

Engineering and Heritage Report

Wilson Park Water Features

Prepared by Mott MacDonald Australia
for Blue Mountains City Council

January 2014

Mott MacDonald

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Issue and revision record

Revision	Date	Originator	Checker	Approver	Description
A	29 January 2014	Alison Naimo	Alex Been	Alison Naimo	First Issue
B	31 January 2014	Alison Naimo	Alex Been	Alison Naimo	Revised issue. Additional works considered in engineering report and option s study

1. Executive Summary

The following report was commissioned by the Blue Mountain City Council. The purpose of the report is to assess the heritage significance and condition of the water feature and to consider various options for its repair.

1.1 Project Overview

Mott MacDonald Australia was engaged by Blue Mountains City Council in 2013 to prepare this report for the water features at Wilson Park in Lawson.

The water features consist of a network of channels and ponds, one of which has an island consisting of a large concrete relief map of Australia.

Alison Naimo, Senior Structural and Heritage Engineer at Mott MacDonald inspected the site on 8th January 2014.

The site is not listed on the State Heritage Register or the Blue Mountains City Council Local Environment Plan, however it is well regarded by the community and the council suspects that it is of heritage significance.

Refer to Section 3.2 for a detailed description of the site and to Section 5 for proposed options for the site.

1.2 Heritage Significance and Recommendations

The concrete relief map of Australia and associated waterways at Wilson Park in Lawson are of state and local heritage significance. The concrete relief map is an exceptional and rare remaining example of large scale concrete maps that were popular in the 1930s.

The site is associated with both contemporary local personalities Percy Wilson and Frank Higgison and with well respected geographer Professor J. McDonald Holmes.

The site is considered to be of state heritage significance.

It is recommended that the Council consider listing the site on the heritage register of the Blue Mountains City Council LEP. As the site has been assessed as being of state significance, council may also wish to consider nominating the site for listing on the NSW Heritage Register.

1.3 Engineering Recommendations

The scope of remedial works to be carried out to the site will depend on the overall strategy adopted for the site. Depending on the strategy adopted a scope of works encompassing the entire site, or largely focusing on smaller areas would be adopted.

We recommend consulting an environmental engineer regarding the effect of altering the water flow through the system prior to adopting a strategy for the site.

In order to develop a suitable strategy for the site a hydraulic study would be required. Any hydraulic study should take account of both overland and in-ground water flows and should analyse possible water management options for the site including options that divert water away from the heritage system and options that channel water through the heritage system. Any study should also

consider the dimensional and structural requirements of the channels in the heritage system for each water management strategy investigated.

Regardless of the strategy adopted for the site the following common defects will require repair, and various methods for repairing these defects are discussed in section 4.2 :

- Displaced base and wall slabs
- Vegetation ingress
- Silt build up

In the short term we recommend that as a minimum the following works be carried out:

- All missing base and wall slabs be replace or patch repaired.
- The major defect at in the base at the outlet of Australia pond be repaired
- A hydraulic study should be carried out and a hydraulic strategy for the site developed.

1.1 Options Study and Funding

As part of this report we have assessed three strategies for the site including do nothing, restore to original state (including original flow pattern) and restore only areas of highest heritage significance.

The options have been assessed in terms of heritage and operational aspects. A preliminary cost estimate has also been provided for options.

Refer to Section 5 for analysis of these options.

Potential funding sources for carrying out the remedial works were also investigated. As the site has been assumed to be of state heritage significance it may be possible to apply for funding through the NSW Heritage Office, further investigation may be required prior to pursuing this option and we would recommend that the Heritage office be contacted for advice as to how to maximise chances of receiving a grant. Having the site listed as a heritage item in the LEP and State Heritage Register may assist in securing funding.

2. Introduction

2.1 This Report

The key objectives of this report are to assess the heritage significance of the site, to provide engineering advice as to the repair of the site and to analyse various strategy options for works to the site. Options have been assessed in terms of heritage, operations and cost.

The assessment of heritage significance in this report is based on the physical condition of the site, the history of the site (as far as has been possible to ascertain from records at the local library and in newspapers) and a comparative analysis of similar items in NSW. The scope of this report does not include community consultation or primary historical investigations.

2.2 Site Identification

The site is located south of Lawson Swimming Pool on St Bernards Drive in Lawson. Wilson Park is located in a gully between Werona Street and Lurnea Street. The water feature is fed by a waterfall at the southern end of Wilson Park.

For the purpose of this report the water feature is taken to run from south to north. The site boundaries are considered to be the waterfall to the south, the two channels that run along the edge of Wilson Park at the base of the gully to the east and west of the water feature, and St Bernards Drive to the north.

Refer to Figure 1 for a map of the area indicating the site location. The Study Area for this report is indicated in Figure 2.

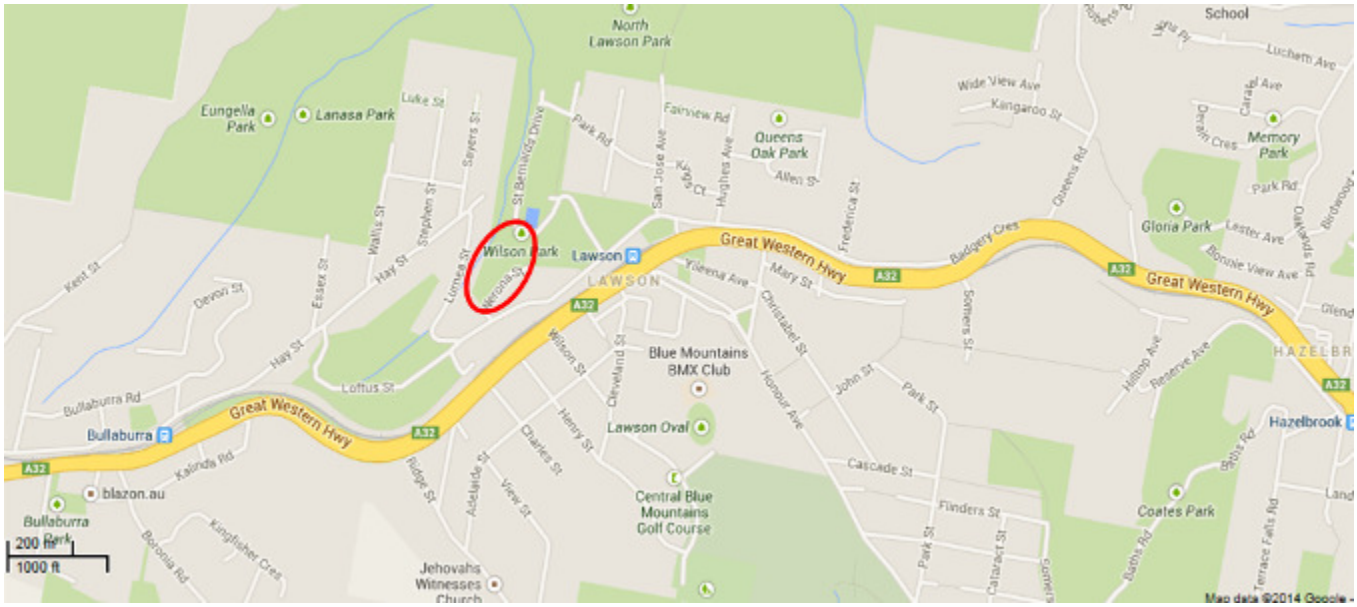

Figure 1 – Location Map. Site circled in red

Figure 2 – Site boundary indicated in red. Source: Google Maps 2014

2.3 Project Methodology and Key Resources

The heritage study and assessment of significance in this report are based on an inspection of the site, desktop investigations into the history of the site and a comparative analysis of similar sites in NSW.

The local history section of the Springwood library and the State Library of NSW were visited to collect relevant history and publications on the site and the area.

A site investigation was undertaken by Mott MacDonald on the 8th January 2014. This site inspection included a walkthrough of the entire site and photographic recording of the water feature.

The heritage assessment in this report has been undertaken in accordance with NSW Heritage Branch Guide to Assessing Cultural Heritage Significance.

2.4 Project Limitations

No primary historical investigation or community consultation has been undertaken. The heritage assessment is based on the physical evidence on site, a desktop study of the history of the site and, as far as possible, a comparative analysis of similar sites.

2.5 Authorship and Acknowledgements

This report has been prepared by Alison Naimo, Structural and Heritage Engineer of Mott MacDonald (MM) and has been reviewed by Alex Been, Senior Structural Engineer of Mott MacDonald.

3. Heritage Study and Statement of Heritage Significance

3.1 Historical Background

3.1.1 Pre- European History in the area

The site is located in an area that was traditionally inhabited by the Darug and Gundungurra People. It is believed that this area has a history of human inhabitation at least 20,000 years old and there are many sites and relics in the area that remain as evidence of this long history

3.1.2 Brief overview of European history in the Lawson area

The area presently known as Lawson appears in records as early as 1817, under the name of The Swamp and Christmas Swamp. Explorer Gregory Blaxland had earlier described the swampy are in 1813. By the 1930's the area was known as 24 Mile Hollow, in keeping with the practice of the time of naming places based on distance from Emu Ford on the Nepean River. The name of the town and railway station was changed to Lawson in 1879 in honour of the explorer William Lawson.

The first building in the area was "Pembroke's Hut", constructed in 1830, the hut no longer stands.

Lawson was connected to the railway in the 1860's, Lawson, then known only as "Blue Mountain", was a major source of water for the steam locomotives.

Lawson played an important role in early Blue Mountains history as a centre of commerce and local government and as a tourist destination.

3.1.3 Brief history of Lawson Swimming pool and Wilson Park

When the railway was constructed in 1867 it was necessary to supply water to the locomotives travelling in both directions on the new tracks. In order to provide this water supply an earth dam was constructed in the gully north west of the railway station. The dam was fed by springs on the surrounding hillsides.

The area was noted as "Reserve for Water Supply and Railway purposes" in February 1880 and was changed to "railway purposes only" in 1891.

The dam ran dry in the 1877-1884 drought and was subsequently enlarged, the wall raised 7 feet and a spillway constructed in 1881.

Due to repeated incidences of the dam running dry, a larger dam was constructed at Wentworth Falls. This dam came into service in 1908, leaving the Lawson Dam a reserve supply only.

In 1912 a large part of the area was transferred to the Blue Mountains Council and declared a Reserve for Recreation. In 1915 the shire council arranged to lease the dam from the railway for recreational purposes. A 5 year lease, at a cost of 1 pound per year, was agreed upon. During this period improvements including the construction of fences and dressing sheds were implemented. In 1920 the lease was extended for a further 5 years.

In its early years the pool was knows as Frog Hollow or Snake Gully.

The pergola that still stands to the east of the pool are remnants of the pump house that once serviced the dam.

The present day pool was constructed by the Blue Mountains City Council on the site of the original dam in 1968.

Wilson Park, located to the north of the pool, was named after Percy Wilson, local shire president for 12 terms from 1923 to 1936. Wilson did much for the local area especially the development of this site as a recreation zone.

There are many exotic trees planted in Wilson Park and around the swimming pool. These were planted in memory of locals who served in the Second World War.

The waterfall at the north end of Wilson Park; Thompson Falls, was named after a railway worker who lived in Lawson in 1899.

The water feature in Wilson Park was constructed in 1932. The feature consists of a network of channels and two small ponds, one of which contains a circular island, the other a concrete relief map of Australia. The map is reported to be of a scale of 75 miles per foot and shows mountain ranges, rivers and capital cities. The vertical scale of geographical features is exaggerated to show them clearly.

The site was opened on 12th May 1932 in the presence of local dignitaries and 100 school children. The open day was declared “a children’s day”.

Some local records claim that the map was constructed by Frank Higgins, a local of the area. However no contemporary evidence of this could be uncovered during our investigations.

Newspaper articles from the time credit the construction of the water feature to Shire President Percy Wilson, former civil commissioner Mr John Garlick, Shire engineer Mr B.A. Hoffernan, concrete worker Mr R Medcalf and geography professor J. McDonald Holmes. These names are mentioned in several newspaper articles dating from May 1932.

The Wilson Park concrete relief map has been raised as a newsworthy topic in local papers throughout its lifetime. Articles mentioning the site were published in various periodicals including the *Nepean Times* and *Sydney Morning Herald* in 1932, 1941, 1986, 1994 and 2013. In addition to this we have also uncovered letters from the public to the council regarding the site dated from the year 2000. These articles and letters indicate a continuing interest in the site from the local community.

For further information and articles on the water feature and map refer to Appendix B.

3.1.4 Concrete Relief Maps in NSW

Newspaper searches have turned up numerous references to concrete relief maps constructed in the 1930s (Refer Appendix B for articles). In the majority of instances the maps were constructed in school playgrounds in the 1930s and were intended as play equipment and instructional tools. None of the references uncovered include water features and none of the instances uncovered were constructed on such a large scale as the map at Wilson Park.

From our research it seems that construction of concrete maps was common in schoolyards the 1930s but not common in public parks like Wilson Park.

Given the age of map constructions and the nature of school playgrounds it seems likely that very few if any of the maps constructed in playgrounds in the 1930s survive today.

The map in Wilson Park appears to be representative of a form that was commonly constructed in the 1930s. It is likely to be the only remaining example of this once relatively common form. The

map is also unique in that these items were generally constructed in school playgrounds and rarely incorporated water.

3.2 Description of Physical Evidence

3.2.1 Site Description

Wilson Park is located in a small gully south of Lawson Pool. The slopes of the gully, around the park, are heavily vegetated with native species.

It is understood that this area was once a swamp area and that the land that the park occupies was reclaimed from the swamp.

The site consists of a network of channels, both concrete and sandstone lined, that run down either side of the park and down the middle of the park. The main channel runs down the middle of the park and incorporates two ponds, one circular with a circular island, and one containing an island in the shape of Australia. Water runs from south to north.

To the south of the park is a waterfall fed by natural springs.

The main channel of the water feature is sandstone lined with sandstone weirs that separate the channel into short segments. These weirs are also located at the entrance and exit to both ponds in the system.

Small overflow channels lined with concrete are located along either edge of the park. These channels appear to prevent overflow of the main channel and also collect water that flows down the sides of the gully.

Refer to Figure 3 for schematic map of the site.

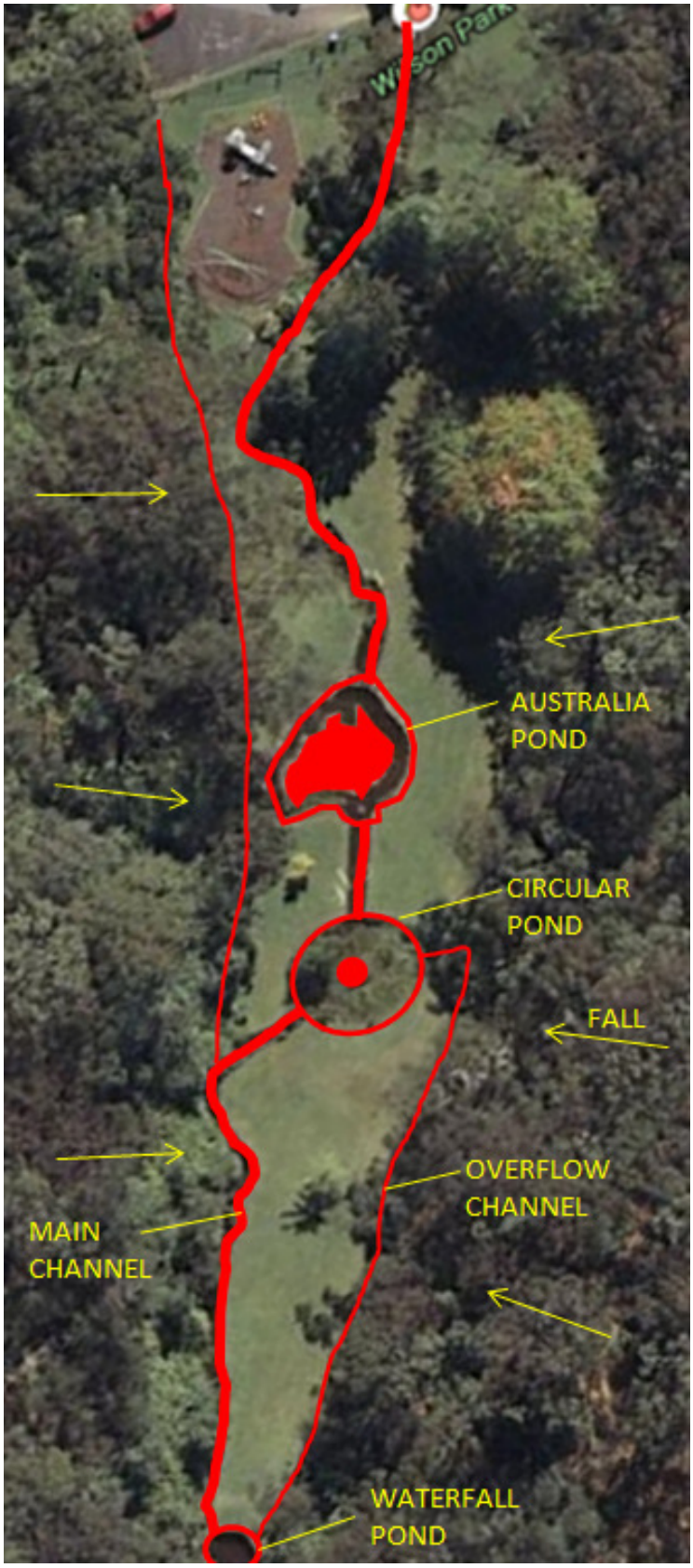

Figure 3 – Schematic site map.

3.2.2 Site and Setting

The site is located in Wilson Park, south of Lawson Pool. The site is a public park with picnic and playground facilities. The surrounding bush land means that the park is frequented by a variety of native birds. The site is a popular local recreation area.

3.2.3 Landscape and Landscape Elements

The site is located in a gully, very close to the popular Lawson Pool. The water feature cannot be seen from the road, rather it is gradually revealed to visitors as they venture into the park. Once in the park the water feature and waterfall are prominent features in the landscape.

3.2.4 Moveable Heritage

No significant movable heritage items have been located in association with the site.

3.2.5 Archaeological Potential

No assessment of archaeological potential has been undertaken for the site.

3.2.6 Social and Intangible Values

Based on the desktop study of the site and site inspection it is apparent that over its lifetime site has been held in high esteem by the community. Several campaigns to improve the site have been recorded in local papers throughout its history.

3.2.7 Condition and Modifications

The condition of the water feature varies along its length.

In general defects along the length of the system mean that water no longer travels through the system as originally intended. The weirs along the system were originally intended to ensure that water remained in all the channels and ponds at all times. The failure of these weirs and wall and floor slabs within the system means that water tends to flow through the system rather than collect in it. Silt deposits in the ponds and channels have also altered the behaviour of water flowing through the system.

Waterfall Pond

The waterfall pond wall is generally in good condition. Some minor repairs may be needed to surrounding wall lining.

Main Channels

In general the main sandstone lined channels are in fair to poor condition with common defects such as lifted base slabs and displaced wall slabs. Displaced stones have also created stone debris in the channel.

At several weir locations along the main channel water travels under the weir structures rather than over them. This is typically due to failed wall and base linings in the channel upstream of the weirs.

Damage due to vegetation growth is also common in the main channel. Both small and large plants (including tree ferns and roots from large trees at the downstream end of the system) have caused wall slabs to become displaced and the channel to leak. Overhanging vegetation has also obscured the outer wall of the main channel where it runs along the edge of the gully.

The north end of the main channel appears to be the most original in terms of water behaviour. Water in this area flows through a series of channel sections and over weirs, as appears to be the original intention.

Secondary Channels

The secondary channels on the east and west sides of the park are generally in good condition, though thorough inspection of the full length of these channels was not possible due to vegetation encroachment and poor visibility of the structures. Some significant silt deposits were observed in the channels. It is recommended that a thorough structural inspection be carried out after draining the channels and clearing vegetation.

Circular Pond

The circular pond is in fair condition.

The walls appear to be in reasonable condition. However the pool, which was originally designed to be a pond of water, has significant silt deposits.

A combination of silt deposits and damaged weir walls appears to have resulted in the pool being unevenly filled with water, and more akin to a swamp than a pond. Flow of water has been interrupted by significant silt deposits and vegetation. Consideration should be given to redesign of the outlet weir including lowering the weir wall and removing the pipe that runs through it.

The circular island in the middle of the pool appears to be in reasonable condition

Australia Pond

The pool containing the island in the shape of Australia is in fair condition.

In some locations the walls of the pool have suffered damage caused by vegetation growth.

In some locations the base of the pond has lifted. It appears some previous concrete lining repairs have been installed and have also lifted in some areas.

There is some stone debris in the base of the pond.

In general the Australia island appears to be in good condition with only minor damage caused by vegetation encroachment.

Water in this pool does not pond as intended due to a major defect in the pond base and weir at the downstream end of the pond. This defect allows water to flow under the base slabs of the pond into the channel below instead of overflowing the weir.

The upstream inlet to the pond is also damaged with water entering the pond by travelling under the lining stones of the upper channel and entering the pond near to the Tasmania Island within the pond.

In some locations the pond has significant silt deposits.

The bridge at the downstream end of the pond is in fair condition, though the damage to the pond base immediately adjacent to the bridge does pose a threat of undermining and destabilising the bridge structure.

The following table summarises the condition and modifications that have been made to the site

Table 1 – Summary of Condition and Modifications

Summary of Condition and Modifications	
Element	**Condition and Modifications**
Waterfall Pond	Fair • Some minor damage to wall slabs
Main Channel	Poor • Displaced wall slabs • Displaced floor slabs • Vegetation encroachment • Leakage through walls and floors • Damaged and failed weir structures • Silt deposits
Circular Pond	Fair • Displaced wall slabs • Displaced floor slabs • Vegetation encroachment • Leakage through walls and floors • Damaged and failed weir structures • Silt deposits
Australia Pond	Poor • Displaced wall slabs • Displaced floor slabs • Vegetation encroachment • Leakage through walls and floors • Damaged and failed weir structures • Silt deposits

Summary of Condition and Modifications	
Element	**Condition and Modifications**
	• Major defect at downstream outlet
Secondary Channels	Good • Vegetation encroachment. • Silt deposits
Bridge	Fair • At risk of undermining due to fault in Australia pond floor.

3.2.8 Comparative Analysis – Concrete Relief Maps

Refer to section 3.1.4. for an outline of concrete relief maps in NSW.

The map in Wilson Park appears to be representative of a form that was commonly constructed in the 1930s. It is possibly the only remaining example of this once relatively common form. The map is also unique in that these items were generally constructed in school playgrounds and rarely were incorporated within water features.

3.3 Assessment of Heritage Significance

3.3.1 Assessment Methodology

The assessment of heritage significance is based on the physical evidence found at the site, the condition of the water feature and the history of the site that could be ascertained from secondary historical sources. No primary historical investigation has been carried out.

3.3.2 Criteria for Assessment of Cultural Heritage Significance

Criterion A

An item is important in the course, or pattern, of local or NSW's cultural or natural history

The item has no heritage significance under this criterion.

Criterion B

An item has strong or special association with the life or works of a person, or group of persons, of importance in local or NSW's cultural or natural history

According to contemporary reports construction of the site was initiated by long standing Shire President Percy Wilson, for whom the park is also named.

The concrete map is associated with contemporary Sydney geographer Professor L McDonald Holmes. Holmes was well respected in his field and the Geographical Society of New South Wales annually awards a medal that bears his name.

Local folklore also associates the site with local personality Frank Higgison.

The site has local heritage significance under this criterion.

Criterion C

An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement locally or in NSW

The concrete relief map of Australia is a rare example of large scale maps that were relatively popular at the time of construction. It has been noted, by Dr Keith King in 1986, that the map at Wilson Park is exceptional in its geographical accuracy, despite the limited extent of aerial exploration that had taken place over inland areas of Australia at the time of construction. The current condition of the map also indicates that the original workmanship of the concrete continent was of good quality.

The site has state heritage significance under this criterion.

Criterion D

An item has strong or special association with a particular community or cultural group locally or in NSW for social, cultural or spiritual reasons

Newspaper articles and letters published throughout the life of the concrete map indicate that the local community has had a strong connection to the site.

The site has local heritage significance under this criterion

Criterion E

An item has potential to yield information that will contribute to an understanding of local or NSW's cultural or natural history

No heritage significance under this criterion.

Criterion F

An item possesses uncommon, rare or endangered aspects of local or NSW's cultural or natural history

The size, detail and water features incorporated into the feature at Wilson Park made it an exceptional example of this type of item at the time of its construction.

Despite the fact that concrete relief maps appear to have been relatively commonly constructed in the 1930s, the majority of these were constructed in school playgrounds

and are unlikely to have survived to the present. This being the case the concrete relief map at Wilson Park is a rare surviving example of a class of items constructed throughout NSW in the 1930s.

The site has state heritage significance under this criterion.

Criterion G

An item is important in demonstrating the principal characteristics of a class of local or NSW's cultural or natural places or cultural or natural environments

The concrete relief map of Australia is a rare remaining example of concrete relief maps that were commonly constructed in the 1930s.

The site has state heritage significance under this criterion.

3.3.3 Summary Statement of Heritage Significance

The concrete relief map of Australia and associated waterways at Wilson Park in Lawson are of state and local heritage significance. The concrete relief map is an exceptional and rare remaining example of large scale concrete maps that were popular in the 1930s.

The site is associated with both contemporary local personalities Percy Wilson and Frank Higgison and with well-respected geographer Professor J. McDonald Holmes.

The site is considered to be of state heritage significance.

3.3.4 Heritage Curtilage

The curtilage of the site should encompass all of Wilson Park including the mature trees that screen the park from the road, as these plantings contribute to the user's experience of the site. The gullies that surround the park should also be included in the curtilage as they contribute to the sense of place and atmosphere at the site as well as providing a catchment area for the water that feeds the site. To the north St Bernards Drive should be considered to form the boundary of the site curtilage.

3.3.5 Grading of Significant Components

Table 3 outlines the significance associated with each element following this assessment. Table 2 lists the definition of various heritage significance grading assigned.

Table 2 - Grading Definitions

Grading Definitions		
Grading	Justification	Status
Exceptional	Rare or outstanding element directly contributing to an item's local or State significance.	Fulfils criteria for local and State significance.
High	High degree of original fabric. Demonstrates a key element of the item's significance. Alterations do not detract from significance.	Fulfils criteria for local or State listing.

Moderate	Altered or modified elements. Element has little heritage value, but contributes to the overall significance of the item.	Fulfils criteria for local or State listing.
Low	Alterations detract from the item's significance. These items are difficult to interpret.	Does not fulfil criteria for local or State listing
Nil	The item has no heritage significance	Does not fulfil criteria for local or State listing
Intrusive	This item is damaging to the item's heritage significance.	Does not fulfil criteria for local or State listing

Table 3 - Significance of Components

Significance of Components	
Listing Component	**Heritage Value of Element**
Waterfall Pond	Moderate
Main Channel	Moderate
Secondary Channels	Moderate
Circular Pond	High
Australia Pond	Exceptional
Bridge	Moderate

3.4 Heritage Constraints and Opportunities

3.4.1 Statutory Controls and Regulations

The site has been identified as being of local and state heritage significance. A Statement of Heritage Impact should be prepared for any major proposed works. As the site is not listed on any statutory listings at this stage no additional approvals are required from the NSW Heritage Division.

3.4.2 Statutory Listings

A summary of current heritage listings associated with the site:

Table 4 – Statutory Listings

Statutory Listings		
List	**Listing**	**Statutory Instrument**
NSW State Heritage Register	No	-
Blue Mountains City Council Local Environmental Plan 2005 (LEP)	No	-

3.4.3 Non - Statutory Listings

A summary of current heritage listings associated with the site are as follows:

Table 5 – Non-Statutory Listings

Non-Statutory Listings	
List	**Listing**
National Trust Heritage Register	No
Institution of Engineers Australia Heritage Register	No

3.4.4 Approvals Process for Proposed Works

The council's usual approvals process is required prior to carrying out any remedial works or alterations to the site.

As the site is not listed on any statutory listings no additional approvals are required from the NSW Heritage Division.

3.4.1 Comments and Recommendations - Heritage

This report has found that the site is of local and state heritage significance. It is recommended that the Council consider listing the site on the Heritage register of the Blue Mountains City Council LEP. The council may also wish to consider having the site listed on the NSW Heritage Register.

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4. Engineering Report

4.1 Description

Refer to Section 3.2 for a description of the site

4.2 Condition and Remedial Repairs

Refer to Section 3.2.7 for an outline of the condition of the site.

For additional information on condition refer to Appendix A photographs.

Table 6 outlines typical defects that were identified throughout the site and suggested remedial repair works. In some cases various options have been provided. Option shave been provided as the repair methods applied to defects may vary depending on the overall strategy for the site.

Table 6 – Typical Defects

Typical Defects			
Typical Defect	**Description**	**Location**	**Suggested Remedial Works**
Displacement of ground slabs	Stone slabs lifting off the base of channels and ponds. Concrete and stone base slabs that have lifted allows water to escape the channels and take alternate paths through the system	Common throughout the main channel, circular pond and Australia pond	**Option 1:** Relay displaced slabs like for like and rake out and remake joints between all slabs **Option 2:** Replace displaced ground slabs with concrete lining slab **Option 3:** Replace all ground and wall slabs with new concrete structure
Displacement of wall slabs	Displacement of stone wall slabs from channels and ponds. Displacement of these slabs allows water to enter and escape the channels and ponds and to take alternate paths through the system. These defects are often caused by vegetation ingress or erosion behind wall structures.	Common throughout the main channel, circular pond and Australia pond.	**Option 1:** Relay displaced slabs like for like and rake out and remake joints between all slabs. **Option 2:** Replace displaced wall slabs with concrete structure. **Option 3:** Replace all ground and wall slabs with new concrete structure.

Typical Defect	Description	Location	Suggested Remedial Works
Vegetation ingress/ intrusive vegetation	Vegetation growth along the edge and base of channels has caused damage to the channel linings and island structures. Vegetation is in the form of grasses, small shrubs and in some cases large trees and the roots of large trees.	Common throughout the main channel, circular pond and Australia pond.	**Option 1:** Remove intrusive vegetation. Make good remaining structure. Rake out and refill all joints to remove cracks where vegetation can take hold. **Option 2:** Consider installing a root barrier behind channel walls to prevent future vegetation ingress.
Silt deposits	Silt has built up in several locations throughout the system.	Particularly notable in the circular pond and to a lesser extent in Australia pond. Silt build up is also present throughout the main channel.	Remove silt deposits and related vegetation. Clean out silt deposits in secondary channels to allow thorough inspection of channel structures.
Previous concrete patching	In some locations previously installed concrete patch repairs have become displaced. Displacement of these patches allows water to enter and escape the channels and ponds and to take alternate paths through the system.	In main channel and ponds	**Option 1:** Patch repair locally with concrete **Option 2:** Replace all ground and wall slabs with new concrete structure

Typical Defect	Description	Location	Suggested Remedial Works
Tree Ferns and small shrub ingress	In several locations large tree ferns have become established behind channel walls. These ferns have caused damage to the channel structure.	Several locations along the main channel	Remove ferns and repair channel wall and base lining locally. Transplant significant plants away from the channel
Loss of pointing	Loss of pointing between stone wall and base slabs is common in the main channel and ponds.	Main channel and ponds	Rake out and repoint all lining slabs in the main channel
Cracking and displacement of concrete base	In some locations concrete base slabs have become cracked and displaced	Main channel and ponds	Break out damaged concrete slabs and relay with new reinforced concrete slabs
Displaced capping stones	In some locations capping stones on the channel wall have become displaced	Main channel and ponds	Relay displaced capping stones
Capacity of channel structure	The channel structures and ponds have been designed and built on a garden scale. The system however, performs a water management function on a larger scale, collecting water from a large catchment area and funnelling it into creaks and swamps downstream. The original, and existing, structural design of the channels and ponds does not meet the requirements of the systems role in the greater watercourse system of the area.	Main channel and ponds	If the channels are expected to continue to carry local storm water there may be a requirement to improve the channel structure. Alternatively larger overflow channels could be considered to prevent damage to the channels during significant rail events.

In addition to these typical defects the following major defects were identified:

Table 7 – Major Defects

Major Defects			
Defect	**Description**	**Location**	**Suggested Remedial Repair**
Failure of pond base	A significant hole has opened up at the outlet from Australia Pond into the main channel. This defect prevents water from being retained in the pond by the weir structure in this location. This defect is contributing to the change in water flow through the system (system no longer operates as a series of ponds)	Downstream outlet of Australia pond	**Option 1: Locally repair** Lift surrounding base slabs to expose full extent of eroded ground under the base slab in this area Fill eroded hole with compacted fill Lay concrete base slab Relay stone slabs over concrete base slab **Option 2: Relay pond base** Lift entire pond base and reconstruct new base slab from concrete. New base slab to include compacted subgrade, waterproof liner and concrete slab with stone slabs over
Loss of channel wall slabs	In several locations stone wall slabs of the main channel have been completely lost, exposing the ground behind the channel wall.	Discrete locations in the main channel	**Option 1:** Backfill behind the wall and replace the missing stone slab like for like **Option 2:** Backfill behind the wall and replace the missing slabs with a concrete patch.

The following general system wide defects were noted:

Table 8 – System Wide Defects

System Wide Defects		
System Defect	**Description**	**Suggested Remedial Repair/Action**
Change in water flow through the system	Breaches in the channel walls and floor and failures at weir structures mean that water no longer flows through the system as originally intended (as a series of connected pools).	**Option 1: Return system to original form (series of ponds)** Repair all wall and floor leaks in the main channel. Repair all weirs For complete containment within the system it may be necessary to reconstruct channels and ponds using detailed designs that are appropriate for the volume of water that passes through the system. **Option 2: Leave system as is (open, free draining, channel, rather than a series of ponds)** Carry out local repairs on wall and floor lining (as indicated in tables above) as deemed necessary.
Silt deposits	Silt deposits contribute to the change in flow pattern through the system by impeding water movement in some areas. Silt build up also allows vegetation to grow in the ponds.	It is recommended that the impact of the aquatic vegetation within the system be assessed by a qualified environmental consultant. The vegetation may have an effect on water quality within the system that may impact further downstream. **Option 1: Partially retain silt build up:** In areas where vegetation has taken hold within silt deposits retain the silt. In areas where no vegetation has taken hold, remove the silt deposits **Option 2: Remove silt build up:** Remove all sit deposits within the system. Remove all associated vegetation.

System Defect	Description	Suggested Remedial Repair/Action
Hydraulic Capacity of System	Council has carried out some preliminary studies that indicate that the capacity of the channel system is inadequate for the amount of water that is likely to flow through the system in any significant rain event. This initial analysis is supported by anecdotal evidence that the system and park often flood after significant rain events.	A hydraulic study should be carried out to assess the requirements of the system. The results of this study may impact on the nature of works required at the site. For example there may be a recommendation to increase the overall system capacity (perhaps by increasing the overflow channels)

4.3 Discussion and Recommendations

Council data suggests that flow rates through the system are beyond those that the system can cope with. This being the case it is unlikely that the structural design of the channels can cope with current storm water flows. This assertion is supported by the degraded condition of the channels. If the channel system is to be retained we would recommend that a hydraulic study be carried out for the site to assess storm water flows and provide guidance on suitable alternate storm water flow paths. Although hydraulic assessment and advice is not within the scope of this report, the following hydraulic concepts may be suitable to the site and should be considered in any future hydraulic study:

- additional overflow channels to the system or increasing the capacity of existing overflow channels
- Installation of a system of overflow pits and in-ground pipes or water detention upstream
- Enlargement of existing channels in the system to cope with the increased flows. This option however is unlikely to have favourable heritage outcomes.

Consideration of the role of in-ground flows through the park should also be included in any future hydraulic study. It appears that presently some water flows through the system via in ground routes. This is partly due to the deteriorated condition of the ponds and channels but is also likely to have been the case for the site, though perhaps to a lesser extent, since the channels were constructed. The role of in-ground water movement in both daily and storm conditions should be assessed in a future hydraulic assessment of the system. Considering the flow rate of water through ground as compared to water over ground it is unlikely that natural in-ground flows have a large impact on maximum overland storm flows.

Hydraulic pressure on existing channel and pond structures are likely to be contributing to the deterioration of the channel structures. Defects in the structures that allow water the enter and leave the channels have the effect of relieving pressure on the structure, however they are also likely to be contributing to erosion behind the structures. If the structures are to be retained with little structural strengthening it is likely that they will deteriorate over time. Depending on the storm water management strategy that is adopted for the site following a hydraulic assessment, it is likely to be necessary to strengthen the channel structures in order that they can withstand design flow rates.

If channels and pond structures require strengthening to implement a hydraulic strategy for the site like for like repair of the channels is unlikely to provide sufficient strength and durability. This being the case we would recommend that the channels be replaced with new concrete channel structures. In order to mitigate the heritage impact of these new structures we would recommend lining new concrete channels with sandstone

flagging. Use of overflow channels or pipes in the system would also be recommended in order to avoid a drastic change in scale of the channels in the system.

Another option that could be considered would be retention of the existing system, with like for like repairs and installation of diversion or retention upstream to minimise storm flows through the heritage section of the system. In this case we would also recommend that consideration be given to installation of in-ground drainage behind the existing channel and pond structure walls. This in ground drainage would reduce hydraulic pressure on the structures and would decrease the risk of erosion behind the walls. Either a traditional drainage trench with free draining fill and ag pipe or a drainage trench with drainage cell could be considered for this in-ground drainage. Hydraulic analysis and design would be required in order to design this system effectively.

There are several typical defects that occur throughout the system that could be either repaired like for like or repaired using modern techniques. The extent and type of repair selected for these defects may differ depending on the overall strategy adopted for the site.

One major consideration that will impact on the scope of works required will be the decision whether or not to restore the original water flow to the system. In order to achieve this it will be necessary to repair the full length of the main channel and weirs to prevent leaks and to restore the system of connected pools. If it is decided that restoration of the original flow to the system is not necessary then repairs to the channel may be targeted to certain areas only. It should be noted however that restoration of upstream sections of the channel may be required in order to restore hydraulic aspects of downstream elements.

Another consideration will be the role of aquatic vegetation in the system. A qualified environmental engineer should be consulted regarding the current role of such vegetation in the system and the impact that any proposed changes may have.

The heritage study of this report has identified the concrete relief map of Australia as one section of the system that is of particular heritage significance. The pond in which the map is located is generally in good condition with the exception of a major defect at the downstream outlet and lifting of base and wall slabs in the upstream channel causing water to enter the pond by an alternate route rather than over the upstream weir. If these two major defects are corrected, restoration of this significant pond and the relief map will be achievable. Further discussions regarding options for repair will follow in section 5 of this report.

It is recommended that as a minimum Australia Pond should be returned to its original condition.

4.4 Prioritisation

The order of prioritisation of works may differ depending on the overall strategy adopted for the site. In the short term, however in order to prevent additional damage we recommend that the following works be carried out as soon as possible:

- All missing base and wall slabs be replaced or patch repaired.
- The major defect at in the base at the outlet of Australia pond be repaired.
- A hydraulic study should be carried out and a hydraulic strategy for the site developed.

5. Options Study

5.1 Potential Funding Sources

Council may be able to apply for the following grants through the NSW Heritage Grants Program:

- Emergency Works Projects
  - Must be on State Heritage Register or under and interim Heritage Order made by the Minister for Heritage
  - Grant value: $10,000
  - Minimum Project Value: $10,000
  - Must meet two of the following:
    - Urgently needed to avert management risks
    - Remote or rural location
    - Unable to proceed without assistance due to current disadvantage
    - Refer to http://www.environment.nsw.gov.au/Heritage/funding/specialprojects.htm for further information

5.2 Assessment of Impacts of Potential future works

5.2.1 Existing Planning Documents

The site is not listed on any state or local, statutory or non-statutory heritage registers. No Conservation Management Plan or other guiding document currently exists for the site.

5.2.2 Strategies for Mitigation of Heritage Impacts

The site has been assessed as being of local and state heritage significance. It is recommended that prior to any major works a statement of heritage impacts be prepared and that a photographic archival recording of the site be undertaken.

5.2.3 Potential Future Works to the site

Three broad strategy options have been assessed for the site:

Do Nothing

In the event that no work is carried out to structures on the site will continue to deteriorate. If no maintenance work is carried out it is likely that the bridge downstream of Australia pond will become

undermined by the already existing defect in the pond base. It is also likely that additional leaks in the walls and floors of the channel will occur as vegetation continues to encroach on the structure.

Restore to Original Flow Conditions

In order to restore the system to it original flow configuration of a series of ponds the entire length of the system will require repair works to repair leakage.

Various methods could be used to repair defects in the walls and floor of the ponds and channels from like for like repair to replacement with new structures. Use of different repair methods in different areas of the site may be suitable (based on localised conditions and heritage significance throughout the system)

Restoring the system to a series of ponds may have in impact on downstream waterways. This effect should be considered, and the advice of an experienced environmental consultant sought, prior to pursuing this option.

Restore areas of highest heritage significance

In this option repair works would be concentrated in areas of highest heritage significance, such as the Australia Pond.

Works would also be carried out to prevent further deterioration of the pond and channel structures throughout the system.

This option would not necessarily restore the original water flow to the system and some areas of high heritage significance may largely remain dry.

5.2.4 Heritage Impact and feasibility of Potential Future Works

The following table outlines the feasibility and heritage impacts associated with the three above listed scenarios for the bridge. Note this is a preliminary analysis only. A full options study has not been carried out.

5.2.5 Summary of Options

The following table presents a summary of the various aspects of the three options considered.

A cost estimate has been provided for each option. Note that the cost of each strategic approach will vary depending on the final scopes of works. Cost estimates provided here are broad estimates only, we recommend consultation with contractors in order to gain a better understanding of potential cost.

Table 9 – Options Analysis

Options Analysis				
Proposed Work	**Operational Benefit**	**Impact on Heritage Significance of the bridge**	**Recommended Heritage Mitigation**	**Cost Estimate**
Do Nothing	Negative The site will continue to deteriorate and will become a safety risk Eventually the condition of the site will become so poor that it will need to be demolished and replaced	Negative The site will continue to deteriorate and heritage significant fabric will be lost	Photographic archival recording of the site should be carried out as soon as possible	Short term cost: $0 Long term cost: unknown, Long term cost would be associated with the cost to demolish system and replace with standard concrete lined underground or open channel or to construct a “creek”

Proposed Work	Operational Benefit	Impact on Heritage Significance of the bridge	Recommended Heritage Mitigation	Cost Estimate
Carry out major works to channel system to restore to original flow to the heritage channel system. **(Likely to required diversion of water to reduce flow rates through heritage system)**	Positive Major stabilisation works would prevent further major defects from developing	Positive The most significant areas of the system would be restored.	Photographic archival recording prior to works Detailed design of the works should be carried out by consultants experienced in working with heritage significant structures in order to ensure that heritage fabric is retained wherever possible	$250,000 This is an estimate only, based on 3 workers for 3 months
Restore areas of high heritage significance only. **(Likely to required diversion of water to reduce flow rates through heritage system)**	Positive Repair of localised defects is repaired reduced maintenance will be required to maintain the condition of the system. Vegetation removal and patch repair of linings after significant rain events would make up the majority of required maintenance works	Positive Areas of high significance restored. Areas of lower significance may deteriorate	Photographic archival recording prior to works. Detailed design of the works should be carried out by consultants experienced in working with heritage significant structures in order to ensure that heritage fabric is retained wherever possible	$100,000 This is an estimate only, based on 2 workers for 2 months. This estimate is based on full restoration of Australia pond and stabilisation of the remainder of the main channel.

Proposed Work	Operational Benefit	Impact on Heritage Significance of the bridge	Recommended Heritage Mitigation	Cost Estimate
Diversion of water around heritage system	Positive. Any diversion system implemented is would be designed and constructed to suit current hydraulic demands. New diversion structures are likely to require less maintenance than existing structures. Diversion will reduce wear and tear on the existing heritage structures	Provided sufficient water is still available to the heritage system, diversion of water around the system will have minimal impact on the heritage significance of the system.	Hydraulic design to be closely coordinated with heritage advisor to ensure flows through the heritage system are appropriate.,	Cost will depend on diversion works undertaken

Table 10 below outlines the heritage impacts of some possible works at the site. Each of these work items would need to be implemented as part of a wider strategy for the site. The long term performance of each of these work items will be affected by the overall strategy adopted for the system and the hydraulic and structural loads that that strategy imparts on the system and structural elements.

Table 10 – Impact of Possible Work Items

Impact of Possible Work Items			
Proposed Work	**Operational Impact**	**Impact on Heritage Significance of the bridge**	**Recommended Heritage Mitigation**
Repair channels like for like	Structural capacity of channel not improved. Capable of sustaining low flow rates only. Likely to require diversion of flow around the existing channel system. Possibly require installation of in-ground drainage behind the channel wall structures to reduce hydraulic pressure and erosion and improve longevity.	Positive. Channels returned to original condition. Provided flow rates through the system are appropriate and regular maintenance is provided, heritage fabric will be retained.	Detailed design by qualified and experienced heritage engineer.

Proposed Work	Operational Impact	Impact on Heritage Significance of the bridge	Recommended Heritage Mitigation
Concrete Patch repair of channels	Structural capacity of channel not improved. Capable of withstanding low flow rates only. Likely to require diversion of flow around the existing channel system. Possibly require installation of in-ground drainage behind the channel wall structures to reduce hydraulic pressure and erosion and improve longevity.	Patch repairs are assumed to be localised only. In this case the negative impact on the heritage significance will be minimal. Patch repairs are unlikely to improve the heritage significance of the site. In the case where patch repairs are to be extensive or cover large continuous areas the impact on heritage value is likely to be negative. In this case consideration should be given to constructing a new channel in concrete and lining it with stone flagging.	Photographic archival recording prior to commencing works. Detailed design by qualified and experienced heritage engineer.

Proposed Work	Operational Impact	Impact on Heritage Significance of the bridge	Recommended Heritage Mitigation
Replace channels with new concrete channels	Structural capacity of channels increased to cope with higher flow rates. Size of channel may change depending on design flow rates through the system. Reduced maintenance	If new channels are of similar size and shape to existing and are lined with stone flagging, the heritage impact of this option will be minimal. If the size and shape of the channels is changed in order to cope with design flow rates there is likely to be a negative impact on the heritage significance of the site due to changes in aesthetics. New concrete channels that are not lined with stone flagging will have a negative impact on heritage significance.	Photographic archival recording prior to works Line new channels with stone flagging. Detailed design by qualified and experienced heritage engineer.
Installation of in-ground drainage behind channel wall structures	Reduced loading on existing channel structures Provision of alternate flow path in system	Minimal impact on heritage fabric.	Detailed design by qualified and experienced heritage engineer.

Proposed Work	Operational Impact	Impact on Heritage Significance of the bridge	Recommended Heritage Mitigation
Repair of Waterfall Pond walls	The operational effect of works to waterfall pond would need to be assessed by a hydraulic study and incorporated in to the overall hydraulic strategy for the site.	Repair of walls at waterfall pond are likely to have a minimal impact on heritage significance of the site.	Photographic archival recording prior to works If a new concrete lining is constructed it should be lined with stone flagging Detailed design by qualified and experienced heritage engineer
Repair of concrete continent	Concrete repair of the concrete continent is likely to improve durability and reduce the need for future maintenance.	Positive. Restoration of highly significant element to original condition.	Detailed design by qualified and experienced heritage engineer. Research into original paint scheme is recommended in order to accurately return the element to original condition.

Proposed Work	Operational Impact	Impact on Heritage Significance of the bridge	Recommended Heritage Mitigation
Provision of flow diversion around the system **(via overflow channels, pit and pipe system or upstream detention)**	The operational and maintenance impact of systems where water is diverted around the existing heritage channel system will need to be assessed in a hydraulic assessment. A hydraulic analysis and options assessment would be required in order to advise on the most appropriate solution for the site. This is not part of the scope of this report. Wear and tear on the existing system is likely to be reduced.	Provided water is still available for the existing channel system, to prevent it drying up, the heritage impact of this option will be minimal	Hydraulic and structural design to be closely coordinated to ensure appropriate flows through the heritage system.

Appendix A. - Photographs

Plate 1 – Wilson Park opening day. 12th May 1932. (Source: Blue Mountains City Library)

Plate 2 – Swimming Pool, Wilson Park. c1950. (Source: Blue Mountains City Council Library)

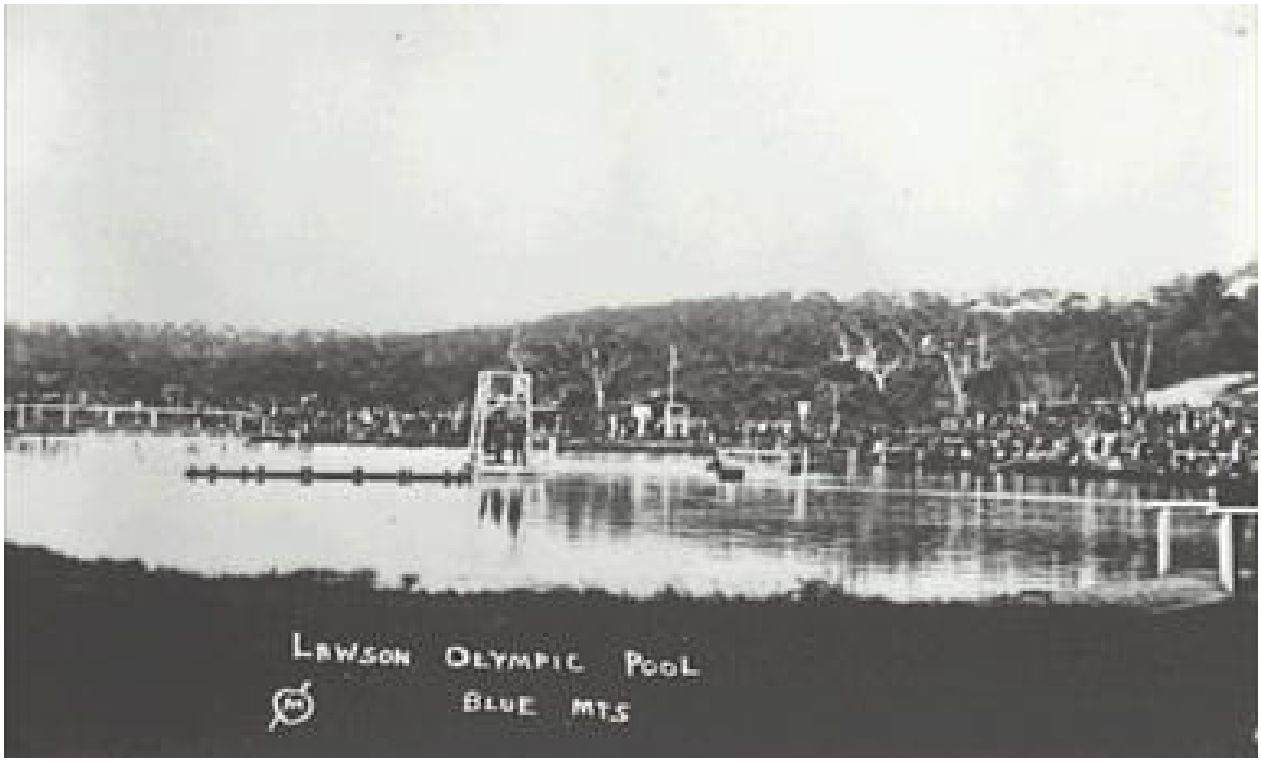
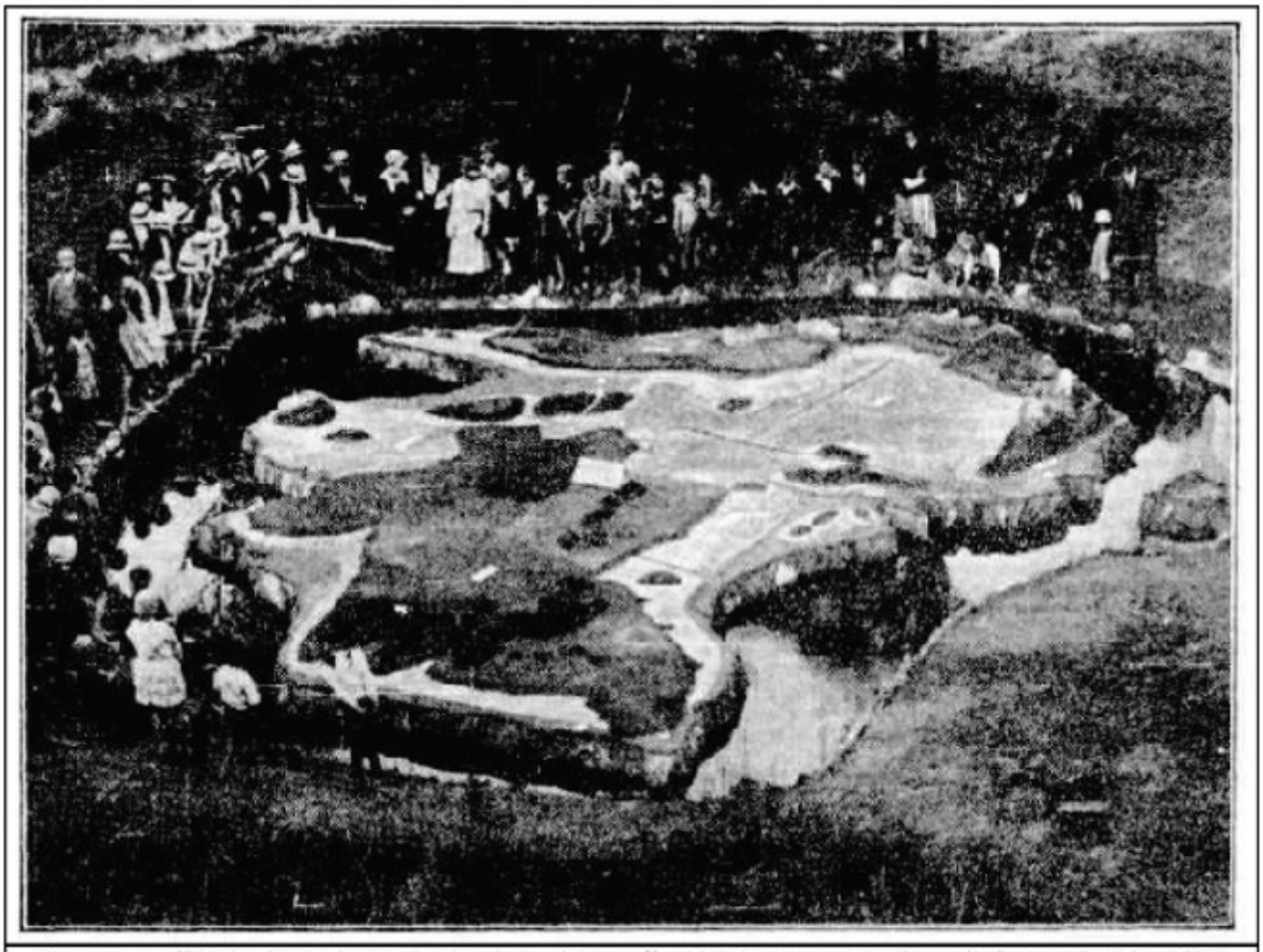


Plate 3 – Lawson swimming pool. C1930. (Source: Blue Mountains City Council)

MAP OF AUSTRALIA IN CONCRETE AT LAWSON.



Situated in Wilson Park, Lawson, the map shows all capital cities, state boundaries, mountain ranges, and rivers. The map is surrounded by running water.

Plate 4 – Wilson Park opening Day, 12th May 1930. (Source: Sydney Morning Herald. 7 May 1932. Page 16.)

Plate 5 – View of Wilson Park and water feature from St Bernards Drive

Plate 6 – Northern extent of water feature, at St Bernards Drive

Plate 7 – Main channel close to St Bernards Drive. Note vegetation ingress and poor condition of channel base. Note also damage to weir

Plate 8 – Main channel near St Bernards Drive. Note vegetation ingress

Plate 9 – View of main channel from north looking towards Australia Pond. Note vegetation ingress is more prominent on the west side of the channel

Plate 10 – Vegetation ingress in main channel

Plate 11 – Vegetation ingress in main channel

Plate 12 – Typical weir structure. Note water flowing around the weir stone

Plate 13 – View of main channel down stream of Australia Pond. Note vegetation ingress

Plate 14 – major vegetation ingress in main channel

Plate 15 – Damaged weir structure and vegetation ingress

Plate 16 – Main channel down stream of Australia Pond

Plate 17 – Main channel down stream of Australia Pond. Note that water in not entering the channel over the wier, instead it is entering through the channel walls

Plate 18 – Concrete bridge structure from downstream.

Plate 19 – Weir structure under bridge. Note erosion adjacent to and under lining stones

Plate 20 – missing wall slab downstream of Australia Pond

Plate 21 - Australia Pond. Note that vegetation ingress on the island is minor only.

Plate 22 – Australia Pond from downstream

Plate 23 – Major defect in base slab of Australia Pond at downstream outlet. Note loss of base slabs and severe erosion of subgrade. Note that water is flowing out of the pond via this defect.

Plate 24 – Major defect at downstream outlet in Australia Pond. Note top of weir structure over which water is supposed to flow and large void under it through which water is flowing.

Plate 25 – Australia Pond

Plate 26 – Australia Pond

Plate 27 – Australia Pond

Plate 28 – Australia Pond

Plate 29 – Australia Pond

Plate 30 – Australia Pond

Plate 31 – Australia Pond. Note vegetation in base and silt build up.

Plate 32 = Australia Pond. Note that water tends to flow around the east side of the island due to silt build up to the west

Plate 33 - Australia Pond. Note that water does not enter over the upstream weir. Water enters the pond at the intersection of the base slab and the Tasmania island, that is it takes a route under the weir and base slabs.

Plate 34 - Australia Pond. Note that water does not enter over the upstream weir. Water enters the pond at the intersection of the base slab and the Tasmania island, that is it takes a route under the weir and base slabs.

Plate 35 – Main channel upstream of Australia Pond

Plate 36 – View of circular Pond from Australia Pond

Plate 37 – Circular Pond. Note silt build up and vegetation ingress

Plate 38 – Circular Pond

Plate 39 – Circular Pond. Note overflow channel inlet

Plate 40 – Silt build up and vegetation ingress in Circular Pond

Plate 41 – Circular Pond

Plate 42 – Eastern overflow channel at inlet to circular pond

Plate 43 – Eastern overflow channel. Note vegetation ingress

Plate 44 – View of circular pond and main channel upstream of circular pond

Plate 45 – Main channel upstream of circular pond

Plate 46 – Main channel upstream of circular pond

Plate 47 – Damaged weir structure in main channel

Plate 48 – Western overflow channel.

Plate 49 – Main channel at point where western overflow channel folks off. Note vegetation ingress

Plate 50 – Main channel upstream of western overflow channel fork

Plate 51 – Damaged weir structure in main channel upstream of western overflow channel fork

Plate 52 – Main channel downstream of waterfall pond

Plate 53 – Weir structure at waterfall pond outlet

Plate 54 – Waterfall pond

Plate 55 – overflow channel outlet at waterfall pond (east side)

Plate 56 – view of eastern overflow channel from water pond

Plate 57 – view of Wilson park from waterfall pond.

Appendix B. – Articles Relating to Concrete relief Maps

WE – appreciate of Jan volunteering work. 28/7/06

CONTOUR MAP OF AUSTRALIA.– WILSON PARK. LAWSON. N.S.W.

LAWSON'S 'NEW' 50-YEAR-OLD TOURIST ATTRACTION

The Blue Mountains has gained another new Tourist attraction — although it has been in existence for more than half a century.

Members of the Lawson Chamber of Commerce and local Bushfire Brigade have been busy restoring the huge sandstone contour map of Australia, which is in Wilson Park near the Lawson Swimming Pool.

President of the Lawson Chamber of Commerce, Mr John Woods, says: "The members have spent many hours scrubbing the surface, removing dirt and cleaning out the pool that surrounds the map.

"We would like to see this unusual and unique map fully restored, not only for its historical importance but as another tourist attraction for the district."

Dr Keith King has kindly supplied The Echo with a 1930's photograph of the official opening of the map. The ceremony was performed by Mr Percy Wilson, President of the Blue Mountains Shire Council, who is shown with his wife on the bridge, surrounded by children from the Lawson Public School.

"The accuracy of the topography shown on the map is amazing," says Dr King, "specially when one considers that when it was built a large part of inland Australia had never been flown over in an aeroplane.

"The builder of this wonderful contour map was one of the Higgison brothers who lived with his parents in Allen Street, Lawson.

"He was taken prisoner by the Japanese in Java in 1942 and died as a result of their cruelty on the Borneo-Sandakan 'Death March' in 1943."

Dr King is interested in finding out more about both the map and the Higgison family and the contour map. If anybody can help he can be contacted on 59 1001.

VF LAWSON - General

Letters

Preserve it

SIR. — In reply to Max King (BMG 7.9.94):

The huge concrete contour map of Australia located in Wilson Park near the Lawson Swimming Pool was constructed in the early 1930s by local identity Arthur Higgenson who at the time lived with his father, mother and brothers in Allen Street.

Why did he build it?

Because he was proud to be an Australian and wanted to instil this pride into the younger generation living in Lawson as well as creating an unusual tourist attraction to supplement the already popular swimming basin nearby.

Unfortunately Arthur only lived another 10 years after this project was completed. His love for Australia prompted him to join the Services in the Second World War to fight for his country against Japan.

In 1942 he was taken prisoner by the Japanese in Java and in 1943 died as a result of their cruelty on the Borneo-Sandakan 'Death March'.

In 1986 the map was 'rediscovered' by members of the Lawson Chamber of Commerce and local bushfire brigade who spent many hours scrubbing the surface, removing dirt and cleaning out the pool that surrounds the map.

The then chamber of commerce president John Woods told a local paper that "We would like this unusual and unique map fully restored, not only for its historical importance but as another tourist attraction for the district".

Earlier this year I was guest speaker at a meeting of the Central Blue Mountains Rotary Club and spoke on the history of tourism in Lawson. During this speech I asked the members to consider taking on the responsibility of completely restoring the map of Australia, not only for the locals but the many tourists who visit this pretty area.

Within the last month I have written to local MP Mr Barry Morris asking him for assistance in the restoration of the map of Australia and that a plaque be placed next to it honouring its creator, Arthur Higgenson.

Good on you Max King — we need more people like you to bring to the public's attention to the rich heritage items that exist and need to be preserved throughout the Blue Mountains.

— GEOFF BATES,

Blackheath.

Nepean Times 2/4/1932

Springwood

RED CROSS

The Hon. C. W. Marr, D.S.O., M.C., V.D., Federal Minister for Health, will visit "Juong," the Junior Red Cross holiday home at Springwood, for delicate sons of soldiers, on 16th April, at 2 p.m., and dedicate several cots in the Home. These cots are contributed to by some branches of the Returned Sailors and Soldiers' Imperial League, and will be known as Returned Soldiers' Cots. Some hundreds of delicate sons of returned soldiers have been built up into sturdy health at "Juong," in the seven years it has been opened.

If time permits, Major Marr will visit the Junior Red Cross holiday Home at Leura, for delicate daughters of soldiers.

WOOD CHOPPING

The popularity of wood chopping contests was again demonstrated on Monday last, at Springwood, when a contest was held in the grounds of the Royal Hotel. Some 300 people gathered to watch the event. Mr R. Lumsden, licensee of the Royal Hotel, gave the prize money (£2/10/-), and Mr Baxter, of North Springwood, supplied the logs. Ten entries were received, and a fast and exciting contest was witnessed.

The handicapping was in the hands of Mr C. Hall, of Springwood, who also acted as judge, assisted by Mr J. Jones.

W. McIntosh, of Valley Height, won easily, off 17secs, Maurice Baxter (10secs) was second, and Mick Stratton (15secs) and George Baxter (17secs) tied for third place.

Warwick Baxter gave a fine exhibition off 1 second, just failing to catch the judges' eye by one chop for a place.

The following were the competitors and handicaps:— H. Webb 34secs, J. Webb 32, N. Baxter 20, H. Cowden 17, W. McIntosh 17, G. Baxter 17, M. Stratton 15, M. Baxter 13, F. Webb 10, Warwick Baxter 1. Won by four seconds. Time, 49secs.

The next wood chopping contest will take place at the Royal Hotel grounds (Mr Lumsden again donating the prize money), on Saturday, 16th April.

Mr C. Meyers, the well-known sight expert, of Penrith, will visit Springwood on Friday, 8th April, between the hours of 2 p.m. and 5 p.m.

Nep Times 2/4/1932

Transfer of Licenses

At the Penrith Licensing Court on Tuesday, the license of the Hotel Hydro Majestic, Medlow, was transferred from R. M. Radcliffe to Arthur Robinson, and the wine license at the Ritz, Leura, was transferred from Herbert Bloome to Henry E. Messenger.

Nep Times 9/4/1932

Broadcasting from the Mountains

KATOOMBA Council has agreed to co-operate with Blue Mountains Shire Council in the move to have a broadcasting station established on the Mountains, and has appointed two delegates to a conference on the matter. Blackheath Council wants further information on the matter before committing itself. At the invitation of Amalgamated Wireless delegates from the Shire Council will visit the A.W.A. station at Pennant Hills next Wednesday.

Nep Times 9/4/1932

Unique Map of Australia

SOMETHING unique in the way of a contour map is in course of construction by the Shire Council at the fine swimming pool at Lawson. Within solid rock is being carved out a waterway so shaped as to leave within it rock and structure that represent the continent of Australia. The various seaports will be well defined, and children will be able to sail their boats from port to port. Professor Holmes, of Sydney University, is taking a practical interest in the model, and has visited the area twice, advising as to construction to scale, etc. One inch on the model represents 6.2 miles of the continent.

Nep. Times 9/4/1932

Aeroplane Landing Ground

THE proposal to establish an aeroplane landing ground on the Mountains has again had consideration of Blue Mountains Shire Council. On Wednesday Mr Burgess, district superintendent of the Civil Aviation Branch of the Commonwealth Department visited the Mountains, and in the company of the Shire engineer inspected two proposed sites—one at Lawson and one at Lapstone Hill Reserve. We understand that Mr Burgess is not favorably impressed with either site.

Nep. Times 9/4/1932

Angora Rabbit Farming

KATOOMBA Council has agreed to co-operate with Blue Mountains Shire Council in urging that the area within which farming of Angora and Chinchilla rabbits for furs is permitted be extended to include the Mountains (County of Cook). At present farming is only allowed within the County of Cumberland. The Minister is to be approached about the matter.

The Shire Clerk, Mr Maiden, has been in communication with the Department of Agriculture, Queensland, with a view of obtaining information concerning conditions in regard to the establishment of rabbit farms for fur and wool. He has been supplied with much valuable information, some of which we hope to publish in the near future.

H00343

42 BADGERY CRES.
LAWSON 2783
5·10·00

THE MANAGERS
RECREATION PARKS MAINTENANCE
B.M.C.C.

After a visit to our favourite picnic park behind Lawson Olympic Pool, a serious question has to be asked of the people designated to keep this lovely bushland area clean & tidy. I am referring to the small waterfall, pool and runoff channel which follows the length of the park & also diverted to fill 2 small pools on the grass area.
The water over the rocks is from natural springs and should be clean & sparkling, a joy for young family visitors. Now after months as even years of neglect, it has become a sad, sorry mess of stagnant, dirty water filled with decaying leaves and bush debris as is the pool under the falls, add also a large tree trunk lying on the bottom covered with algae. For a short length of the water course the bush is beginning to grow over. A small fallen tree has been there for so long it is partly covered with matted grass. The 2 small pools meaning nothing without water, the one for water plants & reeds is covered with grass & weeds, the map of Australia looks very forlorn with no water surround.
With machinery at Councils disposal, 3 or 4 days work could revitalize the water & fill the pools. This would also remove a health hazard for inquisitive children & let clear running water again be this small parks main attraction. Now the pool is open for summer enjoyment, please treat this letter as an urgent request for immediate action

Sincerely
Dorothy Forrester.

City of Blue Mountains

The City within a National Park

BM CITY SERVICES

Non-corporatised service provider of
Blue Mountains City Council

24 October 2000

Please quote file
H00343
MS: CS

If telephoning or calling regarding this matter, please contact:
Michael Starkey
(02) 4723 5061

Ms Dorothy Forrester
42 Badgery Crescent
LAWSON 2783

Dear Ms Forrester

SUBJECT **Park Maintenance Works Lawson**

Thank you for your letter received by Council on 16 October 2000 regarding maintenance of Wilson Point, Lawson.

It is agreed that the maintenance of this park has been somewhat lacking during the last couple of years. This anomaly has now been corrected and an extensive cleanup of the park has now been programmed for early December. The park will then be included on the schedule for regular maintenance on a cyclic basis.

If we can be of any further assistance please contact Council's Eastern Maintenance Engineer, Mr Michael Starkey, on (02) 4723 5061.

Yours faithfully

DOMINIC O'BRIEN
Manager, Maintenance Services

T:\Operations\Springwood Depot\Correspondence\Letters\Wilson Point - Ms D. Forrester.doc

Address communications to:
General Manager, City of Blue Mountains, P.O. Box 189, Katoomba. 2780
Telephone: (047) 82 - 0777, DX: 8305 Katoomba, Fax: (047) 82 - 0506

RECYCLE

Down the Wallaby Track: a backward glance, with John Low

THE CONCRETE CONTINENT

Hidden on the northern side of Lawson in what was once part of a marshy gully known as 'Frog Hollow', resumed and transformed in the early 1930s into the small oasis of Wilson Park, is a curious and unusual relic – a large concrete relief map of Australia. Now showing all the signs of public neglect, cracked concrete and faded colours, it once drew visitors in numbers but today rates little, if any, mention in the tourist literature. Come upon it unprepared and it might take you some moments to work out what it is!

It was a different story at the time of its unveiling on Friday 12 May 1932 when, in the presence of local dignitaries and over 100 school children, the Shire President, Percy Wilson, declared the occasion "a children's day". The concrete continent was, reported the *Katoomba Daily*, "on a scale of 75 miles to 1 foot" and "shows all mountains, ranges, rivers, and capital cities and is coloured to correspond with the regulation colours of school atlases".

Located in a creek sourced from a small waterfall at the edge of the park, the map was surrounded by "clear running water" in which children were invited, like Matthew Flinders, "to sail boats around Australia". In the ensuing years the map excited considerable interest and became a Lawson landmark. For many, both local and visiting, it is still a fondly recalled childhood memory.

Who was responsible for this unusual piece of park sculpture? Notably, the Shire President singled out several people at the dedication: John Garlick of the Main Roads Board who "first suggested" the idea; B. A. Heffernan, the Shire Engineer, who "set out" the map and supervised its construction; Bob Medcalf, the "expert concrete worker" who carried out the work and Prof. J. McDonald Holmes of the Geography Department at the University of Sydney who "advised and assisted" on its educative value and accuracy. All pretty straight forward, but is it?

Mysteriously, as sometimes happens, a contrary local tradition exists that gives the plaudits to another, a young Lawson man who rates no mention in the *Daily's* 'official' account. This alternate version of events, well entrenched in local lore and publication, records how love of country and a desire to pass this on to the next generation led Arthur Higgenson to design and construct the map in the new park. The fact that a decade later he died in a Japanese prisoner-of-war camp only adds poignancy to the story.

Can we reconcile the two accounts? Though inquiries suggest that 'Arthur Higgenson' was, in fact, Frank Higgison (who did indeed die in Sandakan) and a photograph exists of him with a relief model (his work) of Australia, perhaps confirming his association with the project, beyond this I don't know. What is certain, however, is that this unusual piece of sculpture, reportedly the only one of its kind in Australia, badly needs attention if it is not to become another vanished piece of old Lawson.

(Sincere thanks to Liz Benson, who lives on the former Higgison property, for her keen assistance.)

John Low (grizzlybear3au@yahoo.com)

Photo: Blue Mountains City Library, Local Studies Collection

Giant Dragonfly PhD thesis available online

For anyone interested in the Giant Dragonfly (*Petalura gigantea*) and its peat-swamp habitats across the Greater Blue Mountains region, the PhD thesis on the subject by local biologist Ian Baird is available to download as a series of PDFs from the University of Western Sydney library's website at: http://handle.uws.edu.au:8081/1959.7/509925

The thesis citation is:

Baird, I.R.C. (2012) The wetland habitats, biogeography and population dynamics of *Petalura gigantea* (Odonata: Petaluridae) in the Blue Mountains of New South Wales. PhD thesis, University of Western Sydney

Welcome to new members

Noel Robson, Blackheath
Peter Drinkall, Wallerawang
Dorothea May Melbourne, Wallerawang
Suzanne Rix, Wentworth Falls
Christine Smith, Leura
Margaret Wilson, Penrith
Leonie Corbett, Kings Langley
Greg Vance, Winmalee

VISUAL HISTORY.

State Governor's Lesson.

"And what is Scotland famous for?" asked Sir Dudley de Chair.

"Porridge and whisky," shouted the children. Sir Dudley's laughter led all the rest.

The playground interpretation of Australian history and geography given specially for the State Governor yesterday by pupils of the Marsfield Public School, Eastwood, was a great success. They gathered round a huge concrete map of Australia set in the middle of the playground, and, working under the system devised by the headmaster (Mr. J. Carradice), showed Sir Dudley their very intelligent grasp of the deeds and discoveries that have made Australia what she is. Sir Dudley de Chair was warm in his praise of the system.

All over the map were placed little wheat sacks, wool bales, pieces of coal, fruit, all sorts of objects representing the primary industries. The overland telegraph was modelled, air services were indicated by small metal 'planes, and the routes taken by Australian explorers were defined. By this method, Mr. Carradice claims that the children secure an intelligent comprehension of the things they are taught. And his claim was certainly borne out by the readiness and broad general knowledge of the children.

Sir Douglas Mawson's expedition to Antarctica was mentioned. "And where is the South Pole?" asked Sir Dudley de Chair. "Over there," said a small boy. And looking in astonishment after the pointing finger, Sir Dudley saw that it was indeed "over there." Antarctica, in its position relative to Australia, was modelled in concrete, and the route taken by Captain Scott on his expedition to the Pole was charted there.

CONCRETE MAP OF AUSTRALIA

A large concrete map of Australia on a scale of 75 miles to one foot has just been completed at Wilson Park, Leura, to the order of the Blue Mountains Shire Council. The map has a contour surface to scale, and shows all the mountain ranges, rivers, and capital cities, and is coloured to correspond with the regulation colours of school atlases. Professor Holmes, of Sydney University, supervised and advised on its construction. The map is surrounded by shallow water, in which the children will be able to sail boats.

Unique Map at Lawson

(By Jean Kilner, B.M. Shire)

We have seen many different types of maps and sketches of this and other continents, and they are always of interest.

There is one map of Australia to be found at Lawson, the civic centre of the Blue Mountains Shire, which is quite unique in appearance and appeal.

It is made entirely of concrete, and is surrounded by water, representing the oceans.

Suitably contoured it is built up in "mountains" showing the various altitudes of those peaks represented on the surface. The Blue Mountains are clearly outlined for the observer.

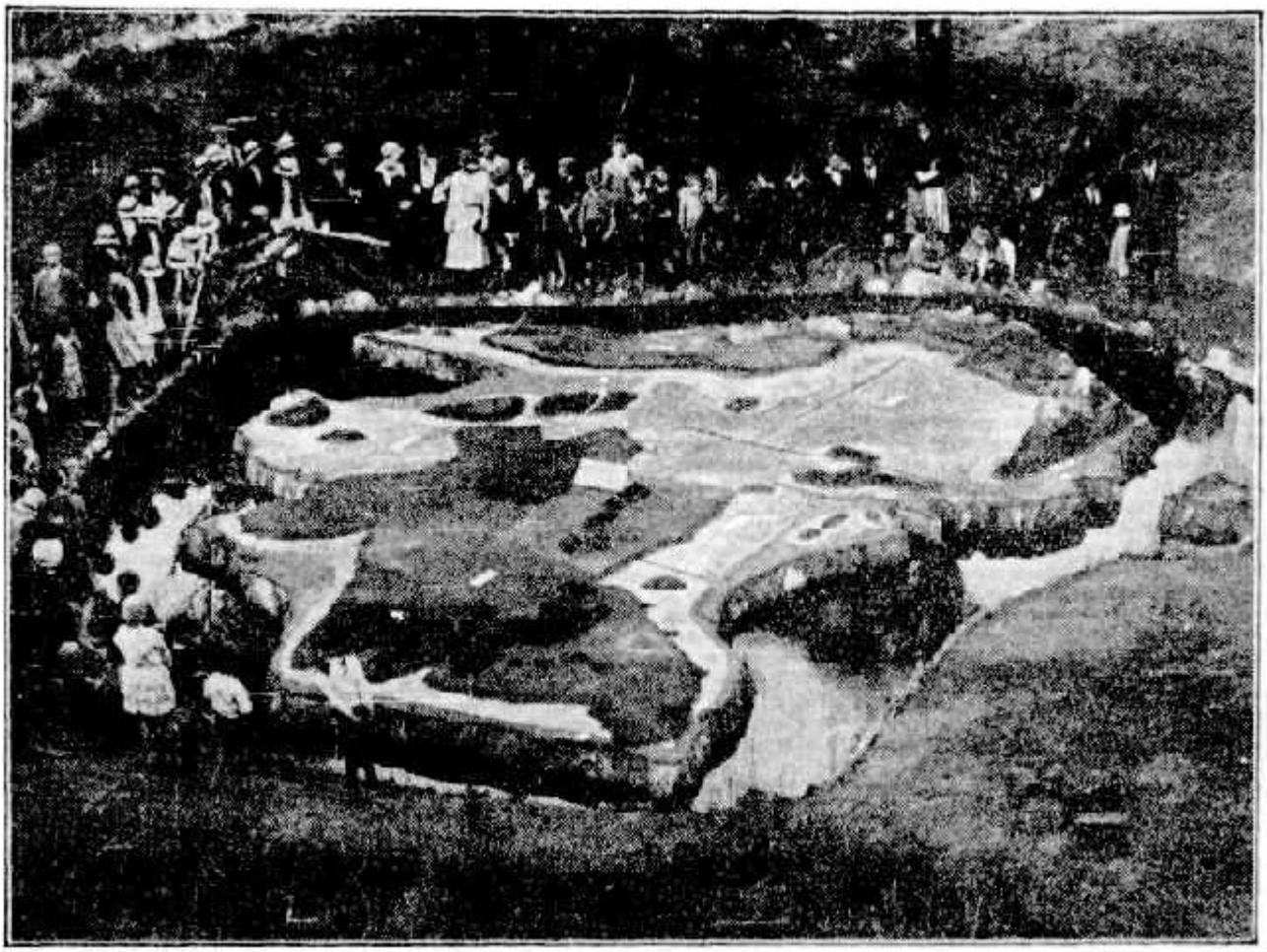
This unusual work of art is situated in Wilson Park, close to the popular Lawson Olympic swimming pool; and it appears quite casually midst the beautiful ferns and trees of this ideal picnic area. A winding creek issues from a picturesque cascade in the hillside, where pleasant walks are offered for those who delight in the natural surroundings.

The stone map was constructed some years ago by instructions from the late Cr. Percy Wilson and Professor Roberts, well-known lecturer, and it has proved a source of attraction for both young and old when they visit the Lawson pool. This pool is transformed into a veritable fairyland at night when lit by floodlights.

CONCRETE MAP OF AUSTRALIA

The large concrete map of Australia, which was constructed to the order of the Blue Mountains Shire Council, and to which reference was made in Wednesday's "Herald," has been placed in Wilson Park, Lawson.

MAP OF AUSTRALIA IN CONCRETE AT LAWSON.



Situated in Wilson Park, Lawson, the map shows all capital cities, state boundaries, mountain ranges, and rivers. The map is surrounded by running water.

Unique Model

CONCRETE CONTOUR MAP OF AUSTRALIA

The concrete contour map of Australia in Wilson Park, Lawson, is an object of much interest to the many people who have viewed it.

The idea of constructing the map was first suggested to the Shire President, Cr. Percy Wilson, by Mr John Garlick, formerly Civil Commissioner and chairman of the Main Roads Board

The map was set out and the work supervised by the Shire engineer, Mr B. A. Mefferman, and Mr R. Medcalf, an expert concrete worker, employed by the Blue Mountains Shire, carried out the work.

Professor J. McDonald Holmes, Department of Geography, Sydney University, kindly advised and assisted in the construction of the contour surface

The map is situated in Wilson Park, above the Swimming Pool, which is 300 yards from the Lawson Railway Station. The approximate size of the map is 32 feet by 24 feet. Scale of surface, 75 miles to 1 foot, or one inch on the map equals 6¼ miles actual, the model being one four-hundred-thousandth of the actual size. All capital cities, State boundaries, and rivers are correctly shown, together with mountain ranges, the latter being of a larger scale to the surface, viz, 3 inches to 1000 feet.

The colors used are the regulation ones used for school atlases, and represent the following altitudes: Green, sea level; grey, 500ft; chrome, 1000ft; red, 2000ft; brown, 3000ft; light red, 4000ft; white, 5000ft and over

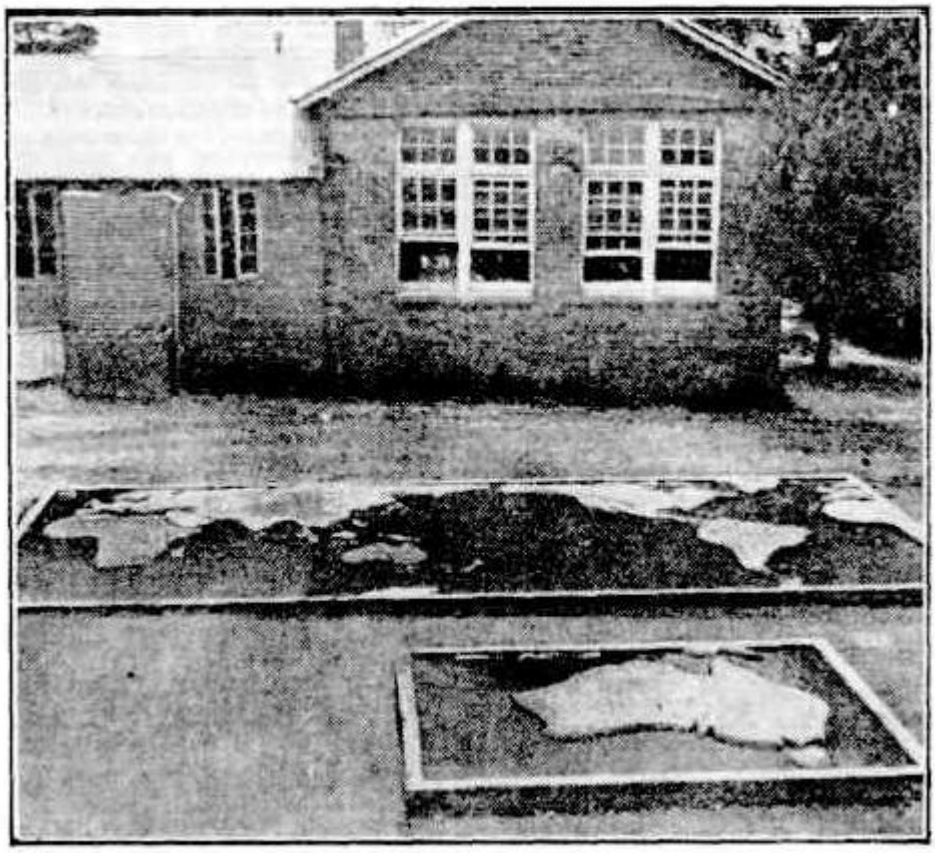
The map is surrounded by clear running water, in which childen will be able to sail boats around the "Continent."

Recently an official inspection of the map was made by Shire Councillors in the presence of the school children and public. Professor Holmes was present, and, in an address, said that the map was of great educational value. This map, as far as he knew, was the only one of its kind in Australia.

The Shire President (Cr. Wilson) and Councillors Skarratt and Ross complimented the Shire engineer on his fine work.

The concrete "continent" is surrounded by water from a waterfall above the park *

CONCRETE MAP IN SCHOOL PLAYGROUND.



Claimed to be the only one of its kind in Australia, this map was recently completed at the Portland Intermediate High School.

CONCRETE MAP.

Novel School Equipment.

PORTLAND, Wednesday.

A concrete map of the world has just been completed in the playground of the Portland Intermediate High School. It is 28 feet in length and 14 feet in width, and the continents and islands are raised a few inches so that, when the map is covered with water, the oceans and inlets are clearly shown. Later the chief mountain ranges will be moulded in concrete.

A large concrete map of Australia has also been made, its dimensions being 10 feet by 8 feet.

Later, boundaries, cities, etc., will be painted in various colours. A model ship is being made, fitted with a magnet, so that it can be drawn over the surface of the water along the various sea routes.

Next to the map of Australia an observation block has been constructed, with a sun dial and a rain gauge.

The headmaster (Mr. J. B. Ireland) conceived the plan of making this novel school equipment.

CONCRETE MAPS.

TO THE EDITOR OF THE HERALD.

Sir,—In to-day's issue you publish a map of the world made of concrete, which is claimed to be the only one of its kind in Australia.

In the playground of the Burwood Primary School is a similar map, set out by the pupils, with the help of a couple of men, and paid for by one of the teachers. The cost was in the vicinity of £30. This model is much appreciated by the boys, as it illustrates the mountains, rivers, and lakes, not only in outline but in elevation and detail. It also shows the cable and trade routes and the railway systems.

This map was made over 12 months ago.

I am, etc.,

E. A. BARKER.

Burwood, Dec. 2.

[Claims of a similar nature have been received from several other centres. Ed. "Herald."]

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CONCRETE MAP OF WORLD.

WOY WOY, Monday.

Woy Woy Parents and Citizens' Association has advanced £7 to Mr. W. J. Emery, headmaster of Woy Woy public school, as a means of having a large relief map of the world constructed in concrete in the school grounds. This is now being constructed.

MAP IN CONCRETE.

Interesting Woy Woy Experiment.

WOY WOY, Wednesday.

A scale map of the world, made of concrete, and painted appropriate colours, has been set in the grounds of Woy Woy Public School. It is 16ft long, and 10ft 4in wide.

By means of a pipe, which can be closed when necessary, it is possible to have a depth of at least half an inch of water surrounding the continents and islands, enabling toys to take the place of liners on the trade routes.

The work was carried out by the school staff under the direction of the headmaster (Mr. W. J. Emery). The local Parents and Citizens' Association provided about £15 towards the cost, and teachers organised school entertainments to provide further money.

HOW DR. SARGENT TAMED THE JAGUARS.

WHEN Dr. Malcolm Sargent lifts his conductor's baton, audiences are stilled and expectant. And when Dr. Sargent lifts a gum-tree bough he has the same effect over lions, tigers, and any other savage beasts of the jungle that may be handy.

This he proved when he paid a visit to Taronga last week. After an extensive tour of the park he came at last to the cage of Tick, Tack, and Tock, the three charming jaguar cubs. But when the conductor came to pay his visit they were anything but charming. Snarling and biting, they were trying hard to show that they indeed could be red in tooth and claw if they were given half a chance.

Anxious zoo attendants were trying to make them behave for their distinguished visitor. Cooing words and others which were not so cooing were poured through the bars. But still they rampaged around in their cage.

Then Dr. Sargent took a hand in the proceedings. He picked up a small gum-tree bough that was lying near. "Let me in there," he said quietly. And in he went.

The effect of Dr. Sargent's arrival on Tick, Tack, and even Tock was immediate and startling. At once they ceased to be Wagnerian toughs and became Mozartian in their grace and charm.

They waltzed up to the swaying gum leaves with the rhythm of Strauss. They toyed with the playfulness of Haydn. And in the ripple of their proud muscles there was much of the dignity of Beethoven.

GOOD LITTLE JAGUARS.

DR. SARGENT talked to them as he talks to his orchestra. He led them round the cage as he leads his strings through a difficult passage. A new look of trust seemed to come into their tawny eyes, and when, in the end, the conductor had to leave, they crowded to the side of the cage, making little whining noises as if imploring him to go on with the game. Dr. Sargent had made new, good little jaguars out of Tick, Tack, and Tock, and they liked it.

This was only one of the incidents that marked the triumphal tour round the park. The koalas, of course, as always, rose to the occasion and behaved with the greatest charm. Many of them even went so far as to wake up when they were stroked by those musicianly hands. And one of them even stopped munching when spoken to by the conductor.

Then there was the great new lion pit, with the huge concrete map of Australia in the centre. One of the King of Beasts was lying neatly curled up in Victoria, but with only the tip of his tail in New South Wales. "Scarcely patriotic," said the doctor.

in New South Wales. "Scarcely patriotic," said the doctor.

The extraordinary dowager-like walk of the the ostrich, the sleek savagery of a black panther, and the curving arabesques of "Skipper," the giant shark, were other sights that delighted and entertained the doctor.—F.

THE RISK P. & C.

At a meeting of The Risk Parents" and Citizens' Association, the Secretary reported that as a result of a working bee the foundation of the concrete map at the school had been completed. The map measures 20 feet by 17 feet, and it is hoped the work of putting in the continents, etc., will be completed next week-end. It was decided that a picnic be held on the school grounds when the map is completed to give parents a chance to inspect it. Tree planting will also be carried out the same day.

The teacher (Mr. G. Mallett) reported having purchased a vigaro set, two medicine balls and a soccer ball for the school. Mr. Mallett also stated that the schools' sports would be held in Kyogle on August 4 and he asked for the members' co-operation as regards transportation of the children to the sports. In a statement regarding the Junior Farmers' Club, Mr. Mallett said he hoped in the near future to be able to get Mr. Nicod (District Supervisor) to address a meeting of all interested in this movement. Mr. C. Green presided at the meeting.

STORY OF AUSTRALIA.

EXHIBITION AND PAGEANT.

An attempt to show the incidents and achievements of nearly 150 years of Australian history is represented in the exhibition and pageant staged yesterday by the masters and boys of the Church of England Grammar School, North Sydney.

The exhibition included charts, maps, and models, illustrating industrial, political, economic, and social development during the period since Captain Phillip landed. The threads of the history of that time were collected in the pageant. Most of the exhibits were the work of the boys of the school. A number of trade and loan exhibits helped to complete a most interesting display.

A relief map of Australia, in concrete, measuring approximately 270 square feet, was the most striking exhibit in the geography section. It represented the continent, from the ocean bed to the top of the highest mountain, with all the physical details correctly placed, so far as the limitation of size allowed. It was the work of a small band of boys and one of the masters.

In various classrooms were displayed the story—in illustration and model—of the progress of Australia. The primitive methods of earlier days were placed side by side with the most modern inventions. Relief maps, prepared by the boys, showed industrial development at Port Kembla, the production stages of the Victorian State electricity supply, the Sydney water supply system, and Great Lake hydro-electric scheme of Tasmania.

A centre of interest was a model of the latest type of railway engine, complete in every detail, capable of developing five horse-power and drawing 40 children in trucks. One of the boys, with his father, began working on the model two years ago.

There were models of suburban homes, under proper living conditions, constructed by the boys, while the lads of the junior school presented a scheme of farm buildings embodying the latest ideas in construction and arrangement. Fashions of 1860 were displayed side by side with the modern ideas in dress.

The pageant was a striking representation of prominent historical events, made more interesting by characterisations of the notable figures in Australian public life.

The exhibition and pageant will be staged again to-day and to-night.

Teaching Geography.

THE students of a school near Paris can boast of being taught geography on a larger scale than their fellow-students in any school in the world. A huge concrete map of the world, covering several acres of ground, has been laid out, with real water for rivers, smoking volcanoes, and other features. The seas are deep enough for the pupils to sail by boat from one port to another, tiny railroad trains are drawn by steam engines, and the continents, with mountain ranges and other points, are indicated.