is the need to maintain a high level of site coverage for the locally indigenous vegetation communities (open hatched areas). *(Courtesy Design 5 architects et al)*

Elements graded High:
Retention and conservation of all elements of high significance in situ is preferable to their relocation. Demolition and removal of these elements is not permitted. Retain and conserve the significant qualities of the setting and context of these elements. Changes or alterations to these elements may be permitted provided the changes support and strengthen the significance of the elements. The integrity of the original fabric and the original design intent should be respected and if possible strengthened. These elements should be entered on the Section 170 register for Taronga Zoo.

* (Policy 2.5.3) *Significant fabric from all periods of the place must be respected, with evidence of all phases of the history and use of the place kept in situ in accordance with the policies in this document.*

* (Policy 2.5.5) *Where intervention of significant fabric for non-conservation purposes is unavoidable, the loss of cultural significance should be minimised. Within these areas, fabric of a lower relative significance should be disturbed in preference to fabric with a higher relative value.*

The only element of high cultural significance noted on the s170 register is the boundary wall section which is to be retained mostly intact. It can be demonstrated that the proposal generally respects the policies of the LMP 2006.

6.1.9 Consistency with the Mosman Local Environmental Plan 2012

Relevant sections of the Mosman LEP 2012 with respect to heritage considerations at Taronga Zoo are Part 5.9 Preservation of Trees or Vegetation and Part 5.10 Heritage Conservation (Table 6.1) each of which is now considered below.

In relation to Part 5.9, some vegetation is proposed to be removed as part of the development of the new nutrition building site however this only involves several relatively recent plantings all of which have been assessed as having little cultural significance. All other trees are proposed for retention.

Aspects of Part 5.10 of the LEP are considered in the following table.

Table 6.1 MOSMAN LEP 2012
PART 5.10 HERITAGE CONSERVATION

	RECONCILIATION AGAINST THE PROPOSAL
(1) The objectives of this clause are as follows: *(a) to conserve the environmental heritage of Mosman,* *(b) to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views,* *(c) to conserve archaeological sites,* *(d) to conserve Aboriginal objects and Aboriginal places of heritage significance.*	All of the subclauses here have at least some relevance to this proposal. Items identified in this report as having cultural significance are examples of Mosman's environmental heritage and should therefore be conserved according to this clause.
(2) Requirement for consent *Development consent is required for any of the following:*	The proposal is included within the area listed as a heritage item under the MLEP 2012 – see Figure 3 – and therefore requires comment from Mosman Council.

(a) demolishing or moving any of the following or altering the exterior of any of the following (including, in the case of a building, making changes to its detail, fabric, finish or appearance): *(i) a heritage item,* *(ii) an Aboriginal object,* *(iii) a building, work, relic or tree within a heritage conservation area,* *(b) altering a heritage item that is a building by making structural changes to its interior or by making changes to anything inside the item that is specified in Schedule 5 in relation to the item,* *(c) disturbing or excavating an archaeological site while knowing, or having reasonable cause to suspect, that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed,* *(d) disturbing or excavating an Aboriginal place of heritage significance,* *(e) erecting a building on land:* *(i) on which a heritage item is located or that is within a heritage conservation area, or* *(ii) on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance.*	
(3) When consent not required *However, development consent under this clause is not required if:* *(a) the applicant has notified the consent authority of the proposed development and the consent authority has advised the applicant in writing before any work is carried out that it is satisfied that the proposed development:* *(i) is of a minor nature or is for the maintenance of the heritage item, Aboriginal object, Aboriginal place of heritage significance or archaeological site or a building, work, relic, tree or place within the heritage conservation area, and* *(ii) would not adversely affect the heritage significance of the heritage item, Aboriginal object, Aboriginal place, archaeological site or heritage conservation area, or*	While the Animal Nutrition building development is classified as a 'State Significant Development' the comment of relevant stakeholders is still required. One such stakeholder is Mosman Council.
(4) Effect of proposed development on heritage significance *The consent authority must, before granting consent under this clause in respect of a heritage item or heritage conservation area, consider the effect of the*	This HIA report provides a basis for considering the context of the proposal and enables informed decisions.

proposed development on the heritage significance of the item or area concerned. This subclause applies regardless of whether a heritage management document is prepared under subclause (5) or a heritage conservation management plan is submitted under subclause (6).	
(5) Heritage assessment *The consent authority may, before granting consent to any development:* *(a) on land on which a heritage item is located, or* *(b) on land that is within a heritage conservation area, or* *(c) on land that is within the vicinity of land referred to in paragraph (a) or (b), require a heritage management document to be prepared that assesses the extent to which the carrying out of the proposed development would affect the heritage significance of the heritage item or heritage conservation area concerned.*	This HIA report provides a basis for assessing the extent to which the proposal would affect the site.
(6) Heritage conservation management plans *The consent authority may require, after considering the heritage significance of a heritage item and the extent of change proposed to it, the submission of a heritage conservation management plan before granting consent under this clause.*	There have been various heritage studies undertaken of Taronga Zoo that include various components of the proposed development. These include the 2002 Conservation Strategy (GML), Archaeological Management Plan 2004 (GML) and the Landscape Management Plan 2006 (Design 5) all of which combined would provide a sound basis with which to consider the proposals.
(7) Archaeological sites *The consent authority must, before granting consent under this clause to the carrying out of development on an archaeological site (other than land listed on the State Heritage Register or to which an interim heritage order under the Heritage Act 1977 applies):* *(a) notify the Heritage Council of its intention to grant consent, and* *(b) take into consideration any response received from the Heritage Council within 28 days after the notice is sent.*	Refer to the Archaeological Management Plan 2004 (GML) and archaeological reporting by Urbis 2021.
(8) Aboriginal places of heritage significance *The consent authority must, before granting consent under this clause to the carrying out of development in an Aboriginal place of heritage significance:* *(a) consider the effect of the proposed development on the heritage significance of the place and any Aboriginal object known or reasonably likely to be located at the place by means of an adequate investigation and assessment (which may involve*	Refer to the Archaeological Management Plan 2004 (GML) and archaeological reporting by Urbis 2021.

consideration of a heritage impact statement), and *(b) notify the local Aboriginal communities, in writing or in such other manner as may be appropriate, about the application and take into consideration any response received within 28 days after the notice is sent.*	
(9) Demolition of nominated State heritage items *The consent authority must, before granting consent under this clause for the demolition of a nominated State heritage item:* *(a) notify the Heritage Council about the application, and* *(b) take into consideration any response received from the Heritage Council within 28 days after the notice is sent.*	Although no items of State heritage value are proposed to be demolished or relocated, the Heritage Council of NSW should still be notified as an interested stakeholder of the overall zoo (which, as a collective site, *is regarded* as having State heritage value to the present and future communities).

Table 6.1 Reconciliation of the proposed Nutrition Centre development against Section 5.10 of the Mosman Local Environmental Plan, 2012

6.2 Statement of Heritage Impact

Figures 50 to 52 illustrate the important role that existing mature vegetation plays within the overall landscape setting of the zoo and a positive project outcome of the proposal is the retention of most of the existing large canopy trees on the project site. Two of the Maiden's Gums are potential candidates for removal pending further safety risk assessment and two other relatively recent trees are proposed to be removed. These would be replaced by 26 additional canopy trees along the eastern side of the new building.

Another positive project outcome would be the proposed retention of the 1920s former boundary wall section (s170 Item 07L). To date, the wall section has been a back-of-house element with little prominence or opportunity to be used as part of the interpretation of Taronga Zoo's rich history. Its retention *in situ* as part of the present project would enable these current deficiencies to be reversed and its cultural value to be better and more broadly appreciated as one of the Zoo's many cultural attributes. In order to provide a new BCA-compliant access to the new building from the north, a new path is needed that would necessitate a small section of the top of the wall being removed to allow for a slab to pass over the wall. The limited extent and scale of this intervention is considered reasonable given that the majority of the wall would be retained intact. There is also the potentially positive outcome of ensuring that much needed conservation actions for the wall remnant would be undertaken as part of the current project program.

A further, related, potentially positive project outcome would be the salvage of other, previously dismantled, remnants of the former boundary wall for meaningful reuse as part of the project or for storage and later use in the maintenance of intact sections of the zoo's remaining boundary walls.

None of the other listed s170 items in the vicinity of the proposed Animal Nutrition building project would be affected by the development.

Mitigatory measures would include ensuring there are no large reflective surfaces and continuing to refine the materials and colour selections through the design development phase of the project in order to ensure the new building is visually recessive while also seeking opportunities to plant out the western side of the development site with large canopy trees (preferably using locally indigenous species).

7 Recommendations

To ensure Taronga Zoo's cultural significance is retained, the following recommendations are given on the basis of findings from this report:-

Minimising visual impact

7(i) Ensure the new building is visually recessive within its immediate context by continuing to refine the building design and finishes.

7(ii) Take opportunities to plant additional large canopy trees (preferably using only locally indigenous species) to the west of the development in order to reinforce screening and to reinstate a traditional perception of the campus as predominantly forested over an increasingly urban landscape character. (The eastern side of the project area is very well covered in the proposed landscape treatment.)

7(iii) Ensure appropriate protection during the project's construction phase for all existing trees proposed for retention in proximity to any building works and monitor to ensure their ongoing viability – particularly those above the 'shotcrete' embankment.

7(iv) The 2016 Picus Sonic Tomograph report by Australian Tree Consultants (quoted in the 2021 Sydney Arbor Trees report) included in its recommendations that another such test should be carried out in 5 years on Tree 10 (Maiden's Gum) to determine the extent of recovery of the tree from its past fungal infection. A new sonic tomography assessment should be undertaken as part of this project process.

Conservation actions for former boundary wall elements

7(v) In relation to the retained 1920s stone wall remnant, and in consultation with the Taronga Zoo heritage advisor, ensure recommended conservation actions by structural engineers are included with the CC documentation and siteworks for the Animal Nutrition building project. Conservation actions for the wall section may include, but not be limited to, removing unnecessary services, accretions and vegetative seedlings; repointing; adding appropriate reinforcing rods where required for stabilisation; other repairs as advised ensuring the wall remains a stand-alone, non-load bearing element; along with ongoing, cyclical conservation works to the fabric as required.

7(vi) Consult with the Taronga Zoo heritage advisor in relation to the extent and methods of excising a section from off the top of the stone wall to allow for the construction of a concrete slab for the new entry path into the proposed Animal Nutrition building.

7(vii) In consultation with the Taronga Zoo heritage advisor, salvage and store other sandstone blockwork in the vicinity of the intact remnant stone wall section ready for appropriate and meaningful future reuse as advised.

7(viii) Given the retention of the 1920s stone wall remnant within the project site, heritage interpretation should be an integral part of the project and should include information about its history as part of the formative development of Taronga Zoo. All such interpretation should be undertaken in consultation with the Taronga Zoo heritage advisor.

Updating the s170 Register

7(ix) Update information on the Zoo's Section 170 Register under Item 07L to reflect conservation actions and minor modifications to the wall remnant(s).

Appendix A 1916 Public Works Department Drawings for the Original Yard Area