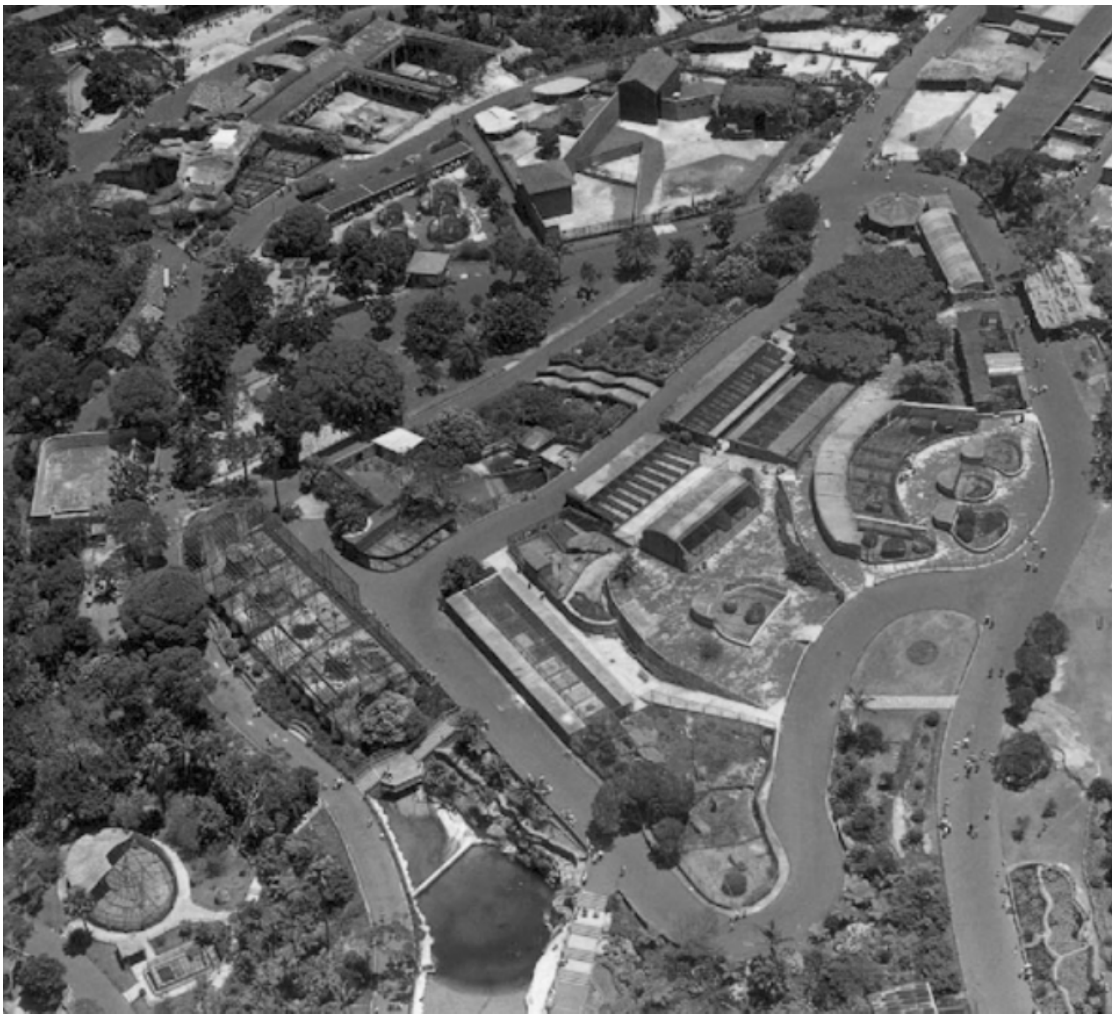
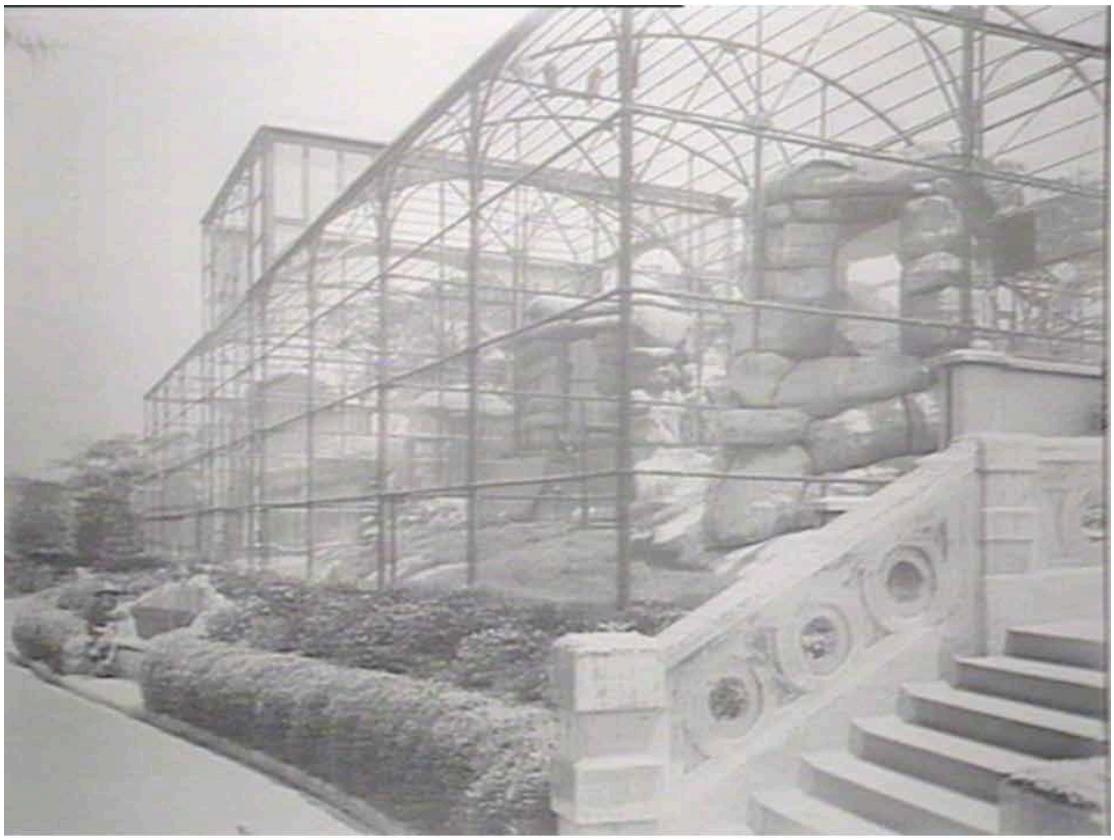


Source: Taronga Zoo
Figure 44 Detail from an oblique aerial photograph dated 1962.

The largest of the early aviaries (now demolished) was for the birds of prey. It was designed by the GAB in late 1915,[144] and was described in 1917 as:

'*This aviary forms one of the prominent features of the grounds by reason of its elevated position, size and construction. It is 140 ft long, 40 ft wide, and is divided into five compartments for display of owls, vultures, condors, eagles, hawks, etc. It is constructed of water-pipe uprights and rails, and light iron roof trusses with pipe purlins. The walls and roof are covered with stout wire and mesh throughout. The central portion has a pitched roof and an average height of 35 ft, and the wings curved roofs and a height of 28ft. The artificial rock (faced) shelters are provided in each compartment, with perches for the birds, and a complete watering equipment is installed for cleansing the sloping floor*'.[145]

[143] NSW Public Works - Plan Room - Drawing MISC198-2265
[144] NSW Public Works - Plan Room - Drawing MISC198- 2977 dated 4/1/1916
[145] Taronga Zoological Park Trust, Report for 1916, pp. 8-9



Source: State Library of NSW (Government Printing Office Collection 1-19130
Figure 45 The large aviary for the birds of prey photographed about 1917. The removal of the superstructure and closure of the aviary had occurred by the late 1980s.

Another early aviary was for the birds of paradise (opposite the Koala House), which was built in 1917.[146] The number of aviaries increased as different species arrived at the Zoo. The early 1920s was a particularly productive period. New Guinea highland birds arrived in 1921,[147] and also the collection of Northern Territory finches was greatly increased. A consignment of African birds arrived in early 1923 inclusive of vultures, eagles, hornbills, finches, pigeons and doves.[148]/[149] In 1927 a new nesting aviary was built specifically designed for breeding finches; it was described as being 40ft by 30ft with a high dome, and with separate compartments.[150] Another set of breeding aviaries was completed in 1939 and was opened by Premier Alexander Mair.[151]

The precinct of aviaries with a horseshoe footprint was built between May 1933 and August 1935 when it was reported new aviaries with eight compartments had been completed.[152] The site previously had been the location of the zebra exhibit, and required for the new sites much levelling. The architect for these aviaries was Alfred Spain,[153] and the cost of the work was 1,300 pounds.[154] There were originally three small circular aviaries within the "U" of the 'horseshoe' shape, each with a semi-circular roofed faux-rock shelter to the southern side. This precinct was revitalised in 1981 to present a new and pleasant area by replacing the concrete paving and steps with brick ramps and loam pathways. The three small aviaries were removed at this time and

[146] Minutes of the Trustees, Taronga Zoological Park, 2/2/1917
[147] 'New Zoo Birds', *Sydney Morning Herald*, 20/9/1921
[148] 'Medic, Ark', *Sun*, 23/3/1923
[149] Territory Finches, *Sydney Morning Herald*, 23/12/1921
[150] 'Breeding Birds', *Evening News*, 11/8/1927, p. 7
[151] 'New Aviaries at Zoo', *Sydney Morning Herald*, 12/10/1939, p. 4
[152] Improvements at Zoo, *Sydney Morning Herald*, 8/8/1935, p. 10
[153] Minutes of the Trustees, Taronga Zoological Park, 27/2/1933
[154] Minutes of the Trustees, Taronga Zoological Park, 1/101/1936

their footprint is outlined within the paving. The appearance of the remaining large aviary was softened by increased plantings.[155] One smaller aviary was built further down the Serpentine path, probably at the same time as the horseshoe aviary, in an area photos indicate was formerly a kangaroo exhibit.

Source: State Library of NSW (Government Printing Office Collection 1-50536)
Figure 46 The northern aviaries in 1950.

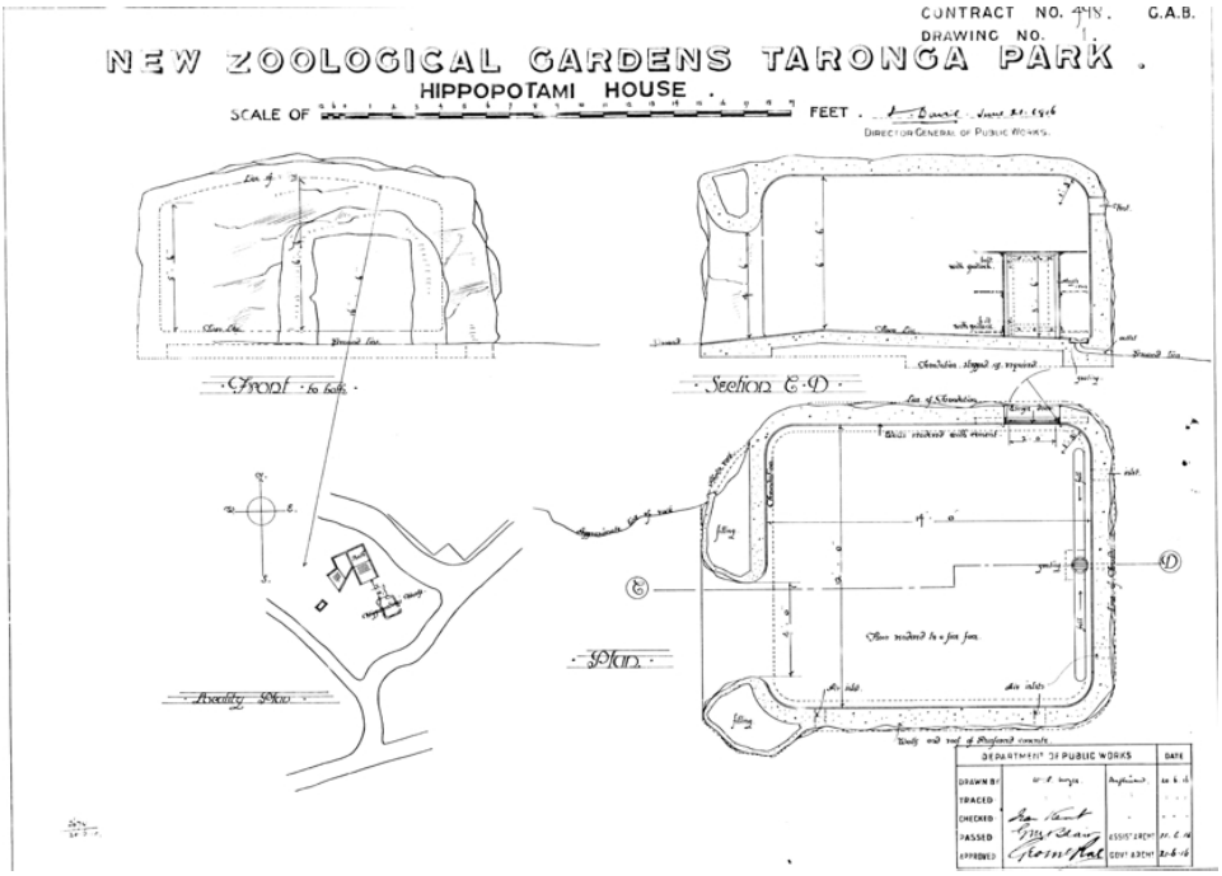
3.2.3 Hippopotami House (1916)

The first hippopotamus was purchased from Wirth's circus in late 1916.[156] The new enclosure was designed by the GAB in June 1916 and comprised both a shelter and bathing pool. The shelter comprised a pen 14ft by 12ft, and a modest height of 6½ ft. The whole structure was constructed in reinforced concrete and faced externally in cement with a mock rock finish.[157] The enclosure was enlarged and improved in 1932 when an additional, female hippopotamus was received from Cairo Zoo.[158]

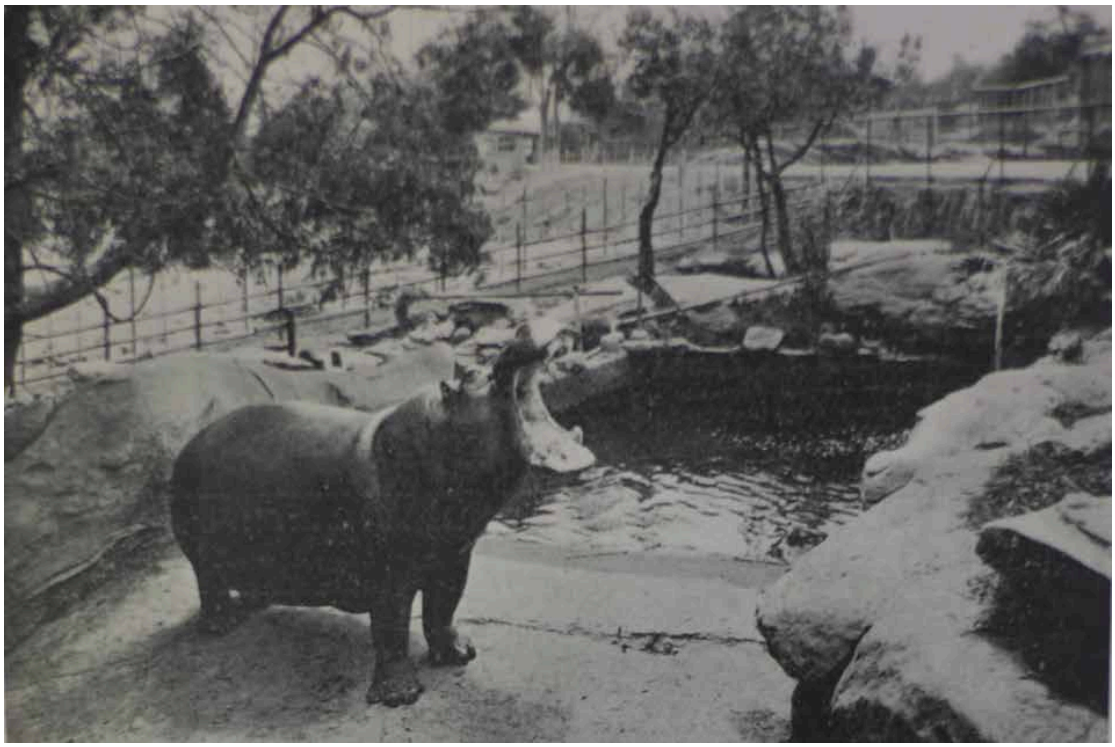
3.2.4 Gorilla Exhibit (1996)

The area occupied by the current gorilla enclosure was originally designated for 'running birds' that include ostrichs, emus and rheas. This remained the case for many decades until in 1988 the western end was redesigned to accommodate giant pandas from China as the Chinese government's Bicentennial gift to Australia. However, this was never intended to be a permanent exhibit. At the eastern end, an earlier circular aviary for parrots and parakeets was reused as a Guenon exhibit. Both of these sites were subsumed in the 1990s for a new gorilla exhibit.

[155] Zoological Parks Board of NSW, *Annual Report for 1981/82*, p. 22
[156] Secretary's Report for October 1916
[157] NSW Public Works - Plan Room - Drawing MISC198- 2890
[158] Minutes of the Trustees, Taronga Zoological Park 27/6/1932

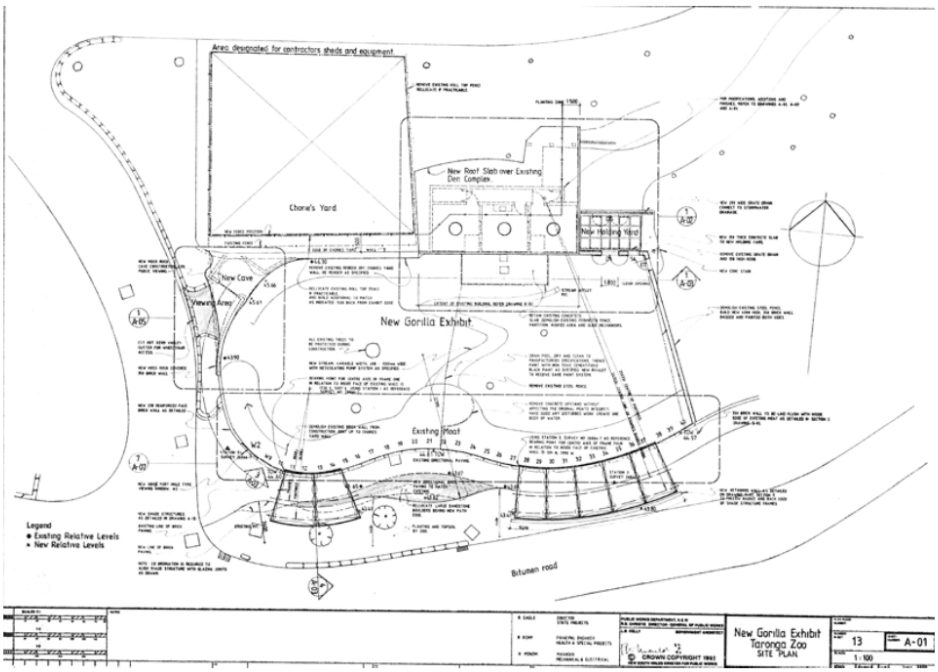


Source: NSW Public Works - Plan Room - MISC 98/2980
Figure 47 The design drawing of June 1916 for the Hippopotami House.

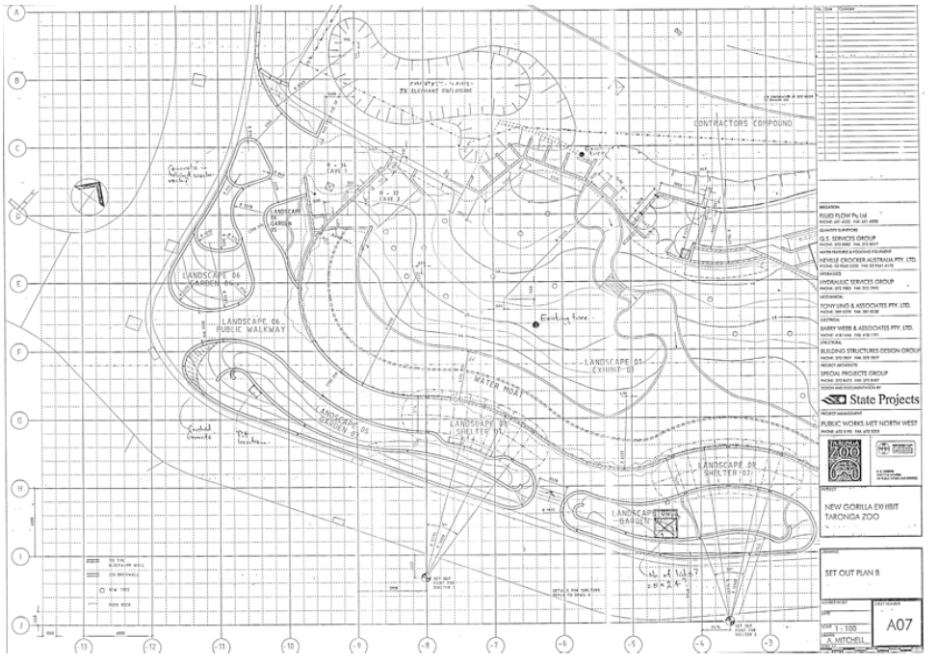


Source: Taronga Zoological Park Trust, Report for 1924, p. 27
Figure 48 The enclosure in the 1920s.

Work on the $3.5 million Gorilla Exhibit commenced in late 1995.[159] The first design drawings had been completed in June 1993 by the GAO (Lindsay Kelly), but the implemented design drawings were completed in August 1996 by State Projects.[160] As with the near contemporary Water Hole Exhibit, the historic imagery of the mock rockwork was incorporated into the design, as well as a moated enclosure in this instance.[161]



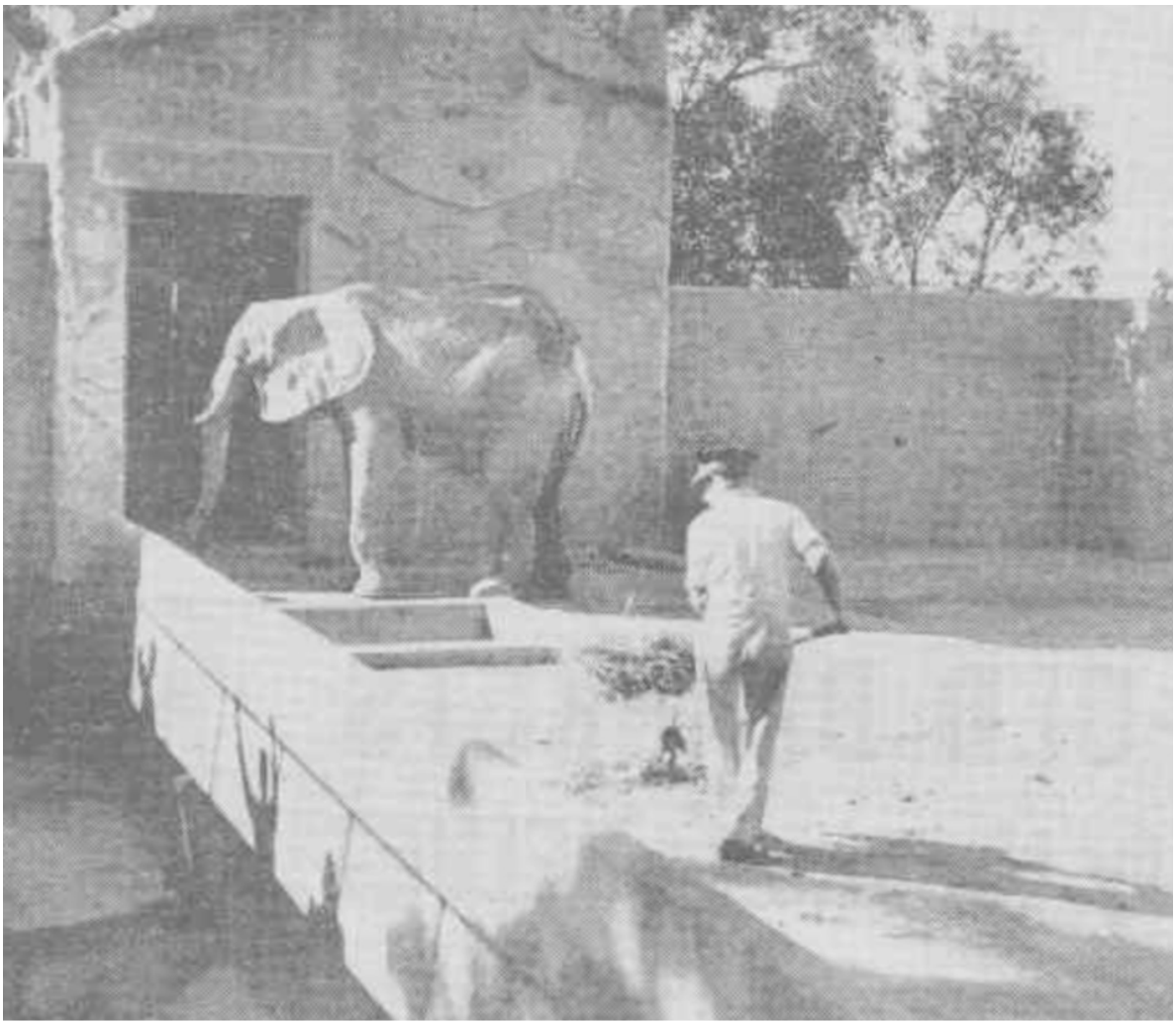
Source: NSW Public Works - Plan Room - MISC 98/2508
Figure 49 The site plan of the Gorilla Exhibit prepared in 1993.



Source: NSW Public Works - Plan Room - MISC 98/ 2635
Figure 50 The site plan of the Gorilla Exhibit prepared in 1995.

[159] Public Works Department, *Annual Report for 1994/95*, p. 69
[160] NSW Public Works - Plan Room - Drawing MISC198-PWD 2635
[161] NSW Public Works - Plan Room - Drawing MISC198-PWD 2635

The location of the Gorilla Exhibit was formerly the aviaries of the running birds, but also took-in at the northwest corner the African elephant house. This structure was built about 1940,[162] but probably owing to the war emergency, the first African elephant did not arrive until 1947.[163] Chori, who was at Taronga for many years, also arrived in 1947, and then aged ten years.[164]



Source: Australian Woman's Weekly, 30/8/1947, p. 38
Figure 51 The now demolished enclosure for the African elephant built about 1940.

3.2.5 Turner House (1940s?)

Turner House was identified in the 'Taronga Zoo Conservation Strategy' prepared by heritage consultants Godden Mackay Logan in 2002. In that report, little was provided in the way of background history aside from a probable date of late 1940s-early 1950s, and it having been a zookeeper's residence. Research undertaken for this report supports the early 1950s date (utilizing inter-war era materials). Since writing this history, additional background information has been located and is included at Appendix A.

[162] Not shown in 1939 guide plan, but shown in 1943 aerial photograph
[163] 'Taronga Loses Elephant', *Sydney Morning Herald*, 14/7/1947, p. 1
[164] Elephant landed, *Sydney Morning Herald*, 16/7/1947, p. 1

4 Site Context

4.1 Pre-Zoo Landscape

4.1.1 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 (dictating drainage patterns) 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. This important cultural (visual) asset has been widely recognised since the zoo's inception 100 years ago.

The proposed African Waterhole precinct encompasses the head of the valley to the west of the main (central) ridge of the zoo. Its overall orientation allows various scenic view prospects across the harbour to the Sydney Opera House, CBD and Harbour Bridge. Some of the latter views are also possible within the designated Congo precinct which is located adjacent to the east where it encompasses the upper central ridge that follows the approximate line of the cable car route.

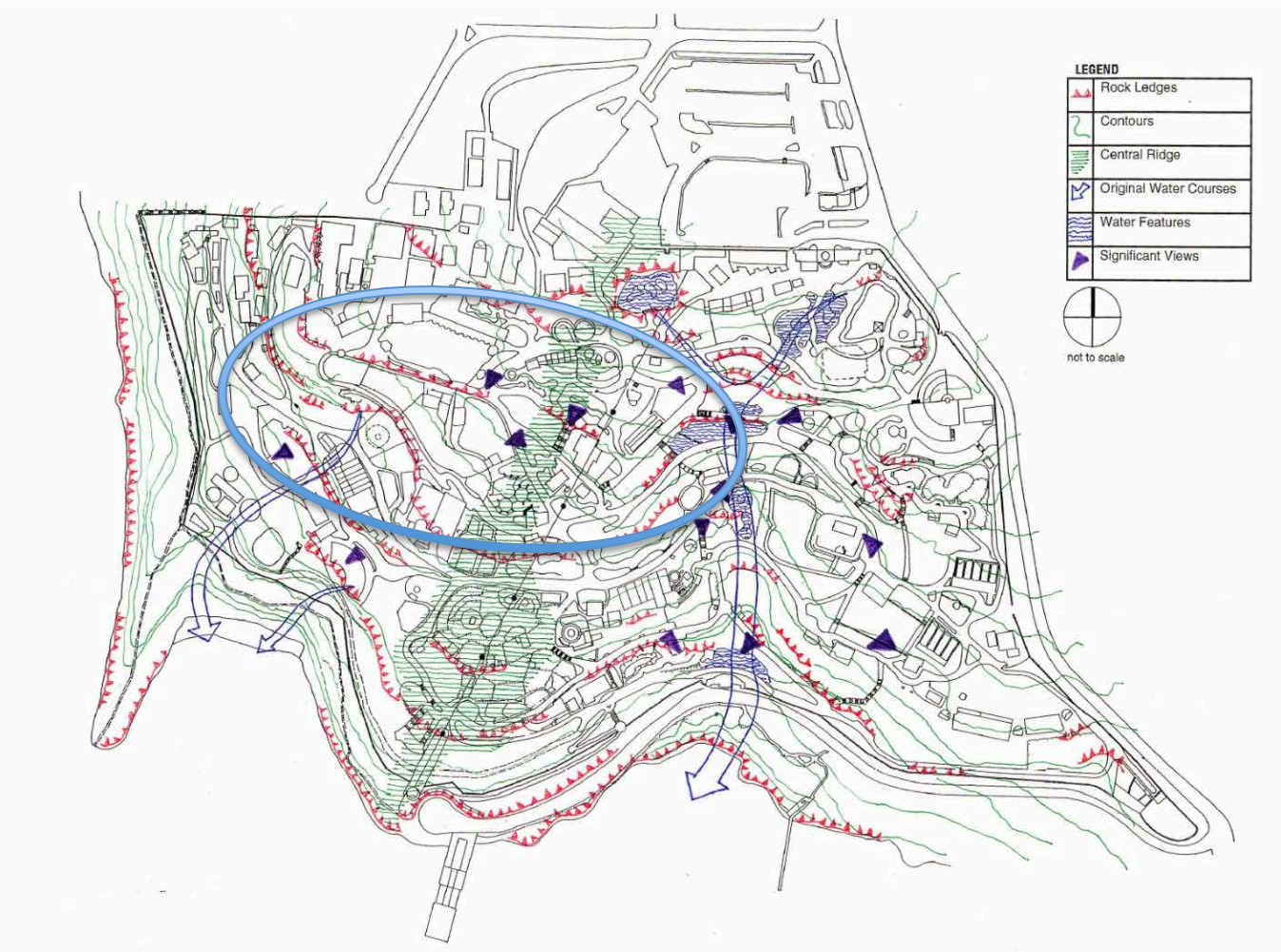


Figure 52 Overall site plan showing the zoo's basic landform. The hatched green area denotes the central ridgeline that defines the principal valleys either side while the red graphic indicates the main rock ledges. The proposed African precincts sit within the blue oval area. (Base courtesy: GML Conservation Strategy, 2002)

4.1.2 Sandstone Outcropping

Item 75L (Within Barbary Sheep enclosure) Exceptional Local Significance

An outstanding intrinsic feature of the Taronga Zoo landscape is the layered embedded sandstone benching and intermittent outcropping. The characteristic Sydney sandstone has been used as a feature in many zoo exhibits since 1913 – providing both *in situ* quarried stone faces of varying scale and worked stone blocks - and continues to offer opportunities as part of new exhibit designs as well as having a role as an overall unifying element throughout the zoo.

Examples of natural sandstone outcropping are to be found mainly within the Waterhole precinct particularly its western edges (proposed as part of a new Kopje-themed lion exhibit) and within the current Barbary sheep exhibit. Retaining walls featuring natural rock cut back to sheer faces and built walling using site stone include the lines along the northern edges of the current bongo, zebra and giraffe exhibits.

Figure 53 Retained sandstone shelving with the Barbary sheep enclosure and famously used as an integral part of the 'recreated' habitat of the featured animals. Areas of concrete infill have been introduced along with a faux-rock shelter. Note the earlier exhibit edge and post locations at right.

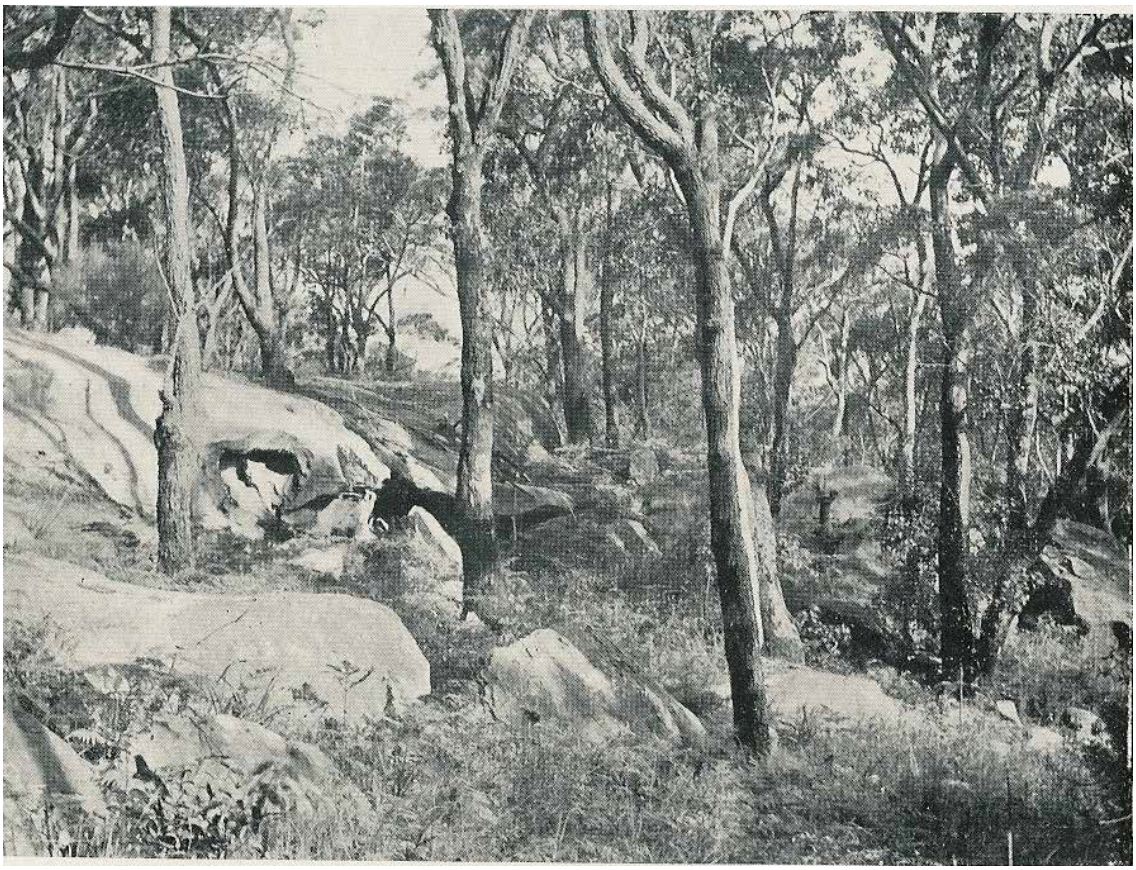


Figure 54 An undated early photograph of the zoo site (indicated as within the original 'Carnivora Section') showing the typical woodland vegetation, prior to clearing, interspersed throughout the extensive sandstone outcropping. (Courtesy: TCSA Archives)

ABOVE **Figure 55** A section of remnant woodland to the immediate south of the existing western-most ramp with recruiting indigenous plant species among the retained sandstone outcrops. BELOW **Figure 56** Natural sandstone outcropping above and west of the same ramp system with a patch of remnant woodland.

4.1.3 Local Indigenous Vegetation Community Remnants

Item 189L High Local Significance

Three distinct remnant vegetation communities have been identified within the overall zoo lands with a fourth transitional type having occurred between the communities. A substantial remnant of the *Angophora costata* shrubby woodland type (Heritage Item 189L) occurs at the western end of the proposed African Waterhole site while part of this community also demonstrates some intergrading characteristics with the former *Eucalyptus botryoides/Glochidion/ Elaeocarpus* open forest that once adjoined it.

Both the sandstone outcropping and the remnant natural vegetation are regarded as important local features of the Mosman harbourside landscape and should be conserved as much as possible. Most of the latter has been steadily lost within the overall zoo site since 1913, despite the prominence placed by the zoo on the critical importance of conserving basic habitat of locally indigenous systems within the Sydney basin. While the two vegetation communities mentioned above survive intermittently and in peripheral areas, the third main type – *Glochidion/Acmena* closed forest has now effectively been lost from the zoo surviving only as a fringe along Whiting Beach.

The only substantial occurrence of locally indigenous vegetation (*Angophora costata* woodland) within the proposed African precinct relates to its western end. This coincides with where a large area is planned for a new exhibit for lions. A cursory survey in 2006[165] noted that there were numerous individuals of NSW Christmas Bush (*Ceratopetalum gummiferum*)(s170 Item 250L) – mainly in the southern part of this area of bushland - which is a key component of the *Angophora costata* shrubby woodland (**Figure 57**). Other species noted at that time included Waxflower (*Crowea exalata*), Bangalay (*Eucalyptus botryoides*), Hickory Wattle (*Acacia implexa*) and, further to the west, Muttonwood (*Rapania variabilis*). The brief survey of 2006 also noted that the northern part of this remnant bushland (and the area west of the grand staircase) was affected by the parasitic fungus *Armillaria luteobubalina* which can cause tree dieback.

Figure 57 Areas of significant remnant indigenous vegetation within the zoo. (Courtesy: Design 5 et al LMP, 2007)

[165] Species identified by botanist Dr BJ Wallace as part of a brief reconnaissance of the entire zoo site.

4.2 Iconic Elements

Closely related to the 100 year old site layout is the survival of a few key exhibits that have become iconic reference points within the zoo. (All of these discussed below are within the proposed African Waterhole Precinct.)

One of these is the giraffe precinct with its associated faux-rock and faux-timber log shelters (Heritage Item 61B) and, especially importantly, its spectacular photographic opportunities combining iconic animals with iconic Sydney Harbour and city views framed by the two well-known shelter structures. This very scene even features on the cover page of the current Taronga Zoo Map (reinforcing the image as an encapsulation of one of Taronga Zoo's underlying cultural assets) along with the title sheet of the 2006 Taronga Zoo Heritage Asset Management Strategy. The scene also featured in a Channel 7 TV item where the zoo setting (including its familiar structures) was emphasised along with the animals and harbour scenery.[166] Even the presentation film in the new Centenary Theatre prominently features the same scene. The very location of this exhibit is (since the 1920s) now a part of its significance (**Figure 58**). Adjacent is a section of original pipe railing from the 1910s (Item 128L). However, before discussing these specific exhibit or enclosure areas, a brief overview is considered in relation to the zoo's special setting.

Figure 58 Since the 1920s the giraffe enclosure has been a favourite stopping point to savour the unusual combination of iconic animals with breathtaking views of Sydney's iconic harbour scenery framed by the two characteristic shelters (note **Figures 22** to **24**). This fine view prospect is now somewhat amplified by those from the elevated viewing deck associated with the new Centenary Theatre above the giraffe enclosure.

4.2.1 Iconic Visual Setting[167]

Underpinning the iconic scenery of individual exhibits and areas within the zoo, are the equally iconic visual opportunities afforded by the zoo's outlook addressing one of the world's greatest natural harbours and its enveloping urban cultural scenery. Such views have long been appreciated as one of the special attractions of the zoo and have been commemorated in the work of both professional and countless amateur photographers as well as artists since the zoo's inception.

The 2006 Landscape Management Plan made the observation that "Taronga Zoo has one of the most dramatic sites of any Zoo in the world. Its views over Sydney Harbour to the city beyond

[166] Channel 7 TV, 6pm News Bulletin, 20 February, 2017 (c/- Geoff Ashley)
[167] Setting in this context refers to the overall visual catchment apparent from relevant viewing points but also takes into account other sensory criteria such as aural and olfactory stimuli. It thus includes all key elements making up particular scenery – structures, spaces, layout, vegetation and elements of interest –as well as the distinctive animal sounds and smells. Note the helpful discussion on 'setting' and 'curtilage' in JS Kerr's ***The Conservation Plan***, *A Guide to the preparation of Conservation Plans for Places of European Cultural Significance*, Australia ICOMOS, 7th Edition, January 2013

[including the Sydney Opera House and Sydney Harbour Bridge] contribute greatly to the visitors' experience of the place, the startling juxtaposition of exotic animals against Sydney's iconic harbourside scenery being one of the Zoo's key assets. Views played an important role in the original planning of the Zoo and its landscape and continue to contribute to the aesthetic significance of the place".[168] The 2006 LMP goes on to identify key views within the entire zoo site where the zoo setting is paramount in the experience of the place. Chief among these are "views obtained from the top of the site, which give the visitor their first glimpses of the zoo's harbour setting – *from the path between Reptile World and the [former] bird aviaries, view[s] over the giraffes and view[s] from the Serpentine path above the [former] seal [pools]…* [and] *views of the harbour with the animal exhibits in the foreground – Tahr Mountain, giraffe*s, [and formerly] seals".[169]

In its discussion of aesthetic values, the 2002 Conservation Strategy also highlights this well-known Sydney attribute: "Taronga's animals, staff and visitors enjoy some of the best views in Sydney. Indeed, images of giraffes and harbour views have long been synonymous with a visit to Taronga". However, in its context, the Conservation Strategy mentions this because the Taronga setting is regarded as part of the experience of the place that is held in esteem by a broad community of interest (international, Australian, NSW and local visitors, staff, Friends, associates, consultants and contractors). The setting – especially those of an acknowledged iconic status (such as at the giraffes) – is therefore something that transcends particular management concerns and comes under the umbrella of a much more public 'ownership'. There is a broad community with a keen interest in what happens to those special settings of the zoo.

Throughout the zoo, its significant setting is said (in the 2006 LMP, p. 111) to include:-

• Its physical context on the northern shore of Sydney Harbour and its contribution to the green edge of the harbour;

• Its steeply sloping topography;

• Its circulation layout which responds directly to this topography;

• The integration of the site's natural sandstone landforms with complimentary faux rock formations and sandstone walling;

• Its series of water based exhibits developed along the original watercourse that once flowed through the eastern valley;

• Its significant built landscape elements, including staircases, edges, fences, balustrades, walls, masonry seats, rustic stone bridge, Floral Clock and shelters, all of which remain as tangible evidence of the zoo's original exotic Edwardian landscape;

• Its significant built landscape elements that reflect the later phases of zoo development;

• Its exotic and grand built elements, which act as markers within the landscape;

• Its mature cultural plantings (see **Figures 59** and **60**);

• Its remnant indigenous natural communities, which are both rare and endangered in the Sydney region, and which enable the zoo to 'immerse' within the natural local context;

• Its expansive views across Sydney Harbour to the city beyond, and its internal view corridors, which contribute strongly to its sense of place.

[168] Design 5 Architects *et al*, **Taronga Zoo LMP**, 2006: 98
[169] Italics added for the present report context.

LEFT Figure 59 One of the six towering, mature Hoop Pines within the central zoo site that are also prominent in views of the zoo from the harbour. ABOVE Figure 60 An iconic parting image shared by many hundreds of zoo visitors at the end of their day where the cable car passes between two of the Hoop Pines en route to the ferry wharf.

BELOW Figure 61 An Edwardian period gate and part of the fence (Item 128L) north of the giraffe enclosure.

4.2.2 Giraffe Enclosure (African Waterhole Precinct)

Item 61B (both 1924 and 1940s structures) State/Exceptional Significance

The Giraffe Enclosure is located at a focal point in the Zoo being the junction of the entrance pathway that comes down from the Koala House and two other paths and opposite the new introductory theatre (Centenary Theatre, 2017). It is set against a visual catchment of Sydney Harbour and the city beyond. The Giraffe Enclosure contains two houses for the animals; the 1924 imitation rock structure in the northwest corner and the imitation log structure built sometime just prior to 1950.

1924 Giraffe House

Le Souef, the Director of Taronga Zoo, went to South Africa in 1922 to purchase animals, during which time he discussed the purchase of giraffes but which was dependant on the construction of a purpose made structure. In other words, the early introduction of these iconic animals to Sydney in the first place is a result of this 1924 building which, after almost 100 years, remains intact.

The first Giraffe House was designed by the Public Works Department in 1923 and was completed by mid-1924 (note **Section 3.1.2** and **Figures 15** to **17**).[170] After the construction of the first Giraffe House, and following several unsuccessful attempts, the giraffe Rudolf arrived at Taronga Zoo in 1926 with two more giraffes arriving in 1927.

The imitation rock structure which is shown on **Figure 16** is a large structure measuring 30 feet (9.15m) long by 20 feet (6.1m) wide and more than 6m high. At the time of construction, it included a feed access room for keepers on the south end and had an associated manger for food and a water trough inside the main space.

The structural design of the first Giraffe House utilises what appears to be steel frame at approximately 6 feet (1820mm) centres that resulted in a structure 5 structural bays long, 3 structural bays wide and 3 structural bays high. The structure includes half inch (12mm) steel bars at 12 inch (305mm) centres with steel mesh laid over and over that concrete coloured as rock. The structure has ribs or 'knees' of steel and concrete that acted as structural buttresses, as well as breaking up the rectilinear form of the structure. The roof is a curved concrete structure behind a rockwork parapet, supported in a steel-reinforced concrete bow truss frame and covered in sheets of a bituminous product known as Malthoid. **Figures 62** and **63** show the completed structure. The **Figure 16** plan includes details of the steel mesh fence structure, some part of which may remain associated with Item 128L the steel mesh fence (**Figure 61**).

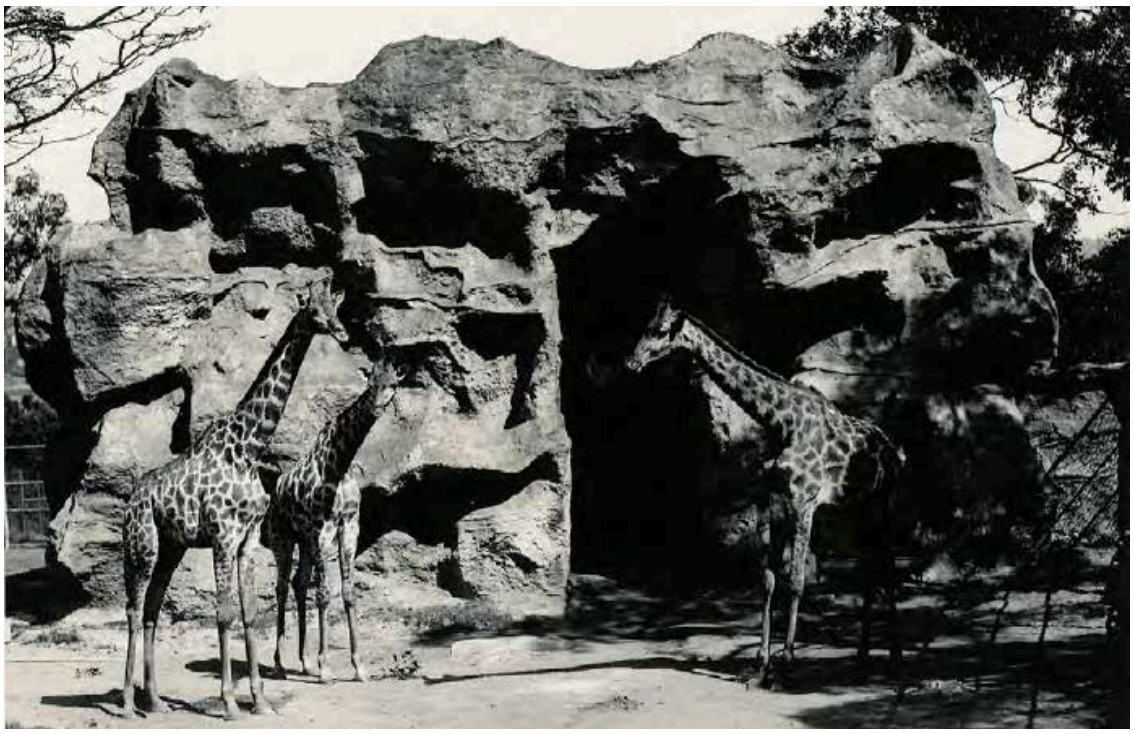


Figure 62 An undated photograph of the 1924 faux-rockwork structure with some of its customary incumbents. (Courtesy: TCSA Archives)

[170] Taronga Zoo Trust Report June 1924

Figure 63 A 2017 view of the 1924 giraffe house – iconic animals, an iconic shelter and an iconic public building in the background. (Courtesy: Geoff Ashley)

A small park at Mount Victoria sheds some light on the people who actually built this structure as archival information held at the Mount Victoria Museum mentions that various faux-rock structures for a small zoo within the local park in the 1930s "were designed by Tom Adam[s] who had already built similar structures at Taronga Zoo". Those at Mount Victoria were "made from cement-rendered steel and wire mesh and were likely to have been created by Adam[s] either with his assistants from the zoo or by local men employed under the Depression

Figures 64 and **65** Examples of the numerous small faux-rock structures within the local park at Mount Victoria in the Blue Mountains built in the 1930s under the instruction of Tom Adam who appears to have been responsible for the two giraffe shelters at Taronga Zoo.

Figure 66 A 2017 view across the giraffe enclosure to the Sydney CBD and harbour with the 1924 shelter to the right.

Emergency Employment Scheme".[171] Similar faux-rock structures of the same era feature in other local Blue Mountains parks at Katoomba Falls (near the Scenic Railway) and at Leura Falls.

Later images of the 1924 Giraffe House from the 1960s appear to show the structure to be generally covered in plant growth, including the roof, and perhaps this was deliberate to provide a focus on the 'new' Giraffe House with the imitation log style that was completed prior to 1950. The northern face of the 1924 Giraffe House is currently partially covered in a creeper vine and there is a recent skillion roofed structure clad in steel sheeting attached to its western facade. The draft s170 Register inventory states that the 1924 Giraffe House was refurbished in 2009 and it appears to be in a reasonable overall condition.

A key, and perhaps the most iconic, Taronga Zoo view is that shown in **Figure 66** that comprises the Giraffes in the foreground against either the 1924 or 1950 Giraffe Houses with the city skyline, including the Sydney Opera House, in the background.

1940s Giraffe House

A new giraffe house structure was constructed between 1943 and 1950; most likely in the post war period. By 1943 a high wall had been constructed at the southern edge of the original Giraffe Enclosure (**Figure 19**) and by 1950 a new pyramidally roofed Giraffe House had been constructed south of that southern wall, although the wall remained in place, suggesting two giraffe 'yards' were in operation.

The new Giraffe House was built with in-situ reinforced concrete walls with a surface treatment that imitates horizontally laid logs between 'posts' at corners and the openings. A similar structure was built for the African Elephant House (now demolished). The new Giraffe House is approximately 6m square and is of a similar height to the eaves. The structure has an opening facing north and has framing inside to contain feed. The structure is topped with a pyramidal hip roof that, while constructed of concrete, has the appearance of layered thatch sheeting (**Figure 67**). To the west of the structure is a small imitation rock enclosure probably used for storage. Cast into one of the posts at the entrance to the cabin are figures showing heights in feet of the animals. With the recent removal of the former koala shelter/kiosk near the Upper Entrance area, this giraffe structure is now the only surviving 'log cabin' type construction left within Taronga Zoo.

[171] This information formed part of a sign within the Mount Victoria park and cited text from "NSW Environment & Heritage report K002: Echo Park, Kingsford Smith Memorial Park, Blue Mountains City Council CMP, June 2013". The Mount Victoria information has Tom Adam misspelt as 'Tom Adams'.

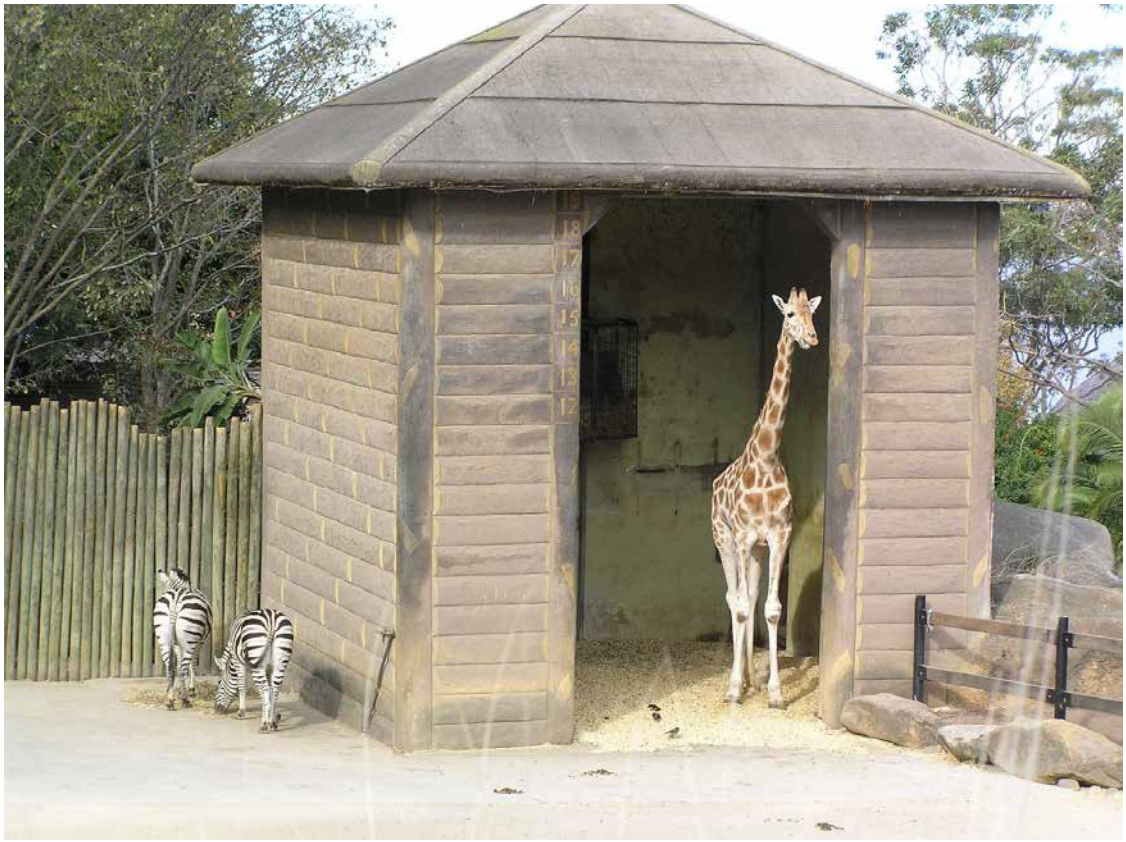


Figure 67 The 1940s giraffe shelter showing its faux-timber log character (including the calibrated post left of the portal) and its faux-thatch pyramidal roof. (Courtesy: TCSA Archives)

Figure 68 A 2017 view of the 1940s giraffe shelter showing more of its contextual setting. (Courtesy: Geoff Ashley)

One of the structures within the Mount Victoria park mentioned above is a concrete faux-log cabin shelter (Figure 69) created by Tom Adam. Recent correspondence in the TCSA archives includes information from descendants of Tom Adam indicating that he was also responsible for the construction of the zoo's 1940s giraffe house as well as other concrete rendered elements elsewhere on site.

Figure 69 The concrete faux-timber log shelter at Mount Victoria in the Blue Mountains also showing its parallel-scored roof cladding to imitate traditional thatch. Both this structure and the 1940s giraffe house at Taronga Zoo share in common the technical expertise and creative authorship of Tom Adam.

4.2.3 Tahr Mountain (African Waterhole Precinct)

Item 70B State/Exceptional Significance (associated places 12B, 52B, 62B, 150L, 154L)

This structure was purpose designed for the exhibition of the Himalayan Mountain Goat, the Tahr, and was constructed in 1932. Originally known as Goat Mountain, it is now known by the name of Tahr Mountain. It is located midway down the western slope of the Zoo on a relatively flat terrace. It is a concrete formed display resembling the terrain of the mountain goats, with cave like openings formed in its external volume.

As noted in Section 3.1.3, Tahr Mountain was most likely designed by the architect Alfred Spain who was a director of the firm Spain and Cosh but was also the Chair of Zoo Trustees at that time.[172] Spain stated in the Sydney Morning Herald in May 1932 that the new exhibit 'with crags, precipices, all complete … to be the biggest zoo mountain in the world'. Tahr Mountain was designed to be 50 foot (15.25m) high and the work included a 13 foot (3.9m) high fence that has since been replaced with a new perimeter fence.

Although no design drawing is known to have survived a good photograph of it under construction is shown in Figure 25. The structure shown in that photograph is a steel reinforced concrete frame that was constructed in-situ with timber formwork. The concrete frame forms a pyramid shape and includes vertical and diagonally strutted columns generally of a one foot (305mm) square section, with three levels of concrete beams proving laterally bracing between the columns. The external form of the Mountain is made with ferro-concrete imitation rock cladding comprised of cement applied over steel mesh that was attached to steel bars that were also tied back to the structural concrete frame.

[172] The s170 notes for this item state that is was designed by the PWD however research undertaken as part of this report suggests that Spain was the designer.

Although the s170 inventory noted Tahr Mountain as in good condition, an inspection in July 2016 undertaken for this project by the heritage specialists, the design team and structural engineers revealed that water ingress into the structure though the imitation rock cladding has resulted in significant corrosion and deterioration most particularly to the imitation rock cladding layer but also to the supporting concrete frame. In some areas light was visible through the cladding layer indicating areas of water ingress. A report from that inspection by Woollacott Consulting Engineers noted that at some places the internal surface profile of the imitation rock cladding appears to have been reinstated by spraying shotcrete onto the surface, particularly at the southwest corner and along the northern side.[173] The report also noted some damage to the structural concrete frame by way of corroding reinforcement and spalling concrete, mostly where the framing was in contact with the external imitation rock cladding that was allowing water ingress.

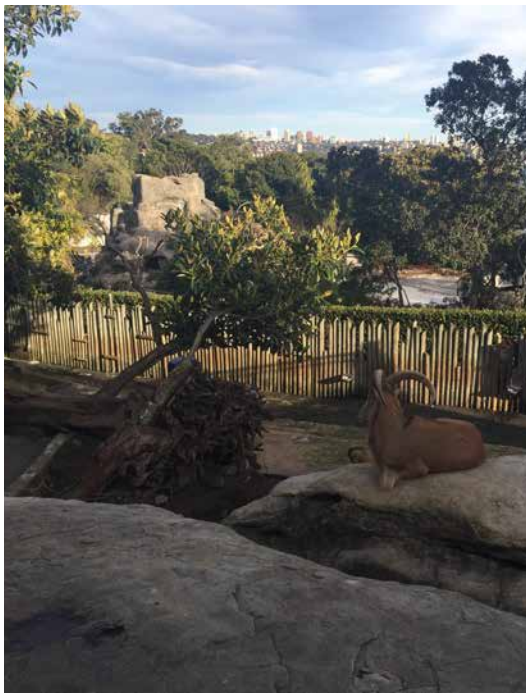
The report concluded that the extent of spalling damage observed to the structural framing of the mountain has not yet severely compromised the structural integrity. However, if the damage is left untreated and allowed to continue, it will eventually result in localised beam/column failures, which could compromise the stability of the structure and necessitate extensive remedial works or demolition. The report identifies action to repair the reinforced concrete frame. In relation to the ferro-concrete cladding the report states that it is generally in very poor condition, and localised failures could occur at any time where, dependent on their extent, could result in the injury/death of animals on the mountain. The report recommends that internal repair of the cladding be undertaken, using temporary propping of cladding panels between supporting columns to allow for drummy material and heavily corroded reinforcement to be cut back and removed, prior to installing new reinforcement and reinstating the original surface profile by spraying with shotcrete.

Figure 70 A 2017 view of the 1932 Tahr Mountain, though now showing within its traditional setting visually intrusive structures associated with the new Sumatran Tiger precinct to the south. Also note the current 'blocky' form of the structure after modifications to its original 'angular' form (**Figure 11**) – ostensibly to assist with regular cleaning and maintenance though, in practice, this has not been convincingly successful. (Courtesy: Geoff Ashley)

[173] Woolacotts Consulting Engineers, *Tahr Mountain: Structural Condition Assessment report*, July 2016

Although Tahr Mountain is not identified for a new use in this Development Application it is understood that the Tahr goats will ultimately be removed from Tahr Mountain (and Taronga Zoo itself) for animal management reasons rather than the condition of Tahr Mountain. There would be a heritage impact from that loss of association when that occurs.

This HIA report recommends that as a mitigative measure in relation to this DA that a detailed investigation and documentation project be instigated (with reference to the structural engineering report made for this project) and that a conservation program be implemented so that Tahr Mountain is capable of future use.



LEFT Figure 71 A recent view of Tahr Mountain's interior structural members. (Courtesy: Geoff Ashley)
RIGHT Figure 72 A view of across the Barbary sheep enclosure with Tahr Mountain in the background. Note effective blending of faux-rockwork and natural sandstone to assist in visually unifying the Taronga Zoo site.

4.2.4 Barbary Sheep Enclosure (African Waterhole Precinct)
Item 75L Local/Exceptional Significance

The Barbary sheep exhibit is located within the western 'hairpin' bend of the 1910s site access layout.[174] As with the giraffe enclosure, it is another early zoo feature where animals have been associated with the particular site since from its inception (mid-1920s).[175] Both Barbary sheep and giraffes – as contemporary zoo precincts – are linked by the early retaining wall of sandstone and rendered rubble listed as Item 74L suggesting that the intervening wall also dates to the mid-1920s.

The exhibit features prominent natural sandstone outcropping along with faux-rockwork infill as a means of recreating an appropriate habitat for the animals (**Figure 53**). It also demonstrates an awareness of the intrinsic landscape character of the sloping Mosman site and a willingness to accommodate it as part of the exhibit planning and design. Also as with the giraffe and tahr exhibits, the Barbary sheep exhibit has remained a recognisable feature of the zoo for almost 100

[174] The original layout has been greatly impacted by the recent construction of the cumbersome and intrusive ramp system in this location. The ramp has also removed a substantial area of exhibit/general zoo space.
[175] The s170 register notes state that the exhibit was built in 1916 as one of the original zoo exhibits however Barbary sheep weren't brought to the site until the mid-1920s. It is more likely the exhibit dates from the latter period (note **Section 3.1.4** of this HIA report).

100 years. The earlier exhibit featured a fig tree that was blown over though, remarkably, still survives and is beginning to provide sheltering canopy again elsewhere within the site.

Perimeter fencing around the Barbary sheep exhibit is a relatively recent, but thematically appropriate, pine log palisade type with splayed tops of variable heights (Figure 72). Following the inside curving line of the hairpin path, there is an original (mid-1920s) stone edge defining the exhibit to the west and south.

4.2.5 Hallstrom Square (Congo Precinct)

Associated Items 53L State/Exceptional Significance; Item 58L State/Exceptional Significance; Item 59L Local/Exceptional Significance; 116M Local/TBC Significance; 161L Local/Exceptional Significance; 183L Local/High Significance; 184L Local/High Significance; 243L Local/High Significance; 266L Local/High Significance; 278L Local/High Significance

The area known in recent decades as Hallstrom Square forms a nexus between the proposed Waterhole and Congo Precincts and includes some important components belonging to the earliest phase of zoo development. These components should be conserved. They include the monumental double stairs (59L) and the integral line of scalloped rustic seating (58L)(either side of the stairs), both of which have close affinities with similar treatments at Park Guell (1900-1914) in Barcelona.[176] The integral ensemble of grand staircase and scalloped rustic seating at Taronga probably serves as an outstanding early example of the influence, in Australia, of major international architects Antoni Gaudi and Josep Maria Jujol.

Throughout the zoo there are numerous early structures and plantings (tall date palms were an early feature of the zoo) that strongly suggest that the original zoo planners and designers were familiar with, and clearly influenced by, Antoni Gaudi's iconic landscape masterpiece for his friend and patron Eusebi Guell and the local Catalan community. Certainly, Gaudi's organic or 'bio-morphic' approach to architectural design and landscape structures fitted well with the aspirations of the zoo designers in achieving more materially understated, flowing forms for many of the zoo enclosures. The grand staircase (59L) recalls that at Park Guell (Figure 73) leading up to the Market Hall. Gaudi's version includes images of mythic beasts while that at Taronga is surrounded by real animals of many kinds. The scalloped rustic seating throughout the zoo (58L, 55L, 76L and the exedra at the 1915 rustic bridge near the lower Aquarium) is reminiscent of the mosaic serpentine seating (probably to JM Jujol's design[177]) around the plaza on top of the Market Hall as well as the rustic character of other seats and features within Park Guell (Figures 76 & 77). However unlike that at Barcelona, the Taronga Zoo staircase/seating ensemble has an intriguing inherent contradiction of movement/energy (stairs/pathway) and rest/tranquillity (seating) in the same integral group of elements – a case of a finely calculated balance.

Plantings of note in the vicinity of Hallstrom Square that warrant retention and conservation include the old vine (*Elaeagnus triflora*)(266L) behind the scalloped seating, the landmark group of Hoop Pines (*Araucaria cunninghamii*)(53L), overlapping with the Waterhole Precinct, and two species of date palms (278L and 183L) that have a direct relevance to the Park Guell-inspired landscape and structural features of the space.

Since the 1913 zoo concept plan this location has always functioned as public open space – lawns originally, then eventually paved spaces and gardens with minimal lawn - so for about 100 years the space has formed a convenient passive recreation area and opportunity for picnics and 'time out' for zoo visitors. Since the 1980s the space has been named in recognition of the past honorary director and sponsor of Taronga Zoo, Sir EJL Hallstrom.

[176] Both Park Guell and Taronga Zoo have been built into, and respond in their layout to, the respective local concave hillside landscapes.
[177] Stephen Burgen, "Gaudi's partner in iconic Barcelona design finally gets the limelight", *The Guardian*, 9 September, 2016

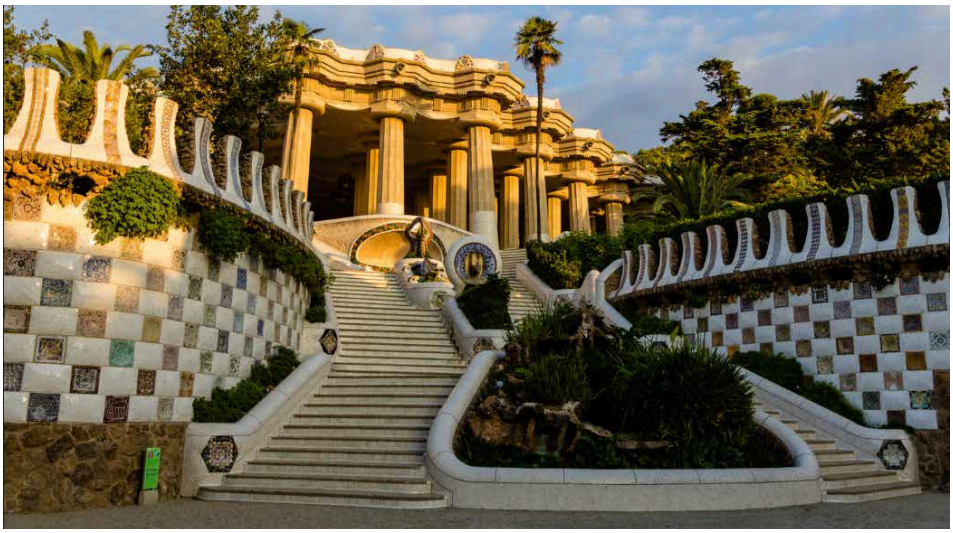


Figure 73 A recent view of the monumental staircase at the entry to Park Guell. (Courtesy: Jon Bagge)

ABOVE Figure 74 View along the avenue behind the Greek Theatre at Park Guell (c. 1927) showing the characteristic combination of rustic stonework and heavily textured plants – in this case date palms. (Photo courtesy: Kent and Prindle, 1993[178]) **RIGHT Figure 75** A 2017 view to 'Hallstrom Square' past the newly completed Centenary Theatre with the line of rustic stone seating under and one of several date palms adjacent. Where there was once a considerable amount of scalloped rustic stone seating at Taronga Zoo (evoking the famous rhythmic mosaic seating at Park Guell) these are now much reduced. The remaining examples, together with their associated date palms are an important reminder of one of the key international inspirations for the early zoo. **BELOW Figure 76** 1920s rustic seating and the grand staircase near 'Hallstrom Square'. (Courtesy: Jean Rice)

[178] Conrad Kent and Dennis Prindle, **Park Guell**, Princeton Architectural Press, New York, 1993 p. 125

Figure 77 A 2013 view from one of the walks at Park Guell showing its characteristic rustic stonework. (Photo courtesy: Tracy Wong)

Another element of the Park Guell landscape that has been adopted at Taronga Zoo is the use of plantings in association with the built landscape structures. In this case palms (including date palms) are evident near the seating series. Silver Date Palms (*Phoenix sylvestris*) remain in this location. (A Canary Island Date Palm (*P. canariensis*) was removed recently for the new Taronga Theatre development.) A consistent feature of the Park Guell landscape is its old date palms, particularly the robust Canary Island Date Palm.

4.3 Early Exhibits/Elements

4.3.1 Early Aviaries (Congo Precinct)[179]

Birds were a major component of the original zoo planning where a considerable number of aviaries were built in successive programs from the 1910s (eg. the former birds of prey aviary, now demolished though with most of the base walls remaining beyond the present extensive ramp system) through to the 1930s (most of the aviaries remaining within the proposed Congo Precinct). The early zoo plans show that almost the entire central part of the zoo originally had various exhibits featuring birds (**Figures 4** to **6**, **15**, **18** and **19**).

Those aviaries remaining within the proposed Congo Precinct are the remnants of bird exhibits that had almost entirely occupied the discrete area between Hallstrom Square, the Koala House and the current lemur exhibit. Most of the aviaries demolished within this discrete area were of a regimented arrangement in a line along the pathways above Hallstrom Square and above the current lemur exhibit. In recent decades there has been a prevalence for larger walk-through aviaries in place of smaller, confined aviaries.

The remaining aviaries within the upper Congo precinct are all basic pipe-framed structures, infilled with fine mesh, with concrete (often faux-rock) rear walls and niches for shelter.

[179] Note that the Aviaries are the subject of a separate heritage impact assessment report by the TCSA of March 2016.

4.3.2 Finch Aviaries (Congo Precinct)
Item 60B Local/High Significance

The former Finch Aviaries (60B)(**Figure 78**) along the main public thoroughfare were built progressively with the first group completed adjacent the roundhouse at the western end (now partly demolished) in the first decade of Taronga Zoo's development (evident in the 1943 to 1950 photography – see **Figures 19** and **20**). They were originally built as a python exhibit but soon changed to an aviary. A second group was added in the 1930s with a gap in between where a path emerged from around the back of the 'U-shaped' aviary. The much later infilling of this gap resulted in the aviaries being 'read' as a long line of meshed enclosures. The former Finch Aviaries were partly demolished by early 2017 with the original python structure retained.

Plantings of particular value near the aviaries include the Brown Pine (*Podocarpus elatus*)(168L) and the massive Moreton Bay fig tree (*Ficus macrophylla*)(160L)(**Figure 79**). Both need to be retained as they are substantial landscape assets within the site. Behind the earliest aviaries two sandstone piers (relocated from elsewhere within the zoo) have been temporarily stored. These can be moved but should be ultimately relocated to public areas where they make sense in the context of earlier zoo layout.

ABOVE **Figure 78** A recent view of the former Finch Aviaries (s170 Item 60B) with the former Python enclosure (in faux-rock) to the right. (Courtesy: Jean Rice) BELOW **Figure 79** An April 2017 view of the new lawn over the site of most of the former Finch Aviaries with the retained former Python enclosure to the right. Also evident in the view are the two mature trees – a Brown Pine (s170 Item 168L) and the large Moreton Bay fig tree (Item 160L) beyond the lawn. Between the two trees is a change of level indicating the location of an Interwar period stone retaining wall.

Figure 80 A closer view of the Brown Pine (Item 168L) behind the former Finch aviaries with the expansive form of the large Moreton Bay fig tree (Item 160L) beyond.

4.3.3 'U-shaped' Aviary (Congo Precinct)
Item 97B Local/High Significance

The largest of the remaining early aviaries is the 'U-shaped' Bush Birds of Australia exhibit (Item 97B)(Figure 81) featuring birds of Cumberland Plains Woodland and Ironbark-Turpentine Forest vegetation communities. The basic structure of the 'U-shaped' aviary was in place by 1934 and has been modified more recently to extend its height and increase flying space and volume for internal vegetation.

The wrap-around form of the aviary together with simple seating in front and a generous planted (forecourt) space away from the main thoroughfare to the north engenders a peaceful, contemplative quality encouraging a quiet engagement with these birds. The 'forecourt' was established by the demolition of three small aviaries and the landscaping reflects their outlines. The sense of 'immersion' works so well here that it is possible to imagine being in the bush: a successful case of 'immersion' without actually entering the aviary space.

Figure 81 A 2016 view of the eastern end of the Bush Birds of Australia exhibit where the unique 'U-shaped' form of the aviary enables an unusually close engagement with the birds. Sympathetic landscaping within and outside the aviary provides a convincing sense of 'immersion' with the exhibit.

4.3.4 Small Aviary (Congo Precinct)
Item 159B Local/Moderate Significance

A third, much smaller aviary (159B)(Figure 82) was built to the southeast of the 'U-shaped' aviary in the 1930s (shown as being for snakes in the late 1930s guide plans). As with the latter, this small structure offers a more intimate, reflective area in which to engage with the birds away from the noisy main thoroughfare. While wire divides the birds from visitors, it could be argued that it is more likely visitors would experience small birds very close than within the large walk-through aviaries that are now the preferred exhibit option.

The former 100-year old Finch Aviaries and the later additions to them were next to, and clearly impacted by, a less desirable environment (principal movement corridor) while the later aviaries (97B and 159B) appear more successful in their more unhurried engagement with visitors. Both the 159B aviary and the larger 97B aviary have been approved for demolition. Most of the early aviaries elsewhere in the Zoo have also been demolished.

Figure 82 The eastern aviary (Item 159B) currently with various Australian finches and kingfishers.

4.3.5 1917 Birds of Prey Aviary Remnants (Congo Precinct)

Item 134B Local/High Significance

To the north of the existing gorilla exhibit and located within an elongated space between two original paths, are the remnants of one of the first major zoo exhibits. This was a prominent and substantial aviary - specifically for large birds of prey such as vultures and eagles - that was dominant in views of the central precinct of the zoo site (**Figures 44** and **45**).

What remains of the structure is the northern roughcast masonry base wall indicating part of its outline and extent. At the southwestern end is a surviving apsidal enclosing wall though at the northeastern end a rustic stone wall (next to steps leading to the existing Lemur exhibit area) survived until recently[180]. Use of the aviary for its original purpose (keeping large birds of prey accustomed to flying considerable distances) understandably waned such that its pipe and mesh superstructure was removed about the 1970s.

In more recent years a large switch back ramp structure, designed to provide BCA-compliant universal access, was built within the walled outline of the 1917 aviary where the northern wall was retained but the southern wall was removed. Next to the apsidal end wall is a *Callitris rhomboidea* (Port Jackson Pine)(170L) of locally exceptional significance as an early zoo planting.

Figure 83 The remnant apse of the former Bird of Prey aviary.

[180] Documented in 2006 for the Landscape Management Plan (Design 5 Architects)

ABOVE Figure 84 Part of the upper boundary wall of the former Birds of Prey aviary showing its generous concrete coping and an upstand section with exposed English Bond brickwork. BELOW LEFT Figure 85 An intact corner section of the former aviary boundary wall. BELOW RIGHT Figure 86 *Callitris rhomboidea* at the end of the former Birds of Prey aviary – and potentially contemporary with it.

4.3.6 Fennec Fox Shelter (African Waterhole Precinct)

Item 98B Local/Some Significance (probably should be of Moderate Significance at least)

The chief cultural heritage significance of this exhibit is the unusual 1930s? shelter (s170 Item 98B) formerly associated with a Pygmy Hippopotamus exhibit from the 1990s that was converted in 2016 to the current Fennec Fox exhibit.[181] (The 1956 zoo plan shows echidnas in this area at that time.)

Although the date of construction and designer are not yet known, the public elevation of this structure appears to be a tongue-in-cheek reference to the famous gaping *Sacro Bosco* monster (Hellmond)(**Figure 88**) of Pier Francesco (Vicino) Orsini (1523-1584) at the Villa Orsini, Bomarzo in the Roman Compagna. (A similar, but later, giant head with portal mouth is also a feature of the western ramped entry to the *bosco*-like garden of Villa Aldobrandini, Frascati.) The original Bomarzo Hellmond (Hell's mouth) of the 16th century demonstrates curious ambiguities and contradictions. After entering through the frightening mouth, the head's interior offers an inviting, cool, pleasant space complete with carved seat and where the 'tongue' could be used as a picnic table. There was therefore intended an amusing play on eating and being eaten as well as living and dying.[182] It is unknown to what extent Orsini's philosophical symbolism was to be taken in the case of the former Pygmy Hippo House.

LEFT Figure 87 Item 98B (currently the Fennec Fox shelter) appears to be a light-hearted stylised reference to the famous 16th century Mannerist monster face of Pier Francesco Orsini's Bomarzo villa garden. (**Figure 88 RIGHT**)(Source unknown)

Little is documented about the history of this structure. While featuring imitation rock, its proportions and openings suggest a grotesquely anthropomorphic face with a central mouth opening, two small 'eye' windows and ear like side projections. It was originally adjacent a prominent public path which continued to elevated walkways above and around the lion and tiger pits. In the current arrangement visitors only see the front façade of the structure and the wire mesh enclosure in front of the structure significantly limits views to it (**Figure 87**). The structure is roughly square or rectangular in plan and has a curved roof like the 1924 Giraffe House with concrete imitation rock appearing to continue down the sides.

Along with the Pre-1950 Giraffe house, this modest structure adds an element of passing humour from an age when a visit to the zoo was likely more about amusement, fascination and curiosity than learning about fundamental zoological, ecological or conservation issues. To some, large exotic animals (like the original hippos) may well have seemed somewhat monstrous,

[181] Both the TCSA s170 Register (2014) and the 2004 (GML) Conservation Strategy indicate this building as a 1920s introduction (the latter tentatively), however it appears not to be visible on the 1930 aerial photography while it is clearly visible on the 1943 aerial imagery (via *SixViewer*, Department of Lands and Property Information).
[182] Paul van der Ree, Gerrit Smienk and Clemens Steenbergen, *Italian Villas and Gardens*, Prestel, Amsterdam, 1992 p. 194

especially with their large gaping mouths – even allowing for the reduced scale of the earlier incumbents.

4.3.7 Octagonal Shelter Shed (African Waterhole Precinct)

Item 144B Local/High Significance (Conservation Strategy)

Although the s170 inventory dates the Shelter Shed as being late 1920s, the history in **Section 3.1.6** indicates that the Shelter was constructed along with a nearby Stevens Lookout in 1932 and was probably intended to be implemented through the unemployed relief scheme under the supervision of Alfred Spain. Neither the Stevens Lookout (also with an octagonal superstructure) nor this Shelter was depicted in the 1929 edition of the Zoo Guide, but had been completed by the 1932 edition. The timing of these visitor facilities coincided with the completion of the Harbour Bridge. Further work on the lookout seems to have been undertaken for it was officially opened in October 1935 and named after the Premier Bertram Sydney Stevens, who was in attendance at the opening.

LEFT Figure 89 An April 2017 view of the 1932 octagonal shelter (with a more recent roof) showing a glimpse of the vistas to the Sydney Harbour Bridge and North Sydney that would have been possible in previous years from within the structure. **RIGHT Figure 90** A current vista from the shelter to the harbour, opera house and CBD. **BELOW Figure 91** Inside the octagonal shelter showing the apertures with views of the harbour and CBD. The photograph also reveals the more recent wall plates and superstructure over the original 1932 walls. (Courtesy: Geoff Ashley)

The Shelter is octagonal in plan and has a structure of single skin brickwork. The Shelter now has textured cement rendered walls, but it appears (from lost joinery) that it was originally of a (glazed) face brick construction. Openings that are facing the path have arched openings. Openings that face the view have wider rectangular openings. A timber seat is built along inside walls.

The Conservation Strategy stated that the Shelter was in poor condition with the roof shingles decayed (presumably timber) and not watertight. Figure 37 shows a low sheet metal roof with traditional raised seam upstands. The s170 inventory states that the Shelter was restored/ refurbished in 2012 and it appears that the roof has been reconstructed to its original form. The roof soffit appears to have been changed to plywood during the reconstruction.

An important part the reason for, and history of, the Shelter are the views available from it and the Stevens Lookout. An undated but most likely 1930s photo (Figure 37) shows the Shelter with good views to the Harbour Bridge. While views to the Harbour Bridge may now be limited from vegetation growth, there remain very good views of the Opera House from this Shelter (Figure 90).

4.4 Later Exhibits

4.4.1 Orang-utan Enclosure (Congo Precinct)

Item 103B Local/Some Significance (Conservation Strategy) High (Landscape Management Plan)

The Orang-utan enclosure provides evidence of a shift in approach to the presentation of exhibits to show animals in a more 'natural' environment. While the s170 inventory notes the enclosure as dating from 2002, it appears that it was designed in 1991 by architect Julia Carras of the Government Architect's Office, PWD, with extensive documentation by Campbell Luscombe and Associates (184 drawings) and was constructed in approximately 1993.[183]

The enclosure is in many respects deliberately 'non-architecture' where the animals are generally viewed in a rainforest like landscape space enclosed by walls but open to the sky (Figure 92). The open space area was shown as Exhibit on construction drawings and is constructed with a high reinforced concrete block wall with a steel wire and fabric canopy over parts of the space. A watercourse ran through the Exhibit and it had extensive planting and a timber climbing structure.

LEFT Figure 92 Orang-utan enclosure (103B). **RIGHT Figure 93** Louvred glazing next to the Orang-utan exercise yard. (Both photographs courtesy: Geoff Ashley)

Adjacent to the Exhibit area is the two-level Enclosure structure from which the Orang-utans could travel freely to the Exhibit area underneath the visitor path. The northern two level part of the Enclosure has flat roof behind blank walls and visually appears to be part of the Exhibit area.

[183] PWD plans held by TCSA Archives

The Enclosure building had 8 animal dens, 2 exercise yards, an internal viewing yard (visitors could view in), a keeper office and circulation and a food preparation area. The Enclosure has two curved steel roofs and a louvre-glazed wall standing in front of the exercise yard but also providing light but protection from weather (**Figure 93**).

The Exhibit and Enclosure are no longer used for Orang-utans but used for display of the Squirrel Monkey from South America. It was not successful for the display of the orang-utans who tended to stay in the dens. It has been speculated that it may be because the exhibit was too hot and the shade structure was to try and remedy this. The enclosure has been modified to allow visitors to enter the Exhibit area on guided tours around a walkway with a new entry and exit. The only planting of note in relation to the Orang-utan Precinct is the uncommon fig tree (possibly *Ficus longifolia* - an Asian species)(274L).

4.4.2 Gorilla Enclosure (Congo Precinct)

Not specifically listed on the s170 register

The current gorilla exhibit is the result of upgrades in the early 2010s (to the earlier 1996 exhibit) with a view to creating a visitor 'immersion' experience using faux-rockwork, a creek and a rainforest setting. The western part of the exhibit had been developed for Giant Pandas in the lead up to the Bicentenary in 1988. Within this large area is the site of the elliptical Birds of Paradise and Parakeet Aviary (117B) at the eastern end (later used as a Guenon enclosure and demolished in 1995) and a former 1940 elephant enclosure (95B) where remnants consist of massive concrete retaining walls currently functioning as part of an entry to the western end of the gorilla exhibit. This review confirms that only some cultural value is attached to the former elephant enclosure.

From the 1913 zoo map until at least the 1970s the area was the site of a series of enclosures for large 'running' birds such as emus, cassowaries, ostriches and rheas. Little, if any, evidence remains of these earlier enclosures. Before the gorilla precinct was built in the mid-1990s, the area was used variously used for other animals such as Maned Wolves in the early 1990s.

The only cultural landscape elements within this latter area of note are the early pipe handrail (130L) at the southeastern end and several plantings: two Sausage Trees (*Kigelia pinnata*)(91L), older Brush Box (*Lophostemon confertus*)(186L) and one of the group of landmark Hoop Pines (53L) that extend across to the Waterhole Precinct. As with the *Kigelia pinnata* within the Waterhole Precinct (**Figure 94**), those at the western end of the gorilla exhibit are not old plantings and could be replanted elsewhere if necessary. However they are thematically appropriate and, as they have begun to establish and mature, it would be highly desirable to retain them where they are and allow them to continue to mature into the iconic trees (the large sausage-like fruit dangle on long stems) for which they are noted (**Figure 95**).

FAR LEFT Figure 94 African Sausage Tree located in the existing Waterhole precinct (just beyond the Barbary sheep).

LEFT Figure 95 An example of the distinctive fruit that gives the tree its vernacular name. The fruit in this photograph was from near the current Gorilla enclosure.

4.4.3 Existing Waterhole Exhibit (African Waterhole Precinct)

Associated Items 74L; 132L; 247L; 248L; 251L; 255L; 256L; 272L; 273L; 277L; 287L; 288L; 289L

The area to the east of the Barbary sheep exhibit has changed emphasis over the years and currently holds bongo and zebra (previously rhinoceros) within a generally open enclosure where a visitor 'immersion' concept has emphasised a savannah-like landscape character. The waterhole area was, prior to the 1980s, a series of discrete, individual animal enclosures typical of 19th century zoos. The present large thematically unified exhibit space replacing these smaller enclosures, was largely completed by the 1990s extending from the Barbary sheep enclosure to the Safari Lodge structures to the east.[184]

Elements of value within these exhibits include the early (mid-1920s?) sandstone walling (74L) built over natural rock outcropping at the back of the bongo area and the faux-rockwork at the back of part of the zebra exhibit. Near the current meerkat enclosure is a section of early zoo retaining wall (132L)(**Figure 97**) featuring stone cresting and faux-rockwork. The wall defines an edge of one of the original 1910s pathways (99L). In the vicinity of this early path through the precinct, and above Tahr Mountain, are further sandstone retaining walls and sandstone outcropping (**Figure 96**).

Figure 96 A section of battered drystone retaining wall of worked (sparrowpecked) sandstone above the existing ramp (at right) and south of the Barbary sheep enclosure. Note too, part of a large rock outcrop in the foreground that characterises the remnant natural landscape in this western part of the Waterhole precinct.

[184] The move towards broader areas of thematically consistent zoo precincts marked an important development in international zoo planning that, for the Waterhole area, totally replaced the earlier series of small, discrete (and, at times, thematically unrelated) animal enclosures more characteristic of 19th century zoo planning.

Figure 97 Item 132L, near the eastern end of the Waterhole precinct, features faux-rockwork render to the body of the wall with stone cresting reminiscent of that used for the one-off rustic stone exedra and bridge within the eastern gully of the zoo. Its character and position defining an early path, suggest the wall section was part of the early phase of zoo development.

Figure 98 This view along the main path through the existing African Waterhole precinct shows the line of Sweet Acacia (*Vachellia farnesiana*)(Item 273L) between path and animal fences that successfully allows views under its canopy and framed views between trunks while creating an appropriate setting for the zebra enclosure.

Figure 100 The two large Aloes (Items 247L and 248L) along the existing African Waterhole path (and above Tahr Mountain).

Planted vegetation within and in the vicinity of the existing African Waterhole exhibits that previous cultural heritage studies have noted include the use of thematically appropriate species such as Sausage Tree (*Kigelia pinnata*)(272L)(**Figure 94**), African Tulip Tree (*Spathodea campanulata* – incorrectly as *Sparmannia africana* on the s170 register)(251L)(**Figure 101**) and *Aloe* spp. (247L, 248L, 287L and 289L)(**Figure 100**). The significance of the plantings arises chiefly from their specific use in relation to the exhibit design and not from any great age (with the exception of the Aloes).

All of these plantings could be relocated elsewhere if needed by either physically relocating them (the Aloes as well as the date palms [items 255L, 256L and 277L] and the Kalanchoe (288L) or propagating from them and replanting as seedlings (Sausage Tree and African Tulip Tree). However given the successful establishment of the latter trees it would be desirable to leave them intact to continue maturing. An implication of retention in this case would be the need to also retain existing levels around the base of the trees.

Figure 101 The African Tulip Tree (*Spathodea campanulata*)(Item 251L) next to the current Fennec Fox enclosure.

Along the front of the Zebra exhibit Sweet Acacia (*Vachellia farnesiana*)(273L)(**Figure 98**) has been used – although now naturalised throughout the African and Asian tropics and subtropics, it is actually a native of central America.[185] The Sweet Acacia thicket conveniently provides a sense of the African savannah acacias though other species could be contemplated.

4.4.4 Safari Lodge Area (African Waterhole Precinct)

Not listed on the s170 register

While the Safari Lodge is not included in the s170 register, it is a substantial, well-constructed timber framed structure that provides visitor amenities and eating areas. In material and design terms it is themed as part of the overall Waterhole Exhibit that was established in 1984 and further developed in the early 1990s by the Government Architect's Office, with Zoo staff undertaking the planting.

[185] The Pygmy Date palm (*Phoenix roebelenii*)(item 277L] within the Waterhole precinct is a native of Asia and the Floss tree (*Ceiba speciosa* – formerly *Chorisia speciosa*)(Item 271L]) is from South America.

The Safari Lodge Kiosk itself was constructed in 1987 with design drawings prepared in 1986 by architects Devine, Erby Mazlin Australia Pty Ltd. The area of Safari Lodge continued the role of this area of the Zoo as a precinct for visitors – a role that was established in the 1930s as the Lawns and Kindergarten Zoo area.

The Safari Lodge Kiosk is comprised of three linked and similar sized octagonal shaped timber frame structures (**Figures 33, 34** and **102**). Two of the octagonal structures are open as visitor eating areas and the third has operable walls with a glazed toplight. There is an additional gable-roofed structure of three segments housing visitor toilets surrounding the northern octagonal structure.

Figure 102 The 1987 Safari Lodge with its earth-toned base walls and substantial structural poles provides a sensitive and thematically appropriate focus for the original African Waterhole precinct. (Courtesy: Geoff Ashley)

The structure itself is interesting, being comprised of two parallel roughly hewn c150mm timbers forming the roof structure and continuing to the ground as bracing for the corner poles. Similar timbers span from central posts of each of the three octagonal 'pods' to the roofing structure. The roof cladding is a modern bitumen-based shingle material to replicate the sense of timber shingles. The structure is surrounded by dense landscape plantings of similar theme to the structure.

4.4.5 Former 'Lion Caves' Enclosure (African Waterhole Precinct)

Not specifically listed on the s170 register

Opposite the current meerkat exhibit is the former 'Lion Caves' area, with an enclosure currently used for a Sun Bear and featuring a considerable amount of faux-rockwork of generally high quality. It was opened in 1996 by then NSW Minister for the Environment Hon Pam Allen MP. At the enclosed superior viewing space (typical of older exhibits) much use has been made of broad plate glass 'walls' though with massive faux-rockwork sections (appearing to be disconcertingly unsupported) above (**Figure 103**).

Figure 103 The upper Sun Bear exhibit forecourt enclosed by massive faux-rockwork 'boulders'. It lies to the immediate south of the proposed new African Waterhole precinct. (Courtesy: Geoff Ashley)

4.5 Other Site Components

4.5.1 Pathway Layout

Item 99L State/Exceptional Significance

A comparison between the 1913 'Hand Map of [the] Proposed Taronga Zoological Park' and the 1920 'Plan of Taronga Zoological Park' shows that a considerable amount of the intended layout of the site was actually built during the 1910s. A further comparison with current aerial photography indicates that a substantial amount of the original layout of accessways (Item 99L) survives. Even recent major development precincts such as that for the Asian Elephants and that for the aquatic animals further east have retained the overall perimeter layout shown in 1913.

The basic network of roads and paths from the original and early zoo plans serves to maintain a continuity and legibility across the visually complex site. It is likely that this layout would hold social value (through 'mind-mapping' of reference points or 'place memory') as much as historical value. Often the sequence of paths and publicly accessible access roads forms part of a serial visual experience featuring animal exhibits as well as broader intermittent views and panoramas out across the zoo to the harbour (**Figure 104**) and city skyline beyond.

Figure 104 A famous view from the Serpentine path en route to the former seal pools. Note the early balustrading defining the path.

4.5.2 Turner House (Congo Precinct)

Item 54B Local/Some Significance (probably should be of Moderate Significance at least)

History of Turner House (additional photographs at Appendix A) has yet to be fully established and is not addressed in the s170 inventory, apart from stating that it may have been constructed in the late 1940s or 1950s. The assessment of the place for this report suggests that it may also be from the late 1930s or the early 1940s. The information discussed here has recently been obtained for this project from ex Taronga Zoo staff via a Facebook page request and from information obtained by the Zoo Archivist (see Appendix B).

The minutes of the Zoological Park Trust Board for 1921 and 1922 do make reference to a Mr Millers cottage who was an overseer but it is not currently known where that was located. Turner House is not included on 1933 and 1936 visitor plans of Taronga Zoo, however it is possible that if used as a residence for staff that is was not shown on visitor plans. The location of Turner House (not far from the Grand Stairs) is shown as Lawns in those plans with the Kindergarten Zoo area nearby to the west (current Safari Lodge). A newspaper article from 1933 describes the Children's Kindergarten where children could pet animals such as rabbits.[186] The article states that picnickers are catered for in "this wonderful pleasure resort". Turner House is shown on the 1956 Zoo Guide.

It is possible that Turner House was constructed in association with the Lawn/Kindergarten area uses and may have been used by keepers who lived in it and raised young animals (and possibly bred insects for animal food). Certainly, by the early 1960s it had this use according to former Zoo staff.[187]

Other memories are that the building was constructed as a staff residence. Apparently, there was a Mr Turner who was a senior staff member who had a role travelling overseas, such as to Africa, to arrange the purchase of animals from dealers.[188] Harry Turner is shown in a 1947 newspaper article feeding animals. At one stage Turner was living in this building. Sadly, it appears that Harry Turner committed suicide in the building and it was later named Turner House in his honour.

Since the 1950s Turner House has been used for a number of different purposes, including once again as a residence (c1962), a place to breed insects for animal food (possibly the raising of young animals in the Kindergarten Zoo noted above) and as a Koala quarantine facility. In the late 1960s and to mid-1970s it was used as a First Aid post by St John's Ambulance.[189] Later it was used as a female change room (early 1980s) and for various office uses including for the Head Keeper, OHS staff, security (later 1980s) and most recently, and currently, by Animal Enrichment (Animal Behavioural Unit).[190]

The building itself is designed to appear as a classic Federation period 'Mosman style' sandstone cottage with a terracotta tiled roof, heavy timber brackets and joinery and an open (now infilled) verandah. The course ashlar 'sandstone' blockwork is actually very well constructed cement render over brickwork. While the faux fabric makes it difficult to date, the interior details of tiles and window joinery suggest a late 1930s to mid-1940s construction. Turner House demonstrates a sophisticated level of design with very high quality faux sandstone block render over brickwork, as well as fine timber joinery detailing. It still retains interesting elements of its landscape surrounds, including symmetrical circular planters and a broad curved step onto (originally) an open verandah (later built in)(Figure 105). Turner House is in a good condition with largely intact internal spaces and finishes although the grounds around it are not currently actively used or well maintained.

[186] *Referee* 29 March 1933 p. 19 from Trove
[187] Graham Turner on Facebook
[188] TZ archivist Pam Burgoyne, pers. comm. to Geoff Ashley, February, 2017
[189] Geoff Kid on Facebook
[190] TZ archivist Pam Burgoyne, notes provided to Geoff Ashley, February, 2017

Figure 105 The front elevation of Turner House showing its infilled verandah with the existing entry to the left as well as the original front boundary wall, piers and entry gates on axis centrally. This main house axis also seems to relate to two of the large Hoop Pines nearby suggesting a deliberate siting concern for the building within this precinct. Well-executed faux-sandstone blockwork walling is extended to the boundary walls and piers within the grounds. (Courtesy: Geoff Ashley)

It is most likely that Turner House was deliberately designed to sit in the Lawns that were established in the 1930s given the quality of its design and associated faux sandstone features such as curved garden beds paths and wrought iron metal gates. At some stage the open verandah facing south has been infilled that has impacted the building's appearance. The two large Hoop pines (part of Item 53L in the s170 register and of Exceptional (State) significance) are placed symmetrically in front of Turner House and as such it appears that Turner House was deliberately designed to be part of a visitor 'recreational' landscape that was established in the 1930s around the Lawns, most likely for accommodation for staff associated with the Kindergarten Zoo.

4.5.3 Grand Staircase (Congo Precinct)

Item 59L Local/Exceptional Significance

The generous double staircase to the north of Hallstrom Square is a major component of an ensemble of landscape structures with obvious links to Park Guell (begun in the early 20th century) in Barcelona, Spain (**Figures 73**, **106** and **107**). The stairs were probably built in the late 1910s or 1920s and are similar to the treatment of walling and steps at the former Refreshment Rooms, around the fountain and around the Floral Clock space and the former seal pool area. 1962 aerial photographs by Douglas Baglin, show the layout of the terraced garden beds and seating near the Refreshment Rooms. A photo titled *'New steps and rockery, front view'* and was taken for the Government Printer in June 1925. A 1922 newspaper article about the construction of a Bandstand in the east part of the Zoo notes *'All the work is done by day labor except for one or two small contracts. There are no overhead expenses, and no "jacket-men" on the job, Mr. Flowers doing the supervision himself. The stone for the rockeries and stone seats is that*

moved in the course of the necessary excavations.'[191] The seats adjacent the grand staircase were likely constructed under the same arrangement.

Three polychrome-painted roughcast stucco balustrades (walls and piers) frame two lines of broad concrete steps each of three flights – the same as Park Guell. Since the 1990s the staircase linked the Hallstrom Square public open area with the Orang-utan exhibit. The upper curved flights were added in association with the Orang-utan exhibit. The lower entry to the staircase is framed by remnants of rustic stone seating (see **Section 4.5.6** below) that originally extended further to the east. Substantial sections of the original zoo path network survives in the vicinity of the stairs.

Figure 106 View looking down the Grand Staircase with the modified 'wings' and additional steps that were introduced with the construction of the adjacent Orang-utan exhibit.

Figure 107 View across the lower entry to the stairs showing their integral connexion with the rustic scalloped seating to the left (extending under the new Centenary Theatre) and to the right (currently concealed behind the timber fencing).

Figure 108 A 1925 view of the stairs and rustic seats with much less shade. (Source: ML GPO 1/15362)

[191] The Sun, 19th June 1922 Page 2, article tilted "Zoo Music".

Figure 109 Within the proposed new Congo precinct is a maturing fig tree (*Ficus longifolia*?) that remains to be conclusively identified. It was planted as part of the Orang-utan development so may be a native of Asia. However the tree is certainly uncommon in Sydney and may even be rare in cultivation here.

4.5.4 Curved Sandstone Steps & Walling (Congo Precinct)

Item 57L Local/High Significance (Conservation Strategy) & Exceptional Significance (Landscape Management Plan)

To the northeast of Turner House are other landscape elements of importance where conservation is desirable. They include components of the initial (1910s) zoo construction phase such as the enveloping pathways (99L) and the curved sandstone steps (57L) built from stone that may have been won from the old quarry located near the upper Sky Safari building.

This curving stair group (Figure 110) has been carefully constructed to accord with its site-specific location and function of directing earlier visitors around and between former exhibits. The three sandstone flights (each of five steps with integrated plinths and piers and asphalt landings) form a well-crafted and constructed ensemble that highlights some of the considerable technical achievement still evident from the early phases of the zoo development. Two sandstone piers (Item 143M) formerly behind the Finch Aviaries (60B) and relocated from their original positions, are identical to those intermediate piers (with arrissed top edges and balled surmounts) punctuating the curving stair ensemble. The pairs of end piers have heavy flat coping stones as if they were originally intended to have other elements affixed such as lights or other ornaments. The broad stairs currently have a metal handrail for each flight.

Figure 110 Ensemble of curving sandstone steps and associated detailing. Note the internal piers with balled surmounts as a contrast to the plainer, principal piers with flat coping suggesting the intended addition of features as part of the original design.

4.5.5 Stone & Faux-rock Retaining Walls

Walling south and west of Aviaries 97B & 159B respectively but unlisted on s170 register – Local/ High Significance; Item 132L

Associated with Aviaries 97B and 159B are retaining walls of sandstone (rough ashlar form), rendered masonry and faux-rock that may be from the 1930s (at the latest) consistent with the construction of these particular aviaries. Given the different construction characteristics, it is possible they were built successively over several decades (Figure 111). The walls function as

divisions between broad descending terraces that enabled efficient circulation access for both visitors, for a time, and staff around the former aviary precinct.

Figure 111 Between the former Finch Aviaries and the large fig tree (Item 160L) is a meandering retaining wall of mixed construction though mainly sandstone ashlar blockwork along the western half. It is presently enshrouded in a combination of fig tree seedlings, foliage and sundry services.

4.5.6 Rustic & Faux-rock Seating

Item 55L Local/High Significance; 58L State/Exceptional Significance; 76L Local/High-Exceptional

Closely associated with both Waterhole and Congo precincts are distinctive rustic seats built from stone and/or faux-rockwork. The small curving set (Item 76L)(**Figure 113**) north of the Barbary sheep and the series (Item 55L)(**Figure 112**) below the former Bird of Prey aviary site, are of a similar vintage and character with the coloured concrete seats probably replacing the original timber slats in the 1940s. The 76L set have been carefully built to the site conditions such that it follows a convex corner while ascending the upper road junction.

Figure 112 One of the three rustic seats (Item 55L) below the ramp in the proposed Congo precinct.

Figure 113 The ascending, convex series of rustic stone seats (Item 76L) are now a rare feature within the zoo site. They are currently opposite the Chimpanzee Park and the Barbary sheep enclosure but are within a proposed construction zone for the new lion yards. The *Tecomaria capensis* behind the seats appears to be from a former hedge.

LEFT Figure 114 Part of the long sequence of scalloped rustic stone seating to the west of the Grand Staircase.

BELOW LEFT Figure 115 To the east of the Grand Staircase is a remnant group of three rustic seats though now fenced off.

BELOW RIGHT Figure 116 A view of the same seat with the old *Elaeagnus triflora* behind – now struggling with heavy shade.

The series of concave rustic stone seats with masonry arms (Item 58L)(**Figures 106**, **107**, **108**, **114** and **115**) are closely associated with, and frame, the lower end of the grand double staircase (Item 59L). More of the original seats have survived on the western side of the staircase with most being demolished on the eastern side when the Orang-utan exhibit was built in the 1990s (only three remain). Like the grand staircase, the seats closely associated with it have a clear inspirational precedence in similar features at Park Guell, Barcelona. When viewed from along the straight path they address, the seat sequence has an obvious scalloped rhythm that emulates in a subtle way that of the famous mosaic serpentine bench over the Market Hall at Park Guell. The original full compliment of seats was a bold landscape element within the zoo but even the reduced version of today is still impressive and, together with the grand staircase, continues to form a substantial early landscape feature.

4.5.7 Memorials

Several memorials are located within the proposed new Congo precinct (refer to **Appendix D**), the largest of which is the sandstone plinth at Hallstrom Square in memory of two members of the Hallstrom family with a long connexion to the zoo. The memorial features a metal plate at the top and a large metal bas-relief sculpture to the front of Sir Edward Hallstrom made by his daughter Jean Hill (**Figures 117** and **118**). The upper plate mentions both Sir Edward Hallstrom and his brother John E Hallstrom.

Just beyond Turner House there are two further metal memorial plates on small plinths (**Figures 119** and **120**) recording the names of two former donors to the zoo. It was intended that each would be memorialised by the plates within the context of associated gardens, however little appears to remain of the latter as the area is now in heavy shade. It is also not known if there is any particular association with Turner House.

None of these memorials have been conclusively assessed for their significance though it is assumed for this heritage impact study that each of the memorials will have at least moderate cultural significance at a Local level.

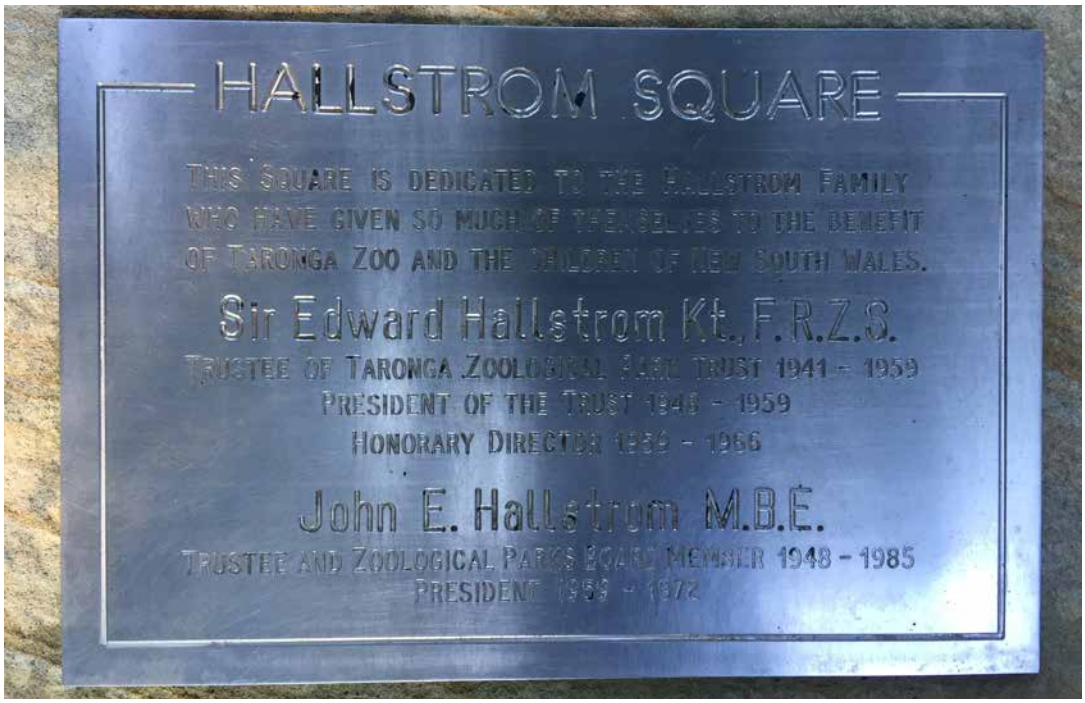


Figure 117 The information plate on top of the sandstone plinth memorialising Sir Edward Hallstrom and John E Hallstrom at the current Hallstrom Square.

Figure 118 The Hallstrom memorial with the bas-relief panel of Sir Edward Hallstrom.

Figure 119 The memorial plate for Gemma Bialoguski.

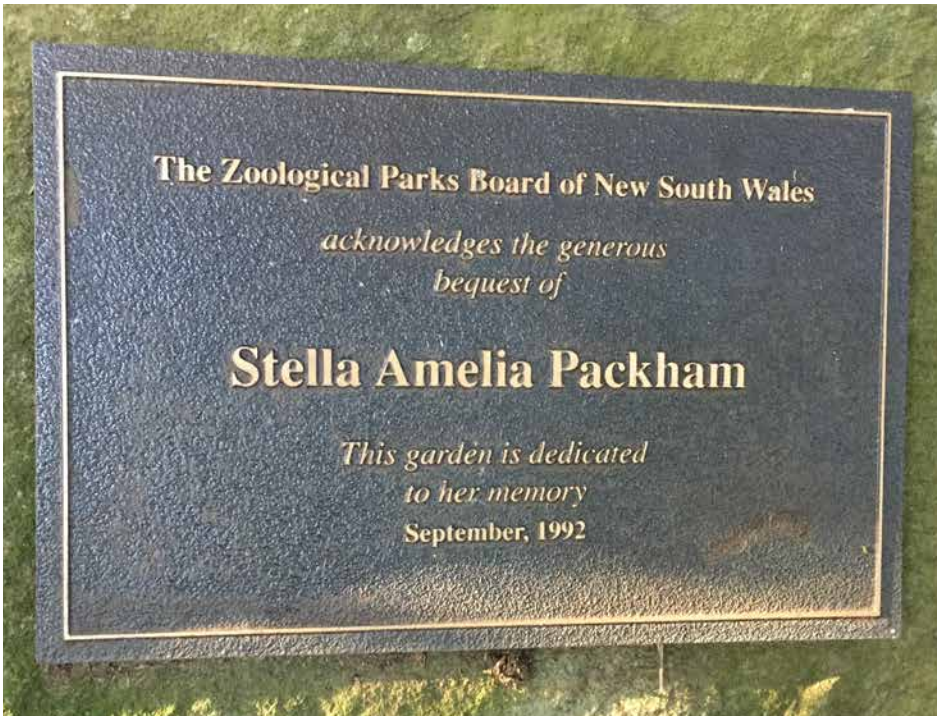


Figure 120 The memorial plate for Stella Amelia Packham.

5 Consideration of Significance

5.1 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) 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 provide a substantial context being considered for 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 hint of this in the exhibition board formerly mounted at the Safari Lodge where an impressive and diverse collection of international personalities are recorded visiting Taronga Zoo (Appendix C). 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 US Vice President Mike Pence and his family (April 2017). Taronga Zoo continues to clearly 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 over 100 years.

5.2 Overall Significance of the Zoo

The 2002 Conservation Strategy provides the following overall statement of significance for Taronga Zoo that gives context for the numerous 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.

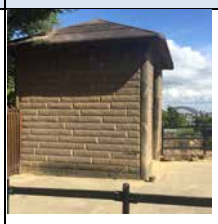
In addition to these summary aspects of significance, there could be added that Taronga Zoo is an important early example in Australia of the direct aesthetic influence of the radical and internationally famous work of architects Antoni Gaudi and Josep Maria Jujol – particularly from Park Guell in Barcelona. This is demonstrated in the construction of the grand staircase; numerous series of scalloped, rustic seating; the robust, rustic character given to many other structures (including the rustic bridge) and the general use of textured foliage plants and palms in particular (especially date palms).

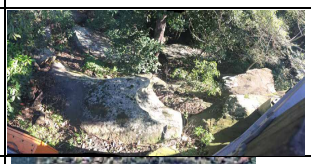
5.3 Individual Elements of Significance

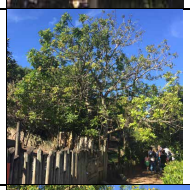
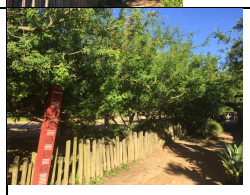
Many of these overall aspects of significance are supported and demonstrated through numerous components that have cultural value individually. These are listed in the current Taronga Zoo s170 Heritage and Conservation Register and noted below for each of the proposed precincts. Under each precinct there are two lists – those ***within*** the relevant precinct (**Tables 5.1** and **5.3**) and those ***in the vicinity of*** the precinct (**Tables 5.2** and **5.4**).

5.3.1 Individual Items within the African Waterhole Precinct

Within the Waterhole precinct there are numerous items assessed through previous studies as having individual cultural significance. These are mostly identified and included on the zoo's s170 register. Those within the precinct and potentially directly affected by the proposal are listed under **Table 5.1** along with the level of assessed significance in each case. Those items assessed as having individual significance located in the vicinity of the new Waterhole precinct are listed under **Table 5.2** below.

Table 5.1 ITEM/Significance	*Zoo Period/Phase*	*Images*	*Comments*
61B Giraffe Houses State/Exceptional	1924 and 1940s	 	Some work to the 1924 structure in 2009 SEE NOTES AT SECTION 5.3.3

74L Buttressed Wall Local/Some	1910s (s170) but may be mid-1920s		Connects Barbary sheep area with giraffe enclosure
75L Natural Stone Features Local/Exceptional	Pre-Zoo era		Concrete and faux-rock added in mid-1920s
82A Taronga Zoo State/NA	From early 1910s		Overall context for proposals
98B Pygmy Hippo (Fennec Fox) Encl. Local/Some	Interwar period – 1920s (s170) but likely 1930s		Aesthetic link to Italian Renaissance-era landscape features (Bomarzo, 16th century)
99L Original & Early Paths State/Exceptional	1910s		Substantially intact as at early 2017
128L Steel pipe fence Local/Exceptional	1916 (s170)		
132L Rendered masonry wall Local/High	1910s to 1930s (s170)		
144B Octagonal Shelter shed Local/High	1932		Superstructure has been rebuilt 2012 SEE NOTES AT SECTION 5.3.3 BELOW
182L Ficus microphylla var Hillii Local/High	Probably post-WW II		
189L Indigenous vegetation Local/High	Succession growth from local Pre-Zoo vegetation		

247L Aloe ferox x 2 Local/High	Unknown		Relocatable
248L Aloe excelsa? Local/High	Unknown		Relocatable
250L Ceratopetalum gummiferum Local/High	Succession growth from local Pre-Zoo vegetation		
251L Spathodea campanulata Local/TBC	Not recorded in s170 register		Thematically appropriate but given incorrectly as *Sparmannia africana* in s170
255L Phoenix hybrid Local/High	1980s (ex-RBG)		Relocatable
256L Phoenix hybrid Local/High	1980s (ex-RBG)		Relocatable
271L Ceiba speciosa (formerly *Chorisia speciosa*) Local/High	Not known (but recent)		Asian species. (Change of generic name due to taxonomic revision)
272L Kigelia pinnata Local/High	Not known		Thematically appropriate to location
273L Vachellia farnesiana Local/High	Not known (but relatively recent)		Pantropical species (including Africa)
277L Phoenix roebelenii Local/High	1980s (ex-RBG)		Relocatable

287L Aloes TBC/TBC	Unknown		Relocatable
288L Kalanchoe TBC/TBC	Unknown		Relocatable
289L Aloe ferox x 2 TBC/TBC	Unknown		Relocatable

Table 5.1 Heritage Items within the African Waterhole Precinct (from s170 Register) NB. Refer to **Figures DP** and **TT** in **Section 6** for locations of affected s170 items.

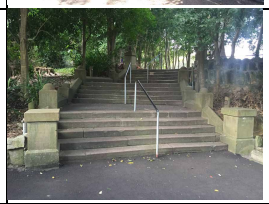
Table 5.2 ITEM	*Significance*	*Zoo Period/Phase*	*Comments*
52B Upper Bear Pits	Local/High	1910s	Originally for lions, more recently for Kodiak Bears
53L Hoop Pines x 6	State/Exceptional	Le Souef period	Landmark group of tall trees across central ridge
62B Cats of Asia	Local/Exceptional	1923-1939	Modified in 1930s & 1990s
69L Natural Rock benches	Local/Exceptional	Pre-Zoo	
70B Tahr Mountain	State/Exceptional	1932	Ground works in 2007. Structural report 2016
71L Melaleuca quinquenervia x 3	Local/Exceptional-High	Unknown	
73L Low retaining wall	Local/Some-High	Early - Interwar	
76L Seven rustic stone seats	State/High-Exceptional	Interwar period	
80L Natural Rock benches	Local/Exceptional-High	Pre-Zoo	
88L Rockwork in Kodiak Bear pits	Local/Exceptional	Pre-Zoo though modified in 2000	Modified natural feature
100B Chimpanzee Park	Local/Some	1980	Important example of changing zoo planning philosophy
116M Hallstrom memorial tablet	Local/TBC	1980s?	
161L Magnolia grandiflora x 2	Local/Exceptional	Le Souef period	

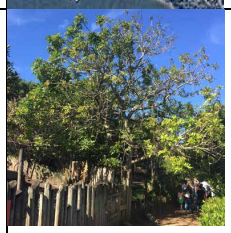
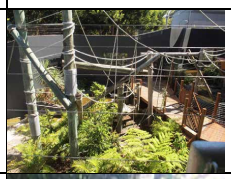
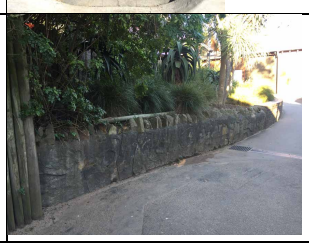
184L Phoenix sylvestris	Local/High	Interwar period	
187L Bangalay	Local/High	Unknown – post 1950	
243L Piccabeen	Local/High	Unknown	
254L Bamboo within tiger exhibit	Local/High	Recent	
278L Phoenix roebelenii	Local/High	1980s	

Table 5.2 Heritage Items in the Vicinity of the African Waterhole Precinct (from s170 Register) Refer to the s170 Register and Landscape Management Plan 2006 for images of the items. NB. Refer to **Figures DP** and **TT** in **Section 6** for locations of affected s170 items.

5.3.2 Individual Items within the Congo Precinct

Within the Congo precinct there are also numerous items assessed through previous studies as having individual cultural significance and are mostly included on the zoo's s170 register. Those within the precinct and potentially directly affected by the proposal are listed under **Table 5.3** below along with the level of assessed significance in each case. Those items assessed as having individual significance located in the vicinity of the new Congo precinct are listed under **Table 5.4** below.

Table 5.3 ITEM/Significance	*Zoo period/phase*	*Images*	*Comments*
53L Hoop Pines x 6 State/Exceptional	Le Souef Period		Landmark group of tall trees across central ridge visible from around the harbour and within the zoo
54B Turner House Local/Some	1930s? to 1940s		SEE NOTES BELOW
55L Rustic stone seats Local/High	Interwar period		
57L Curved Stone stairs Local/High-Exceptional	Early Zoo phase		Numbered 89L in CS
58L Rustic stone seats State/Exceptional	1920s		

60B Finch Aviaries Local/High [Partly DEMOLISHED]	From 1910s to 1930s (modified)		Partly demolished early 2017
82A Taronga Zoo State/NA	From early 1910s		Overall context for proposals
91L Kigelia africana Local/TBC	Not known (Possibly 1980s)		
95B Elephant encl. site Local/Some	1940		Lower retaining wall for the former elephant site defines part of the current gorilla area
97B Australian Bush Birds Aviary (U-shape) Local/High	1930s		Modified to extend internal flight area
99L Original/Early Paths State/Exceptional	1910s		
103B Orang-utan rainforest exhibit Local/Some-High	c. 1993		
126L Serpentine path Local/Exceptional	Early Zoo phase		
130L Steel pipe fence Local/Some	Contemporary with early paths		Refer Appendix C of LMP 2006
134B Rendered wall Local/High	Original exhibit wall (1910s)		Refer Appendix C of LMP 2006

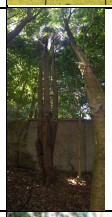
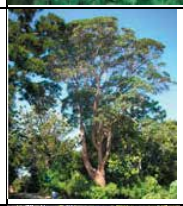
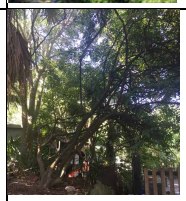
143M Carved sandstone bollards/piers Local/High	Early Zoo phase		Presently unrelated to original location which is unknown. Identical items along foreshore track at access to Whiting Beach.
159B Small Aviary Local/High	1930s		Originally (1930s) a snake enclosure
168L Brown Pine Local/Exceptional	Le Souef Period		
170L Cypress Pine Local/Exceptional	Le Souef Period		
183L Phoenix sylvestris Local/High	Interwar period		
186L Brush Box Local/High	Unknown, possibly Le Souef Period		
266L Elaeagnus triflora Local/High	Unknown, certainly an old plant		Uncommon in cultivation
274L Ficus longifolia? Local/High	1990s?		Associated with Orang-utan exhibit, probably uncommon in cultivation in Sydney
278L Phoenix roebelenii Local/High	1980s		Ex-RBG provenance

Table 5.3 Heritage Items within the Congo Precinct (from s170 Register). NB. Refer to **Figures DP** and **TT** in **Section 6** for locations of affected s170 items.

Table 5.4 ITEM	*Significance*	*Zoo period/phase*	*Comments*
03M Cast iron post	Local/TBC		
11L Natural rock at former seal pool	Local/Exceptional	Early Zoo phase	Site modified recently for Lemur exhibit
12B Lemur forest (fmr seal pool)	Local/Exceptional	Early Zoo phase	Site modified recently for Lemur exhibit
24B Moore Park Aviary	State/High	Early Zoo phase	Restored 2007
25L Central stone stair	Local/High-Exceptional	Early Zoo phase	
56L Concrete stair	Local/High-Exceptional	Early Zoo phase	
58L Rustic seats	State/Exceptional	1920s	
59L Double stairs	Local/Exceptional	1920s	
77B Koala House	State/Exceptional-High	1972	Numbered 73B in CS
116M Hallstrom memorial tablet	Local/TBC	1980s?	See Appendix D of this HIA report
118B Ponds & islands	Local/Exceptional-High	Early Zoo phase	Refer Appendix C of LMP 2006
123L Australian landscape section	Local/High	1960s/1970s	Refer Appendix C of LMP 2006
138L Stone stair	Local/Exceptional	Early Zoo phase & c. 1920s balustrade	Refer Appendix C of LMP 2006
146L Stone drains	Local/Exceptional	Early Zoo phase	Refer Appendix C of LMP 2006
148L Stone garden walls	Local/Exceptional	Interwar period	
160L Ficus macrophylla	State/Exceptional	Early Zoo phase	
161L Magnolia grandiflora x 2	Local/Exceptional	Early Zoo phase	
184L Phoenix sylvestris	Local/High	Interwar period	
187L Bangalay	Local/High	Possibly Interwar	
193L Alexandra palm	Local/High	Unknown	Refer to LMP 2006
194L Strelizia reginae	Local/High	Unknown	Kentia Palm removed 2009
243L Piccabeen	Local/High	Unknown	Refer to LMP 2006
265L Scolopia braunii	Local/High	Unknown	Refer to LMP 2006

Table 5.4 Heritage Items in the Vicinity of the Congo Precinct (from s170 Register)
Refer to the s170 Register and LMP 2006 for images of the items. NB. Refer to Figures DP and TT in Section 6 for locations of affected s170 items.

5.3.3 Additional Notes for Individual Elements of Significance

Giraffe Houses

The two Giraffe Houses are well-preserved examples of two types of Zoo vernacular, ie. the concrete 'rockwork' and the 'log cabin'. The 1940s 'log cabin' Giraffe House is the only surviving example of this construction type left within the Zoo. The setting of the Giraffe enclosure against the vista of Sydney Harbour and the city beyond is of high aesthetic quality. The Giraffe enclosure is one of the most popular exhibits in the Zoo and is likely to have high contemporary social significance value as a highly esteemed part of an iconic visual setting as evidenced by being consistently photographed.

Both Giraffe houses are significant as being purpose designed for that animal requiring quite specific responses. They are still used for their original purpose. The combination of the animal and its purpose built enclosure add to the total significance of the exhibit.

Tahr Mountain

The structure is of historical significance within the Zoo as the largest remaining example of the early concrete 'rockwork' which was based on the original idea of the Zoo as a place that replicated the animals' habitats. It also has a combination of aesthetic and technical value as the most dramatic and successful use of imitation stone within the Zoo. It also continues to serve as an early landmark feature within the zoo site.

Tahr Mountain is of exceptional significance as a purpose designed structure for an animal that has required very specific responses and continues to be used for its original function for tahrs.

Turner House

Turner House is a very good adaptation of a house design to the Zoo 'vernacular' and a very good example of the use of cement render to create the appearance of imitation sandstone blockwork. The Mosman sandstone cottage aesthetic and its associated garden elements and layout were well designed to fit into the former Lawns recreation precinct. It is most likely associated with Mr Turner (a senior staff member of the 1940s and 1950s) as well as other Zoo staff while being adapted for various changing functions.

Octagonal Shelter Shed

The Octagonal Shelter Shed strongly reinforces a Sydney Harbour setting for Taronga Zoo and was deliberately designed as a lookout point (and pause point) for views of the then recently completed Sydney Harbour Bridge and still provides a function as a lookout to Sydney Harbour and now the Sydney Opera House.

Upper Bear Pits and Sun Bear Exhibit

Although peripheral to the present proposed DA area, the Upper Bear pits are significant large scale and relatively intact examples of concrete 'rockwork' illustrating the early Zoo philosophy of a naturalistic approach to presentation and enclosure design. The adaptation of the pits demonstrates how a well-planned and compatible reuse of existing enclosures can be successful. [Source: H&CR, DPWS, 1998]

The bear pits have a moderate degree of historical significance as examples of the exploitation and further elaboration of natural rock benching at the site to recreate a 'natural' habitat for the animals. They are important, large-scale examples of concrete 'rockwork' that illustrate the early Zoo philosophy of a naturalistic approach to animal housing, presentation and enclosure design. [Source: Landscape Items MW&A, DPWS, 1998]

6 The Proposal

6.1 Brief Description

This section simply indicates what is intended for the proposed new African Savannah/Waterhole and Congo precincts within Taronga Zoo. It also relates the rationale behind the proposal and considers other development options as context for the present scheme. The following report section (**Section 7**) is where the proposed works are assessed in terms of their potential heritage impact on the known cultural significance of the Taronga Zoo site.

Potential heritage impact has been assessed in this report on the basis of information provided by landscape architects and zoological designers Green and Dale Associates (proposed landscape plan [overall site plan], tree removal and transplant plan, demolition plan and various grading plans); architects Tonkin Zuilaikha Greer (TZG)(architectural plans, sections and elevations); and visitor experience concepts by interpretive planners Motherworks on behalf of the Taronga Conservation Society Australia. For the purposes of the Development Application, the documentation provided by the consultants treats the two distinct areas (Savannah/ Waterhole and Congo) as one overall development precinct with the new Centenary Theatre functioning as a nexus between the thematically distinct African sections.

Graphic and written material describing the proposal is found in the following individual documents:-

* Taronga Zoo – African Savannah & Congo: Landscape Report 7/06/2017
* Taronga Zoo – African Savannah & Congo: Built Form & Urban Design Statement 11 May 2017
* Taronga Zoo – African Savannah & Congo Precinct: Drawing sets 12/05/2017 & 26.5.17.

Of the latter material, key documentation in relation to this assessment includes the following DA drawings:-

* General Information Plans: A-002 to A-005
* Demolition Plan A-050
* Giraffe/Meerkat/Fennec Plans: A-100 to A-108
* Lion Plans: A-110 to A-114
* African Waterhole Plans: A-120 and A-122
* Congo Plans: A-130 to A-135 and
* Landscape Plans: A-600 to A-609.

Individual drawings of particular interest include the Existing and Demolition Plan A-050 (Rev. 06)(GDA)(**Figure 122**); Tree Removal & Transplant Plan A-600 (Rev. 06)(GDA)(**Figure 123**); and the overall Proposed Landscape Plan A-601 (Rev. 06)(GDA)(**Figure 121**).

While a number of individual items assessed previously as having exceptional or high cultural significance are proposed to be retained, these may also be potentially affected by proposed new works around, or in their vicinity. Other potential impacts may arise from the proposed demolition of items, the relocation of items or the change of use of others.

A new Congo precinct is proposed for a considerably expanded gorilla exhibit further to the north in place of the present Orang-utan rainforest exhibit (Item 103B) and aviaries (Items 60B – now partly removed; 97B and 159B). A new okapi exhibit is proposed to the south. To the west, the existing Waterhole precinct is also proposed to be expanded with larger site areas for giraffes, zebras and (re-introduced) ostriches and a substantial area at the western end (encompassing, and subsuming, the present Barbary sheep exhibit [Item 75L]) proposed for a new lion exhibit.

The DA documentation indicates that sections of the original 1910s circulation network are proposed to be abandoned and removed throughout both precincts but especially within, and enclosing, that for the new Congo precinct. At the northeastern edge of the DA area, a section of the original 1910s Serpentine path (Item 126L) is proposed to be halved in width to enable expansion of the gorilla site area. This will also involve permanently closing the remaining pathway to public access (for the first time in 100 years).

Associated with the intended changes to the circulation system (including site levels), it is proposed to remove and relocate the rustic seating ensemble (Item 76L) north of the Barbary sheep enclosure (even though these have been conserved as recently as 2013 through extensive repairs) and those (Item 55L) southwest of the lemur enclosure although alternative sites for the relocation of both of these items have not, as yet, been indicated.

Apart from the aviaries and 1990s Orang-utan buildings and associated structures, it is also proposed to remove the 1940s Giraffe House (Item 61B part), Turner House (Item 54B), the 1987 Safari Lodge group, various back of house structures (for giraffes, zebras and meerkats) and most of the relatively recent ramp structures.

Apart from this very general summary of the implications of the proposed works, a detailed reconciliation for each of the s170 items is provided in Section 7 of this report.

6.2 TCSA Rationale for Proposal

As indicated at Section 1.3 of the Introduction to this report, Taronga Zoo – as with most modern zoos around the world – is in a state of constant flux as earlier animal exhibits are upgraded or replaced as a result of implementing best practice zoological planning to achieve the best results for the well-being of the animals in captivity. Underpinning the present proposal is the intention to upgrade certain exhibits to provide as much space as possible given the inherent constraints on a confined urban zoo site. This need is advocated by the TCSA not only for animal well-being reasons, but to better integrate thematically related exhibits and introduce new animal exhibits that reinforce the thematic narrative of Taronga Zoo's current master planning.

The rationale for the new African precincts is encapsulated in the following (dot-point) statement provided by the TCSA Life Sciences staff:

* "The current masterplan (including the Savannah/Congo development) has established the objective of ensuring the delivery of modern zoo design that provides an environment where animals thrive through the promotion of positive animal welfare, key to success.

* The primary drivers for promoting positive animal welfare for the large species that will be displayed in the Savannah/Congo precinct can be distilled to three inter-related primary considerations:

    - The provision of large amounts of space that provide choice (e.g. shade or sun, shelter or open elements, dense foliage or open space, sharp or gentle gradients, aspects with height or lower exhibit areas).

    - The provision of environmental complexity (e.g. different sights, sounds, smells, textures and mediums).

    - The provision of socially appropriate group structures with the capacity to seek isolation or refuge from group activity and natural aggression when desired

* As a conservation organisation with responsibility for the care of wildlife, we ensure that at all times the needs, interests and welfare of our animals is a primary consideration.

* The provision of positive welfare for animals in our care is essential, and will also assist us to achieve our conservation goals.

* Taronga's animal welfare goal is: To provide dignity, respect and the best care for our animals and strive to be a leader, an advocate and an authority on animal welfare.

* An approach to articulate animal welfare outcomes in the agricultural industry was developed into the Five Freedoms, which have been widely used since the mid 1960's. Within these freedoms was: *Freedom to express normal behaviour: by providing sufficient space, proper facilities and company of the animal's own kind.*

This still remains highly relevant, however a marked increase in scientific understanding over the last two decades has extended the breadth and depth of current knowledge of the biological processes that are connected to animal welfare and to guiding its management.

* A contemporary approach to animal welfare is critical to achieving industry accreditation in Australia. Modern animal welfare has shifted from 'Freedoms' to 'Domains' which seek to ensure, not only that an animal is not suffering, but that it is thriving and welfare is beyond the absence of the negative, and is in fact positive.

* Many exhibits created more than 20 years ago cannot achieve these aims, and as such, Taronga (and all modern zoos) have to evolve with modern welfare science. To persevere with old exhibit designs, layouts and features is likely to put a zoo not only at odds with modern welfare science, but existing and emerging animal welfare legislation.

* The *Exhibited Animals Protection Act* was ratified in 1986, with supporting regulations developed and amended between then and now. For species, like Giraffe, that have no standards, exhibits are approved by the Department of Primary Industries with deference to contemporary understandings of best practice. These have changed significantly since the current Taronga Zoo Giraffe exhibit was developed, which is why it remains a priority area for redevelopment.

* National Animal Welfare Standards are set for development in the near future. Taronga's current masterplan needs to employ current thinking in animal housing to ensure that we are leaders in this space, and beyond compliance.

* Exhibits need to ensure safe egress for keepers (and animals) small caves and dens do not provide a safe working space this in consideration of modern workplace practices.

* Taronga needs to consider societal expectations. We know through research that a concern of some visitors is the provision of space for large animals in urban zoos.

* Taronga seeks to be a leader in displaying our animals with dignity and respect, and have an ethical framework (draft) to govern this. Within this framework we have the criteria that *Taronga presents wildlife in naturalistic habitats and thoughtfully designed spaces that provide for the opportunity to display natural behaviours specific to their life history.*

* Taronga also has a process for selecting the species we have in or population. Essentially this seeks to ensure that they contribute to a conservation aim in species recovery, advocacy or research, and that it is possible to maintain a fit and sustainable population. Himalayan Tahr is an example of a species we have chosen to discontinue. They do not support the conservation messaging of the Sumatran or Savannah precincts, they are not a recovery or research species, and due to limitations in acquisition, it is impossible to continue to maintain a fit and healthy population into the future.

* Often we are involved in regional and global breeding programs. Such programs place an

impetus on organisations to maintain animals in a certain way. For example, the Western Lowland Gorilla Program calls for participants to ensure the capacity to manage all male offspring born. For this reason, the Congo Precinct requires the development of a 'Bachelor' gorilla facility. This significantly increases the footprint required to manage this species in accordance with global breeding program objectives."

Other drivers for the project proposal relate to visitor experience where the TCSA has provided the following (dot-point) statement:-

* "Taronga's Vision for the Visitor – to secure a shared future for wildlife and people;
* Mission – create custodians for the wild; and
* How we achieve our mission – deliver a choreographed, crafted journey that turns guests into custodians for the wild."

6.3 Consideration of Alternative Options

Alternative options for the proposal are not included with this DA documentation material. The main reason for this is that, as mentioned above, the basic planning rationale stems directly from the need to expand exhibit areas as much as possible to achieve better site areas for the animals. The process of devising how best to achieve these objectives has involved refining an overall initial concept such that alternative options have been absorbed and adapted as part of the fluid site planning and design of the exhibits over several years. Along the way, existing heritage items have either been incorporated, relocated (where possible) or removed as a result of unavoidable site changes.

In deciding, where possible, to retain heritage items within the proposed development, the TCSA recognises that in some cases this will mean the items will have a difficult new site context, such as the retained Grand Staircase and Octagonal lookout structure. Even where the physical context and setting will change significantly, the TCSA believes that the retention of these items is still better than their complete removal. To maximise the positive benefits of these retentions, this HIA report recommends that in design development, prior to construction, that further detail be developed on how to best incorporate these elements in their site contexts, including through the provision of on-site heritage interpretation.

In addition to the above considerations, ongoing heritage advice and input was provided by the TCSA's Heritage Specialist and also by the authors of this HIA report during the development of the DA. This input included the identification of issues in early documentation and more detailed inputs as the scheme developed with some amendments being made such as the retention of the 1924 Giraffe House and the subsequent design of the adjacent Giraffe BOH structure; retention of the flat, straight section of path along the rustic seats near the Centenary Theatre; retention of the former Pygmy Hippo shelter; retention of the remnant sections of the former birds of prey aviary; retention of the Octagonal Shelter; and relocation of other rustic seats (rather than removal).

Figure 121 Proposed Landscape Plan A-601 (Courtesy Green and Dale Associates)
Overall site plan indicating the extent and character of the proposed works for the new Waterhole and Congo precincts at Taronga Zoo.

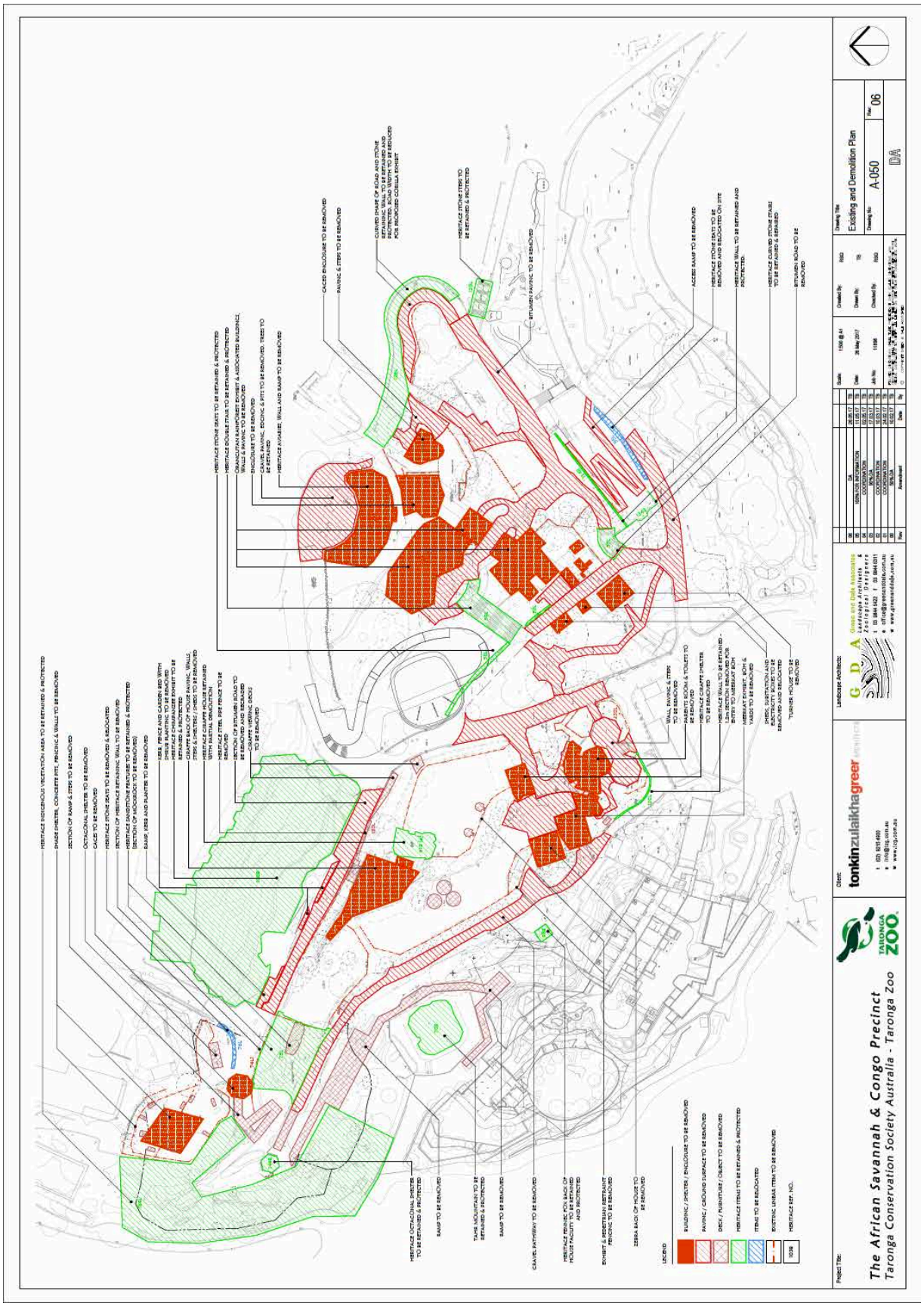


Figure 122 Existing & Demolition Plan A-050 (Courtesy Green and Dale Associates)
Reconciled with the previous plan, the Demolition Plan indicates the extent of existing fabric and layout affected by the proposed works for the new Waterhole and Congo precincts. However note too, that the proposed DA area (**Figure 1**) excludes both the Chimpanzee Park and Tahr Mountain.