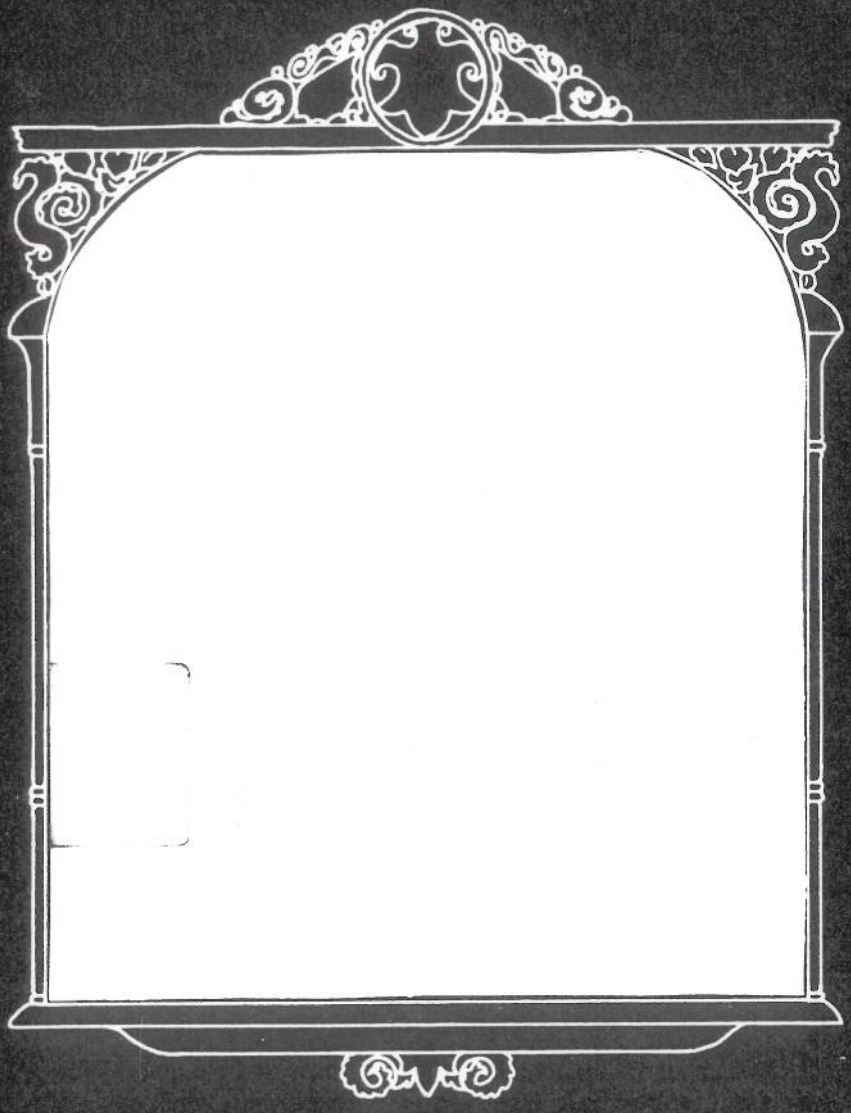
MACHATTIE PARK MANAGEMENT PLAN



Gutteridge Haskins & Davey, Environmental Planners & Designers

MACHATTIE PARK MANAGEMENT PLAN

Prepared for

BATHURST CITY COUNCIL

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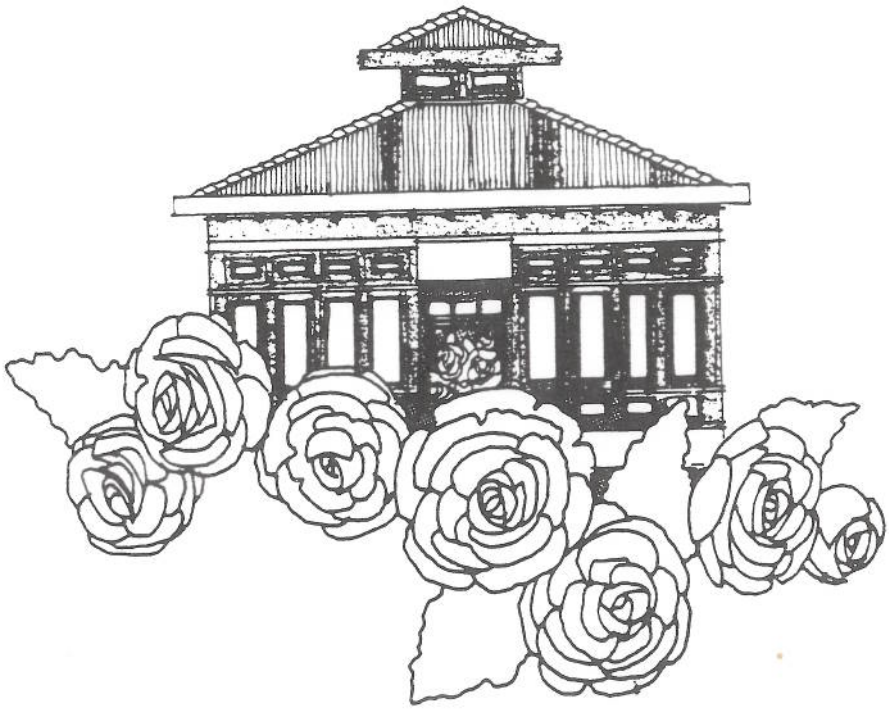
INTRODUCTION



1. INTRODUCTION

GHD was commissioned in January 1990 by Bathurst City Council to prepare a Management Plan for Machattie Park which, in the directive of the consultant's, brief "maintains and reinforces the park's heritage and townscape significance and emphasises the park's contemporary recreational and leisure importance for the people of Bathurst". It is a timely coincidence that such a review is undertaken 100 years after the park was opened in December 1890.

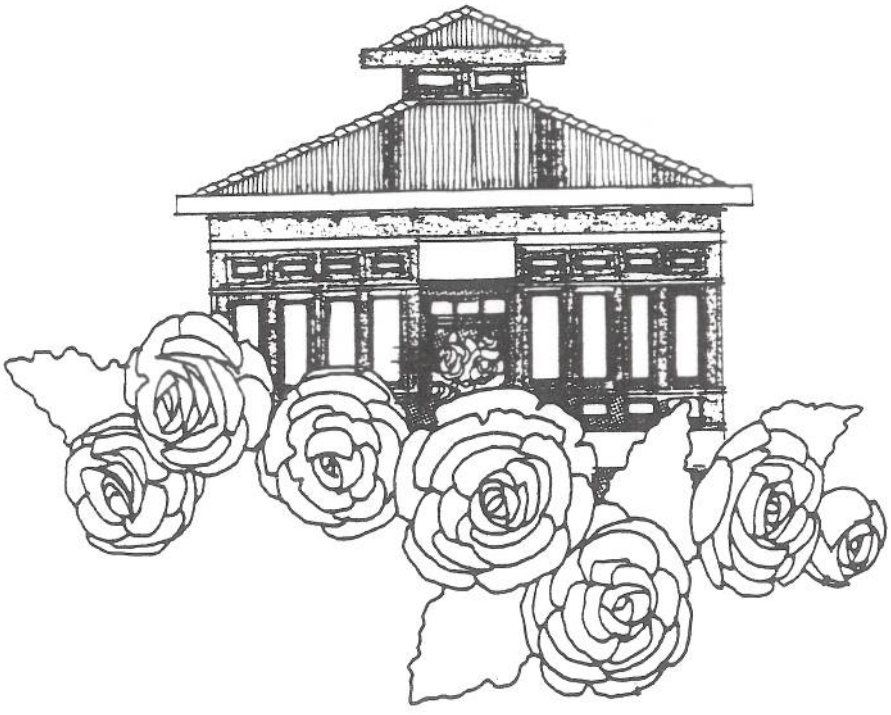
The Management Plan proposes a strategy for development within and for the park. To achieve this strategy, it sets out a number of objectives towards which the future development of the park is directed, and it examines in detail how these objectives can best be achieved. The plan recommends a ten-year programme of work, which can be adjusted to suit circumstances and specific requirements.

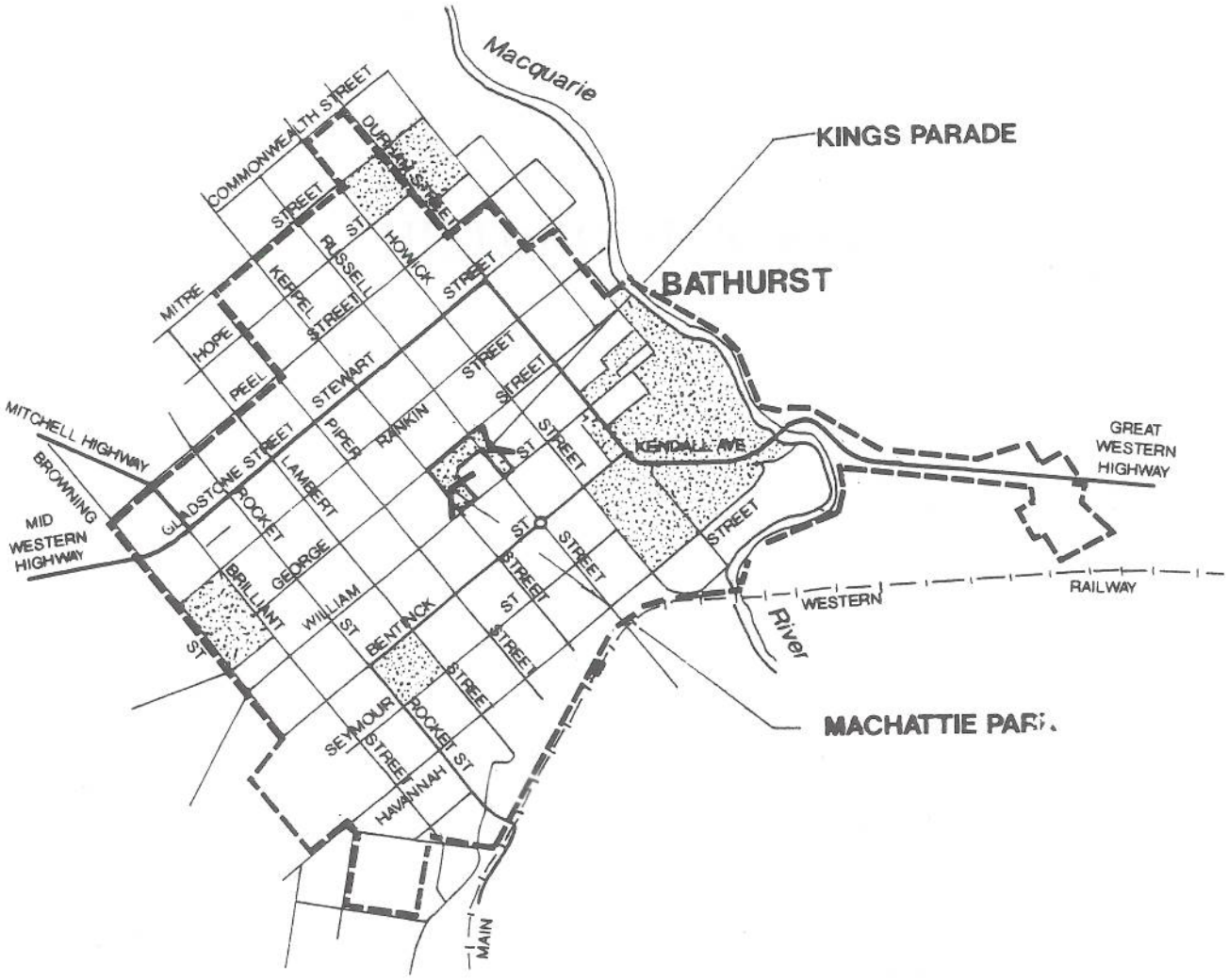
This report is therefore primarily concentrated on the Machattie park as required under the terms of the consultant's brief. However, discussions with the park's Superintendent have also led, in certain sections, to the inclusion of Kings Parade in recognition of its development which somewhat mirrors Machattie Park, forming an important and central area of open space within the city.

GHD fully appreciates the prestige attached to Machattie Park, and the people of Bathurst's pride in it, and its value to the heritage of the city, State and country. It is anticipated that the Management Plan will sustain the park's status as an historical landscape, while continuing to serve contemporary demands.

The Management Plan has been prepared in collaboration with the consultants Treescan who provided specialist horticultural and arboricultural input. GHD would also like to thank a number of people and organisations contacted during the course of its investigations and in particular, the staff of the Parks and Gardens Department for their co-operation and assistance.

LOCATION PLAN





CONSERVATION AREA

PARKS & RESERVES

N

LOCATION PLAN

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SCALE 1:30 000

3. HISTORICAL SURVEY

3.1 AN OUTLINE HISTORY OF MACHATTIE PARK

From the first survey of Bathurst in 1832, the area now known as Machattie Park was identified as a reserve for public buildings including the sites of the Town Hall, Fire Station, Post and Telegraph Buildings and Court House. Indicative of the time is the fact that the first buildings to be erected were the gaol (commenced in 1838, completed in 1840) and its companion building, the Court House, the latter being situated in front of where the prison once stood. The much feared "place of execution" occupied a site near the present Lake Spencer.

The wings of the Court House were completed by the late 1870s to house the Post and Telegraph office, the Court House itself being finished in 1888. As the town grew to become a municipality, the siting of the gaol became the subject of increasing concern, particularly as it was such an unpleasant looking building. Permission was obtained from the Crown to make the area around the gaol more attractive, and a number of Monterey Pines *(Pinus radiata)* were planted. As Bathurst continued to grow in importance and population, dissatisfaction with the location of the gaol increased, culminating in 1879 with the Council formally requesting the Government for permission to move it. The prime instigators behind this initiative were Doctors Machattie, Spencer and Bassett, and Messrs MacIntosh, Sid and Burril. After considerable correspondence with the authorities in Sydney and the offer of ten acres of town common as an inducement to the Prison Department, the authorities yielded and the gaol was moved to its present location in Orange Road, Bathurst. The old gaol was demolished in 1888 and today all that remains are some of the foundations visible in the footpath between the Fernery and the Caretaker's Cottage.

The Government was, however, still reluctant to surrender the land to Council, who were no doubt aware that its strategic location would be of increasing value. In spite of further pressure, the land was not transfered to Bathurst City Council but was, instead, deemed a public reserve, given over to the City Council for its care and control. This is still the situation today.

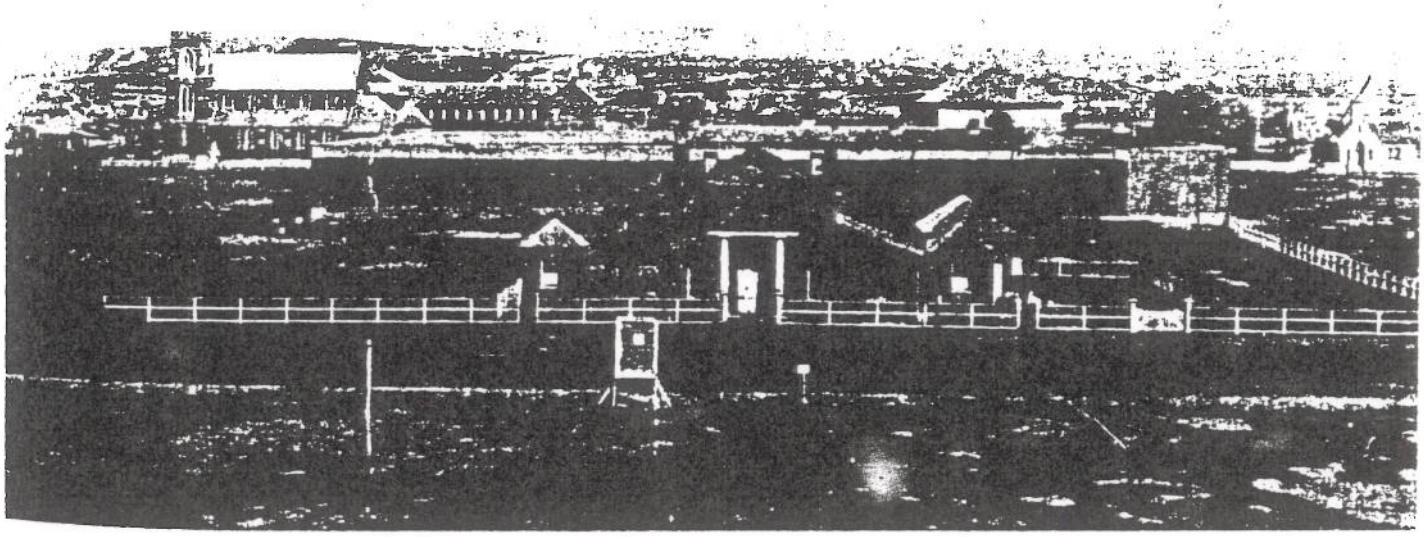
The proposed name for the park at this stage was Dalley Park. It was not until a Council debate in January, 1889 that the name was rescinded, and the park renamed Machattie Park in honour of Doctor Richard Machattie who served as mayor in 1871, 1872 and 1873. At a public meeting it was decided to have a park "equal to any in Australia" and a competition was launched for its design and layout with a prize of ten guineas being offered. Five designs were received and considered at a meeting of the Council and the Sub-Committee of the Progress Association on 18 March 1870. Opinion appears to have been divided between the proposal marked "Progress" and one submitted from Orange. After much deliberation the former which was submitted by James Hine, a local architect of some repute was chosen. The previous Council meeting had resolved to appoint a head gardener to supervise the construction of the winning entry and Mr A.A. Patterson was chosen shortly after the winning entry was announced. The origins of the latter day dispute in authorship of the winning design would appear to be grounded in the fact that it was Patterson who submitted the "design from Orange".

Included in the progress plan were the Bandstand, Fernery, Caretaker's Cottage and Fountain plus numerous other items which were not constructed or deleted over time. Work commenced in April/May 1890, with the forming and laying out of the park taking some eight months to complete. The demolition of the gaol left the site full of rubble. A number of the foundations required the most work (some being as large as 9 ft deep x 20 ft wide) as they had to be taken up by hand and filled in. Broken bricks were used as the foundations to the footpaths which were then finished with a local yellow granite.

Hine designed and supervised all building works while Patterson was responsible for the laying out of the grounds along the lines of Hines' original design. The original design and creation should therefore be recognised as a collaborative effort between Hine and Patterson. It was formally opened at a public ceremony on 20 December 1890 at 4.00pm although the Crago Fountain had not yet been erected. Perhaps as a forewarning of the problems experienced today, Patterson, prior to the opening ceremony, requested that people "avoid trampling the grass and damaging roots".

DR. RICHARD MACHATTIE (1813-1876)

AFTER WHOM THE PARK IS NAMED

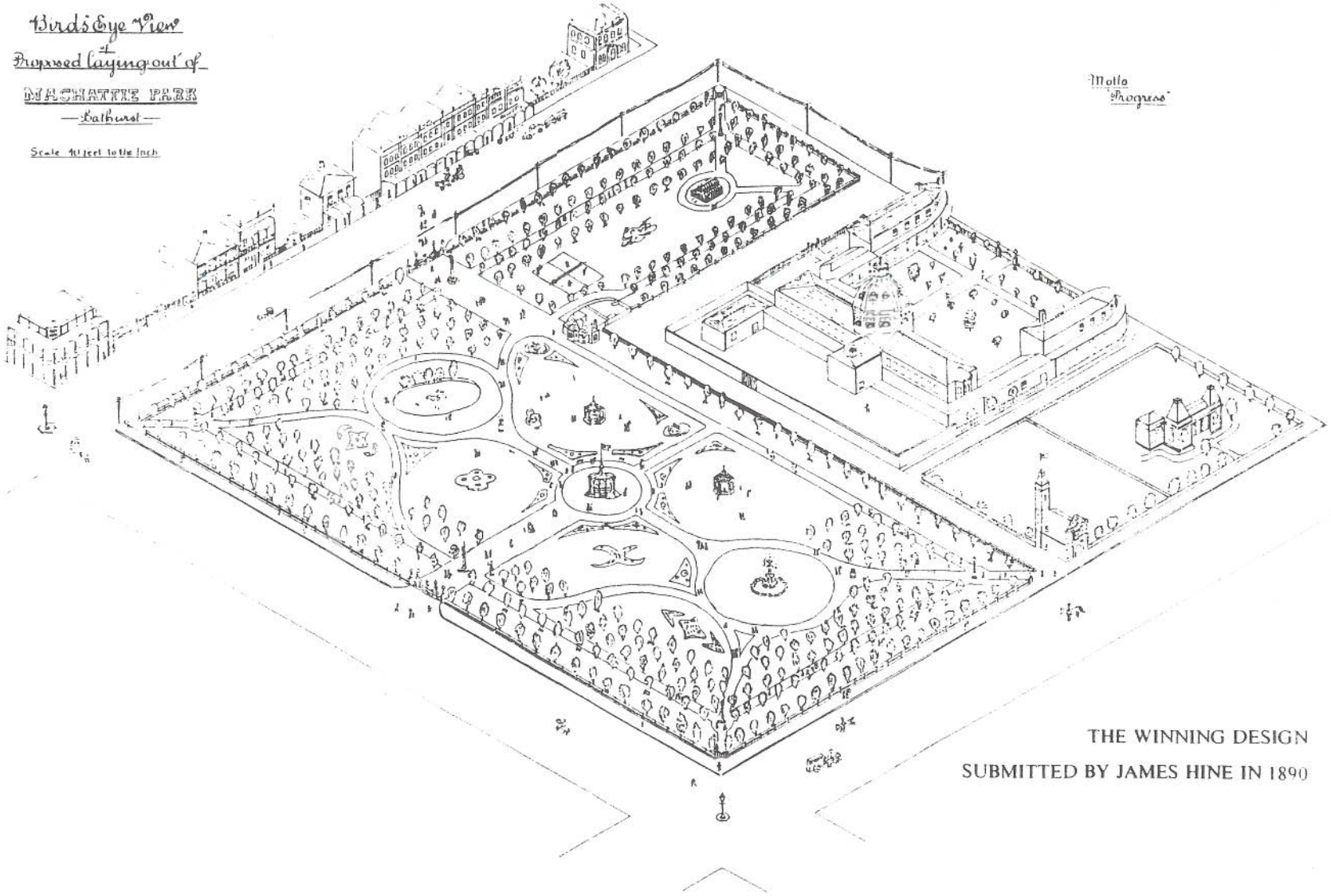


THE GAOL AND THE COURT HOUSE (THE LATTER IN THE FOREGROUND) IN 1870

Bird's Eye View
of
Proposed laying out of
MACHATTIE PARK
—Bathurst—

Scale 40 feet to the Inch

Motto
"Progress"



THE WINNING DESIGN
SUBMITTED BY JAMES HINE IN 1890

MACHATTIE PARK

HISTORICAL SURVEY

Client
BATHURST CITY COUNCIL

Drawing No
L1

Gutteridge Haskins & Davey Pty
Consulting Engineers
Project Managers Planners Surveyors
GHD 39 Hasselt St Plainway Square

Job No
211/22785

The earliest plantings included Pittosporums, Veronicas, Elaeagnus, English and Chinese Hollies and Magnolias. The Fernery was said to be one of the most ornamental in Australia, measuring some 100 x 80 ft and was full of ferns procured by Patterson from different parts of the country. Varieties of Camellias were also grown to good effect in the Fernery and, as the park developed, many varieties of roses were planted (one bed containing up to seventy-five species). Such was Patterson's success that he quickly established himself as a gardener of some merit, along with his assistant, Mr H. Lynch, who succeeded him. Both were rightly acclaimed for creating the "gardens of the west".

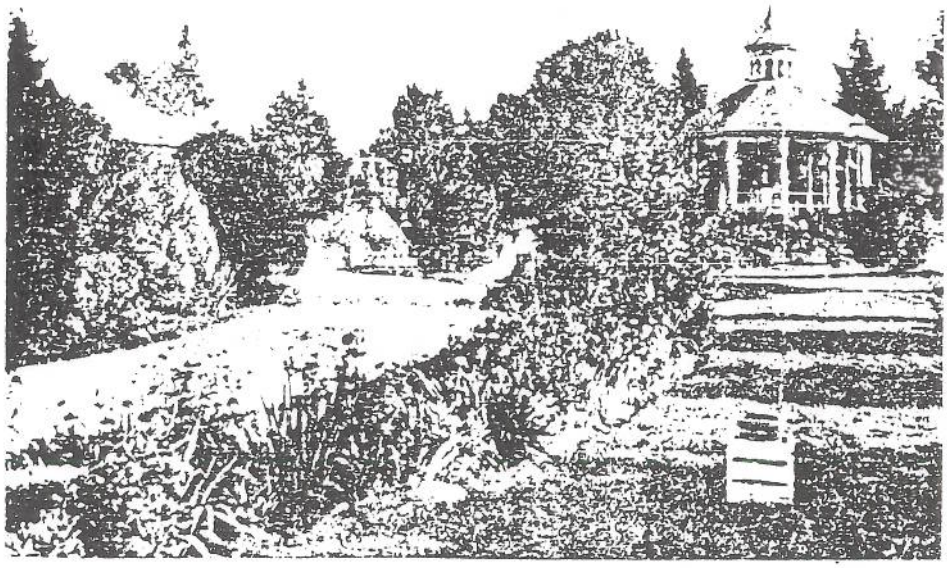
Additions continued to be made to the park. The statues in the Fernery are said to have been procured by the then Premier of New South Wales, Sir Henry Parkes, after visiting an exhibition in Paris. During 1891, the Crago Water Fountain was constructed in honour of a former mayor, Alderman F. Crago, and was a gift of the Progress Association. The drinking fountain was erected in honour of the Munro Family, and Lake Spencer was constructed in honour of Dr Spencer (hence its inverted letter 'S'shape). Other features which have, at one time or another, been present in the park are:

- An Aviary: this was located adjoining the men's toilets and the Caretaker's Cottage during the late 1800s and early 1900s. It was removed in 1934 due to its poor condition.

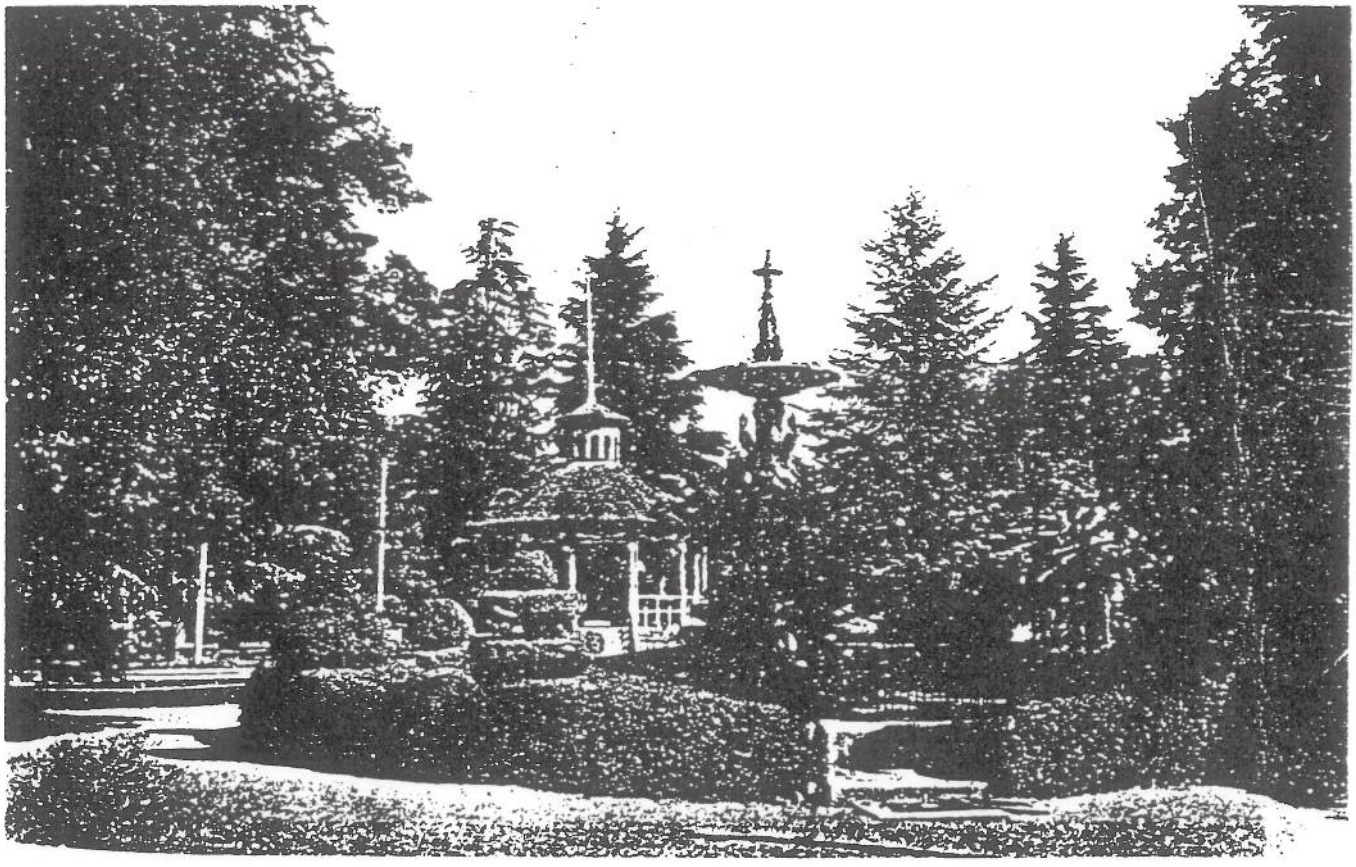
- A Monkey House: this was located on the George Street side of the park approximately opposite the site of Webbs "Old" building around the early 1900s. It is unclear when the Monkey house was removed.

- Pelican Hutches: these were installed between 1891 and 1892. There were two located by Lake Spencer and it is unclear when these were removed.

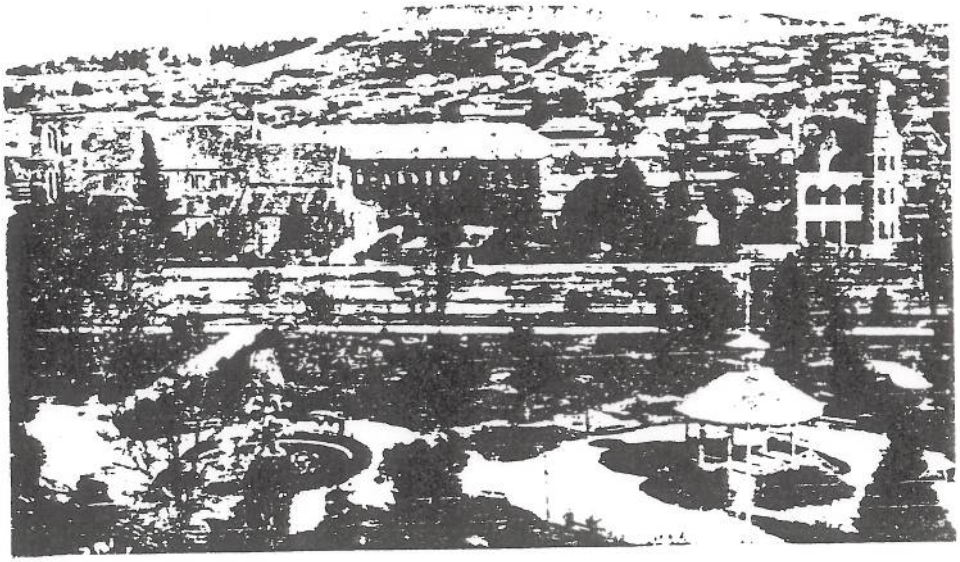
- Underground Toilets: formally located close to the existing disabled toilets, they were demolished between 1965 - 1970 due to continued vandalism.



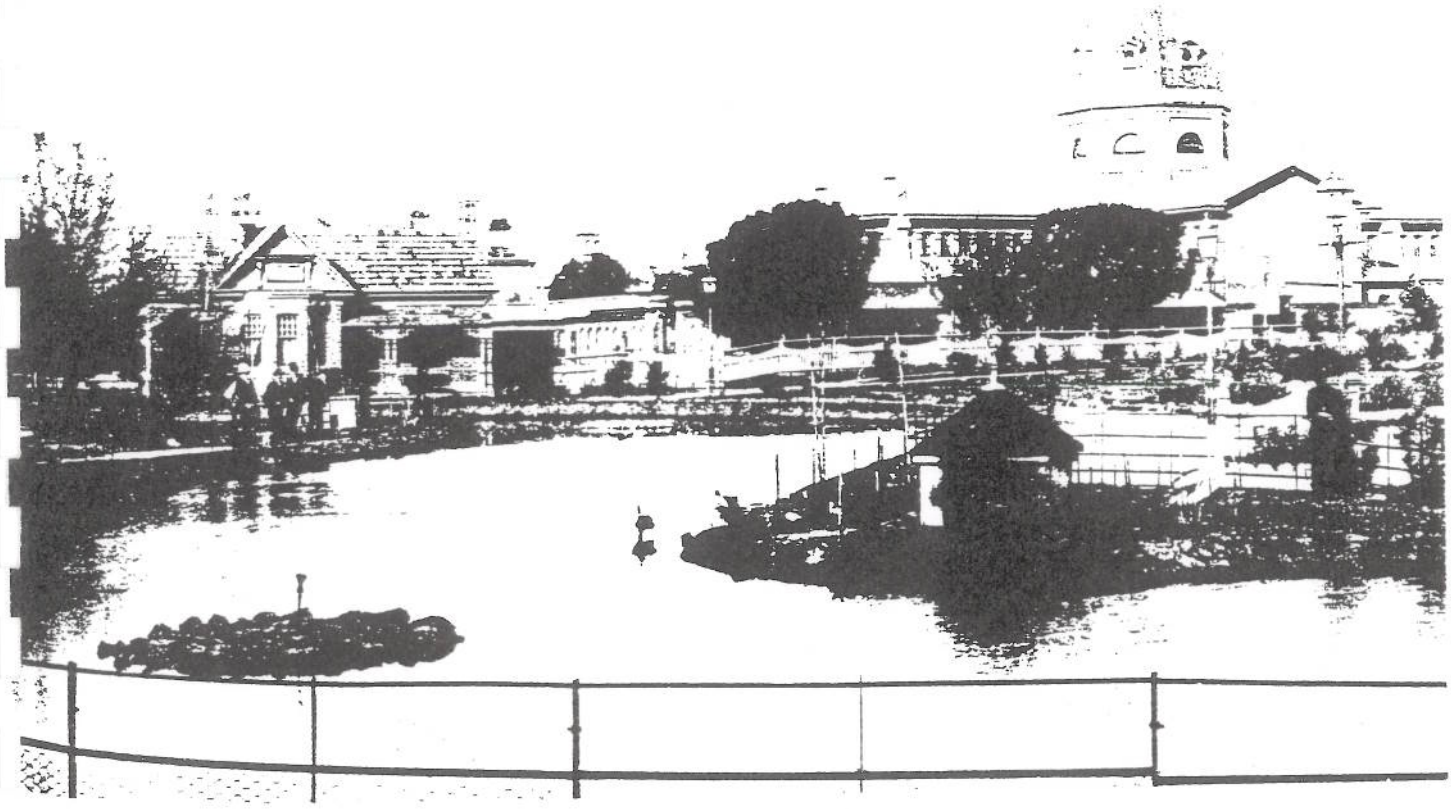
THE BANDSTAND AND ORNAMENTAL BORDERS



THE CRAGO FOUNTAIN AND BANDSTAND. THE TOPIARY WAS REMOVED IN THE 1950'S



THE CRAGO FOUNTAIN AND BANDSTAND LOOKING TOWARDS KEPPEL ST.



LAKE SPENCER WITH THE CARETAKERS COTTAGE ON THE LEFT. NOTE THE PELICAN HUTCH

DATING THE PHOTOGRAPH AROUND 1893

Seating has also been added periodically. An editorial in the 'National Advocate' of September 1905 expressed some dissatisfaction with the seating accommodation at that time.

It complained that the proposed circular seating around the Bandstand would not be sufficient. Furthermore, a trifle hysterically perhaps it stated that the dust raised by people walking on the footpaths would cause the occupants to be kept in a state of 'partial suffocation'. This situation was exacerbated, it continued, by the so-called immoral act of walking on the grass and a Council by-law forbidding such an encroachment. Thankfully, common sense prevailed and the by-law fell into disrepute.

Records also indicate that in 1899 the Monterey Pines (referred to previously) which grew along George Street were found to be over-competing for water and nutrients to the detriment of other trees and shrubs. In spite of opposition they were replaced with the Huntington Elms which are seen today. This process was carried out by removing a few pines each year until the work was complete. It is estimated that at least thirty mature trees have been removed from the park in the last thirty years.

During the depression years, the Fernery was reconstructed since the original Oregon timber was unsuitable for ground conditions. In 1936 the Begonia House, designed and supervised by Mr A. Sambrook, was built. Over the years various memorials have been erected, most notably the Brooke-Moore Memorial, as well as the various gates throughout the park, some of which have been moved from their original location. More recently the Jubilee Fountain was relocated to the park from its original position in the centre of Russell Street in front of the Court House.

3.2 LATER YEARS

Various additions and alterations have been made, mainly during the 1960s, the most notable being:

- the removal of the footpath adjacent to Keppel Street which ran to the corner of George Street;

- the removal of the footpath linking Lake Spencer through to the Brooke Moore Memorial;
- the removal of the footpath linking the Crago Fountain to William Street;
- the alterations to planting to accommodate the Civic Centre;
- new planting between the Crago Fountain and the footpath into William Street, adjacent to the Civic Centre;
- the erection of raised timber planting beds adjacent to the Bandstand;
- the erection of chess tables adjacent to the Court House;
- the removal of topiary surrounding the Crago Fountain;
- the erection of Disabled and Ladies toilets;
- the extensions to the Caretaker's Cottage and to the propagation houses and sheds;
- the removal of the former hooped wire perimeter fence;
- the partial recladding of the Fernery roof with translucent sheeting;
- the re-roofing of the Bandstand with asbestos cement shingles;
- the replacing of the original gas lighting columns, with electric light columns;
- the addition over the years of edges, mainly stone and concrete, to the footpaths;
- because of vandalism, the relocation of the Howard Fountain (erected 1953), formerly on the Russell Street side of the park, to the centre of the lake in 1987;
- in late 1969 much of the Caretaker's Cottage was taken over by the local Arts and Crafts group as a result of the Parks Curator acquiring other accommodation more suitable for his family needs. A small part is retained by the Parks and Gardens Department today.

3.3 THE DESIGN

The design of the park is typical in many respects of the great Victorian era of parks and Gardens where there was a general return to the more formal French and Italian styles of design as opposed to the more naturalistic English style of the 18th Century. All manners of new styles were being adopted at this time along with the enormous influx of new and exotic plants being introduced from all over the globe.

The basic philosophy behind the Parks and Gardens movement in Europe was that open space was essential for human wellbeing and a healthier society. The design of ornamental parks relied in particular on the planting of trees and shrubs to control views and to highlight contrasts in form, colour, texture, light and shade. The cumulative effect was to impose a sense of beauty and grandeur upon the visitor.

In Australia where heavy industrialisation was not yet such a concern, ornamental parks, while relying on similar design principles, were provided more to beautify urban centres and as symbols of civic pride. This is certainly the case with Machattie Park.

The design of the park itself is based on a geometric plan with diagonal paths subdividing the central space, intersecting or terminating in the various gardens, memorials and features such as the Bandstand, Crago Fountain and Lake Spencer. The contour of the ground has been followed as much as possible and the footpaths run in curves and semi-curves from the corners of the park to the centre. More formalised footpaths bounded by tree avenues run inside the perimeter.

3.4 THE MAIN FEATURES OF MACHATTIE PARK

Bandstand

Designed by Mr J Hine and built in 1890. The Bandstand is octagonal and originally had a timber floor which was replaced in the 1950s by the present concrete base. It has elaborate turned timber columns and rails and a flat timber boarded ceiling in a radial pattern. The roof of asbestos cement shingles (not original) rises to an arcaded turret capped by a flagpole.

Begonia House

Built in 1936, the Begonia House was designed and supervised by Mr A. Sambrook. This hothouse is a subsidiary building to the Fernery and is built on a face brick base. It is an L-shaped building adjoining the larger greenhouse at 45°. Large casement

windows and small hopper windows enclose the building. This fenestration provides an interesting and attractive rhythm in the facade.

Caretaker's Cottage

Designed by Mr J Hine and built in 1890, the cottage is a charming, small Queen Anne style building previously used as the Curators Cottage. It is built of red brick with a base and string course in a cream brick. The roof is gabled and clad in terra cotta tiles. Roughcast cement and timber decorations infill the area under the roof gables with some decorative mouldings. The chimneys have brick strappings and banding. A bay window features on one side wall, and the elaborate gable above has a plaque commemorating the date of construction in 1890. The double hung sash windows have small paned glass top sections, as do the bottom sections. The front verandah has timber posts with complex timber brackets. Internally, the cottage is intact with original joinery and four panel doors with rimlocks. Some pressed metal ceilings survive; others have been replaced with battened plaster panels. A insignificant addition to the rear has been completed in a similar brick. Although not sympathetic, it is well hidden behind shrubs and trees.

Crago Memorial Fountain

This feature was a gift of the Progress Association and is a very fine cast iron fountain centred in a cement pond. It has three tiers featuring dolphins, water birds, bulrushes and a water-lily motif. It was purchased from P. A. Weston & Co. in Sydney and transported to Bathurst by Wright Heaton. It is set in a circular gravel area surrounded by seats. A Plaque states: "Erected 1891, F Crago, Mayor".

Fernery

This late 19th century fernery is, together with the bandstand, one of the central features of Machattie Park. The original was built in 1890 but was reconstructed during the 1930s. It is symmetrical in design with a lofty square main section and

three five-sided bays adjoining. Lattice work was used originally to cover the trussed timber framing, but recently translucent fibreglass sheets have been added to enclose the structure. The greenhouse contains several 19th century marble statues (placed randomly amongst the ferns and plants) which have been separated from the main void by a brick and glass partition erected around 1969 due to vandalism. A plaque on the Fernery records the fact that Charles Darwin visited Bathurst in 1836.

Howard Fountain

The Howard Fountain is a small, decorative three-tiered fountain donated to the Council by the Howard Family in 1953. Formerly located on the Russell Street side of the park, it was relocated to its present position in 1907 after being vandalised when a plaque was removed.

Jubilee Fountain

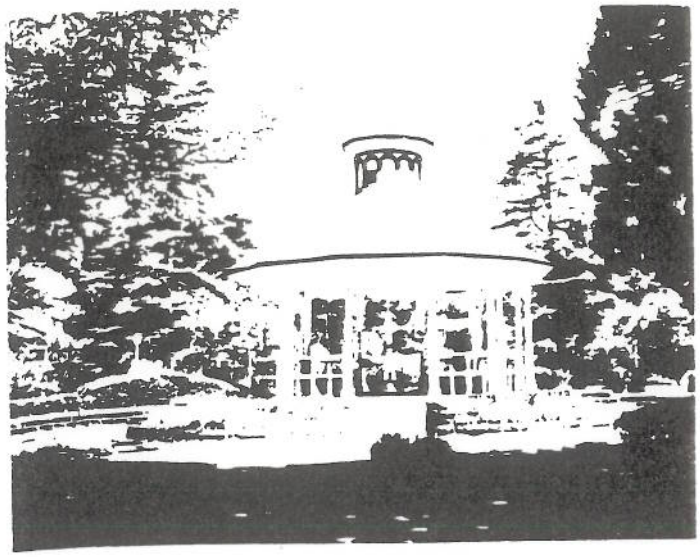
The fountain was erected in 1887 to celebrate Queen Victoria's fifty years on the throne by the "women and girls" of Bathurst. It was originally designed as a drinking trough and was located in the middle of Russell Street opposite the Court House.

Lake Spencer

Lake Spencer was built in 1891 and reconstructed in 1936. It was originally built in honour of Dr Spencer in the shape of an inverted letter 'S'. Now, without the Pelican hutches, it is stocked with fish and is the home for a number of ducks.

Munro Memorial Drinking Fountain

Built in 1891 from a McFarlens Glasgow catalogue, this elaborate canopied cast iron drinking fountain, one of the few surviving examples of the Scottish iron founders art. The canopy is supported on four Corinthian derived columns and the central fountain rises past a basin to the water outlets which are covered by a crane motif and foliage.

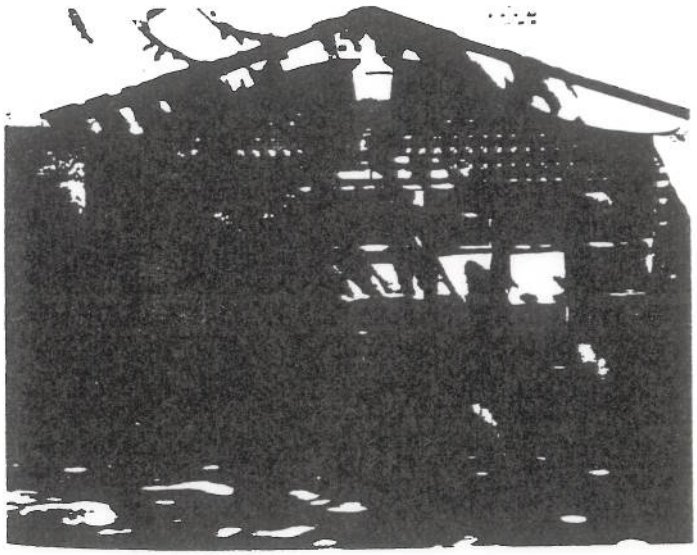


BANDSTAND

BEGONIA HOUSE

CARETAKERS COTTAGE

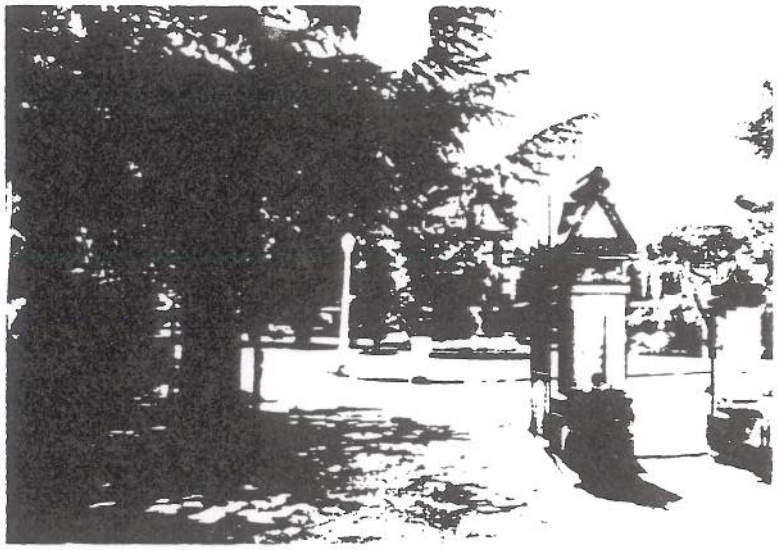
HOWARD FOUNTAIN



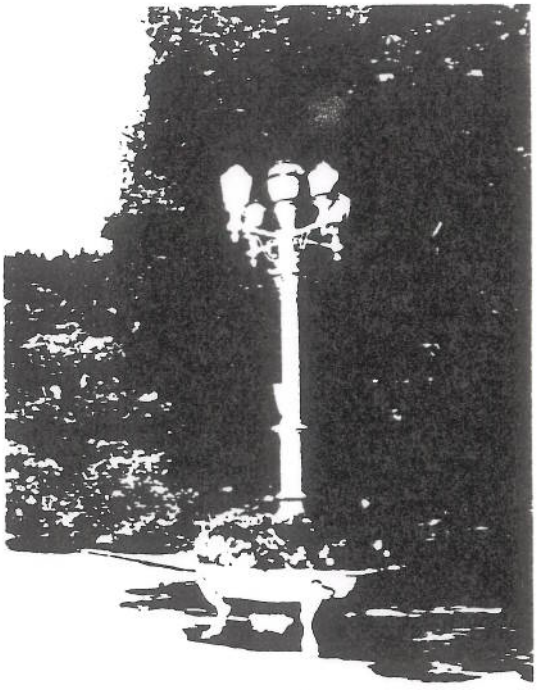
FERNERY

MUNRO DRINKING FOUNTAIN

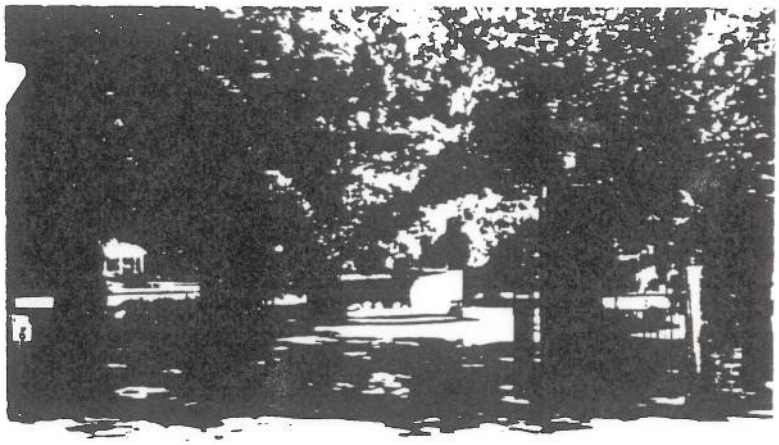
GRIFFIN GATES



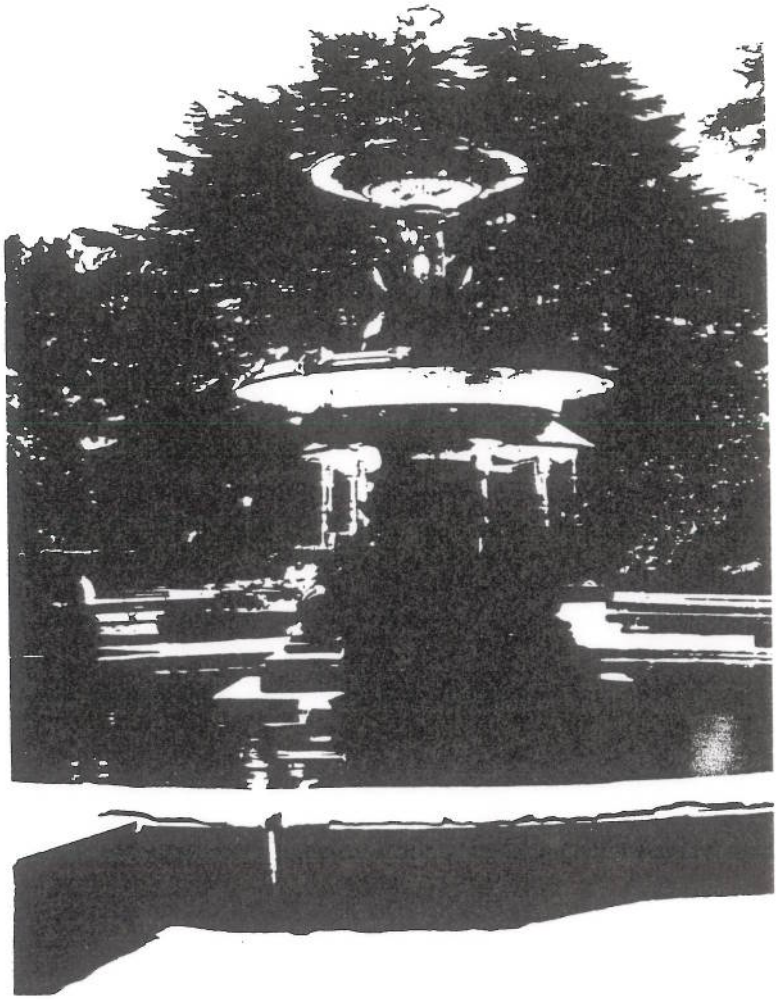
ALL SAINTS GATES



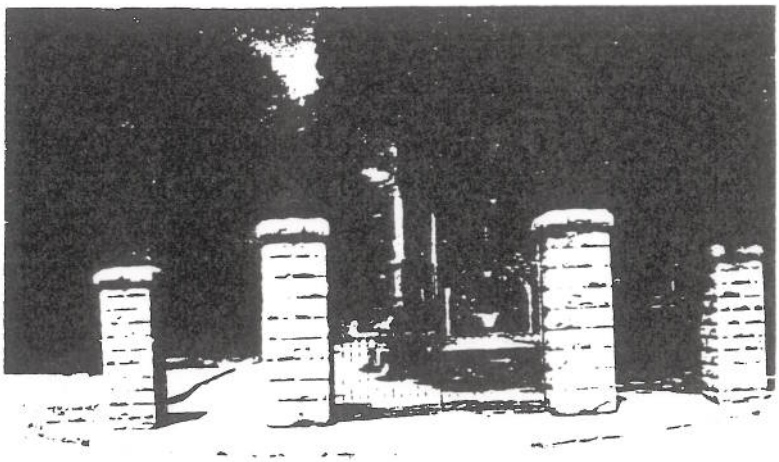
JUBILEE FOUNTAIN



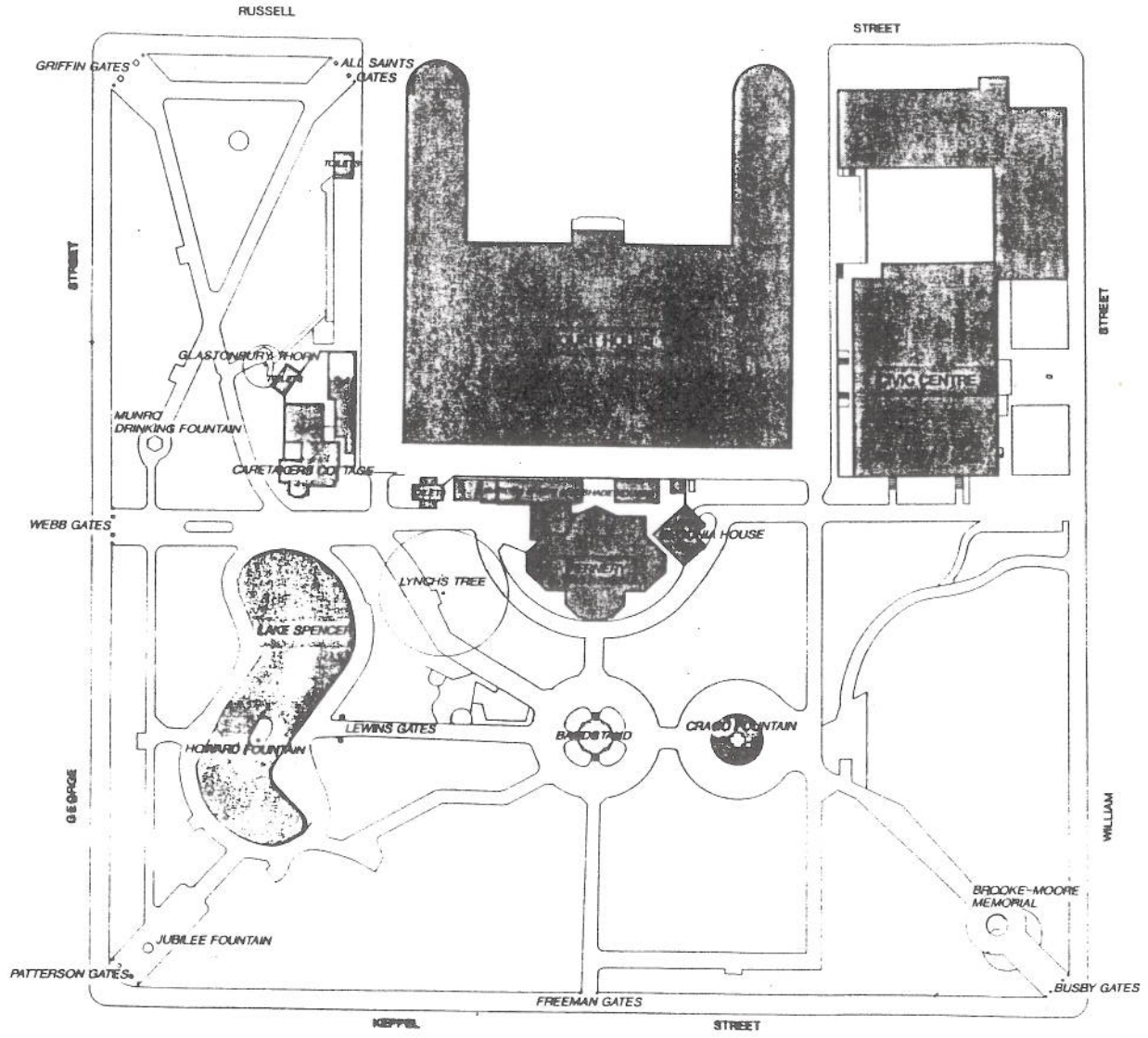
BROOKE MOORE MEMORIAL



CRAGO FOUNTAIN



PATTERSON GATES



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MACHATTIE PARK

HISTORICAL SURVEY

Client
BATHURST CITY COUNCIL

Drawing No.
L2

Gutteridge Haskins & Davey Pty Ltd
Consulting Engineers
Planners
Surveyors
Project Managers
39 Regent St. Railway Square

Job No.
211/22786/00

The crane is also featured on a cartouche on each side of the drinking fountain.

Memorial Gates

Busby	In memory of Dr Hugh Busby, 1922
Freeman	In memory of Maurace Freeman, RAAF, killed in action, 23 November 1943.
Griffins	In honour of Martin J Griffin, Mayor 1931–41.
Lewins	In honour of Bandleader Sam Lewins to commemorate 50 years as Bandleader.
Webb	In memory of Edmund T. Webb, Member of Bathurst Municipal Council, 1882–1925 and mayor for five years.
All Saints	Formerly located at the entrance to All Saints Church Gates

VEGETATIVE FEATURES

Glastonbury Thorn

In 61 AD Joseph of Aramathea was sent to England by Saint Philip. On his travels of England he stopped at Glastonbury, where he was reputed to have planted his walking staff which is said to have sprouted and grown into a thorn tree.

Glastonbury has a special significance in the early English Christian Church as it is also reputed that the Chalice (Holy Grail) is buried in Glastonbury Tor (a conical shaped hill just outside Glastonbury). Glastonbury Abbey is one of the oldest abbeys in England, predating Canterbury Abbey, and was, in its heyday, the most respected Abbey outside of Rome.

Today, a very large and ancient thorn tree stands in the grounds of the remains of Glastonbury Abbey and is believed to be a direct "descendent" of the original thorn tree from Joseph of Aramathea's staff.

Until today the Glastonbury Thorn is regarded as having special Christian religious significance, and cuttings and propogations from the Glastonbury Thorn are often

planted in Churchyards and places of religious importance (Crataegus monogyna tree inventory No. 20). It is noteworthy that the Reverend Edwell brought to Machattie Park a seedling of the Glastonbury Thorn which now stands immediately outside the entrance to the gentlemen's toilet.

In view of the religious and historical significance of the Glastonbury Thorn, it seems inappropriate that it should be located by the entrance way to the gentlemen's toilets, particularly in view of the socially undesirable behaviour that is practiced around these toilets during the night time hours.

Lynch's Tree

A fine specimen of Cedrus deodara (Deodar Cedar – Tree Inventory No. 119) stands near the Caretaker's Cottage and is affectionately known as "Lynch's Tree" since it was planted by him. Lynch, as mentioned, was Patterson's assistant and later became Caretaker on the latter's retirement.

The Huntingdon Elm

The Huntingdon Elm (Ulmus x hollandia var. "Vegeta") is a commonly planted Elm in Australian parks. This variety arose in 1760 beneath a Lynch Elm at Huntingdon Park, England, and was propogated by the Huntingdon nurserymen Ingram and Wood. A number are believed to have been planted along George Street but, as later described in the tree inventory, accurate identification at this stage has not been possible. It is apparent that there are a number of varieties of Elm within the park.

Elm wood itself is most frequently used for furniture and weatherboarding. Its durability below ground has also meant that it is a traditional timber for coffins.

Other notable species

The park exhibits many fine specimens of exotic trees some of the most reliable being:

Araucaria bidwilli	(Bunya Pine)
Cedrus atlantica	(Atlas Cedar)
Cedrus deodara	(Deodar Cedar)
Nothofagus fusca	(Red Beech)
Quercus robur	(English Oak)
Quercus palustris	(Pin Oak)
Sequoiadendron giganteum	(Wellingtonia)
Ulmus parvifolia	(Chinese Elm)
Ulmus procera "Variegata"	(Silver Elm)

Hedges

Within the park there are a number of Elm hedges which are principally located near or around the Bandstand. Elms were a frequently planted tree along field boundaries in England with their vigorous tendency to sucker and made an excellent stock proof hedge once properly trained. The manner in which the Elm has been deliberately layered and trained within the park is quite unique and is a valuable example of the art of hedge laying.

3.5 AN OUTLINE OF HISTORY OF KINGS PARADE

During the late 1800s the area now known as Kings Parade was a market place with open and covered markets which were erected in 1871. They were mainly fruit and poultry markets although auctions were also held, and it was a busy, if unattractive, centre. After no more than a year, however, it was clear that the buildings were not well designed for the purpose and they soon became dilapidated and unsanitary. There were also repeated problems with tenants. In August 1902 a public meeting resolved that the buildings be removed and a square be set out with "trees and shrubs" in their place.

The main champion of this proposal was Dr. Machattie, although he was heavily opposed by Alderman Webb. A referendum was held in October 1902 which favoured the buildings' removal followed by a period during which various petitions for and against their removal were made. It was not until 1906, on the suggestion of the Minister for Lands, that a further referendum was taken which, if approved, would permit the re-dedication of the site as a general recreation reserve. In spite of preliminary approval the Minister dishonoured this undertaking and the matter was further complicated by tenancies having recently been renewed for a further three years.

In May 1908 the War Memorial Project, which had originally begun in 1905, was re-opened with the proposal to erect a memorial clock tower to the Bathurstians who had served in the South African War. The idea of a clock tower was later abandoned and plans were adopted for the erection of a statue and cupola on the site where it now stands in what was still Market Square. The foundation stone was laid on Empire Day 1909 and the Memorial unveiled in 1910.

At the same time Council had acquired the powers to proceed with the Square, and the name "Kings Parade" was adopted in May 1910 in honour of King Edward VIII who had recently died. The old market buildings were demolished, but it was a further two years before anything was done with the site. At this time Council offered prizes of £25 and £10 for the two best designs for a layout for the Square, both of which were won by the architect Kerry. Work commenced in March 1912, under his supervision.

In 1932 the Parade was redesigned and laid out in the form of a Maltese Cross with lawns and gardens by the then curator, Kefford. This design was necessary to accommodate the Carillon and is the reason for the present layout of the Parade. Today, the space afforded by the wide, formal footpaths has enabled Kings Parade to be used for functions such as the quarterly flea markets organised by the Chamber of Commerce. The Parade is also extensively planted with annual bedding plants which attract much attention when in bloom.

No description of Kings Parade would be complete without a statement of the three important monuments within it.

3.6 THE MAIN FEATURES OF KINGS PARADE

The Carillon

This dominates the whole square and was officially opened on Armistice Day, 11 November 1937 as a memorial to the men of Bathurst and District who served in World War I. The idea for a memorial was first muted in January 1919, but it was not until 1926 that the project was reviewed and the building of a memorial Carillon approved. The design for the tower was accepted from the architect, J. D. More, and a committee was set up to raise funds for the project. Work on the Carillon commenced in March 1929 but was not completed until 1933, mainly due to fund raising difficulties. The opening recital was given by A.A.B. Ranclaud, the honorary carillonist of the University of Sydney.

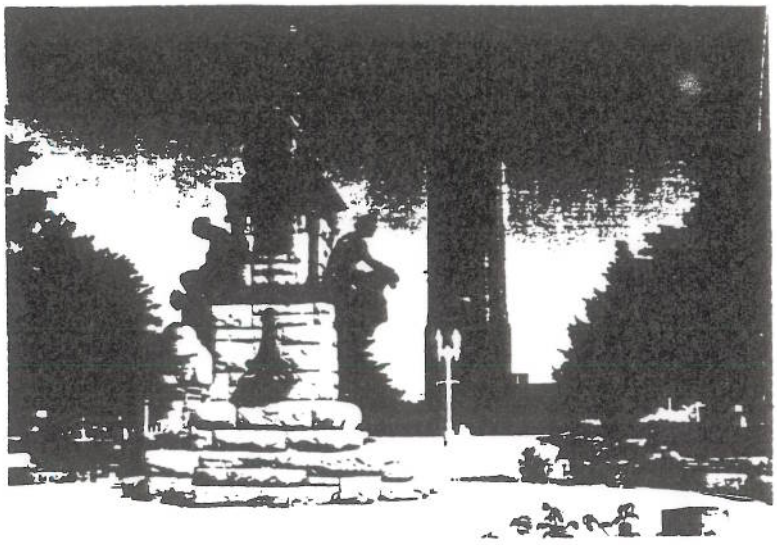
The Carillon has thirty-five bells which where founded in Loughborough, England, by John Taylor and Co. and it stands 30.5m high on piles which are 12.2m deep. The bells, which can still be played manually, are now linked to a computer and are played each day at noon. They also toll on the hour and on each quarter. Inside the Carillon an eternal flame burns in memory of the war dead. In December 1936 Council authorised the floodlighting of the Carillon and the Court House.

Boer War Memorial

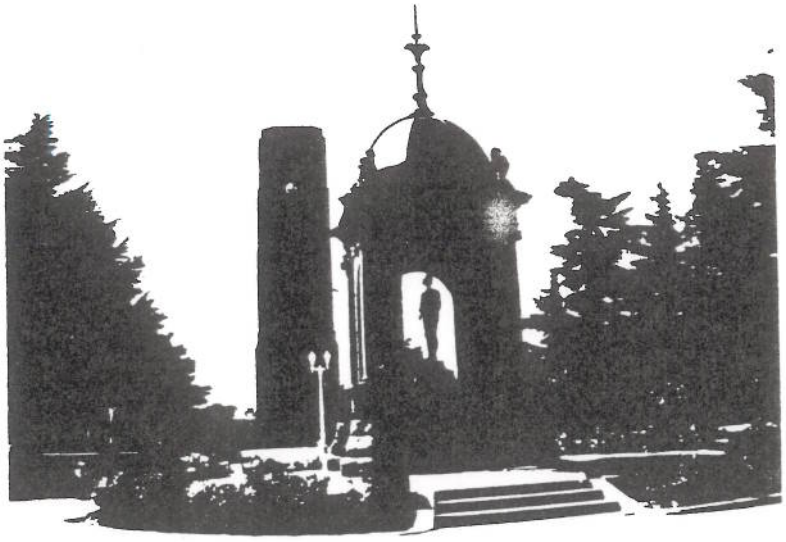
The foundation stone was laid on Empire Day 1909, and the memorial was unveiled on 10th January 1910 by Earl Kitchener of Khartoum (Commander of the British troops in India and Second in Command during the Boer War in South Africa) during a brief visit to Bathurst.

3. Evans Memorial

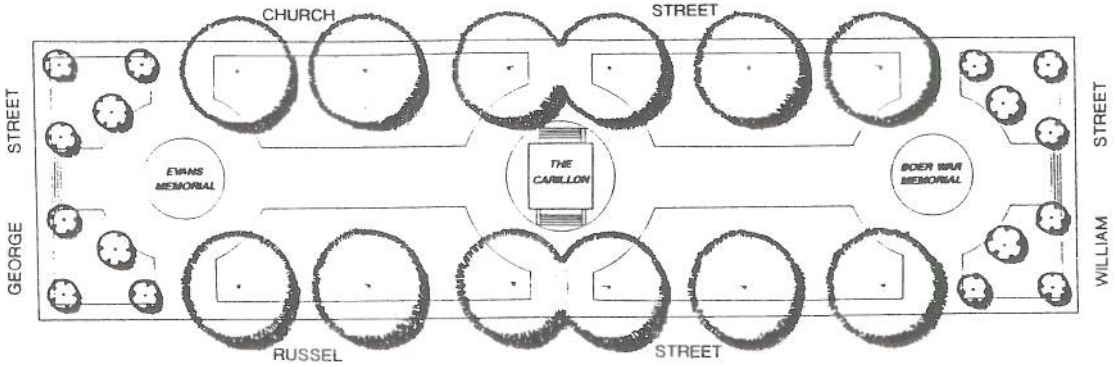
This memorial commemorates the discovery of the Bathurst Plains and the opening of the west in 1813 by General G. W. Evans, Assistant Surveyor of Lands. The plaque also acknowledges the crossing of the Blue Mountains by Blaxland, Lawson and Wentworth.



THE EVANS MEMORIAL WITH THE CARILLON IN THE BACKGOUND



THE BOER WAR MEMORIAL



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KINGS PARADE

HISTORICAL SURVEY

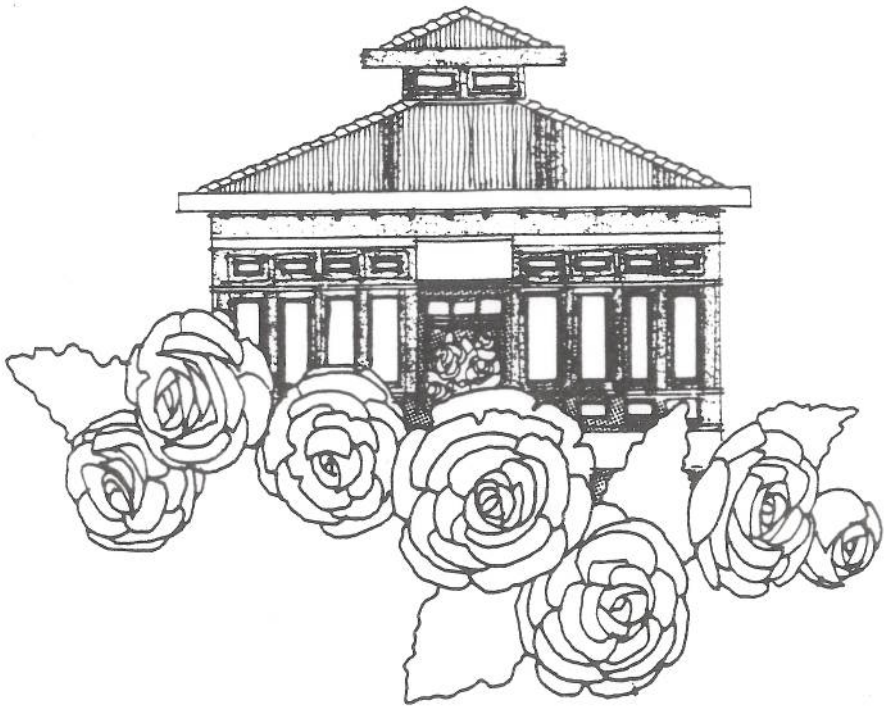
Client: BATHURST CITY COUNCIL

Drawing No: L3

Gutteridge Haskins & Davey
Consulting Engineers
Project Managers Planners Surveyors

Job No: 211/022

STATEMENT OF SIGNIFICANCE



4. STATEMENT OF SIGNIFICANCE

4.1 MACHATTIE PARK

Unquestionably, Machattie Park, is an historically significant example of a late 19th century Victorian country town park. It exhibits the principal elements typical of the Victorian period in terms of the form and layout and is particularly valuable because of the quality of the decorative features. Features include the Bandstand, the Caretakers Cottage, Crago Fountain, Fernery, Lake Spencer and the Munro Drinking Fountain.

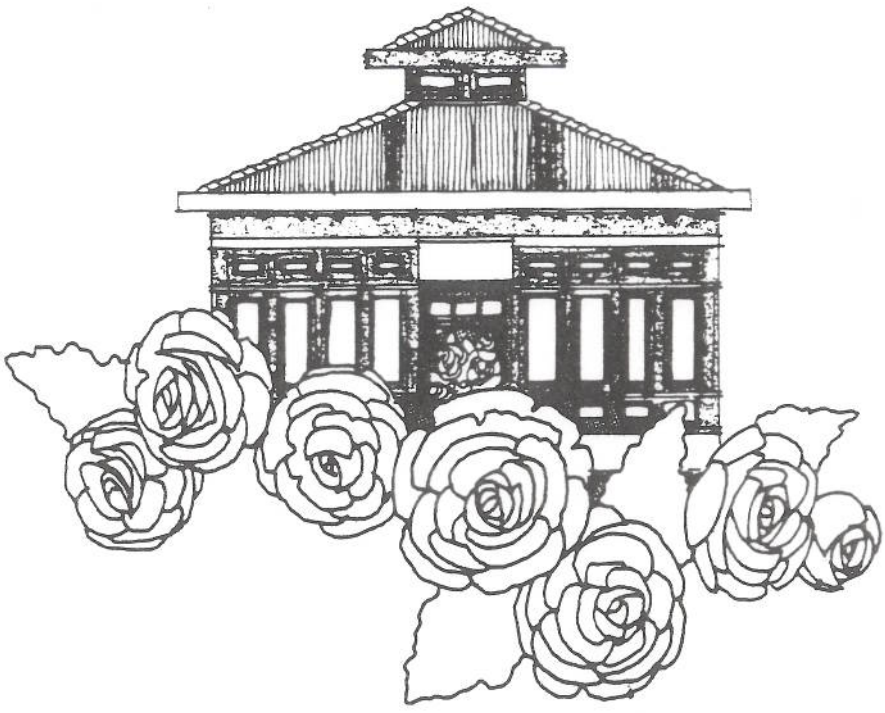
Additionally, the park has a valuable collection of mature and majestic trees that are used either informally or formally as avenue plantings. Most of these trees are not natives of Australia. Particularly important are the avenues of Huntington Elms bordering the park as well as a unique layered elm hedge. Together, they contrive to make it one of the prize examples of a Victorian Park within New South Wales. Apart from the park's individual importance, it is also essential to recognise it as one of the components of the Bathurst Central Conservation Area which, in preserving the oldest settlement west of the Blue Mountains, is a major importance to the heritage of Australia.

4.2 KINGS PARADE

Kings Parade forms an important area of open space within the centre of Bathurst, and it is often perceived as being an extension to Machattie Park although separated by Russell Street. The Carillon in particular is seen very much as a symbol of Bathurst and with the other monuments, forms an important focal point of the city.

The Parade does, however, form a separate entity in itself by the nature of its location, history of development and design. It provides a valuable frontage to Russell Street which acts as a counter-balance to Machattie Park and provides valuable frontage to the Civic Centre and Court House. Furthermore, the relative openness of the Parade itself lends easily to such activities as the flea markets which are held there.

LEGISLATION AND CONSTRAINTS



5. LEGISLATION AND CONSTRAINTS

5.1 MACHATTIE PARK

The following describes any legislation or notable constraints to the future development of Machattie Park and Kings Parade.

- The park is listed as an item of Environmental Heritage in Bathurst's Local Environmental Plan, 1987 (LEP). The park is listed under Schedule 1, Item 91 as the Machattie Park Group, including the Cottage and Drinking Fountain.

- The park falls within the Bathurst Central Conservation Area (BCCA) and as a result is subject to a number of conditions (See Clauses 22–28 of the LEP in the Appendix).

- All trees within the park are protected under a blanket Tree Preservation Order (T.P.O.) for the City of Bathurst which is administered by the Parks Superintendent.

- The park is classified by the National Trust of Australia (NSW) as the Machattie Park Group, comprising:

  Machattie Park
  Caretakers Cottage
  Munro Drinking Fountain
  Crago Fountain
  Bandstand
  The Fernery
  Begonia House

- It is included in the list of significant Historic Gardens by the Australian Garden History Society.

- It is registered as significant within a registered area by the Australian Heritage Commission.

5.2 KINGS PARADE

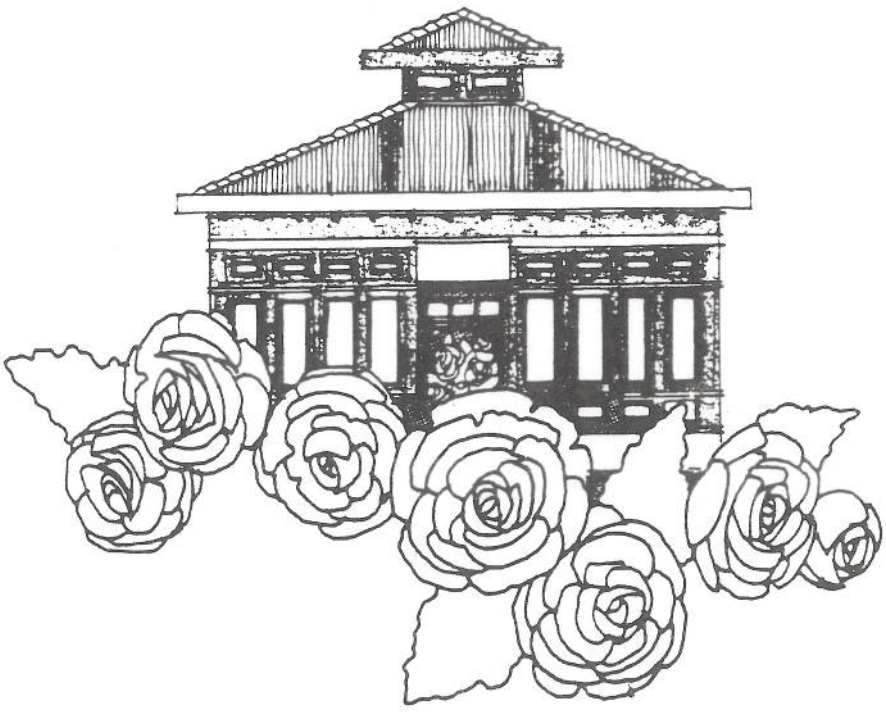
- Kings Parade is listed as an item of Environmental Heritage in Bathurst Local Environmental Plan 1989 (LEP). The Parade is listed under Schedule 1, Item 2 as the Kings Parade Group including the Carillon Tower.

- The Parade falls within the Bathurst Central Conservation Area and as a result is subject to a number of conditions (See clauses 22–28 of the LEP).

- All trees within the Parade are protected under a blanket Tree Preservation Order for the City of Bathurst which is administered by the parks Superintendent.

- The Carillon is listed by the National Trust of Australia (NSW).

HORTICULTURAL SURVEYS



6. HORTICULTURAL SURVEYS

6.1 INTRODUCTION

Concern has already been voiced by the staff responsible for maintaining Machattie Park about the current health and vigour of a number of mature trees within the park. Apart from the more obvious signs of ill health such as storm damage and dead or dying branches, it is not immediately evident that, in fact, a large proportion of trees are showing signs of acute stress and fatigue.

To gain a comprehensive understanding of the current condition of the park two surveys were undertaken; information from these was used to identify the principal problems affecting vegetation and maintenance standards.

- a **Tree Survey**, which describes in detail a number of the symptoms exhibited and their most likely causes,

- a **Soil Survey**, which discusses the results of the soil tests carried out from samples taken within the park.

6.2 TREE SURVEY

Park staff were surprised when recently removing some Elms which had become diseased and in a state of decline that the roots were so easy to remove. Elms are renowned for their extensive root systems; the traditional hedgerows of Britain are extensively characterised by Elms roots, suckers of which have been layered by generations of skilled hedgers.

Why, then, have the Elms in the park such reduced roots? Evidence suggests that soil compaction is a major contributing factor: the tree roots initially extended into the soil but as the trees matured and the soil became increasingly compacted their ability to acquire moisture and nutrients decreased. The trees became moribund and the root systems declined.

Not only the Elm, but also many of the park's other trees are showing signs of stress. Some of the most common tell-tale signs are:

- small twigs dying back, leading to branch death and shedding;
- crowns thinning and becoming stag-headed; any new growth coming from shooting bark buds rather than from twig tips (epicormic growth);
- trunk wounds decaying into the heartwood without activating the trees' defence mechanisms.

These stress symptoms are compounded by the lack of water in the top 300 mm of the soil and the scarcity of nutrients available. Furthermore, the presence of the fungus *collybia* beneath certain Elms has been established and is indicative of the current problem. While this fungus most commonly occurs on litter or dead leaves, there is evidence that suggests a few species may occur in association with debilitated woody plants. Its existence is therefore a symptom of the existing conditions and decline in health of the trees.

Most of the trees were planted around the time the park was established in the late 1880s and early 1890s and some are now approaching senescence. This is a stress factor in itself, since an over-mature tree is usually incapable of root and shoot elongation and finds it difficult to move moisture and nutrients from the roots to the leaves.

6.3 MANAGING AN AGEING LANDSCAPE

The factors highlighted in the tree survey have shown that there are a large number of trees which have a few years left in them, but which are in a state of irreversible decline. They will have to be replaced.

During the years left in these weak trees, action should be taken to ensure continuity in the park. Trees do have a finite life: longer in good conditions, shorter in adverse conditions. The even-aged nature of these plantings has resulted in a large number of trees arriving at

senescence at the same time. In order to extend the replacement time of these trees, they must be given the best possible conditions for growth. This buys time for replacement plantings to become established. Staggered removals can then be made in order of worst first.

In an ideal situation, the older trees would be 'culled' before they begin to decline because declining trees are expensive to maintain. They need constant pruning in order to reduce the hazard of dead branches and to lessen the weight and wind loading on long, extended branches. They may need cables and branches to support large limbs. Declining trees become unattractive; they are finally removed in an atmosphere of crisis.

A balanced system of removals would negate the even-aged nature of the park and only require the removal of a few trees in any one year.

6.4 THE SPECIAL NEEDS OF AN HISTORIC LANDSCAPE

Historically valuable trees pose a greater problem than their modern-day counterparts and their value may outweigh considerations of maintenance cost for an extended period. This may be acceptable, but only if space and funds for replacement plants are not compromised.

In Machattie Park it will be difficult to find space to establish new plantings in rows, and it may be that less important trees and shrubs should be removed in order to allow large avenue trees to be planted. The overriding principle should be to avoid drastic alterations in the appearance of the park landscape. To accomplish a phased transition from the present declining population to the desired thriving population, some difficult decisions will soon need to be made. If the declining trees are left to their inevitable fate, the park will have to wait for a considerable time before it regains its full aesthetic value.

In his recent lecture to the "Friends of the Royal Botanic Gardens" in Sydney, Dr James Mitchmough clearly set out the alternatives faced by managers of mature tree plantations.

THE ELM TREE IN THE CENTRE IS SHOWING SIGNS OF SEVERE STRESS.
ACTION IS REQUIRED BEFORE IT BECOMES A HAZARD

THE CORNER OF WILLIAM AND KEPPEL STREETS. THE MANAGEMENT AND REPLANTING OF SUCH HISTORICALLY AND AESTHETICALLY IMPORTANT AVENUES WILL REQUIRE DIFFICULT DECISIONS TO BE TAKEN

He sees two extreme courses of action:

- Remove mature trees before decline sets in, and replace with young trees. This approach is cheap and overcomes problems associated with even-aged stands.

- Maintain old trees no longer safe or attractive and then replace with young trees. This approach is expensive but is often taken with historic trees.

Thankfully, there is still a little time in Machattie Park for neither of these extremes to be forced upon management, but this time in hand encourages contemplation of the third alternative, which is to do nothing. Further inaction will allow trees, especially the Elms, to decline and decay, becoming hazardous to the public and eventually requiring mass demolition.

Recommendations with regard to tree management and a replanting strategy are made in the Management Plan Section of the Report.

6.5 SOIL SURVEY

Samples for analysis were obtained from auger holes taken throughout the park. Details of the location and methodology are provided in the Appendix. A brief description is now given of the development of the soils since the park's creation, together with an outline description of the results of trenches dug (to indicate the soil profile) and the soil tests undertaken.

In the 1880s soil was laboriously transported by horse and dray from the river and spread in the park to a depth of about 500 mm over the existing red basaltic clay. Brick and mortar debris from the demolished prison walls was incorporated in the fill at various places.

The alluvial soil may have been originally of good structure but the act of transporting it, along with the subsequent years of unrelenting foot and vehicular traffic, has resulted in severe compaction. Scientific research shows that these types of alluvial soils are often associated with compaction problems and indeed, within the park, are dense to the point of

inhibiting water infiltration beyond the top 75 mm (see Appendix). Below this level, the soil examined has been completely dry in spite of daily irrigation throughout the summer months. the irrigation systems installed over the last twenty years are also most likely to have compounded the problem by furthering the compaction process.

This density also acts against roots making it difficult for the fine hairlike feeders to penetrate between the soil particles. If roots cannot spread to take up moisture and nutrients, the tree will eventually stop growing, having used up its energy reserves. The result is evident with most of the mature trees showing little or no growth for the last twenty or thirty years. An interesting example of this condition is the small Ash tree near Keppel Street. A plaque dates the tree as having been planted in 1973, and after seventeen years' growth it has only attained a trunk diameter of about 75 mm and a spread of about 2 m. In better conditions, growth of four times these dimensions could be expected.

In summary, the existing soil is of a silty alluvial type which has become compacted to the extent that air, water and roots cannot travel through it to the detriment of the plants. In addition, the analysis indicates that the soil is low in nutrients, is alkaline and has an appreciable salt content (see Appendix) so that even if the compaction was relieved the soil would still require significant correction and additions.

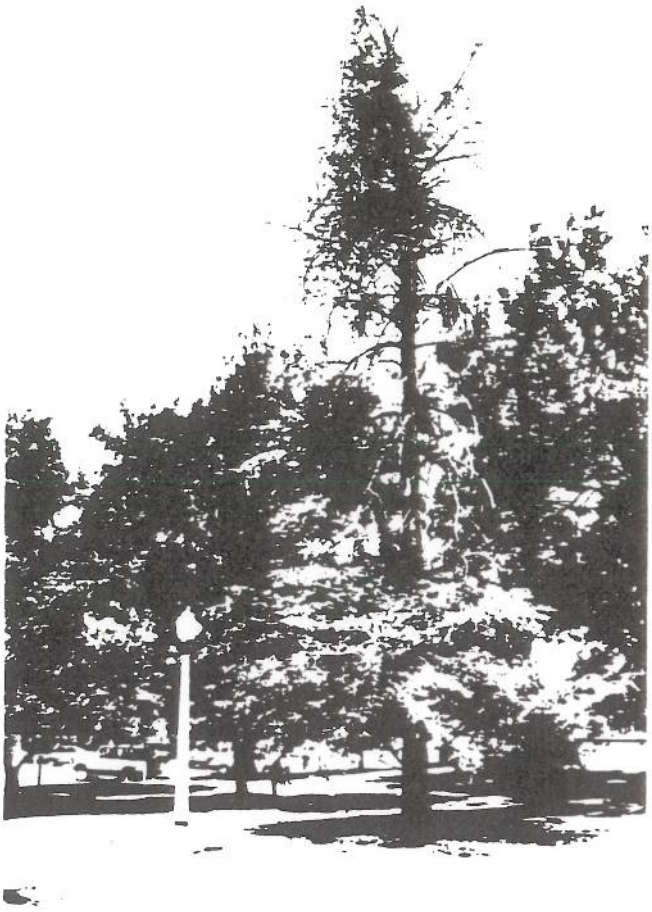
With the soil problems identified, corrective measures can be undertaken and these are described in detail in the Management Plan Section of the report.

6.6 WATER ANALYSIS

Water samples were taken for analysis. The sources of the water which irrigates the park whichalso supplies the city's drinking water is the Wymberdale Dam near Yethone.

Independent tests resulted in similar findings: the water is a very clear drinking water but the low hardness (low calcium) means that it is sodic. Over, time frequent applications of this water, particularly if in small amounts in a high evaporation environment, will result in

THIS CEDAR IS EXHIBITING SIGNS OF STRESS. WITHOUT REMEDIAL WORK IT WILL FALL INTO FURTHER DECLINE

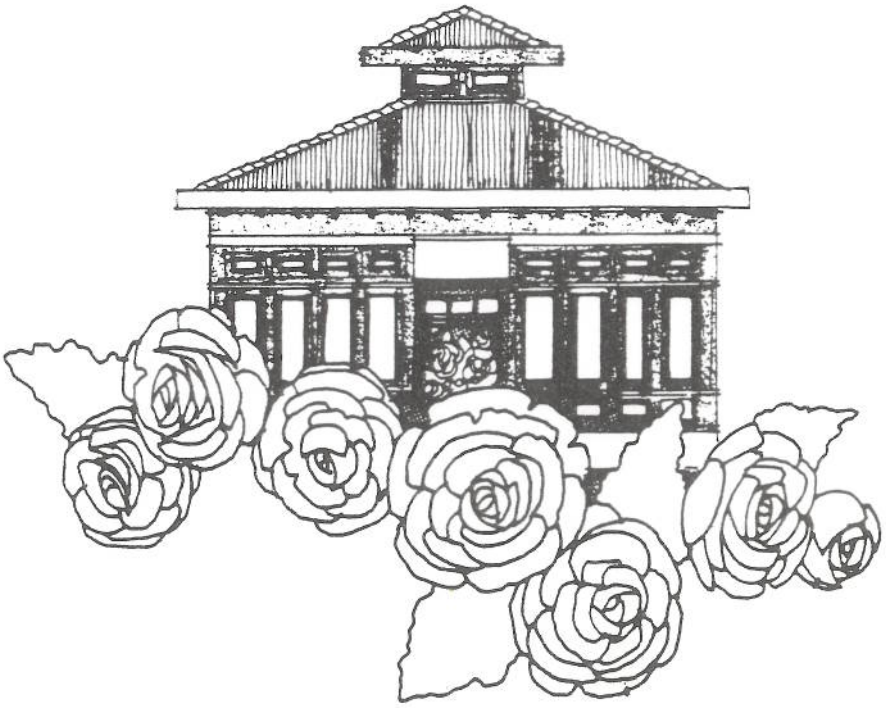


THIS ASH TREE NEAR KEPPEL ST. WAS PLANTED IN 1973. IN BETTER CONDITIONS GROWTH OF FOUR TIMES THESE DIMENSIONS COULD BE EXPECTED.

sodium accumulating in the soil due to the lack of calcium. This is evident in the soil survey where a high pH is present creating alkaline conditions.

The fact that this condition has taken a number of years to build up, a reflection of the quality of the Water. Corrective measures are advisable, however, as optimum growth conditions for the majority of plants within the park favour a more acidic (low pH) soil. Recommendations are made in the Management Plan Section of the Report.

MAINTENANCE SURVEY



7. MAINTENANCE SURVEY

The following analysis is based on the results of the information provided by staff of the Parks and Gardens Department in response to the Maintenance Assessment questionnaire prepared by GHD (see Appendix).

7.1 BUDGET ALLOCATION

Central to an analysis of the maintenance of Machattie Park is an examination of the annual budget and the manner in which it is spent. The total annual budget for 1989 was $142,896.00; Table 1 indicates the cost of the various components comprising this figure together with their percentage of the total. The annual budget is understood to be historically set in that it has been maintained at its current level for a number of years and at present is subject to the CPI increase of 7% per annum for 1989-90. The year can be taken as an average, although within the total variations would occur from year to year.

The breakdown is as follows:

- **Staff Wages**

Not surprisingly, labour is by far the greatest item of expenditure as it forms over 81% of the total annual budget. Included in this figure are four full-time gardeners, one part-time clerical assistant/gardener, one ganger and one carpenter. All staff are based at Machattie Park, but from time to time are required to work elsewhere for the department. This is particularly the case with the carpenter.

- **Fuel**

Second highest is the ever-increasing level of costs incurred for fuel at over 3.5% of the total annual budget. A high proportion of this is electricity, which includes all lighting for the park, as well as standing charges for meter readings charged at commercial rates. Gas is the next highest, and includes heating of the two glass houses and the Fernery. Water is also

metered but is a relatively small proportion, as are fuel costs for machinery e.g., diesel, oil). Included in this item is also the cost for security inspections but again this is a fraction of the overall cost.

- **Machinery**

Third highest is the cost of machinery, but at a little under 3% this is maintained well below the sort of expenditure normally associated with this item. This is largely as a result of the Council's arrangement with regard to the purchase and maintenance of machinery. All items are purchased from Council's Plant Fund with individual departments being debited the running costs. Hourly rates are calculated on the basis of replacing equipment at pre-determined intervals and covering replacement costs. Any maintenance or repair work is charged to the item of machinery concerned.

- **Purchase of Plant Materials**

Purchases of plant material (i.e. shrubs, seeds, etc) is the fourth highest item at 2.78%, but again this is a relatively small proportion due in part to the maturity of the grounds and the limited areas of ornamental shrubs and herbaceous borders.

- **Sundry**

Miscellaneous purchases are primarily for maintenance purposes such as paint, timber and hardware, are limited and form the fifth highest item of expenditure at 2.58%.

- **Soil, Compost Mulches, Fertilisers and Herbicides**

Little is spent in this category, which again may be largely attributable to the relatively small areas of ornamental shrub borders or herbaceous type plantings. This is, however, smaller than might be expected for a park of this size, content and expected quality.

- **Special Items**

Special items for purchase which are in addition to the annual budget, are also granted subject to Council approval. In previous years, this has funded the machinery shed, painting of the Begonia House and various other minor restoration works. As dealt with under the Historical Survey section, a number of items require maintenance/restoration works to them and this would normally be chargeable as a Special Item. Work under this category is not always approved, however, and maybe delayed for a considerable time before it can be resubmitted and approved. Occasionally extra funding has been available towards the end of the financial year but, this often prevents work being implemented in a methodical and planned manner.

Before any real conclusions can be drawn from these figures, they have to be seen in conjunction with the allocation of staff time to the various activities. With labour and fuel costs forming by far the highest areas of expenditure, however, it is expedient that these areas should be investigated for potential savings and improvements in efficiency.

7.2 TASKS AND OPERATIONS

There are a number of tasks and operations associated with maintaining Machattie Park and these, together with the average weekly number of hours spent on each of the tasks, are indicated in Table 2. The hours indicated represent the combined time spent by the seven staff on tasks and operations within the park and do not represent time spent working elsewhere for the Department. It should be borne in mind that the weekly amount spent on any tasks may vary according to the season (e.g. there will be more grass cutting and edging in the summer months than in winter, when it is negligible). Similarly, the hours shown are the average for the year. For example, a task such as the cleaning of Lake Spencer is undertaken twice a year, requiring an average of three days and involving four staff. The

total number of hours for the year has been converted into a weekly average. The breakdown is as follows:

- **Irrigation**

As can be seen from the table, irrigation occupies the highest number of hours per week. This is seasonal and is concentrated in the summer months. The high number of hours is also in part a reflection of the fact that only the lawns are irrigated by an automatic system installed some twelve to fourteen years ago, the remainder being implemented by hand. The automatic system does, however, require frequent maintenance to keep it fully operational and this can occupy up to eight hours a week for two staff. The land method relies on two old systems: the first which was probably installed when the park was originally created and the second, installed some twenty–eight years ago. Needless to say their efficiency and condition are questionable and the location of watering points does not necessarily suit the current layout of the park. A great deal of time is spent on manoeuvring and setting up hoses and sprinklers by hand. This is further exacerbated by the compact nature of the soil requiring sprinklers to be frequently moved to prevent pooling and washouts. Any major maintenance work, i.e. plumbing, is normally carried out by the Engineering Department.

- **Path and lawn sweeping**

Next highest in hours is path and lawn sweeping, with the majority of time being spent on raking the gravel footpaths. This is required to maintain a functionable and visually attractive surface which is appropriate to the heritage value of the park. Raking occupies more time in winter than in summer: the former is carried out weekly and normally requires on average four staff for approximately half a day. Little sweeping of lawns is required except periodically in the autumn when lawn mowers are employed to good effect.

- **The Fernery**

The Fernery requires regular hand watering and pruning to maintain plants in first-class condition. A major annual clean out is required taking on average two to three days each year.

- **Grass Cutting, Edging and Weeding**

Grass cutting and edging together with weeding of grass, shrub beds, and paths occupy the third highest demand on time. Grass maintenance is fully mechanised using triple gang, pedestrian mowers and mechanical edgers. The grass is cut once a week in summer and edged every two to three weeks. Paths require only occasional weeding as regular raking prevents much growth. Considering the limited number of ornamental shrub beds, the hours spent on weeding would appear to be relatively high. Hand methods, such as hand pulling or rotavating are normally employed on shrub beds. Mulches such as cow manure, pine bark and wood chip are used, which whilst being a sound horticultural practice can have the inherent problem of being high in weed seed content.

- **Mulching, Fertilising and Litter Picking**

These form the next highest functions. Annual beds are prepared and twicer per year fertilised each time they are planted. Perennial borders are done with some borders being changed every two or three years. Established beds are generally not fertilised but are mulched occasionally, with leaf mould collected and stored within the park. Mulches, except for cow and horse manure as available, are not used extensively. Bark and wood chip mulches have been used recently, but are the subject of some public disapproval. Pest control is virtually non-existent and is limited to possums or humans (i.e. vandalism). Litter picking is on going but is subject to enormous variation and is normally located in certain key areas which are regularly inspected. The route linking the hotel in George Street through to the one in William Street suffers the most from vandalism and litter. Drug abusers have also been known to use the park, particularly, around the toilets, the Bandstand and dark areas of the park.

- **Propogation and Maintenance**

Propagation and maintenance for the annual beds and Begonia House are next highest in demand, largely attributable to the time taken to grow the 40–50,000 seedlings required each year for both Machattie Park and Kings Parade.

Due to the success of recently employed techniques, the flowering period of the Begonias is likely to be extended for approximately a further two weeks from eight weeks (January to mid–February) to ten weeks. Furthermore, as propagation techniques are perfected, this may be increased to twelve – sixteen weeks, with an associated increase in the hours required to maintain them.

The annual bedding plants are planted for two shows, one in summer and one in late winter–early spring. The seeds are sown in late October and April respectively. Traditionally, the propagation, planting and maintenance of annual planting are the most labour intensive operations occupying the horticultural calendar.

- **Cleaning Lake**

The cleaning of Lake Spencer has been referred to earlier, requiring cleaning and de–silting twice a year and on average taking three days for four staff. Additionally, two hours a week are spent on replenishing the water level to the lake as a result of the concrete sub–construction, which allows water to seep out, having severely deteriorated over the years. Feeding occupies approximately half an hour each week.

- **Pruning**

Tree pruning and re–planting occupies only a few hours in the year (although it may occur more heavily in a particular year) but are not regular items of work. Such work is generally carried out by the maintenance staff based at the park, but other staff may be brought in from other departments. Pruning shrub beds has been included in weeding and occupies little time.

7.3 SUMMARY

In analysing the maintenance assessment survey there are a number of factors which have to be considered. The manpower and resources available today compared to when the park was first created over a hundred years ago have changed dramatically. The vast pool of cheap and skilled labour, frequently used by the parks and gardens of the Victorian era, are no longer available to maintain those features which were often labour intensive in their requirements. Budgets today are severely limited and, as labour costs continue to rise, there are a number of issues which have to be resolved. The main problems facing Machattie Park and indeed many parks like it are:

- how to maintain the park to the standard required and expected by the general public;
- how to maintain its historic integrity whilst at the same time adapting to contemporary needs;
- How to accommodate i) and ii) within the finance and resources available.

One area which can be tackled is the reassessment of the existing maintenance regime, based on the findings of the Maintenance Assessment Survey. The Maintenance Techniques Section of the Management Plan makes recommendations as to ways in which various alterations to the maintenance regime could be employed to reduce the level of manpower, materials and manhours required to complete certain tasks and operations within the park.

TABLE 1
BUDGET ALLOCATION

		$	%
Total Annual Bugdet (Expenditure)		**$142,896**	
1.	Staff Wages	115,838	81.09
2.	Purchase of Plant Material (Shrubs, Beddings, Seeds etc)	3,853	2.78
3.	Machinery	4,207	2.98
4.	Fuel (Diesel, Petrol, Electricity, Gas and Security)	12,180	3.58
5.	Park Furniture	–	–
6.	Insurance of Equipment	–	–
7.	Soil, Compost, Mulches, Granite for Footpaths	1,113	.88
8.	Fertilisers and Herbicides	480	.38
9.	Sundry: Timber, Fencing, Paint, Glass, Cement/Concrete etc	3,573	2.56
10.	Estimate of Depreciation of:		
	a) Grass Cutting Machinery	–	–
	b) Tractors	–	–
	c) Utility Van	–	–
	d) Pumps, Boilers and Heaters	–	–
	e) Hand Tools	–	–
	f) Others – Specify	–	–
11.	Estimate for Annual Maintenance and Repair Cost of:		
	a) Water Pumps (For Ponds and Fountains)	–	–
	b) Heating Boilers (Fernery, Begonia House and Glasshouses), Irrigation System	661	.59
	c) Glass/Glazed Roofing	120	.08
	d) Stationery & Miscellaneous	871	.60
	Total	**$142,896**	**100.00**

Note:
- Item 4 — See also Item 10.
- Item 5 — Nil as all original furniture which is repaired as required.
- Item 6 — See also Item 10.
- Item 10 — All machinery is purchased from the Council's Plant Fund. Individual Departments are debited the running costs. Maintenance is charged to the Item of Machinery.
- Item 11A — Nil, as gravity fed system only.

TABLE 2
TASKS AND OPERATIONS

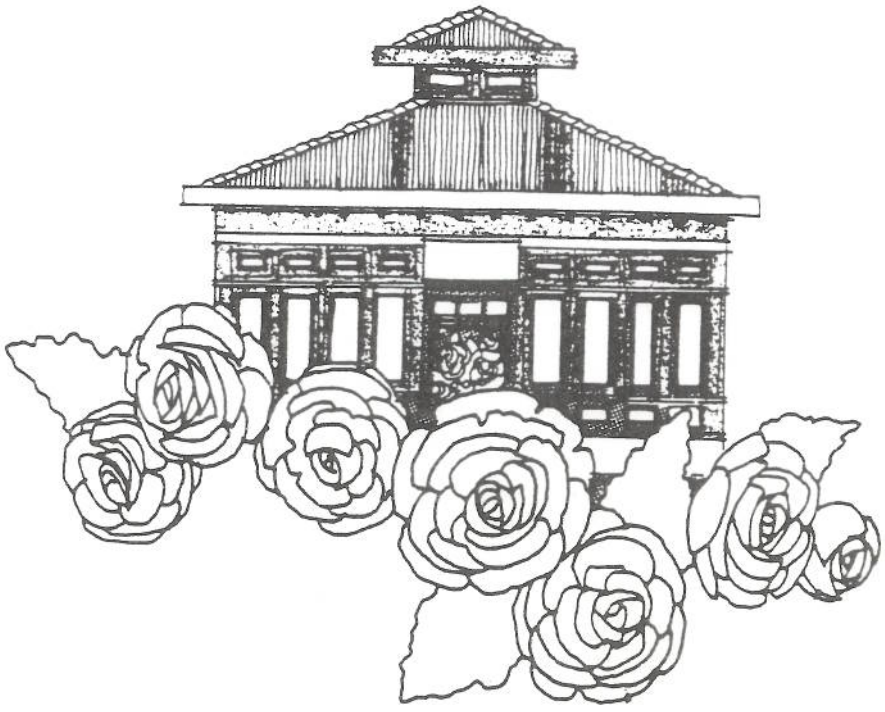
1 **Total Number of Staff Employed for the Maintenance of Machattie Park**

Winter	7
Spring	7
Summer	7
Autumn	7

2. Staff Deployment Allocation to Staff Time to:	Average Hours per Week	%
1. Path and Lawn Sweeping	20.0	16.0
2. Grass Cutting and Edging	16.0	13.0
3. Watering	33.0	27.6
4. Weeding – grass, shrubs beds, paths	16.0	13.0
5. Mulching and Fertilising	8.0	6.4
6. Cleaning and Litter Picking	8.0	6.4
7. Machinery Maintenance	–	–
8. Hedge Cutting	1.2	.9
9. Pruning, Clipping and Tree Surgery and Felling	–	–
10. Begonias (Propogation per week 19, maintenance per week 44)	6.3	5.0
11. Fernery (Propogation per week 9, maintenance per week 16)	1.2	.9
12. Bedding Plants (Annuals) (Bed preparation 1.5, bedding at 2.3)	3.8	3.0
13. Plant Removal and Disposal	.6	.4
14. Building and Structural Repairs	–	–
15. Painting	–	–
16. New Shrub Planting	–	–
17. Administration Time	8.0	6.4
18. Cleaning Lake (3 days, 2 times a year involving 4 staff Feeding .5 per week)	1.4	1.0
Total	123.5	100.00

Note: Item 9,14 &16 Undertaken as required
Item 7 See Table 1, note.

SOCIAL SURVEY



8. SOCIAL SURVEY

8.1 AIM

As an integral part of the comprehensive Plan of Management for Machattie Park a survey was carried out to assess the public's needs, aspirations, pleasures and perceived shortfalls of the park.

The summary of survey results will assist in formulating strategies for short and long term plans of management for Machattie Park.

8.2 METHOD

The survey questionnaire was compiled by Gutteridge Haskins & Davey in conjunction with Lloyd Wood of Bathurst City Council.

The survey was conducted by Year 9 students from Kelso High School under the supervision of Bathurst City Council Park employees during the last two weeks of Term 4 of the 1989 school year.

The surveys were carried out in the following locations:

- within the Kelso & Bathurst High Schools including teaching staff;
- streets surrounding the schools including an aged peoples home;
- in Machattie Park; and
- Bathurst City Council.

Respondents from the above locations were randomly selected to answer eleven questions relating to their use and perception of the park and possible changes to the park such as the introduction of additional planting and/or facilities.(See Appendix 1 for the Questionnaire).

A total of 424 responses was recorded.

In cases where respondents gave more than one answer to a question multiple responses were recorded.

8.3 RESULTS

The results of the questionnaire are illustrated in table form for each of the eleven questions.

8.3.1 Frequency of visits to Machattie Park

Table 8.3.1 shows how often the respondent visits Machattie Park.

Table 8.3.1

Visits to the Park

Frequency	N	%
More than once a week	64	15.09
Less than once a week	62	14.62
Once a month	119	28.07
More than once a year	130	30.6
Less than once a year	49	11.5
TOTAL	424	100.0 %
	===	====

Note: N = Number
% = Percentage of Total Respondents

8.3.2 Duration of stay in Machattie Park

Table 8.3.2 shows the duration of stay in Machattie Park.

Table 8.3.2

Duration of stay in the Park

	N	%
5 minutes	74	17.5
10 minutes	73	17.2
15 minutes	82	19.3
30 minutes	107	25.2
Longer	88	20.75
TOTAL	424	100.0 %
	===	=====

8.3.3 Age of respondents and the people with whom they visit Machattie Park.

Table 8.3.3

Age Group of respondents and the people with whom they visit the Park

Age Group	N	%
0 - 9	116	17.4
10 - 19	227	34.0
20 - 29	101	15.1
30 - 39	96	14.4
40 - 60	90	13.5
60 +	38	5.7
Sum (Multiple Responses)	668	100.0 %
	===	=====

No. of respondents = 424

8.3.4 Reasons for visiting Machattie Park

Table 8.3.4 shows the reasons for visiting Machattie Park.

Table 8.3.4

Reasons for visiting the Park

Reasons	N	%
Close the to the shops	55	7.9
Close to work	37	5.3
Close to home	20	2.9
Like the trees and shrubs	172	24.7
Visit the duck pond	226	32.5
Visit the Fernery or Begonia House	155	22.3
Other	30	4.3
Sum (multiple responses)	695	100 %

No. of respondents = 424

8.3.5 More facilities and features to be included in Machattie Park

Table 8.3.5 shows the number of respondents who would like to see more facilities and features in the park.

Table 8.3.5

More facilities and features to be included in the Park

	N	%
Yes	301	74.1
No	105	25.9
TOTAL	**406**	**100.0 %**

(18 respondents didn't answer)

8.3.6 Facilities and Features in Machattie Park

Table 8.3.6 shows what facilities and features the respondent would like to see in the park.

Table 8.3.6

Features which would like to be seen in the Park

Features	N	%
Children's play furniture	202	18.7
Modern furniture	69	6.4
Traditional furniture	124	11.4
Herbal Garden	106	9.8
Elizabethan or Formal Garden	133	12.3
A maze	214	19.8
A kiosk/sandwich shop selling food	174	16.5
Other	56	5.2
SUM (multiple responses)	1003	100.0 %

No. of respondents = 301

8.3.7 Changes to Machattie Park

Table 8.3.7 shows the type of changes that should be made to the park as selected by the respondent from the survey questionnaire.

Table 8.3.7

Changes to the Park

Type of Changes	N	%
Relocate and improve toilets	324	11.1
Plant more Australian native trees	235	8.0
Remove diseased and dying trees	311	10.6
Have more flowering shrubs and fewer bedding plants	204	7.2
Replace modern furniture with traditional furniture	229	7.8
Litter bins	241	8.3
Planters	149	5.1
Signs	169	5.8
Fences	149	5.1
Improve structure of conservatory/fernery	205	7.0
Label trees and shrubs	276	9.5
Provide interpretative signs	190	6.5
Provide interpretive signs of historical features	230	7.9 %
SUM (multiple responses)	2917	100 %
	====	===

No. of respondents = 424

8.3.8 Machattie Park to be used for more community uses and activities

Table 8.3.8 shows the respondents who affirmed that the park should be used for more community uses and activities.

Table 8.3.8

Machattie Park to be used for more community uses and activities

	N	%
Yes	350	81.6
No	58	13.5
TOTAL	408	4.9 %
	===	===

(16 didn't answer)

8.3.9 Community events and functions to be held in Machattie Park.

Table 8.3.9 shows the type of events and functions that the respondent chose from the list in the survey questionnaire.

Table 8.3.9

Community events and functions to be held in the Park:

Type of Events & Functions	N	%
Flower festivals and horticultural shows	241	17.7
Evening plays, theatres and concerts	279	20.5
Community fetes	176	12.5
Fund raising events	215	15.8
Marriage ceremonies	280	20.6
Civic Functions	162	11.9
Other	4	0.29
SUM (multiple responses)	1357	100 %
	====	===

No. of respondents = 350

8.3.10 Opportunity to sponsor improvements in Machattie Park

Should residents and businesses have an opportunity to sponsor improvement to the park.

Table 8.3.10 shows the number of respondents who favoured the opportunity to sponsor improvements to the park.

Table 8.3.10

Opportunity to sponsor improvements to the Park

	N	%
Yes	345	86.00
No	56	14.00
TOTAL	401	100 %
	===	===

(twenty-three didn't answer)

8.3.11 Types of sponsorship

Table 8.3.11 shows the type of sponsorship favoured by the respondent.

Table 8.3.11

Types of sponsorship

Types of Sponsorship	N	%
Donations for new trees	313	33.8
Provision of furniture from registered list	214	23.1
Clubs and Societies to maintain gardens planters	218	23.5
Levy to use park for wedding ceremonies	181	19.5
SUM (multiple responses)	926	100.0 %

No. of respondents = 345

8.4 ANALYSIS

The 424 respondents consisted of a mixture of high school students, residents of the Kelso neighbourhood, park users, and school and Council staff.

The breakdown of the total respondents into the above mentioned categories is as follows:

Kelso and Bathurst High School students (Years 7 to 11)	207
Kelso neighbourhood residents and park visitors	187
Kelso High School and Council staff	30
Total respondents	424

The age group of the respondents and the people with whom they visit the park (Question 3) reflects a predominantly young age group, as 34% of these people are aged between ten and nineteen years of age; followed by 17.5% under nine years. The predominance of the under nineteen age group may reflect a bias in the administration of the survey questionnaire towards high school students numbering 207 of the respondents.

In response to Question 1 nearly one-third of the respondents visit the park more than once a year with the next largest category, 28.07% of the total respondents, visiting more than once a month. With only 15.09% visiting the park more than once a week, this may suggest the park is not attractive/conducive to daily users such as workers for lunchtime retreats. As the majority of the respondents are in the ten to nineteen years age group, the frequency of visits may reflect their preference for active recreation areas elsewhere in Bathurst.

Duration of a visit to the park suggests that respondents do not spend very much time there with 25% of respondents spending thirty minutes and the majority of visitors (54%) only staying fifteen minutes or less. This suggests that the nature of visits to the park are brief as it may be "visited" on-route, or used as a meeting place for friends before going elsewhere in Bathurst. Of the total respondents only one-fifth stayed longer than thirty minutes suggesting

that this group, perhaps made up of older respondents, would most likely use and appreciate the existing facilities the park.

The most popular reasons for visiting the park included the Duck Pond (Spencer Lake) (32.5%), followed by the trees and shrubs (24.7%), and then the Fernery and Begonia House (22.3%). These features would be popular with the cross-section of the respondents.

Of the 406 respondents who answered Question 5 (See Table 3.5), 74.1% of the responses favoured more facilities in the park while 25.9% would not like more facilities.

The above affirmative responses went on to answer Question 6 where they chose features they would like in the park from a list in the questionnaire. The most popular response at 19.8% of the total of the multiple responses was for the Maze, followed by children's play furniture at 18.7%, and the third most popular feature at 16.5% was a kiosk/sandwich shop. As the responses to this question were multiple answers with no provision for listing the features in priority of preference, the answers may not be a true indication to the respondents' actual preferences.

Question 7 respondents were asked about changes to the park. Again, they answered more than one category on the list as the sum of responses was 2917, compared to the total number of respondents as being 424. The most frequent response (324) was the relocation and improvement of the toilets, followed by 311 responses to remove diseased and dying trees, and the third largest group of 276 responses was to label trees and shrubs. The frequency of answers reflects that the above items are the most noticeable by park users.

Of the 424 respondents sixteen did not answer Question; however, of the 408 that did, 81.6% thought the park should be used for more community uses and activities in comparison to 13.5% who did not.

Question 9 was a follow-up for the affirmative answers to the previous question regarding community uses and activities in the park. The two most favourable responses were for evening plays, concerts, and theatre (20.6 %) and marriage ceremonies (20.6%), followed by

flower and horticultural shows (17.7%). This was a multiple answer question where there was no provision for the respondents' preferences.

In Question 10, 80.4% of 401 respondents (twenty-eight did not answer), were in favour of residents and businesses having an opportunity to sponsor improvements to the park, with the remainder 13.0% not in favour.

Of the affirmative responses to the above, Question 11 listed the types of sponsorship of which 33.8% favoured donations to new trees, while 23.5% favoured clubs and societies to maintain gardens and planters, and 23.1% favoured provision for furniture from a registered list.

8.5 SUMMARY

Summary of Survey Results

The most frequent responses to Questions 1 to 11 are listed below:

Q.1 30.6% of respondents visit the park more than once a year.

Q.2 25.2% of respondents stay thirty minutes.

Q.3 53%* of respondents and people with whom they visit the park are between ten and nineteen years of age.

Q.4 53%* of respondents gave the duck pond as the reason for visiting the park amongst their answer.

Q.5 74% of respondents favoured more facilities and features in the park.

Q.6 71%* of respondents of the above group (who favoured more facilities) included a maze amongst their answer.

Q.7 76% of respondents included the relocation and improvement of toilets amongst their list of changes and improvements.

* These answers were the most frequently chosen by respondents as part of their multiple response to that question.

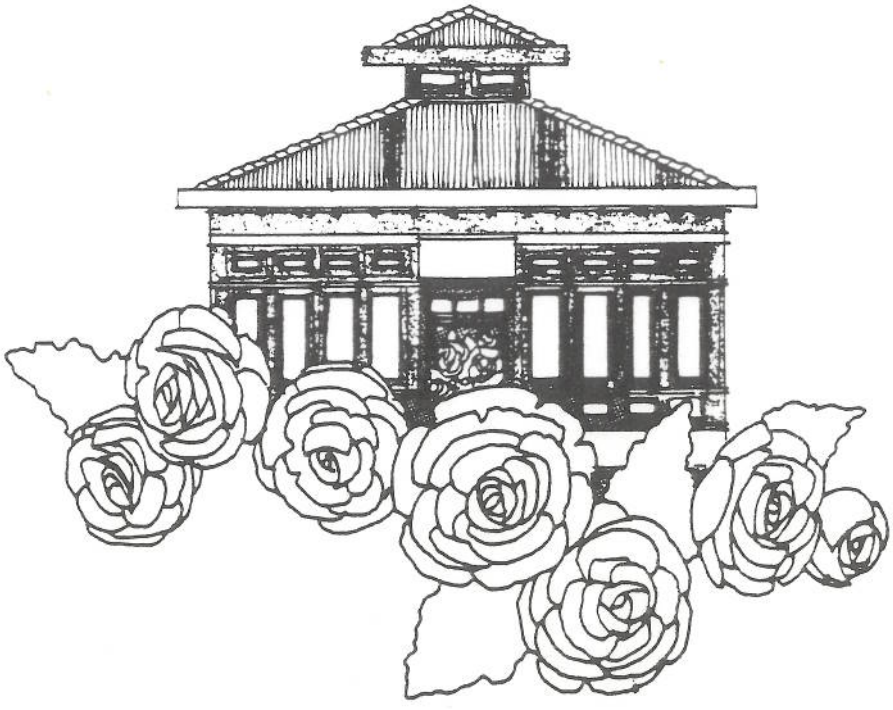
Q.8 81.6% of respondents would like to see the park used for more community use and activity.

Q.9 80% of respondents listed theatre/concerts and marriage ceremonies as the type of events and functions they would like to be held in the park.

Q.10 86% of respondents favoured the opportunities to sponsor improvements to the park.

Q.11 90.7% of the above respondents who favoured sponsorship included donations for new trees amongst their choices of types of sponsorship.

PAST, PRESENT AND FUTURE DEMANDS



9. PAST, PRESENT AND FUTURE DEMANDS

Machattie Park grew out of the desire of the people of Bathurst to secure in the centre of the city, a park which, in the words of Major Alderman Ryan at the opening ceremony in 1890, "will excite the keenest admiration of every visitor to Bathurst ..... henceforth be one of the landmarks of the city and the most beautiful spot in Bathurst." These impressive words serve to indicate the prestige and eminence given to the park when it was created.

Machattie Park was built in an era where there existed a strong public parks' movement. Its design reflects the prevailing 'romantic' style of the time whereby the interplay of natural elements and decorative features was used to impress upon the visitor a sense of beauty, grace and grandeur. Inevitably, over a period of time changes in the socio-economic climate, in policies, and in personnel all contrived to influence the manner in which the park developed. The integrity of the design can initially be lost through quite insignificant amendments and alterations. As these changes continue, the accumulative effect can be quite drastic. Thankfully, this scenario has not yet been realised in Machattie Park, although there are a number of modifications that have been made which are not appropriate to its historical content, for example:

- the removal of sections of the perimeter of the path;
- the erection of raised timber flowerbeds near the Bandstand;
- the alterations effected to accommodate the Civic Centre;
- modern safety fencing around Lake Spencer; and
- new Style maintenance depot.

In other cases, restoration or essential repair work is carried out with materials not the same or in keeping with the original, for example:

- repairs to the roof of the Fernery made with the translucent sheeting rather than replacing with the original glass; and

- Plethora of signs, many of different styles and designs.

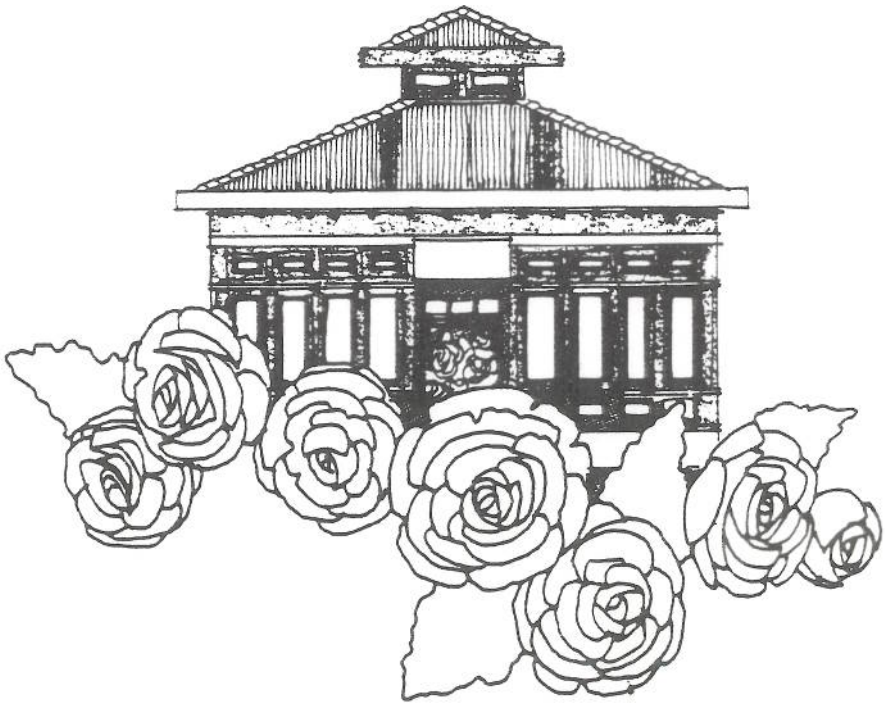
From its inception, the park fulfilled a number of roles by virtue of its being the only managed open space within the city. These included:

- as a feature of civic pride;
- as a tourist attraction
- As a centre for communal activities, gatherings and concerts;
- As an area for passive recreation; and
- As a centre for horticultural excellence.

The last role is largely attributable to Patterson and his assistant, Lynch, as it was under their direction that many fine trees, shrubs, and ferns were established in the park. It is a credit to the city, and in particular the Parks and Gardens Department, that an element of this tradition has continued. In particular, the Begonia House attracts much praise and attention for the quality of the shows.

The present and future roles of the park should be seen in the context of the diversity of amenity and leisure facilities now available within the city and its environments and with which ornamental parks such as Machattie must now compete. To identify the current and predicted needs and aspirations of visitors to the park it is necessary to refer to the conclusions of the Social Survey Section of the Report. The overall conclusion is that the activities in which contemporary users participate and their main reasons for visiting the park, suggest that **major design changes are not warranted**. Adherence to the spirit of the original design and the conservation of the historical features within the park will ensure that it continues to retain its recreational relevance to contemporary uses. To maximise the park's potential it is, however, necessary to address a number of issues which have been highlighted in the Historical, Horticultural, Maintenance and Social Surveys. These are analysed in detail and recommendations made in the Management Plan Section of the report.

RECOMMENDATIONS



10. RECOMMENDATIONS

10.1 MANAGEMENT AND MAINTENANCE

The intention of this report is to set down the guidelines lines on how Machattie Park should be *managed* for the future. The term *manage* is often mistaken for *maintain*, which has a very different meaning in landscape and horticultural terms. For the purpose of clarity the following differentiates the two.

- **Management**

  Management is concerned with the long-term planning and implementation of strategies for future horticultural, visitor, recreation and financial plans. These strategies determine the allocation of funds, resource and staff deployment.

- **Maintenance**

  Maintenance is concerned with the routine, day to day, week to week, operations in the upkeep of a park such as grass cutting, weeding, sweeping and repair work.

10.2 THE MANAGEMENT PLAN

Purpose: The purpose of the Management Plan is to provide Council and the Parks Superintendent with a strategy which sets out the following three principles.

Objectives: A clearly identified set of tasks and programmes which will determine the future image of the park. These are based on the thorough analysis of the survey information and the sound understanding of the historical background and intent of the park's original design.

Programme of Work: To determine in order of priority the sequence in which the improvement works should be implemented, and a proposed time framework in which they should be completed. The programme is not intended to be rigid but is to serve as a guide as to the most appropriate and financially feasible sequence in which improvement works should be undertaken.

Budget Control: To determine an annual budget which addresses the park improvement tasks identified in the Recommendations as well as the day-to-day maintenance, to seek alternative forms of financing which can help fund restoration projects and improve the quality of facilities offered in the park.

The format of the Management Plan shall be in **document** and **plan** form. The document component will be in the form of a comprehensive list of written recommendations and this section may be referred to separately for the convenient use by the Parks' Superintendent and Aldermen following its adoption by Council.

The Plan will be in A1 format of showing the location and intent of the proposed improvement works with annotated descriptions of each project.

The plan is intended to both complement the written document and to as provide a quick visual reference to the future of the park, and may similarly be useful for public display and public relations purposes.

10.3 MANAGEMENT OBJECTIVES

The principal objective is therefore to restore the park, as far as it is practical, to its original layout design and to restore the remaining original and early structures and ornamentation to their former visual and working condition.

The objectives are based on the following factors:

- the Consultants brief;
- the historical value of the park as an example of a 19th Century Victorian Town Park;
- the user needs and aspirations;
- a public and cultural element to be enjoyed in perpetuity;
- financial and staff resources and expertise;
- facilitating the efficient manner in which the park may be managed by future staff.

The objectives should not restrict changes to the park, but rather should allow the park to meet the social and economic needs at any time while retaining its original design and spirit. At the same time the park should evolve and be able to perform and satisfy visitors and residents of Bathurst, much as it did 100 years ago.

The following objectives have therefore been adopted to form the basis of the proposed Management Plan for Machattie Park.

- **Original Layout Plan and Ornamentation**

The park has, during its first one-hundred years, experienced a number of changes most of which are documented in the Historical Account. It is evident that from both the park users and from an aesthetic point of view, the most successful elements of the park are those dating to its original design and early structures and ornamentation, also these elements have given the park its historic value and significance within the State.

- **Incompatible Elements**

Where new elements have been added to the park which are incompatible with the original layout and early features, these shall, where feasible, be removed. However, the removal of these elements should not detract from what is the very essence of Machattie Park which is the sense of grandeur, peace and large scale trees within the heart of Bathurst.

- **Restoration Works**

Repair and restore all structures and ornaments which are integral to the park to their full working order and condition. Where practical, traditional colours and materials shall be used, but modern products which do not detract from their original integrity should be permitted.

- **New and Future Developments**

Inevitably, areas and features within the park will be subject to change, to meet present and future needs. As these changes are undertaken, they should be designed, constructed and detailed in a manner totally sympathetic with the original Victorian style. Their location and influence should not detract from the visual amenity or function of original features and facilities.

- **Vegetation and Streetscape Quality**

Prescribe a programme of vegetation management for trees, shrubs, herbaceous perennials and annual bedding plants involving their caring, pruning, thinning and replacement which will ensure a healthy and verdant environment for future generation.

Maintain and conserve the park's value to the streetscape and central conservation area. The perimeter trees currently provide a high proportion of the streetscape and amenity value, and their periodic rotational replacement will ensure a high streetscape quality for Bathurst in the future.

- **Existing Facilities**

To retain for the public's benefit and enjoyment the existing facilities while improvement works are carried out and where possible, to improve the standards of those facilities which will be retained.

10.4 IMPROVEMENT WORKS

The recommendations for the Management Plan are based on the results of the surveys made of Machattie Park and on the Objectives previously identified in Section 10.3.

The surveys comprised: Historic, Horticultural, Maintenance, and Social. The recommendations for improvement works are made in accordance with the surveys and are as follows:

10.4.1 Historic

Bandstand

This is one of the main focal points to the park and is especially important as it is one of the original features. As a result it shall be maintained to a high standard and painted on a regular basis. To enhance its potential for social events the installation of service points for lighting and equipment could be investigated.

Begonia House

The Begonia displays are quite outstanding and in recognition of this fact the City Council recently resolved (21 February, 1990) to promote the Begonia House, which is also historically an important feature of the park and associates well with the Fernery.

For the purposes of improving the displays it is recommended that tiered display shelves be built to facilitate better viewing of the Begonia flowers. Furthermore, plants should be clearly labelled and described. This is important not only for the casual visitor but also for potential purchasers.

Structurally, the House will need repainting on a regular basis and more specifically would benefit from shade blinds being incorporated into the roof structure to facilitate better temperature control.

Lake Spencer

This is an axial focal point within the park, and is similarly a central attraction, particularly for children who congregate around the perimeter to feed the wild fowl. The lake is leaking substantial quantities of water, and vegetation within its perimeter fence has grown to obscure views and detract from its overall visual amenity. Specific improvement recommendations are:

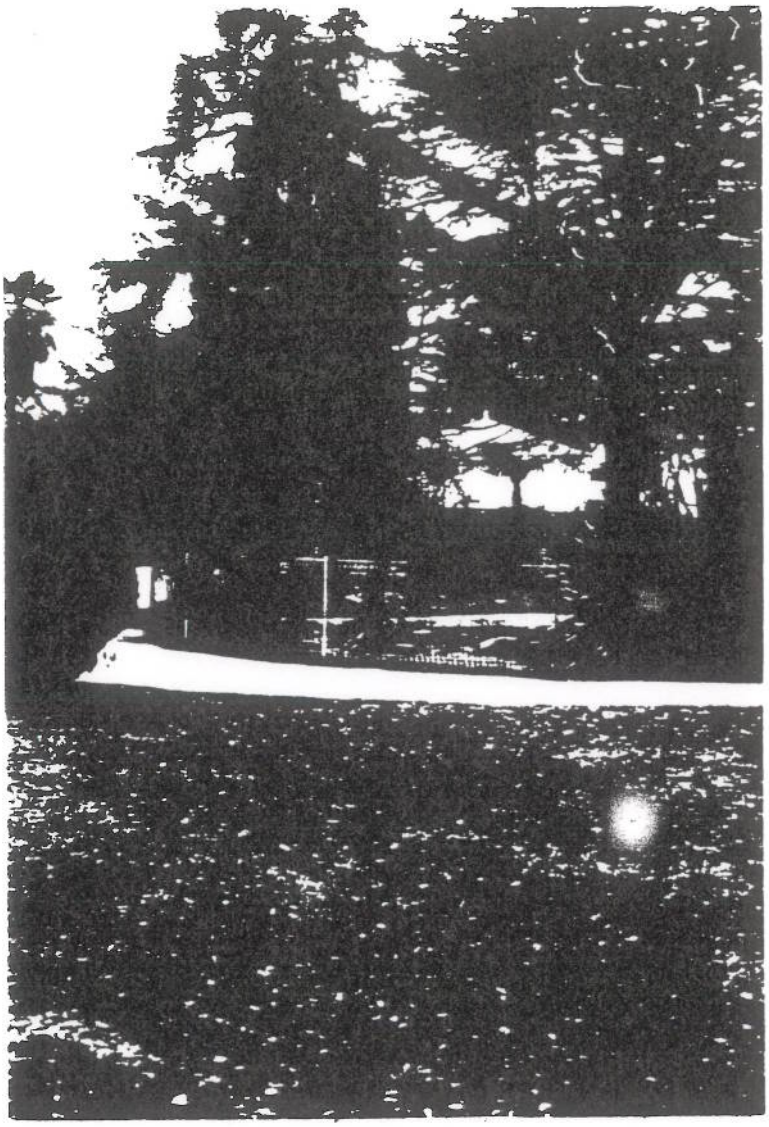
- Conduct a structural survey to locate the points at which water is leaking, and re-line and seal the base of the lake, using modern materials suitable for the purpose. Removal and replacement of aquatic plant species may be undertaken at this time.

- Selectively thin out existing vegetation and replace particular shrub and grass species with smaller specimens which will allow clearer views across the water. Clearance of vegetation within and around the perimeter should be selected so that "framed" views of the lake can be achieved from the centre of the park.

- Identify selective locations around the lake to provide ramped access to the water's edge and thereby improve interaction between wildfowl and visitors. The same ramps may be used to facilitate maintenance access for Park's Department personnel. Two access points, at either end of the lake, are considered appropriate.

- Provide seating and viewing points around the perimeter at selective points with good views across the water and to the island.

- Replace the existing safety perimeter fence with a period style railing which meets the current safety standards. The fence should be painted in a period style colour to lessen the visual impact from within the park.



LAKE SPENCER ACTS AS A MAJOR FOCAL POINT WITHIN THE PARK.
YET VIEWING AND ACCESS IS SEVERELY RESTRICTED.
SELECTIVE THINNING AND PROVIDING ACCESS POINTS WILL
MAXIMISE ITS POTENTIAL

Crago Fountain

This feature is a focal point of the park and is unique. Although it was originally installed and painted only in dark green, it has traditionally been painted in many colours to highlight the detailed ornamentation. This should remain so. The plumbing has, over the years, deteriorated to the point where the original water jets and spouts are no longer properly functioning. The following improvement works should be implemented:

- Comprehensive servicing and replumbing of the fountain system, including the pumps, jets, etc. The configuration of water features can be assessed from early photographs and the original design of the fountain.

- A progressive replacement of the copping stones surrounding the base pool.

- Retain and periodically repaint the detailed ornamentation of the fountain in the traditional colours.

- Replace the existing flood lighting with more suitably designed and positioned lamps.

Memorial Gates

The various memorial gates are particularly important features, especially where they form entrances into the park. Together with the trees surrounding the park, they will be the visitors' first view of the park and it is essential that they be maintained to a high standard to create the correct impression of quality and care. Regular maintenance, and repainting on, say, a five to seven year cycle are all that should be necessary. The lighting bulbs on the Webb Gates currently need replacing.

The Fernery

The Fernery is a particularly popular venue within the park, and is, due to the nature of the warmer temperatures and higher humidity, subject to a faster process of structural and material deterioration.

Its original glass roof has been replaced with plastic-corrugated sheets. A brick and glass partition divides an area set aside for the marble statues and has reduced the available circulatory space for visitors.

It is recommended that:

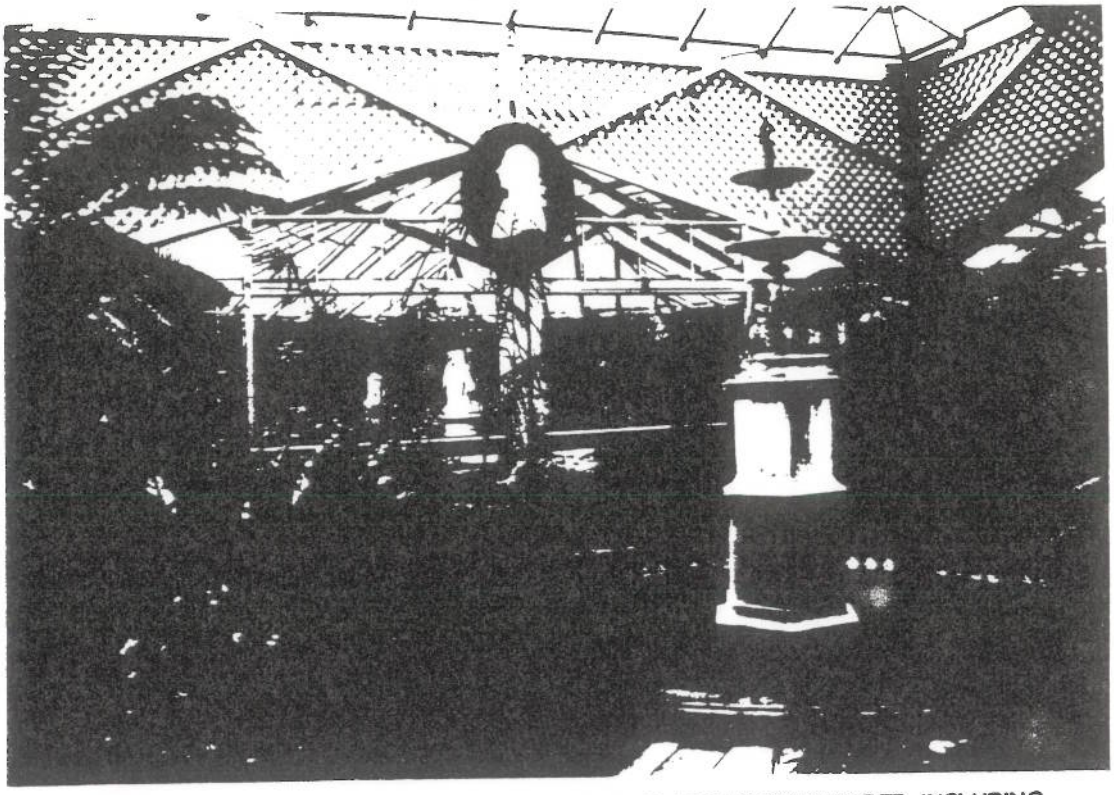
- The roof glazing be replaced with a more appropriate type, in keeping with the original, but utilising modern, long-lasting materials where appropriate. As part of the roof improvement works, introduce insulatory/thermal screens to help regulate the diversity of temperatures between night and day, winter and summer. This measure may also have a long term cost saving on the heating costs of the Fernery.

- Remove brick and glass partition, and relocate marble statues within the Fernery, to a less space consuming and prominent position, that can also ensure the safety of the statues from theft and vandalism.

- Create a central open space which can be used for periodic and selective social and civic functions. The space may be used by horticultural societies, Council members, and social receptions.

- Repair the plumbing of the central pond and fountain, as a major attraction of the Fernery.

- Introduce name labelling of perennial plants and ferns in the Fernery.



INSIDE THE FERNERY A NUMBER OF IMPROVEMENTS ARE RECOMMENDED, INCLUDING REPAIRING THE FOUNTAIN AND INTRODUCING PLANT LABELLING

THE ROOF OF THE FERNERY SHOULD BE REGLAZED

- Update the mist irrigation system to the Fernery while carrying out comprehensive improvement works. Mist and spray formalities should be located to suit plant types and communities.

Howard Fountain, Munro Drinking Fountain and Jubilee Fountain

Periodic maintenance should ensure that the fountains are fully operational. Maintenance should otherwise be limited to cleaning down and repainting on, say, a five to seven year cycle.

Footpaths

Some of the original perimeter footpath was removed and grassed over during the 1960s, particularly along Keppel Street. This has detracted from the visual strength of the perimeter tree planting although it may have benefited the avenue of Elm Trees.

It is recommended that these footpaths be reinstated in conjunction with the tree management and replacement proposals to ensure that the alteration of ground conditions does not adversely affect the health of the established Elm trees or the growth and vitality of newly planted trees.

Materials for the new paths shall match existing paths, e.g., crushed granite with stone kerbs.

Caretaker's Cottage

The Cottage blends comfortably into the Victorian Park, and visitors to the park frequently enquire if they can see the inside of the building. The Cottage currently accommodates the Parks Superintendent's Office and reception, and Bathurst Arts and Crafts Society Workshop rooms, and gallery.

The Cottage was originally built for the Parks Superintendent's sole use, but eighteen years ago rooms to the front and rear were allocated by Council to Bathurst Arts and Crafts Society

for their exclusive use for a minimal tenancy arrangement. This is now inconsistent with the objectives of the Management Plan which is to maximise the potential financial and historic resources for the benefit of the park. Increasing work load demands on the Parks Superintendent have resulted in the two small remaining rooms for his accommodation being restrictive to him and his staff for the level of operations expected of them.

To meet some of these demands, a small partially covered parks depot area has been developed immediately to the rear of the Caretaker's Cottage. This depot allows parks management and maintenance staff to remain in close proximity and thereby retain a good level of communication. The depot is however, incompatible with the visual objectives of the Park and ideally it should be located elsewhere in the longterm.

The Arts and Crafts Society makes periodic use of their accommodation which includes a gallery room and workshop rooms for a pottery and kilns. The gallery is open to the public on weekends, although attendances are understood to be low, partly due to poor visual access from the park and limited opening hours at weekends.

The recommendations for the use of the Caretaker's Cottage and the use for the two parties are as follows:

- One room with conspicuous access from the park should be made available for permanent interpretive information on Machattie Park, its history, horticultural content and associated information, including the sale of brochures, information on the use of the Fernery and sales of Begonias. It is recommended that the existing gallery should be made available for this function. This same space may be shared for exhibits of craftware by the Arts and Craft Society either at weekends or permanently as the Secretary of the Society so wishes.

- In conjunction with the display and sale of interpretive information, the opportunity of the sale of sandwiches and other small confectionary items should be investigated. This retail enterprise may be offered to the private sector. This arrangement would allow constant supervision for the sale of all craftware, interpretive information and

refreshments by one party. The aportionment of revenue from each categroy of sale would be subject to further detailed consideration. A small kitchen would be attached to the kiosk and these catering facilities may also be used to service social functions in the Fernery, Bandstand, and park (see recommendations for these venues).

- The rooms currently occupied by the Craft Society are in need of structural and decorative repairs and a safety assessment, particularly in regard to the heritage status of the building should be urgently undertaken. It is therefore suggested that these rooms are inspected by a building surveyor for the purposes of assessing all repiar and renovation work.

- The room allocation for the Parks Superintendent's and the Arts and Crafts use should be re-assessed on the basis of the Council's priority needs of the space and the practicality and suitability of the existing facilities for the Arts and Crafts Society. It is recommended that the Parks Department is relocated to those rooms currently used by the Arts and Crafts Society, and the two rooms presently being used by the Parks Department be given over to the Arts and Crafts Society.

- The electric kilns should be relocated to a designated area within the adjoining depot. It is believed that from the ageing of the three phase electric supply to the kilns, and the poor condition of the kilns themselves, there could be a fire risk to the heritage listed building. With the high temperatures to which the kilns are taken, the heat would be more safely dissipated in a less enclosed surrounding and would provide more operating space for the Society's members.

- The use of the Cottage for 'wet' pottery production (including clay and glazing preparation, wheels and throwing of clay) is regarded as being incompatible with the heritage status of the building. It is also recommended that these activities should similarly be relocated to an area within the adjoining depot near proposed relocation of the kilns. This would provide a more spacious and practical use of space for these activities. It is appreciated that specific adaptations within the depot would

have to be made to meet these proposals. This is regarded as being in the Council's best long term interest having regard to the importance of Machattie Park and the heritage status of the Caretaker's Cottage. It may also be expedient to find alternative accommodation for the Arts and Crafts Society elsewhere in Bathurst where this community facility may continue in more practical and spacious surrounds.

10.4.2 Horticultural

The results of the tree and soil surveys show that any improvement in the culture of plants in the park must come from a change in soil treatment. Both the soil structure (for example, the arrangement of particles and the amount of pore space) and the soil chemistry (for example, the degree of alkalinity and the lack of nutrients) must be amended before any improvement in growth conditions can be expected.

Once the immediate concerns have been corrected there must be changes in soil management if the problems are not to re-occur. This mainly involves the reduction of traffic (pedestrian and vehicular) in the areas surrounding the mature trees upon which the park depends for its present amenity. Once money and effort have been expended on soil compaction relief, there will be little benefit gained if such traffic recompacts the soil in a short time. Every effort (short of compulsion) should thus be made to confine pedestrians to pathways and to reduce the amount of mowing currently necessary. The areas affected are relatively minor but vitally important.

Similar long-term complications arise when considering tree removal and replanting. Many of the current problems concern the even-aged nature of the tree population, and this situation will repeat itself in the next century unless a rotational programme of tree planting is initiated to ensure that trees are removed and replanted in a continuous cycle.

Recommendations follow for the implementation of the necessary soil amendments. It should be noted that the response of individual trees to these improvements will vary: some will show a dramatic improvement within a year while others, more badly stressed will respond

slowly or not at all. This degree of response will depend upon the exact nature and extent of the planned tree removal and replacement programme.

Tree Management

- **Proposed course of action**

An approach combining the two extremes previously referred to in Section 6.3 is recommended and is indicated on Drawing No. L6.

Category 1

- Under this system a few trees would be removed immediately, reducing hazard and allowing room for other existing trees and for new plantings. Trees in this category are 3, 6, 5, 7, 8, 14, 23, 25, 26, 29, 40, 43, 50, 51, 54, 56, 62, 76, 100, 106, 120, 122, 147, 168, 164, 166, 175, 176, 178, 181, 182, 183, 187 (Total 33).

  This appears to be a large number of trees but, in fact, includes only those very poor specimens which the park can do without.

- Once the soil ameliorations have been working for a year or two, improvements should become obvious. Trees still declining or not responding can then be identified and culled progressively.

- Meanwhile, the rest of the large trees should be pruned and brought to full viability in accordance with the specification outlined in Tree Maintenance. These are the trees upon which the medium-term appearance of the park depends and where the bulk of the tree budget should be concentrated. This category includes the best Elms, Oaks and most of the Cedars.

Selected trees could be further boosted with Stemix (R) injection capsules to ensure rapid invigoration. This treatment has already been carried out on at least twenty large specimens.

Category 2

- Replanting space should be gained by removing or transplanting much of the smaller tree and shrub understorey. Most of these plants seem to be in unplanned groups or spread randomly in grass areas. Clearance of this clutter would allow vistas between trunks and below canopies of large park specimen trees.

Category 3

Tree Removal

- It is recommended that the present rows of Elms along the street frontages are continued, however, establishment of young replacement trees will be difficult. Even if alternate mature trees are removed to make space, competition is likely to result in stunted or leggy growth. Therefore, a better approach would be the reinstatement of the original pathways parallel to the streets and the establishment of complementary rows of Elm plantings to form avenues along these pathways. Eventually, the new trees would replace the old without interrupting the overall park theme.

  Category 1 removals along Keppel Street and George Street initiate the opportunity to fell and replant alternate trees which will in turn allow the inner row to establish more easily. The programme of felling indicated is not excessively harsh and the problem will remain of an uneven aged avenue unless felling is even more severe and the removal of mature healthy trees is considered.

  Where mature and healthy trees are encountered in establishing an inner avenue it is not considered appropriate to remove them. Trees such as No. 49 (Bunya Pine), 185 (Japanese Crab Apple) and 189 (Claret Ash) fall into this order.

THE REINSTATEMENT OF FOOTPATHS IS IMPORTANT BOTH HISTORICALLY AND TO REINFORCE THE REPLANTING OF AVENUES

A commitment to this plan would be necessary because some degree of ruthlessness would be called for in the establishment of the new rows.

- **Choice of Species**. The major pest problems of Elms, Dutch Elm Disease and Elm Bark Beetle are not a problem at present. It is therefore feasible to replant with Elms to preserve the continuity of the rows. However, in general, no more than 10% of trees in a population should be of the same species so that if a disease occurs only portions of the population will be affected. Diverse species also prevent the problem of a general decline of all trees in a short time period.

  Other species recommended for planting in the park are:

Liriodendron	(Tulip Tree)
Tilia	(Lime)
Quercus	(Oak)
Fagus	(Beech)
Populus	(Poplar)
Platanus	(Plane)
Nyssa	(Tupelo)
Fraxinus	(Ash)

  These trees are all large growing deciduous specimens.

- **Replanting Programme**. Replanting should be controlled by a master plan so that the haphazard siting of trees in the park interior is not continued. As trees are removed under the staggered removal scheme they should be replaced with well-grown advanced stock.

- **Propogation of Elms**. Propogation of Elms from the existing trees by semi-hardwood cuttings or by grating into *Ulmus glabra* is currently undertaken by the Council. This will be a particularly important avenue to promote if clones of park trees are to be offered for sale to the Public (see 12.0 Funding).

- **Transplanting of Palms.** Throughout the park, there are a number of scattered Palms which add little to its overall quality and integrity. With the correct preparation it is recommended that the majority of Palms be transplanted and either regrouped within the park (see Drawing No. L6) or replanted elsewhere within the City.

- **Tree Maintenance**

Maintenance of the present population, once the soil conditions are corrected, will require an initial input of funds, however, once the major work has been accomplished, attention should be needed only once every two years on a rotational basis.

Tree maintenance work would be:

- removing decayed, hazardous or badly suppressed trees. This can be kept to a minimum since only a few trees are affected, and removals can be staggered.

- pruning dead branches, excessive shoot growth, old stubs, weak internal branches and long overhangs. Appearance and safety are the paramount objectives.

- thinning and lifting. Raising the canopies would allow more light under trees to encourage grassland development and growth of young tree plantings. Canopy thinning removes excess branches from the canopy interior, admits more light and air movement and encourage growth in the remaining branches.

  These operations should not be confused with lopping, which is a damaging procedure. Pruning and thinning entail cutting back to branch junctions or to the trunk leaving small wounds that callus quickly.

- pruning branches which affects neighbouring trees, either by overshadowing and suppressing growth or by damaging contact between trees.

- with cavity treatment there is little point in filling centres with cement or other materials; they are better left open so that periodic inspection can be made. Fillings do not heal cavities, they merely wall in the fungus which is decaying the tree and provide ideal conditions for the propgation.

  Once the initial pruning and shaping work has been done the bi-annual maintenance would be on an "as needed" basis, requiring tree inspection, dead wood removal and regulation of growth. These are minor tasks if done regularly.

- Council staff should be trained in arboricultural skills (TAFE courses) so that most maintenance work can be carried out promptly within Council resources, particularly for skilled surgery work.

Records including photography should be kept of each tree's history and treatment so that a cost-effective programme can be maintained. Only then can the viability of a tree (maintenance cost against aesthetic return) be gauged and decisions made about its future.

Soil Amelioration

Laboratory results and analysis show that the soil has both physical and chemical defects which must be corrected before vigorous plant growth can resume. These defects can be summarised as follows:

- **Soil Physics.** The physical defects of the soil principally require the relief of compaction. There are a few horticultural implements available which might assist with the resolution of the compaction problem, but most are concerned with turf culture and work in only the top few centimetres/inches of the soil. However, our problem lies deeper and involves delicate tree roots which would be easily damaged by ploughs or rippers.

  It is recommended that a machine called "Terralift" is employed. This is a pneumatic machine which extends a spear almost 1 metre into the soil and releases a

substantial volume of compressed air, thereby shattering the compaction and creating a network of capillary cracks connecting to the atmosphere. This machine was developed for exactly the type of tree conditions now existing in the park.

The open grassed areas could be cultivated with tractor drawn implements such as Vertidrain equipment which can open soil to a depth of about 300 mm.

This mechanical treatment would enable infiltration of water and free exchange of gases in the soil, but some changes in cultural practices would also be greatly beneficial.

These are as follows:

- The addition of organic matter into the soil would help glue the particles together into aggregates, thereby improving the structure. Organic matter would also stimulate earthworm activity and these untiring allies could then take over the task of cultivation. Suitable sources of organic matter would be duck litter or well-composted fowl manure spread over the surface and incorporated by machine.

- Alternatives to conventional turf areas should be explored. Under the trees close mown turf has severe disadvantages: mowers cause compaction and stoloniferous grasses form a barrier which is very competitive to tree roots. Since turf has proven difficult to sustain below tree canopies because of shading, a grassy meadowland could be established using a mixture of rye, fescue, bent and clover. This meadow would be allowed to grow tall and only mowed at twice-yearly intervals. Bulbs such as bluebells, daffodils, grape hyacinths, crocus, fresias could be planted and allowed to naturalise, would make a good show. The meadowland would be a continuation of the European theme of the park while vastly improving conditions for the trees.

The long grass would tend to confine foot traffic to the pathways without resorting to fences or barriers.

Maintenance would be greatly reduced (see also Recommendations - Maintenance Techniques), compaction virtually eliminated and the danger to tree trunks from machinery contact removed.

- **Soil Chemistry**

– The soil deficiencies revealed by the analysis should be rectified by the addition of chemicals as recommended by the laboratory. This is quite straightforward and involves the correction of alkaline conditions and the addition of nutrients. Around the tree root zones the chemicals could be incorporated into the soil by means of the Terralift machine, and on the turf areas application, relief is undertaken. This would give better results by greater spread into the soil, since some of the nutrients involved are relatively slow to infiltrate by other means.

Chemicals should be added as follows:

Gypsum at 200g/^{2}
Iron sulphate at 100g/m^2
Superphosphate at 50g/m^2
Nitrate of potash at 50g/m^2
Nitram at 50g/m^2

Periodic soil testing would enable any further amendments to be made as necessary.

– The water used to irrigate the park is piped from a dam near Yethome. It is a very high quality drinking water but its low hardness means that it tends to accumulate sodium in the soil over a long period of time (say,

fifty years or more). This action is increased by high evaporation rates in the area.

Once identified the problem is not difficult to overcome by the addition of calcium to the soil.

These chemicals should be incorporated into the soil by machine, where possible, and heavily watered into leach salts down the profile. The irrigation water problem (sodic/alkaline) will be automatically solved by the Gypsum, although a similar quantity should be added every fifty years in order to avoid another sodium build up.

10.4.3 Maintenance

As highlighted in the Maintenance Survey, labour is by far the highest item of expenditure. As a result, the way in which staff are employed is of critical importance to the efficient running of the park. Any ways or means to save time and effort should be assessed, and there are a number of ways in which this can be done once the objectives of the Management Plan have been clearly established. This section, therefore, will look at the results of the Maintenance Survey and make recommendations compatible with the Management Plan, based only at this stage on the information provided. Ideally, a month by month schedule for a whole year should be prepared with the time taken on any task accurately monitored. This would then highlight the seasonal nature of the work entailed and would identify any peaks and troughs in demand which might affect manning levels.

- **Irrigation**

This demands a high proportion of time for the year and is also concentrated during a period of peak demand for labour. The existing system for watering areas other than lawns is old and not set out with the current or proposed layout of the park in mind. Consideration should be4 given to the installation of a new irrigation system to serve these areas. Such a system may be fully automated or, more probably, a combination of automatic and manual.

While initial capital expenditure will be high, this should be assessed against the savings on manhours incurred over a period of years. Its experiences will be dependent upon the soil amelioration techniques previously specified as being undertaken to improve the permeability of the soil, allowing areas to be soaked say, weekly, rather than at present for short periods daily, which is necessary to prevent pooling and washouts. This would also help counter the problem of sodium build up on the soil (see Water Analysis) by allowing longer and deeper waterings rather than shallower and more frequent ones which only further the process. An additional and important benefit of deeper watering would be to encourage tree roots to extend lower into the soil thereby improving their stability and drought tolerance.

- **Grass Cutting and Edging**

As with the above, grass cutting and edging is in high demand at the most congested time of year. Principally, there are two main areas in which time can be saved on these operations:

- by alterations to the current regime, i.e., frequency and height of cut;

- by looking closely at the design of the park and making modifications to the design of the layout, providing they are compatible with the objectives of the Management Plan.

The first point has been already covered to a large extent in the proposals whereby the creation of areas of longer grass will reduce the time taken to cut them even if, as is preferable, cuttings are collected and removed. Furthermore, increasing the height of the cut and, if possible, reducing the frequency of cutting to the main lawn area should also be considered. Research has indicated that very close cutting of turf can produce shallow roots which are less resistant to drought and damage. The effect of close mowing also places a high demand on nutrients and irrigation to maintain the turf in good condition.

The grass is currently at a height of 12 mm and it is recommended that this be raised to 20 – 25 mm. Consideration should also be given to reseeding the main lawns with a composition of the modern cultivars which are now available for specific situations and conditions. This

has already been implemented to some extent by the introduction of shade tolerant species to certain areas beneath dense tree canopies. The main lawn areas have not otherwise been reseeded for some twelve years, largely due to the difficulties experienced in establishing a good grass sward which, in time, is mainly attributable to the existing soil conditions. Providing the soil amelioration techniques previously described are implemented, there are a variety of low maintenance mixtures available which are disease and drought resistant, hard wearing, quick to recover and at the same time lower growing than many of the more traditional species.

Similar to irrigation, higher initial expenditure would be offset by substantial savings over a number of years, and would provide a more effective and pleasing surface.

- **Weed Control**

Similarly, weed control is similarly a task that demands a high number of manhours throughout the summer months. Predominantly this is done by a hand methods, the report does not make specific recommendations with regard to weed control but presents an objective summary of the various methods available for consideration by the Parks Superintendent.

- **Hand Methods**

While hand methods (forking, hoeing, etc.,) are the most traditional methods and are responsible for creating the 'tilled' soil finish most commonly associated with a well maintained shrub bed, they are also the most time consuming. Although hoeing or hand weeding can be a successful and precise method of weed control amongst mixed borders, there is evidence that this can, in fact, damage the surface roots of some plants.

- **Mulches**

Generally speaking, mulches alone will not control weeds; however, when used in conjunction with other techniques they can be of assistance, particularly if weed control mats are

employed. The best materials to use are weed free with various wood chip bark types being particularly effective as are composted lawn cuttings and gravel trimmings. As previously suggested, after suitable analysis, reuse of the silt collected from Lake Spencer may be considered viable as a mulching or soil improver.

- **Chemical**

Chemical herbicides are nowadays being used with increasing effect. There are a number of effective and relatively cheap products available which can suppress the development of seedling weeds for prolonged periods and provide better control of many perennial weeds than traditional methods. For it to be effective, however, the complete re-appraisal of the maintenance regime is required and herbicides should not be seen as merely an alternative to hand methods. Providing all reasonable precautions are taken and the manufacturers' recommendations are strictly adhered to, a herbicide maintenance programme should prove very cost effective. Research has shown that some plants are more sensitive than others to certain herbicides, but this can depend on a number of factors, including soil type and gradient. In certain circumstances either method may be employed, or existing plants substituted with those that are proven to be tolerant.

- **Ground Cover Plants**

Ground cover planting is perhaps the most visually attractive method of suppressing weed growth. Although establishment costs would be high, these would be offset by the decreasing number of hours required to weed the areas of base ground. Public acceptance can again be a problem if the sight of traditional filled soil is preferred and unless species are carefully chosen may conflict with the heritage value of the park. There is no doubt, however, that the use of ground covers offers exciting possibilities in upgrading existing or new shrub beds while ultimately reducing maintenance of them.

- **Annual Bedding Plants**

The annual shows are not only a source of pride to the staff of the Parks and Garden Department but also give great satisfaction to the general public. The Maintenance Survey has, however, pin pointed the fact that these shows are, by the nature of their need for regular attention and renewal, costly in terms of their high maintenance requirements. By simply reducing the areas given to such planting and concentrating on siting them in high profile situations such as entrances and seating areas, savings may be realised and labour re-utilised elsewhere.

- **Begonia House, Fernery and Lake Spencer**

These have been identified as being labour demanding and have been dealt with separately in the Historical Section as they are major features of Machattie Park.

- **Design and Maintenance**

There is an inherent relationship between design and maintenance: it is in the design of the park which offers more potential scope for further reducing maintenance costs, after the existing maintenance regime has been analysed for the economies. There are a number of methods that can effect changes in design without necessarily altering the character of the park or its heritage value.

There are two main stages in what can be termed 'design and rationalisation':

- the simplification of the existing design;

- the introduction of new features with reduced maintenance input.

The principle areas where these can be undertaken most effectively are:

- eliminating or simplifying small flower beds;
- The effect of the above is not only in respect to the weeding of beds but also in reducing the edges that require cutting;
- redesigning or reshaping shrub beds, path edges, etc to suit mowing machinery and eradicate awkward angles and narrow strips;
- amalgamating shrub beds to reduce mowing the "obstacle course" while at the same time creating more effective borders;
- removing obstacles such as litter bins and lighting column signs, and repositioning on hard surfaces;
- providing, where necessary, mowing strips particularly against hard surfaces or features, e.g., where seating is situated within grassed areas this could be made into a hard surface and provided with a suitable edge treatment). Alternatively, objects could be removable.
- trees in grass also present problems and for this reason grouping rather than distributing widely throughout lawned areas can simplify matters. This is further improved if, as already recommended, alternative mowing regimes are employed with less frequent cutting to grass under tree clumps.

10.4.4 Social

The Plan of Management for Machattie Park should address the major findings of the survey pertinent to the future wellbeing of the park as a valuable open space and recreation resource in the Bathurst Region.

The findings of the survey which relate to additional features, improvements/changes, community events/activities and sponsorship should be reflected in the future planning of the park.

The most frequently chosen items (by the respondents) under the above categories are listed as follows:

a. Additional Facilities

- maze
- children's furniture (traditional style)
- kiosk

b. Improve and change Features/Facilities

- relocation/improvement of toilets
- removal of dying and decaying trees
- labelling of trees and shrubs

c. Community Uses and Activities in the park

- evening plays, theatres and concerts
- marriage ceremonies
- flower festivals and horticultural shows

d. Opportunity for Residents and Businesses to Sponsor Improvements to the park

- donations for new trees
- clubs and societies maintaining gardens and planters
- provision of park furniture from a registered list.

If and when additional facilities/features such as a maze, children's furniture and a kiosk are included in the park, they will enhance the park's status as a valuable family recreation resource.

However, such features will have to be designed with great care and sensitivity so that they become an integral part of the park's heritage status. Careful consideration of location will also ensure that the additional features are conducive to the existing pattern of activities in the park and that their introduction does not interfere with the park's tranquil and peaceful atmosphere. The addition and improvement of facilities/features such as a maze, children's furniture, kiosk and toilets would, however, lift the level of enjoyment experienced and duration of stay by the young families and their children in the park.

The overall amenity and value of Machattie Park as a heritage item and recreation resource would benefit from the adoption of the survey findings into the future management proposals for the park. The results of the Social Survey cover a range of areas and, where appropriate, these have been incorporated elsewhere (for instance, the removal of dead and dying trees is discussed in the Horticultural Recommendations). The following are recommendations specific to the Social Survey.

Park Kiosk

The Social Survey has identified that users of the park would appreciate a small sales outlet which would retail a number of convenience items incidental to the enjoyment of the park. Although no economic feasibility study has yet been conducted, it is anticipated that such an enterprise will be economic in its own right. Both the Social Survey and the Objectives identified the desirability of providing additional information and literature on the history, horticultural and faunal aspects of the park. Similarly, the recommendations for the Caretakers Cottage identified that the Arts and Crafts Society which is accommodated within the Cottage should have improved display and sales exposure. Additionally, information and arrangements for the sale of plants, and the leasing of space within the Fernery and Bandstand, as discussed in the Historical Recommendations, may also be encompassed within the kiosk/retail outlet point.

It is recommended that, in conjunction with the proposed arrangements for joint accommodation for the Caretaker's Cottage, information, display and sales of goods, and booking facilities be made available. In particular it is envisaged that the following types of sales may be made: arts and crafts ware, maps, plans, photographs and printed literature on the history of the park, horticultural content, garden books and magazines, flora and fauna literature, information on Bathurst and its parks and open spaces, newspapers, lunchtime sandwiches, simple convenience foods and confectionery, booking arrangements for social functions within the park, and sales of plants from Machattie Park propogation unit.

Staffing arrangements for this proposal have not been fully investigated and additional investigations with regard to zoning, licensing and economic viability will be required to determine the full potential of the recommendation. Providing that the premises qualify for a Food Premises Licence, preliminary discussions with the Bathurst City Council, Planning Department, suggest that planning permission would probably be granted as long as any extensions or structures were in keeping with the park. In regard to staffing, further consideration could be given to the kiosk being operated under licence by the private sector, or as a City Council initiative project. The former is regarded as being more likely.

The use of a room or rooms within the Caretakers Cottage for the provision of the above services is seen as a short-term objective and, subject to its success, further consideration as to its further location will be addressed.

The relocation of both the ladies' and gentlemen's public toilets to adjoin the disabled toilet block is discussed in the Social Recommendations, and in conjunction with this long term objective, the existing ladies' toilet block, which is architecturally harmonious with the park, could then be converted into the park kiosk/retail outlet shop.

Public Toilets

Public toilets within Machattie Park, serve not only park users but also a large number of shoppers and visitors for the city centre area. Their location within the park is also unusual in that they are in three separate blocks (ladies, gentleman and disabled) approximately 50 apart,

with different means of access. The ladies and the gentlemen's blocks are in relatively discreet locations and visitors to the city often have difficulty in funding them.

The maintenance survey has also identified that their inconspicuousness has led to a number of socially undesirable activities taking place particularly around the gentlemen's toilets at night (male prostitution and drug abuse). This has serious implications for the safety and security of legitimate users of the park at night time and the safety and welfare of maintenance staff when cleaning the toilets and adjoining shrub beds, (syringes and other undesirable litter are often discarded in the vicinity of the toilets).

It is therefore recommended that the disabled toilet block be extended to accommodate new gentlemen's and ladies' facilities, all under one roof. The location close to Russell Street (and Kings Parade) would make this facility more central to the CBD (Central Business District), easier and cheaper to maintain, easier to find, and would reduce the incidence of vandalism and socially undesirable behaviour.

The vacated blocks could then be used for ancillary uses of the park e.g., valuable storage space.

With the relocation of the public toilets and the provision of a kiosk, together with an area for the display and sales of information and craft ware, the pedestrian traffic generated from Russel Street, down Court House Road to the Caretaker's Cottage will increase. It is therefore important to assess the pedestrian 'desire lines' together with the architectural treatment of the Caretaker's Cottage and the Park Depot buildings as a comprehensive unit. It is recommended that Council review this area of the Park as a separate subject before proceeding with any improvements outlined in this document.

Landscape Improvements

Maze

When the park was originally constructed, recreational facilities included an aviary and a monkey house. Modern beliefs and perceptions of captive animals for human pleasure have dramatically changed in the last 100 years, although the desire for recreational facilities has not. The Social Survey identified that 20% of the people questioned included a maze as an additional feature they would like to see at the park. Mazes were, in fact, a popular Victorian garden feature, and are an inherent English garden idiom dating back to the 17th Century.

In this respect it would not be out of keeping to develop a maze at the north-eastern end of the park, in the locality of the original monkey house and aviary. It could then be enjoyed, particularly by children, as well as being a prime horticultural addition to the park. It would, however, be desirable to limit the height of the maze hedges to below 1.5 m so that the imposing views of Machattie park from Russel Street are not impeded. Similarly, it is customary to set a maze within slightly lower ground, as for a parterre. This allows the spectator to enjoy the pattern while observing the user of the maze from slightly higher ground.

10.4.5 Landscape Design

The recommendations which follow have not specifically been addressed by any of the surveys carried out. They would, however, be of enormous benefit by improving the quality and facilities available within the park.

Garden House

A small terrace immediately south-east of the Crago Fountain and axial to the Bandstand and linking footpath to Spencer Lake has been subject to significant alteration since the original park layout. Currently, this terrace lacks a fitting conclusion to such a strong north south axial element of the park. Indeed, the link between Spencer Lake and this terrace is perhaps

the most important structural (layout) element of the whole park. The south–eastern sector of the park has been subject to notable change and it would appear that this terraced area is a fitting location to have a strongly identifiable termination point for the north south axis. This terrace also benefits from being on higher ground, (by approximately 900 mm), than that area identified for arboretum planting. The recommendation is therefore to design and construct a timber garden house with a pitched roof. If built into an octagonal or similar geometric shape it will reflect the form of the Bandstand, and will form an axial focal point from the Busby Gate. Formalisation of the access footpaths from the access point immediately to the rear of the Civic Centre (from William Street) would command a similar view and geometrically balance the approach from Busby Gate.

The Garden House should have open sides with through access, yet provide shade and shelter for visitors to enjoy a lunch time break.

Parterre

The inclusion of a parterre in many public Victorian parks and gardens was a mark of quality; the prerequisite being an area of slightly higher ground from which an oblique view could be afforded across geometric shaped flower beds. Machattie Park presents just such an opportunity where the terrace south and adjacent to the Crago Fountain affords an oblique view across flat level lawns.

Due to the restricted space available, the parterre would be simple and limited in extent. However, it would be a perfect location to show off the dazzling annual bedding displays so adeptly provided by the Parks Department for the people of Bathurst.

Arboretum

The tree and soil surveys identified the south western end of the site (to the rear of the Council Chambers adjacent to William Street) as being an area which would be suitable for replacement tree planting due to the less formal and less tree populated nature of this ground.

Already a number of specimen trees have been recently planted and these to date have shown signs of retarded growth and poor health due to poor soil and ground conditions.

Following the recommended soil improvement works, it is proposed that this area continue to be planted with additional specimen trees suited to the climate of Bathurst with the long-term objective of developing a mini arboretum effect within Machattie Park.

The clear nomenclature of all tree species within Machattie Park, complete with plans of the bark. These plans should be available to the public (via the kiosk) for educational and informational purposes, with the long-term objective of raising the arboricultural and horticultural knowledge of the visitor.

New Park Furniture

It is inevitable that with time various items of furniture will require repair and replacement. A number of park furniture items which have replaced or provided for additional benefit to the public are not sympathetic with the quality or style of the park. Some items have been of poorer quality, have consequently aged badly and now visually detract from the visual amenity of the park.

The result is that the park now accommodates a collection of unco-ordinated styles of furniture which, at their worst, require replacement (e.g., litter bins). In most cases, it is a matter of repair and refurbishment work. The following items are identified as park furniture:

- standard lighting lamps
- picnic tables
- planter boxes and tubs
- litter bins
- chess Tables
- seats and benches
- signs and notices
- fencing

It is recommended that replacement items of furniture be selected from a proprietary manufacturer specialising in furniture compatible with historic landscapes (See Appendix).

Standard Lighting Columns

Machattie Park is blessed with excellent Victorian style lamps which are in good condition and generally serve their need. Where footpaths were removed in the 1960s and where these are to be reinstated, the replacement of matching Victorian period lighting columns should be made. Some poorer lit areas of the park have encouraged undesirable night-time activities, and additional lamps should also be provided in the same style to reduce these incidences in these areas.

Picnic Tables

These are a recent introduction to the park, and the Social Survey and park user observation have clearly indicated that they are proving to be popular and successful, particularly by visitors who bring picnic lunches and the like to enjoy the park. They are of a type used in National Parks and although they are neither of an historic design nor a traditional material, their popularity and the fact that they can be relocated or removed to obviate compaction of soil and wearing out the grass around the tables makes them more acceptable to the complement of park furniture.

It is recommended, however, that Council looks for a moveable picnic table/seat of a more historically sensitive design so that they become less conspicuous within the park's landscape.

Planter Boxes and Tubs

These have been provided in locations where shade, soil and ground conditions have made it unviable to continue having either grass or plants in their original locations.

The concrete (GRC) tubs are located in the broad footpath, and while their annual bedding displays contribute to the floral amenity, the 1960s style tubs are incongruous elements within their Victorian setting (and their isolated location).

The raised timber planter is located in the shade of Deodar Cedar (Cedrus deodara No. 113 on Plan No. L4). When the park was originally laid out, the tree was small and the area in question was unaffected. Today, the heavy shade cast, the root congestion and compaction of the soil, and depletion of soil nutrients has made the healthy establishment of shrubs and bedding plants almost impossible. A raised insitu timber planter in the same shape as the original planter has been provided. Although it succeeds in its objectives, it is, nonetheless a modern element in the park.

Concrete planter tubs

These should be removed and the same amount of annual bedding plants be relocated to alternative beds (see proposed parterre). It would also be appropriate to have annual flower beds as an entrance feature either side of the footpath at the Webb Gates.

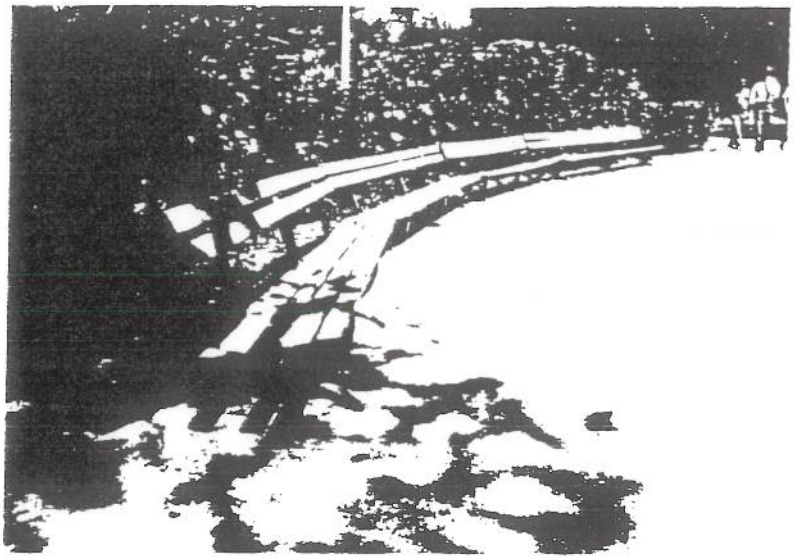
The Timber Planter

This may be removed in the long term in conjunction with any tree survey to the cedar and associated soil amelioration works.

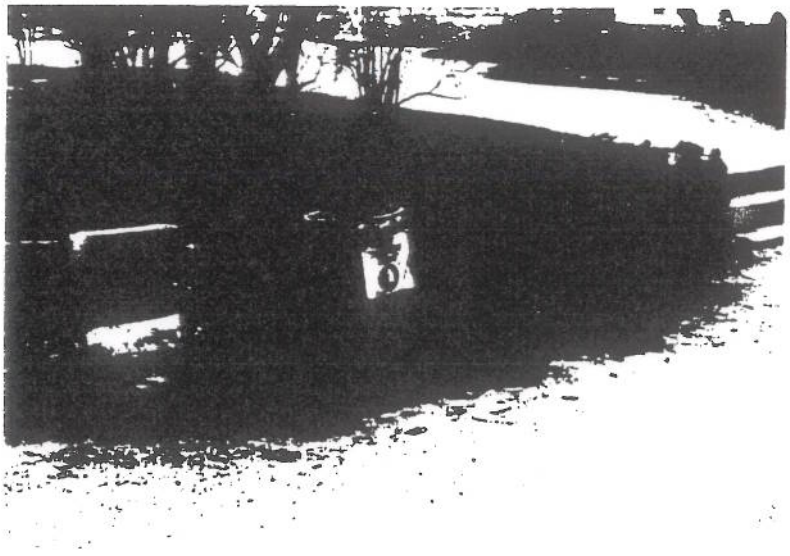
Recent tests with new varieties of grass seed mixes have been successfully carried out in areas of heavy shade. It is therefore recommended that the shaded area under this Deodar Cedar be restored to its original layout by using the new shade tolerant grass species in gradients with low pedestrian traffic and "decomposed granite" for the main footpaths areas.

Litter Bins

These are an essential item of park's furniture as they are used in assisting the daily cleaning operations. Many bins, however, are of a modern design and made of thin metal on weak



EXISTING BENCHING NEEDS TO BE REPAIRED OR REPLACED



UGLY AND INAPROPRIATE FOR THE PARK LITTER BINS SHOULD BE IN A PERIOD STYLE AND CAREFULLY LOCATED

pedestals. In line with the objective to develop a "house style" design and colour theme, it is recommended that the litter bins within the park be replaced over a period of time, as can be afforded, with a type which is in keeping with the Victorian setting. They should be painted to a nominated colour and constructed to a durable design and materials. Recent products on the market have addressed such considerations and are currently being employed in similar situations (See Appendix).

Chess Tables

The chess tables are a traditional feature of the park and should remain as such. They are used for a number of activities including picnic lunches, card playing, social gatherings, and by hardened street drinkers. The metal frames and tabletops make them cold and less attractive to use in winter.

They are located adjacent and parallel to Court House Lane which is also bounded by a row of Syringa species (Lilac and Cotoneaster) which serves to isolate these tables from the park.

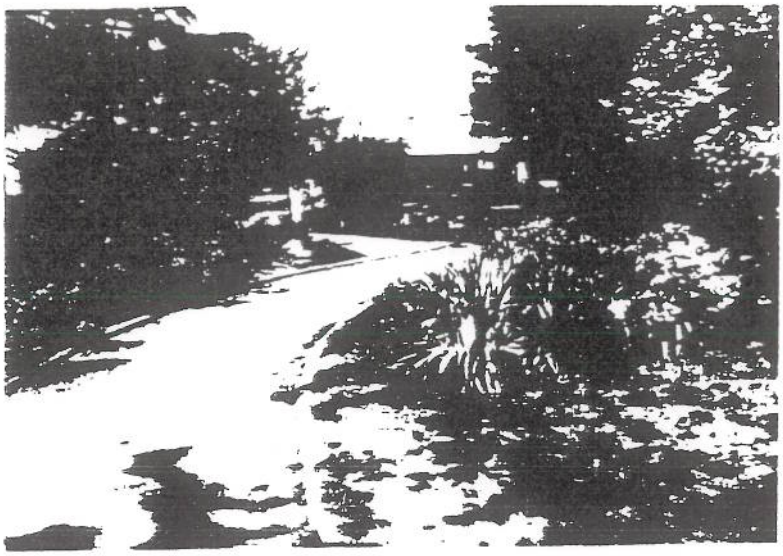
It is therefore recommended that these chess tables be integrated into the park by removing the shrub bed separating them from the park, and by re-locating the small, low-level wire fence to a location to be determined by the Park's Superintendent.

Seats and Benches

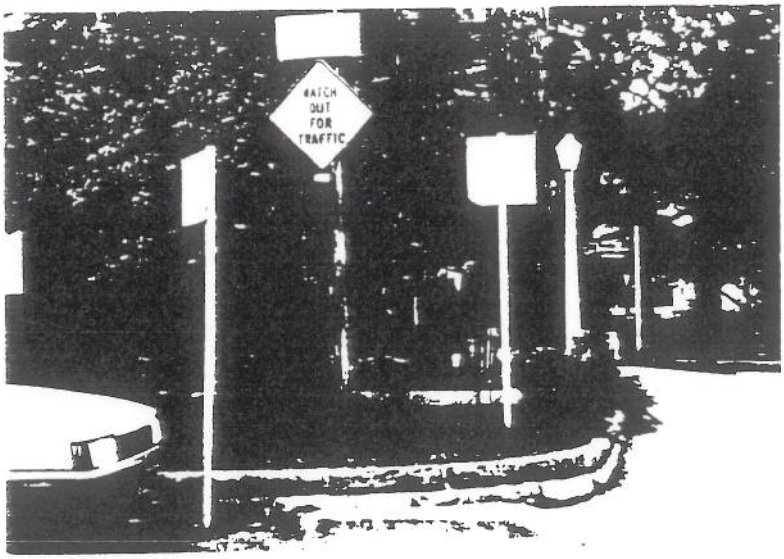
Traditional seats and benches are generally well provided for in the park but many, although serviceable, are in need of repair and maintenance. During these repairs, repainting should be carried out in a theme of selected colours suitable for Machattie Park.

Signs and Notices

There are a number of signs, notices and information boards associated with Machattie Park, particularly around the periphery. These have accumulated over a long period of time, each



NEW ENTRANCE GATES AND REALIGNING THE FOOTPATH IN CONJUNCTION WITH THE PROPOSED GARDEN HOUSE WILL ACCORD MORE CLOSELY WITH THE ORIGINAL DESIGN



RATIONALISATION AND ADOPTING A LIMITED RANGE OF 'HOUSE' STYLES WILL BENEFIT THE USER AND BE A VISUAL IMPROVEMENT

looking very different from the other. In particular locations, however, the collection of signs looks tatty, un-coordinated and is both visually confusing and distracting.

It is recommended that the designs of all signs within the park be re-assessed. In addition, the proposal to label trees and some notable shrubs and have on-site historic and explanatory information on particular features will also require design co-ordination with signs and notices.

Similarly, a "house-style" design is required which will also co-ordinate with litter bins, seating, park furniture and colour schemes.

Fencing

The perimeter fence which originally surrounded Machattie Park has long since been removed, and it is believed that the lightweight structure in which it was originally made would not survive the less genteel society of today.

Although access into the park is principally via the main gates and entrances, random access across the low wall particularly by youths using the park as a short cut, would inevitably result in regular and expensive repair work.

Fencing elsewhere in the park is minimal and has largely been addressed in the context of Spencer Lake. In all cases, however, the principle that fencing should be in a style of design sympathetic with the Victorian period is of particular importance and is emphatically recommended.

Glasshouses - Propogation Units

Located between Court House Lane at the Fernery, these glasshouses perform an essential role for Machattie Park and Kings Parade. The high quality Begonias and annual bedding plants are propogated in the ageing and less-than-efficient glasshouses.

In line with the recommendation for the sale of Begonia's, annual bedding plants and tree seedlings (of selected species to be found in the park), additional space, and a more efficient and systematic method of producing plants for use in the park, and for sale will need to be implemented.

It will therefore be necessary to rationalise and make improved provisions for glass housing, propogation benches, heating, shading, mist irrigation and staff access to meet the increased demands with greater economic efficiency.

This will necessitate a review of the structure, orientation and capacity of the existing glasshouses, together with the heating and irrigation system, to determine the most efficient method possible to meet the demands for additional plants at a reduced unit cost. Screening to the park will also need to be considered.

It is proposed that the Parks Superintendent prepare a brief outlining the preferred method of production and the additional facilities required to meet these objectives.

Palms in the Park

Palms were a very popular Victorian plant for parks and gardens and those specimens in Machattie Park (Trachycarpus fortuneii) make a distinct impression. In vogue with the Victorian popularity it is recommended that the existing palms be transplanted within the park, and it is proposed that the entrance to the Fernery be emphasised with a crescent of palms, see Plan L6.

Suggested species which could be included in the Arboretum are:

Parajubea cocoides
Washington sp
Butia capitata

Glastonbury Thorn

The significance of this tree has been previously discussed. It is proposed that in conjunction with the relocation of toilets, the shrubbery and ground levels around this tree be cleared and levelled to make a real feature of this item in the park. Information of its religious and historical background could be displayed and if possible some deterrent against vandalism be installed.

Possum Viewing Platform

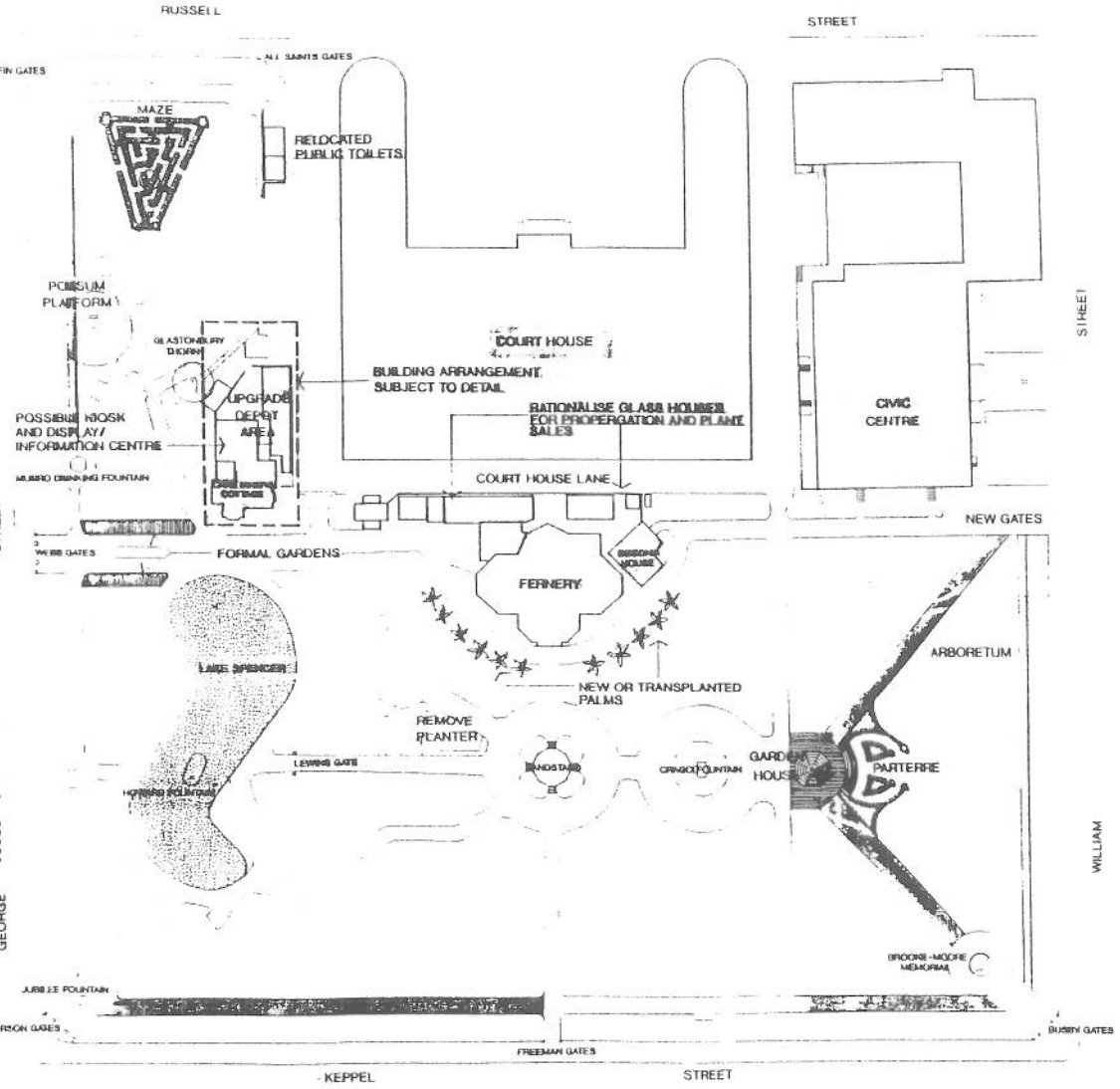
A tame possum inhabits the hollow trunk of Tree No. 12, and it can be seen during the daytime through a hole in the trunk. It is extremely popular with children and it is proposed that a small viewing platform be constructed to help younger children observe the possum. A small timber stand of approximately 700 mm in height with steps and a handrail set a minimum of 1.5 m away from the tree would be appropriate.

Meadow Management

The proposed method of soil amelioration by means of creating "meadowland" within the park will have a significant visual impact. Although not strictly a Victorian town park element, the importance of revitalising the soil structure and fertility is crucial to the park.

The establishment of meadowland within grassed lawns will provide the park with swathes of perennial herbs and flowers such as daffodils, daisies, etc, which, managed correctly, will enhance the colour spectrum to be enjoyed in the park. This is also discussed in both the Horticultural and Maintenance Recommendations.

It is recommended that specific grassed areas, particularly under the perimeter Elms, be cordoned off for this purpose rotationally on a two to three year cycle.



MACHATTIE PARK

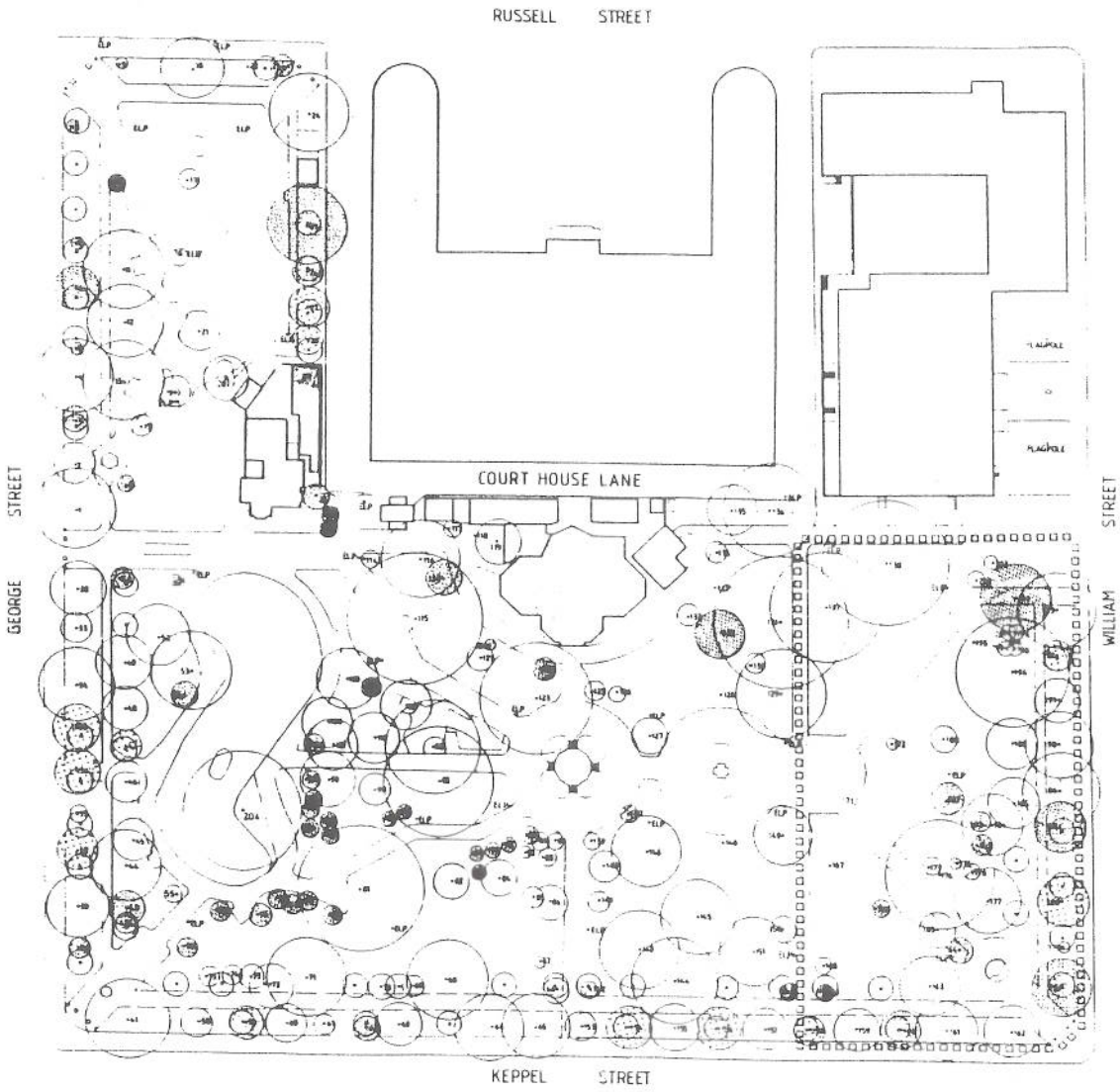
IMPROVEMENT

Client: BATHURST CITY COUNCIL

Gutteridge Haskins & Davey Consulting Engineers

Drawing No. L6

Job No.



LEGEND

- TREES RETAINED
- TREE PLANTING PROPOSED
- TREES REMOVED
- TREES TO BE REMOVED *CATEGORY 1*
- TREES TO BE REMOVED *CATEGORY 2*
- TREES TO BE REMOVED *CATEGORY 3*
- PALMS TO BE TRANSPLANTED
- ARBORETUM

TREE REMOVAL CATEGORIES

CATEGORY 1
FOR SAFETY REASONS OR WHERE THINNING IS CONSIDERED ESSENTIAL

CATEGORY 2
SELECTIVE FELLING AS PART OF THE REPLANTING OF MAJOR AVENUES

CATEGORY 3
SELECTIVE FELLING OF TREES NOT CONSIDERED IMPORTANT TO CREATE BOLDER GROUPS AND REDUCE TREE COVER

PALMS TO BE TRANSPLANTED
SELECTIVE PALMS COULD BE TRANSPLANTED WITHIN THE PARK OR CONTAINERISED AND REMOVED

ARBORETUM
TO MAINTAIN THE HORTICULTURAL TRADITION OF THE PARK IT IS RECOMMENDED THAT A SPECIFIC AREA IS GIVEN OVER TO CULTIVATING SPECIMEN TREES

SOIL AMELIORATION
CATEGORY 2 AND 3 REMOVALS SHOULD BE REASSESSED AFTER THE SOIL AMELIORATION IMPROVEMENTS HAVE BEEN WORKING FOR 1-2 YEARS. TREES NOT RESPONDING TO TREATMENT CAN THEN BE IDENTIFIED AND FELLED IN ACCORDANCE WITH A REVISED PROGRAMME

IMPROVEMENT WORKS
CERTAIN IMPROVEMENTS ARE INDICATED BY A DASHED LINE. FOR FULL DETAILS SEE DRG. NO L6

NOTE THIS DRAWING IS BASED ON B.C.C. DRAWING NOS EN 4302, 4303, 4304, 4305 AND SHOULD BE READ INCONJUNCTION WITH THE TREE INVENTORY

10 0 10 20 40

SCALE 1:500 87B

MACHATTIE PARK

RECOMMENDATIONS — TREE MANAGEMENT

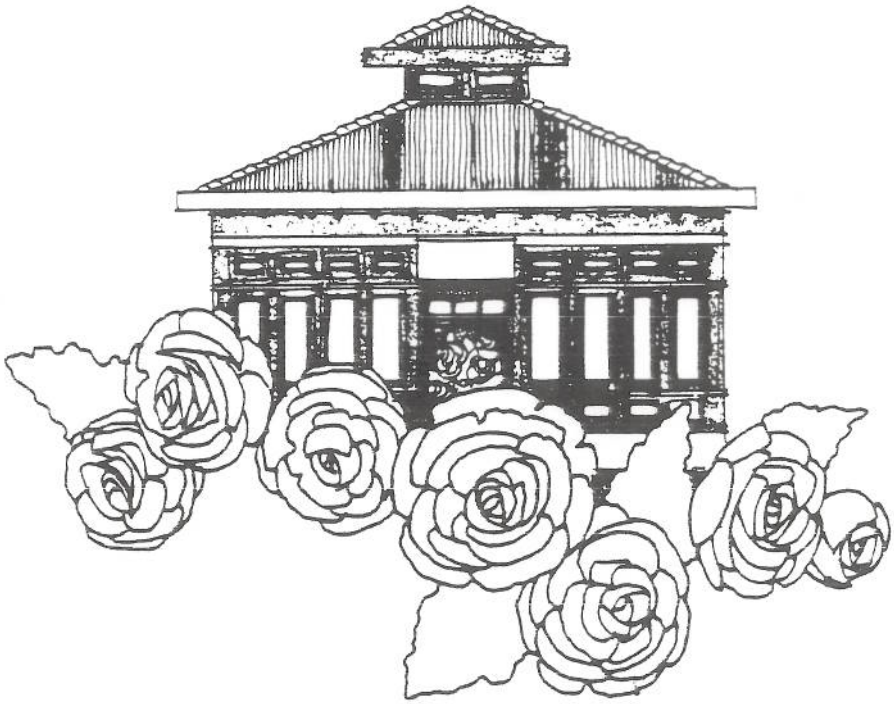
Client: BATHURST CITY COUNCIL

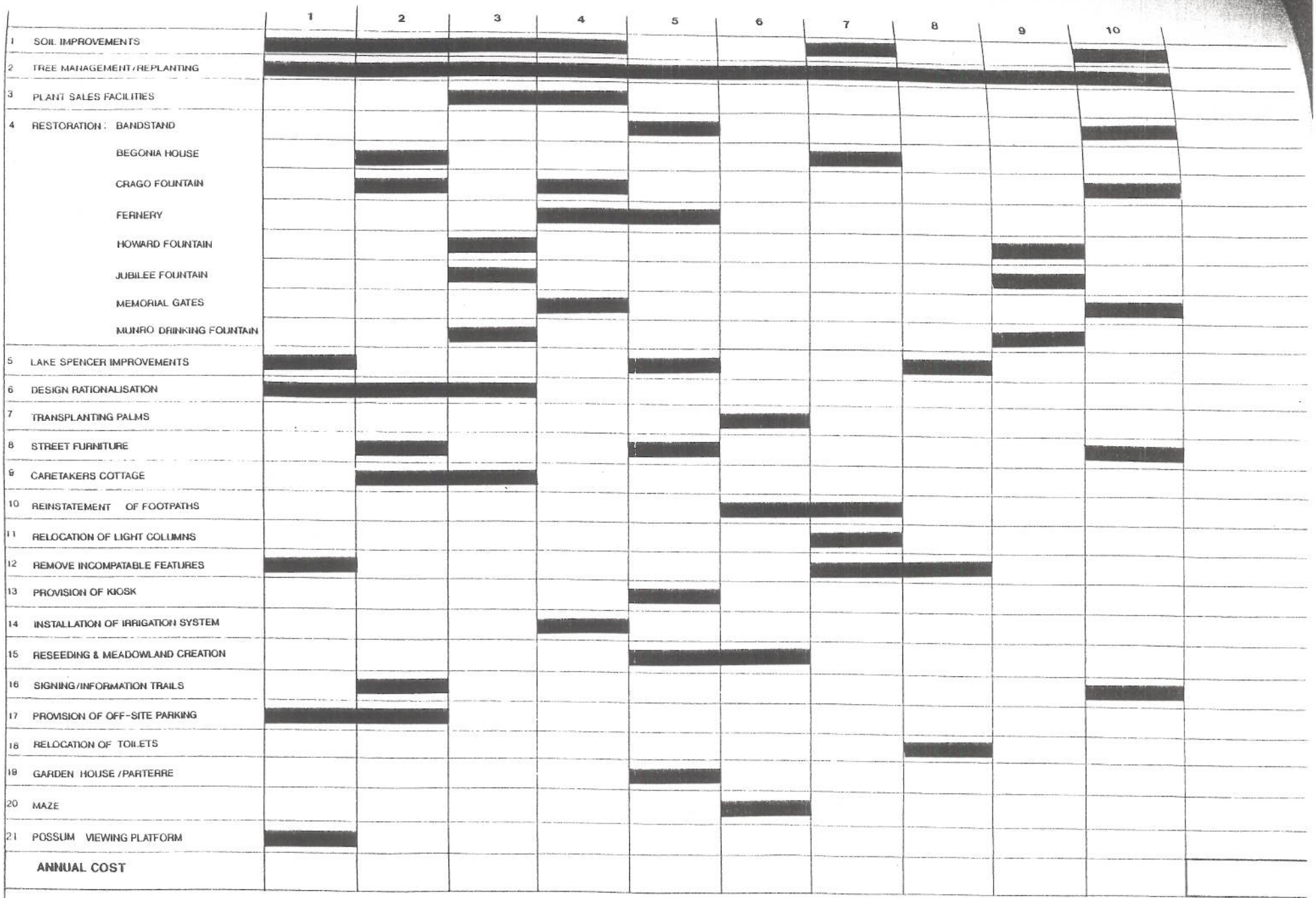
Drawing No: L7

Gutteridge Haskins & Davey Pty Ltd — Consulting Engineers, Planners, Surveyors; Project Managers

Job No. 211/022786/00

PROGRAMME OF WORKS

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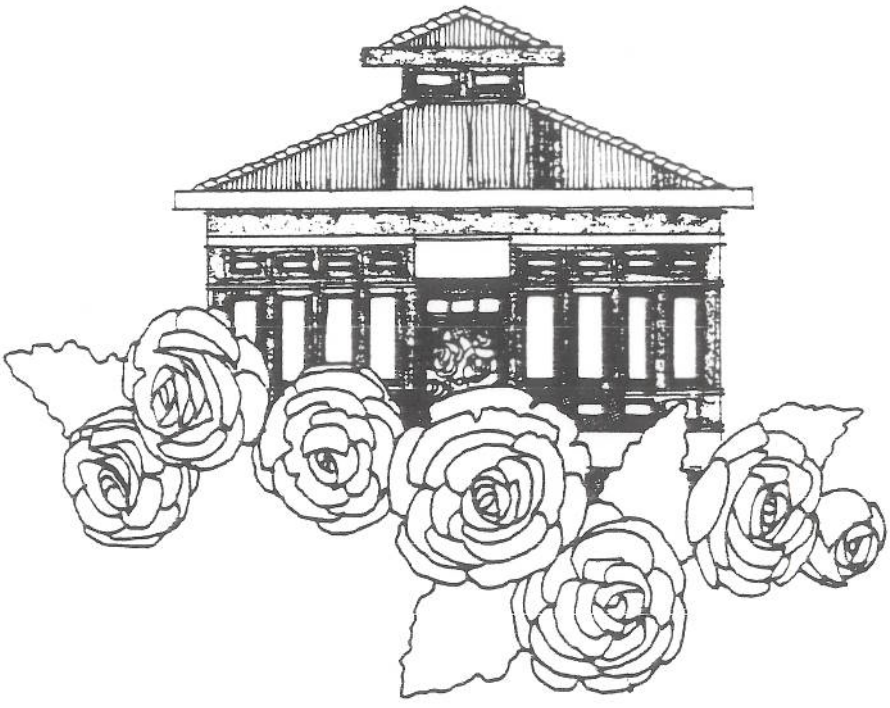
1 SOIL IMPROVEMENTS
2 TREE MANAGEMENT/REPLANTING
3 PLANT SALES FACILITIES
4 RESTORATION : BANDSTAND
BEGONIA HOUSE
CRAGO FOUNTAIN
FERNERY
HOWARD FOUNTAIN
JUBILEE FOUNTAIN
MEMORIAL GATES
MUNRO DRINKING FOUNTAIN
5 LAKE SPENCER IMPROVEMENTS
6 DESIGN RATIONALISATION
7 TRANSPLANTING PALMS
8 STREET FURNITURE
9 CARETAKERS COTTAGE
10 REINSTATEMENT OF FOOTPATHS
11 RELOCATION OF LIGHT COLUMNS
12 REMOVE INCOMPATABLE FEATURES
13 PROVISION OF KIOSK
14 INSTALLATION OF IRRIGATION SYSTEM
15 RESEEDING & MEADOWLAND CREATION
16 SIGNING/INFORMATION TRAILS
17 PROVISION OF OFF-SITE PARKING
18 RELOCATION OF TOILETS
19 GARDEN HOUSE /PARTERRE
20 MAZE
21 POSSUM VIEWING PLATFORM
ANNUAL COST
* MAJOR REVIEW UNDERTAKEN

TOTAL

FUNDING



12. FUNDING

Government and State Organisations

In order to assist the City Council with regard to the funding of the Management Plan Recommendations, a number of government organisations have been contacted with regard to providing alternative sources of funding. These include:

- The National Trust
- The Heritage Council
- The Historic Houses Trust
- The Arts Council
- New South Wales Tourism Commission
- Bathurst and Orange Development Corporation

From discussions with these organisations it would appear that availability of grants for the work as outlined in the Management Plan are severely limited. Not all of the above are funding authorities and those that are express the view that increasing demands are being placed on depleted resources. The only potential sources which would seem to be available are:

- The Heritage Conservation Programme run by the Heritage Council;

- The Capital Grants Programme run by the Ministry of Arts; and

- The Tourism Development Fund operated by the New South Wales Tourism Commission.

With the first, Council will already be regularly receiving application forms and advice to apply for grants. Funding is normally on a 50/50 contributory basis with community rate loans available at 7.5% per annum and falling. This source is worth pursuing once a programme of works has been adopted and schemes are clearly identified.

The Ministry of Arts operates the Capital Grants Programme under which there are three programmes:

- Capital Arts Programme
- Community Arts Programme
- Acquisition Programme

To be eligible, projects need to demonstrate that they are of benefit to the artistic and cultural life of the community. The maximum grant available is 50% of the total cost. The only work that might be applicable within the park for such grant assistance from the Capital Arts Programme would be in association with the Bandstand or the purchase of works of art, i.e., sculpture, through the Acquisitions Programme. The Ministry, through its Community Arts Programme also supports various initiatives such as art fairs and shows and this is co-ordinated through the Arts Council for Rural Projects in New South Wales. They, in turn, operate through smaller co-ordinating bodies, which for Bathurst is the Central West Community Arts Organisation. Although not of direct assistance to the works proposed in the Management Plan, there is enormous potential in involving such organisations to recultivate and revive the park as a centre for social and leisure activities.

The other possible source of funding (and the most tenuous) is from the New South Wales Tourism Commission. Grants are available through the Tourism Development Fund, one of its aims being to assist with improvements to Tourist Information Centres. If the proposal is acceptable that the Caretaker's Cottage be utilised in this way, assistance up to 50% of the cost of the project from this fund may be following.

Other Sources

The Bathurst Chamber of Commerce and Industry were contacted to ascertain the likely response of local businesses to sponsoring any improvements. Although the Chambers do sponsor a number of initiatives within the city, they have indicated that they do not have sufficient resources to offer any financial assistance towards Machattie Park and indeed consider it the Council's responsibility. The Council may consider however, approaching local

businesses on an individual basis with regard to sponsorship, whereby financial donations or the offering of specific items such as seats and litter bins are acknowledged on suitable plaques or signs. Unless very carefully managed, this approach may be considered to be unsuitable with regard to the Parks heritage status.

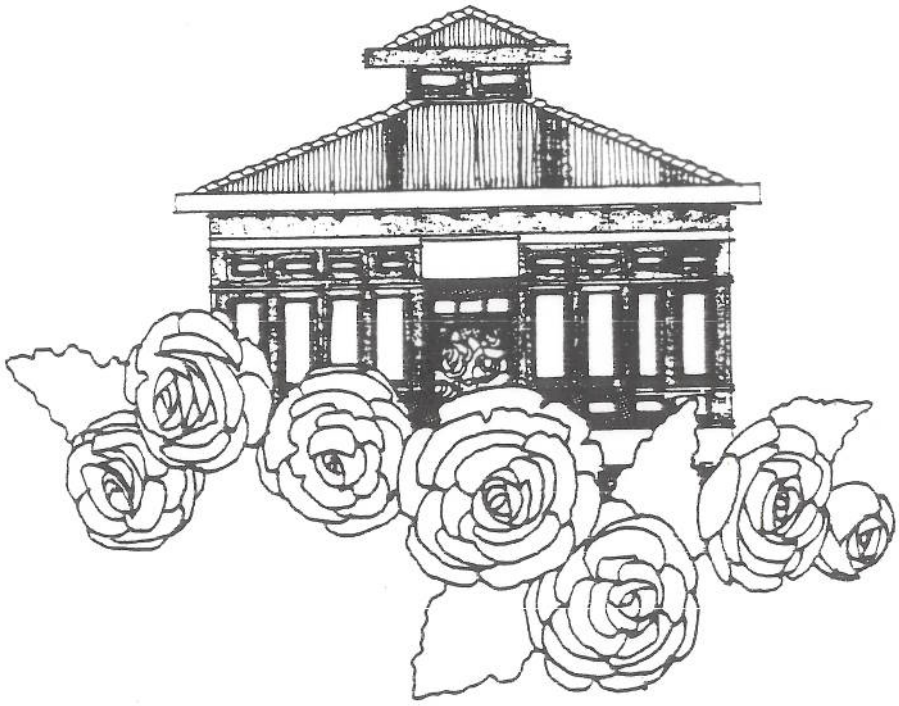
Potentially the most successful way in which finance may be raised outside of the Council's normal revenue resources, would be the establishment of a trust or "Friends of Machattie Park Association". Such an Association could be established to provide a corporate body charged with the responsibility of raising funds specifically for improvements to Machattie Park.

For this Association to be successful, it would be important to ensure that a description of the responsibilities and the aims and objectives of the Association are carefully set out in the Articles of Association of the Company. Fund raising may include researching the availability of government funding as well as alternative sources such as organising raffles, competitions, donations etc.

A number of improvements suggested within the Management Plan will, hopefully, ensure some degree of revenue return, namely the kiosk, display area and plant sales. Before such improvements are implemented however it would be necessary to prepare business plans to research amongst other things the cost of their establishment and to forecast future returns and cost flow.

Undoubtedly, raising the profile of the Park and informing the public at large of the current problems, proposed solutions, programme of improvements and the likely cost of the works would do a great deal to harness public support for the Management Plan and the work that it entails. By doing so, the success of any fund raising ventures are likely to be enhanced.

SUMMARY



13. SUMMARY

Machattie Park grew out of the desire of the people of Bathurst to secure in the centre of the City a park which would be both beautiful and the object of admiration by visitors to Bathurst. Today, over 100 years after its opening, Machattie Park is still inciting admiration from residents of visitors to Bathurst, particularly as a result of its many fine mature trees and the high quality of decorative features within it. Without question it is a significant example of a late 19th Century country town park. Testament to this is its classification by a number of authorities, most notably the National Trust of Australia (NSW).

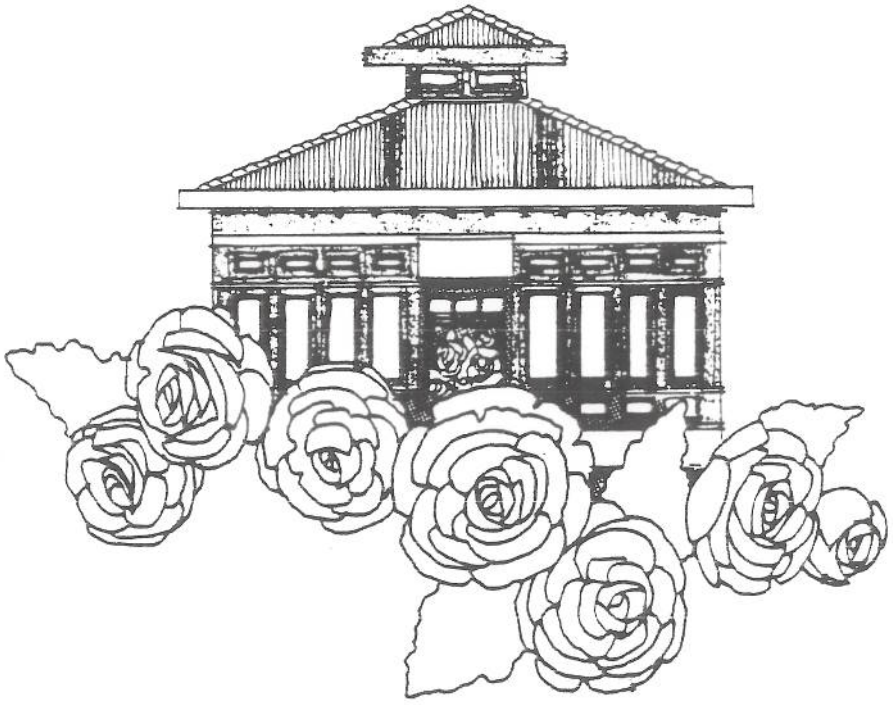
This report has examined the park from a number of aspects, most notably Historic, Horticultural, Maintenance and Social. In doing so, a number of issues have been raised which have been addressed in the Recommendations Section. The report also sets down clear guidelines of how the park should be managed for the future, and it is against this long-term strategy that all specific recommendations are made.

The principal objective that has been determined is to restore the park as far is practical to its original layout and to renovate the remaining original features within it. At the same time, in response to the social survey and contemporary needs and aspirations, a number of new features and facilities are recommended.

Of major significance to the park and indeed the City is the magnificent collection of mature and exotic trees. The horticultural surveys have exposed a major area of concern: the condition of the soil and the effect that this is having on the health and longetivity of the trees. Without immediate action the existing trees will fall into further decline and more drastic measures will need to be taken. Attending to the measures outlined in the Horticultural Recommendations with regard to Soil Amelioration and Tree Management should ensure that the majority of trees are able to reach their normal age of maturity, and that a programme of replanting will provide satisfaction for generations to come. Some difficult decisions with regard to the felling of trees will have to be taken for such a programme to be effective.

To maximise the potential of the park, recommendations are also made with regard to improving visitor facilities and expanding upon the information that is available. Equally important is the realisation of any ventures which may result in any financial return and thereby assist with the cost of the works envisaged. The report highlights areas where this may be considered, but further research will be required to ascertain their validity and mode of operation.

GLOSSARY OF GARDEN AND GARDEN HISTORY TERMS



14. GLOSSARY OF GARDEN AND GARDEN HISTORY TERMS

Annuals — Plants which grow from seed to maturity and produce flowers which in turn produce seeds all within the space of a year. The colour range and variety of annuals is quite dazzling.

Arboretum — Botanical tree garden. Collection of specimen trees.

Arboriculture — Cultivation of trees and large shrubs.

Bandstand — Covered outdoor platform on which a band may conveniently assemble and perform to a surrounding audience.

Bedding Plants — Low growing plants generally grown for a season of the year. They are changed usually twice or three times a year.

Carillon — A set of bells sounded either from a keyboard or mechanically. A tune played on bells.

Dicotyledon — Flowering plants having two cotlyledons. *(Cotyledon)* Primary leaf in embryo of higher plants. A seed leaf. When a seed germinates the first leaves which are formed are the cotyledon.

Garden House — A detached building within a large garden frequently located at the angles of walls or at the ends of terraces, where commanding views of an enclosed garden or parterre on one side and a park or open space on the other side can be achieved. They may also serve as places for study or repose.

Gazebo — A building within the corner of a walled garden where views beyond the safety and security of the walled garden may be achieved, as well as views into the garden itself. They were originally constructed for the

ladies of a manor house so that they could enjoy open country views from within the walled security of the property. Gazebos date from the early Elizabethan days onwards.

Horticulture — The science and art of garden cultivation. The cultivation of garden plants.

Maze — Complex network of paths defined by hedges or walls, designed as a puzzle for those who try to penetrate it. Established on level ground often set lower than the surrounding area. As a labyrinth the hedges should be higher than the eye level of the user.

Parterre — Originally Italian and of many different types, these were revived in gardens of the houses of the English Renaissance. Parterres consist of a level space occupied by flower beds laid out in geometric, floral or scrolled patterns. Flower beds are generally edged in a dwarf hedge of box, lavender, cotton lavender and Euonymus. They are generally viewed from an adjacent terraced footpath on one or all four sides.

Perennial — Plants which last through all seasons. They are soft stemmed flowering plants that bloom, die back in the autumn, then produce new growth in the following season for at least three years, and often longer.

Pergola — Originally from Italy, a timber structure for the support of vines (from the Latin "pergula" – projecting roof). Generally, a continuous structure constructed of timber, stone brick or metal piers, often ornamental, with an arched, pitched or flat roof structure of beams, trellising and wires for the support of climbing plants.

Rotunda — Building with a circular ground plan most commonly with a doomed roof. A circular hall or room.

Terrace Raised level space, natural or artificial, especially for walking or standing. It is often paved with a hard wearing material such as stone slabs, brick pavers, concrete or rolled gravel.

Trellis Lattice or grating of light wooden crossbars nailed together where they cross. Later developed as ornamental woodwork commonly used for screening, sheltering and as a frame for climbing plants.

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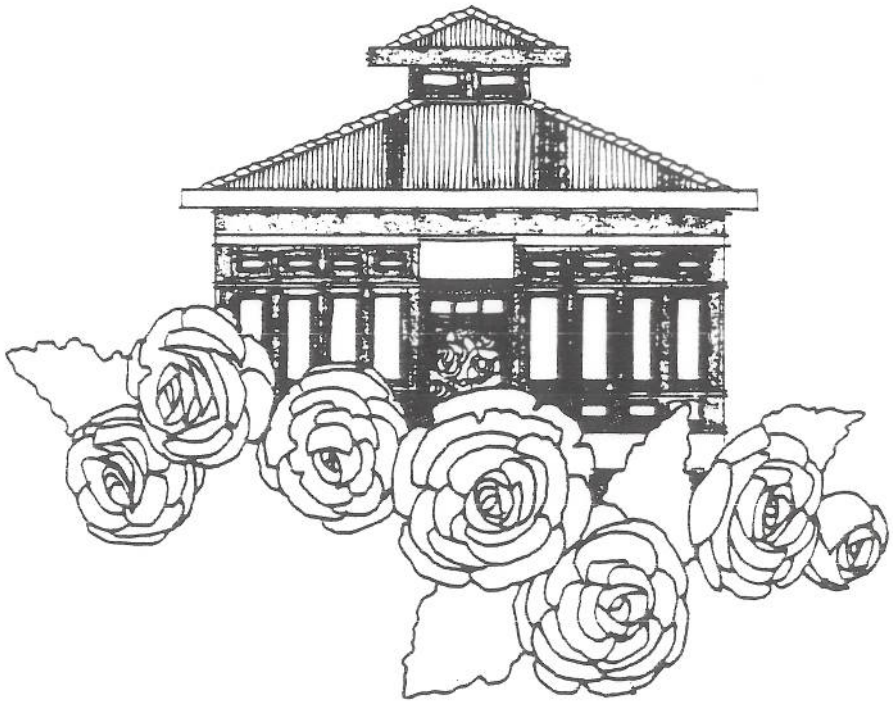

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25 October, 1934

The Bathurst Daily Times

17 January, 1889

19 March, 1890

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22 December, 1890

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20 September, 1905

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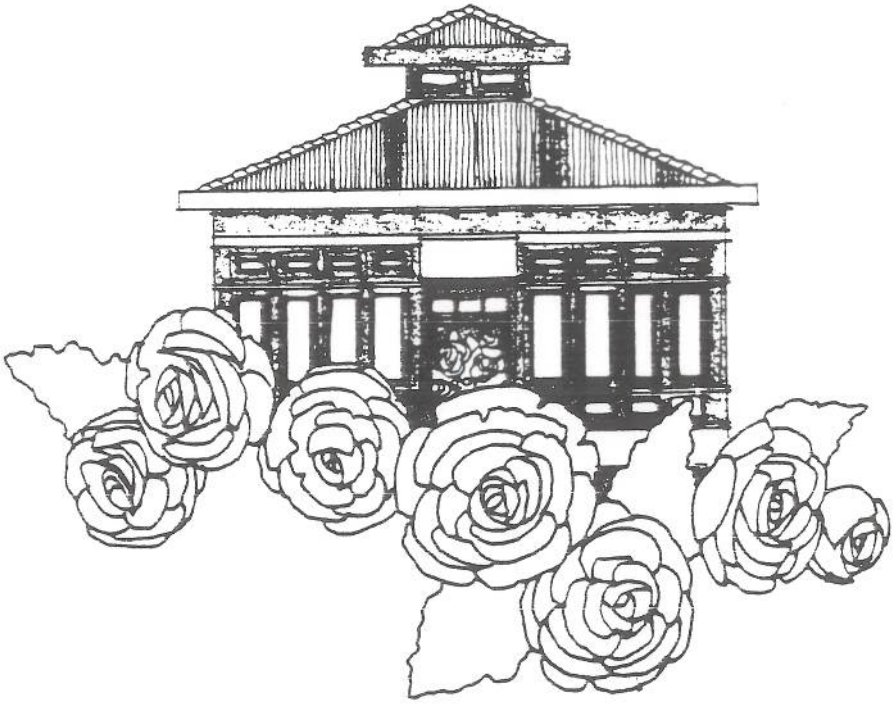
17 September, 1953

APPENDICES



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APPENDIX 1

SOIL ANALYSIS RESULTS

APPENDIX 1

Soil Analysis Results

Methods:

The park was arbitrarily divided into approximate 50 m squares and auger holes bored to a depth of about 500 mm on the 50 m grid pattern. Samples were taken from each auger hole and separately bagged and marked.

Since the auger was not capable of excavating to the depth of the original soil surface (before the addition of the alluvial topsoil), a backhoe was used to dig trenches in two locations in order to determine the deeper profile.

The original clay subsoil was encountered at a depth of 500mm in excavation 1 and to 800 mm in excavation 2. Evidence of other materials such as crushed brick and mortar, cool breeze and granite sand was found, mainly used as underlay for previously existing pathways.

All samples were submitted to Sydney Environmental and Soil Laboratory. It was decided that since the alluvial topsoil samples were so similar they should be bulked together and analysed as one average sample.

Samples were also assessed for bulk density and moisture content to gauge the degree of compaction and infiltration. Where soil analysis results showed sodification, the irrigation water was analysed to determine the cause.

All laboratory results and recommendations are included.

SYDNEY
ENVIRONMENTAL
AND SOIL
LABORATORY
PTY LTD

Client: Treescan

Sample: 159

Date: 2-2-90

COMPLETE CHEMICAL ANALYSIS

TEST	Result	
pH in water	7.2	high pH
pH in CaCl2	6.8	too high
Salinity mmhos/cm	0.43	some salts
Chlorides ppm	11.9	
* Soluble cations	meq%	ppm
Sodium	0.28	63.5 high
Potassium	0.03	10.9
Calcium	0.52	103.2 high
Magnesium	0.40	48.8 high
* Soluble plus exchangeable cations		
Sodium	0.52	119.0 bit high
Potassium	0.19	72.2 very low potash
Calcium	7.37	1474.0 OK
Magnesium	4.70	573.4 bit high
* Sum of exchangeable cations	11.6	
* Measured cation exchange capacity	10.7	
Ca/Mg ratio	1.6	low Ca/Mg
% Aluminium	0.0	
* Nutrient		ppm
Phosphorus		14.5 low P
Nitrogen as ammonium		11.4 low N
as nitrate		3.9
Sulphate		14.0 low S
Iron		167.0 low Fe at this pH

An unusual situation. pH is too high perhaps from overliming over many years or from sodification. Nutrient levels are all very low and severely limiting.

Subsoil sample:

pH in H2O	6.6
in CaCl	6.0
EC mS/cm	0.21

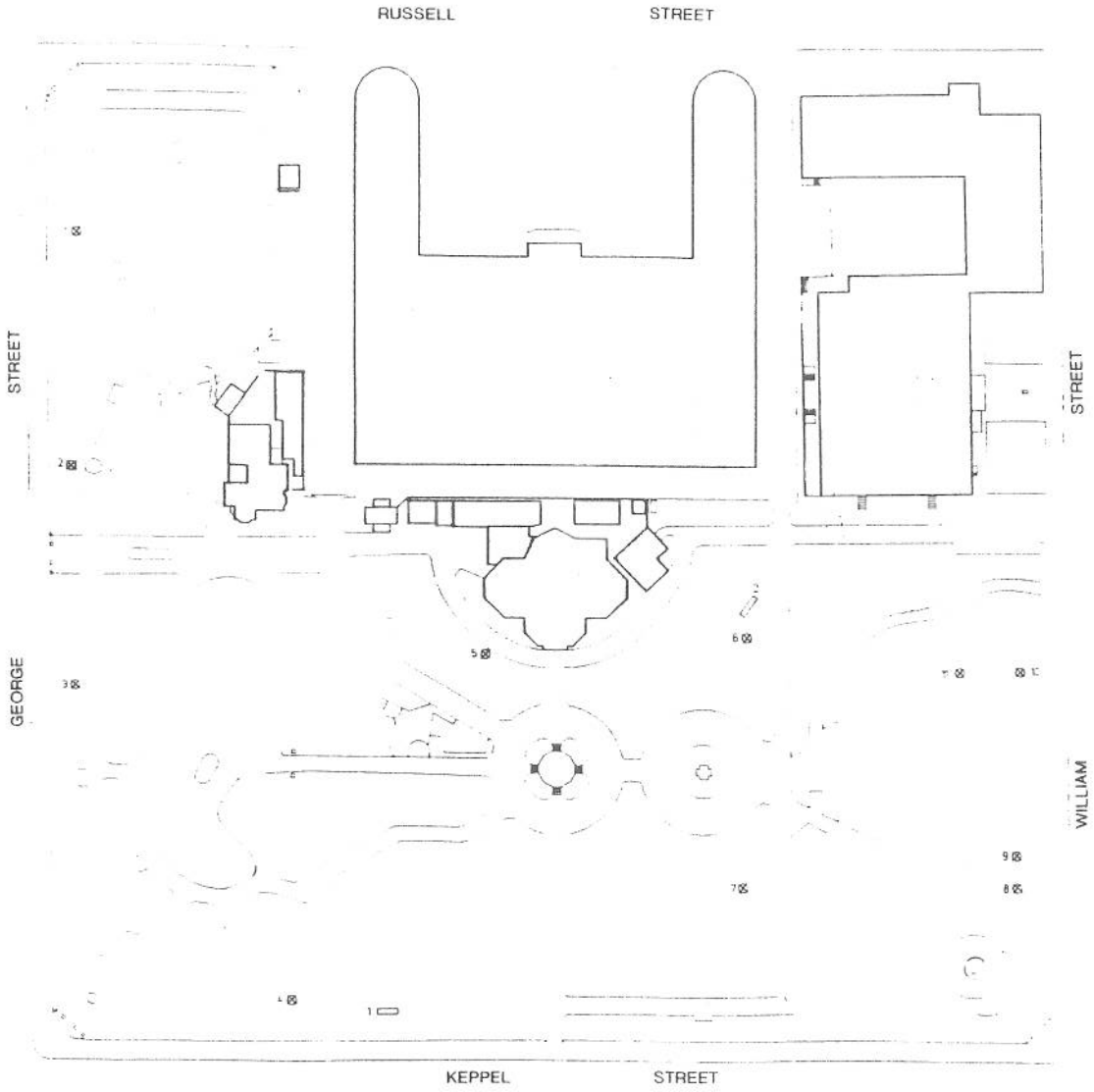
See accompanying report for recommendations.

1002 PACIFIC HIGHWAY
PYMBLE NSW 2073

TELEPHONE
02 488 8925

APPENDIX 2

SOIL SURVEY PLAN



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MACHATTIE PARK

SOIL SURVEY

Client
BATHURST CITY COUNCIL

Drawing No.
LS

Gutteridge Haskins & Davey
Consulting Engineers

Job No

APPENDIX 3

SOIL ANALYSIS: RELEVANT CORRESPONDENCE FROM LABORATORY

SYDNEY
ENVIRONMENTAL
AND SOIL
LABORATORY
PTY LTD

15-2-90

Mr David Ford
TREESCAN
61 Glossop Rd.
LINDEN
NSW 2778

Dear David

Re: Machattie Park Investigations.

Physical tests revealed that the main limitation to growth is the severe state of compaction of the silty loam alluviums placed over the existing soil at some stage in the past. While improved fertiliser levels could be expected to give greater resistance to comacted soil for lawns it will not do much good for the trees without decompaction work.

We suggest that compaction relief work be carried out under the main speciman trees of greatest concern initially. This work should be deep such as is achieved by the "Terralift". On the rest of the area, turfings etc sand slitting would be adequate.

We strongly discourage close mown turf under valuable trees. Not only does this provide severe root competition by sod-forming grasses but the actions of mowing etc causes soil compaction and poor water and air entry to the soil.

Under the canopy we would suggest a meadow type grassing using non stolonating grasses such as rye, fescue or bent, with the inclusion of clovers and medics. Bulbs and other naturalising plants like fressias, daffodils, jonquils etc can be used to add complexity and visual interest. These areas should only be slashed or high-mown once or twice a year.

In terms of fertilisers we would make the following recommendations based on the soil tests-

Apply Gypsum 200g/sqm

leach heavily to remove salts

Apply Iron sulphate 100g/sqm water in well.

superphosphate 50g/sqm
muriate of potash 50g/sqm
Nitram 50g/sqm

After these additions further maintainance with a balanced NPK mixed fertiliser should be adequate yearly at 100g/sqm.

Test again 6 weeks after this treatment to determine the effectiveness of the pH adjustment.

Yours

1002 PACIFIC HIGHWAY
PYMBLE NSW 2073

TELEPHONE
02 488 8925

SYDNEY ENVIRONMENTAL AND SOIL LABORATORY · PTY · LTD ·

Mr David Ford: TREESCAN

Samples: Machattie Park Physics

Sample	Density G/cc	Moisture Content g/g
1 in Tin	1.7	0.07
2 in pot	1.65	0.09

It is clear that these materials are highly compact to the point of root penetration being restricted. Compaction is also leading to poor water penetration and poor water holding ability as evidenced by these low moisture contents in an area which is apparently irrigated regularly. Clearly water is not penetrating the profile due to compaction.

The texture of the material is a sandy loam with some silt content. It appears to be of alluvial origion and such materials are often associated with severe compaction problems.

We suggest that apart from the feeding programme outlined previously, important areas should have some compaction relief work done.

Simon Leake

13-2-00

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PYMBLE NSW 2073

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APPENDIX 4

TREE INVENTORY

APPENDIX 4

Tree Inventory

Tree numbering, position, approximate height and girth were taken from Bathurst City Council Drawings EN 4302, 4303, 4304 and 4305.

Tree species identification generally follows these drawings and is amended where possible with accurate identification of species.

There are several different Elm varieties present in the park but identification is difficult without the examination of fruit not available except in late spring.

One of these varieties is reported the 'Huntingdon Elm' planted along George Street. This is a commonly planted Elm in Australian Parks and is botanically know as *Ulmus x hollandica* var. *"Vegeta"*, otherwise a variety of the cross between *Ulmus glabra* (Wych Elm) and *Ulmus minor* (Smooth Leafed Elm). This variety arose in 1760 beneath a Wych Elm at Hinchingbrook Park, England, and was propagated by the Huntingdon nurserymen Ingram and Wood.

Another variety is the variegated leaf Elm, which may be either *Ulmus procera* var. 'Argenteo–variegata' (Variegated English Elm) or *Ulmus minor* var. 'Variegata'.

At present all these varieties remain listed under *Ulmus procera* until further identification is carried out.

The following table describes all trees listed within the Park. All dimensions are in metres.

TABLE

No.	Common Name	Height	Circum.	Spread	Comments and/or Treatment
1	Ulmus procera	24	3.8	16	Epicormic shooting on trunk and branch. Remove minor dead wood and thin.
2	Platanus occidentalis	21	2.4	8	Double trunk – cavity in one. Erect form. Thin crown and reduce weight.
3	Ulmus procera	15	2	5	Suppressed – crown dieback. Remove.
4	Quercus robur	18	2.5	15	Oak blotch minor present. Erect form. Prune to lift canopy.
5	Olea europea	3	–	3	Poor condition. Remove.
6	Ulmus procera	12	1	9	Decay in wound. Lopped. Remove.
7	Photinia glabra	2.5	–	–	Poor condition. Remove.
8	Betula pendula	4	1.4	–	Poor condition. Lopped. Dying. Remove.
9	Fraxinus excelsoir	3	0.4	–	Good condition.
10	Trachycarpus fortunei	3.5	–	–	Transplant to palm grove.
11	Ulmus procera	24	3.4	17	Epicormics. Minor broken branches. Slime flux in crotch. Thin crown and reduce long overhangs.
12	Ulmus procera	24	3.1	16	Epicormics. Minor dieback, crown OK. Cavity (possum) in trunk. Erect form. Thin epicormics.
13	Ulmus procera	24	3.3	16	Lesser epicormics. Minor dead wood. Crown OK. Thin weak crossing branches.

Cont'd

No.	Common Name	Height	Circum.	Spread	Comments and/or Treatment
14	Prunus x blireana	2.5	–	3	Remove.
15	Osmanthus fragrans	3	–	4	Good condition.
16	Photinia glabra	4	–	–	Good condition.
17	Cedrus atlantica	4	–	–	Transplanted.
18	Cedrus atlantica	15	1.6	12	Good condition.
19	Crataegus phaenopyrum	5.5	–	6	Good condition.
20	Crataegus monogyna	6	–	9	Good condition. Thin crossing branches.
21	Crataegus monogyna	6	–	8	Good condition.
22	Fraxinus "Raywood"	6	–	8	Remove dead.
23	Leptospermum sp	–	–	–	Removed.
24	Cedrus deodara	15	2.3	16	Good condition.
25	Ulmus procera	15	3.5	16	Bad crown dieback. Severe cavity and decay in crotch. Remove.
26	Ulmus procera	15	2.5	6	Epicormics. Dieback in crown. Remove
27	Ulmus procera	12	1.8	8	Epicormics. Dieback. Consider removal.
28	Ulmus procera	9	2.3	6	Epicormics. Dieback. Cavity in trunk. Consider removal.
29	Pittosporum indulatum	6	1.6	5	Concrete to trunk base. Cavity in trunk. Remove.

Cont'd

No.	Common Name	Height	Circum.	Spread	Comments and/or Treatment
30	Trachycarpus fortunei	7.5	-	-	Good condition. Transplant.
31	Trachycarpus fortunei	7.5	-	-	Good condition. Transplant.
32	Ulmus procera "Variegata"	13	1.2	11	Remove minor dead wood.
33	Ulmus procera "Variegata"	13	1.2	6	Remove minor dead wood.
34	Ulmus procera	21	3.1	15	Crown dieback, heavy epicormics. Raise canopy to release No. 35. Reduce overhangs.
35	Ulmus procera	4	0.5	9	Crown dieback. Suppressed. Consider removal.
36	Ulmus procera	18	2.5	9	Crown dieback. Bad epicormics. Consider removal.
37	Photinia glabra	2	-	-	Good condition.
38	Eucalyptus sp	14	1.6	8	Epicormics. Prune to vertical form and remove dead wood. Consider removal.
39	Quercus robur	15	2.2	12	Leader dieback. Thin crown. Prune deadwood.
40	Ulmus procera	6	1.3	4	Topped. Remove.
41	Ulmus procera	12	2.9	17	Epicormics. Prune branches off light standard.
42	Arbutus unedo	4	-	4	Suppressed. Minor bark damage.
43	Ulmus procera	9	1.5	7	Epicormics. Dieback. Remove.
44	Ulmus procera	12	2.6	14	Epicormics. Dieback. Crown lift and prune to vertical.
45	Photinia glabra	4	2.6	8	Good condition.

Cont'd

No.	Common Name	Height	Circum.	Spread	Comments and/or Treatment
46	Ulmus procera	16	2.8	8	Epicormics. Prune weak branches.
47	Ulmus procera	16	1.7	6	Erect form: Suppressed. Consider removal.
48	Ulmus procera	16	2.5	9	Erect form. Epicormics but OK.
49	Araucaria bidwillii	24	2.3	11	Good condition.
50	Prunus serrulata	3	–	–	Poor condition. Remove.
51	Taxus baccata	2	–	2	Poor conditon. Remove.
52	Juglans nigra	12	1.6	13	One sided (competition) but OK.
53	Cupressus sp.	14	–	16	Thin canopy but sound.
54	Fraxinus excelsoir	9	1.2	5	Suppressed. Dieback. Remove.
55	Photinia glabra	4	–	–	Good condition.
56	Arbutus unedo	4	–	–	Poor condition. Remove.
57	Buxus balearica	6	2.4	–	Control insect pest. Consider removal.
58	Quercus suber	6	1.6	6	Good condition.
59	Ulmus parvifolia	6	1.1	7	Good condition.
60	Ulmus procera	7	1.8	8	Epicormics
61	Ulmus procera "Variegata"	9	1.0	4	Minor dead wood.
62	Ulmus procera	9	1.4	5	Remove to thin row.

Cont'd

No.	Common Name	Height	Circum.	Spread	Comments and/or Treatment
63	Ulmus procera	18	3	9	Crown dieback. Prune dead wood and stubs. Crown lift.
64	Ulmus procera	18	3.1	14	Double trunk. Minor dead wood.
65	Quercus robur	13	2.5	14	Minor dead wood. Sparse crown but OK.
66	Cotoneaster lacteus	2	–	5	Good condition.
67	Fraxinus "Raywood"	4	0.3	2	Good condition for slow growth.
68	Ulmus procera	18	2.6	16	Epicormics. Crown lift.
69	Photinia glabra	3	–	4	Good condition.
70	Photinia glabra	3	–	5	Good condition.
71	Pinus sp	27	2.6	16	Straight leader but sparse crown.
72	Ulmus procera	10	1.6	9	Bad stub dieback. Prune dead wood.
73	Arbutus unedo	4	–	5	Good condition.
74	Photinia glabra	2	–	–	Good condition.
75	Ulmus procera	19	2.7	13	Epicormics.
76	Cypressus torulosa	9	1.7	–	Leaning. Bad dieback. Remove

Cont'd

No.	Common Name	Height	Circum.	Spread	Comments and/or Treatment
77	Malus floribunda	3	-	-	{
78	Malus floribunda	3	-	-	{ Fair condition. Consider removal or transplant.
79	Malus floribunda	2	-	-	{ Prune Q. robur (81) to clear overhead.
80	Malus floribunda	2	-	-	{
81	Quercus robur	21	2.9	26	Epicormics. Minor dead wood. Lift and thin crown.
82	Ilex sp	4	-	7	Good condition.
83	Cordyline australis	-	-	-	Transplant to palm grove or container.
84	Ilex sp	4	-	7	Good condition.
85	Acer pseudoplatanus	4	0.4	4	Good condition.
86	Fraxinus excelsoir "Aurea"	4.5	0.7	7	Minor pruning of weak branches.
87	Ilex cornuta	3	-	3	Good condition.
88	Ilex sp	2	-	-	Good condition.
89	Budleia pubescens	1.5	-	-	Good conditoin.
90	Picea pungens	2.5	0.2	2	Good condition.
91	Camelia japonica	1	-	-	{
92	Camelia japonica	1.5	-	-	{
93	Camelia japonica	2	-	-	{ Consider removal or transplant to shurb area.
94	Camelia japonica	1.5	-	-	{

Cont'd

No.	Common Name	Height	Circum.	Spread	Comments and/or Treatment
95	Cedrus deodara	30	4.9	22	Prune dead wood and stubs. Remove wires.
96	Camelia japonica	1	-	-	{
97	Camelia japonica	2	-	-	{ Consider removal or transplant. {
98	Liquidamber styaciflua	15	1.2	6	Prune vertical to clear other trees. Overplanted: consider removal.
100	Prunus serrulata	6.5	-	11	Prune minor dead wood.
99	Arbutus unedo	2	-	-	Poor condition. Remove.
101	Pyracantha spp	2	-	-	{
102	Pyracantha spp	3	-	-	{
103	Pyracantha spp	3	-	-	{ Remove or transplant. (101 dying) {
104	Pyrancantha spp	3	-	-	{
105	Pyrancantha spp	3	-	-	{ {
106	Prunus serrulata	0.5	-	5	Poor shape. Remove
107	Arbutus unedo	7.5	-	10	Prune minor dead wood.
108	Nothofagus fusca	7.5	1	10	Good condition.
109	Magnolia grandiflora	9	1.9	12	Prune dead wood.
110	Cordyline australis	6	0.8	-	Transplant to palm grove or container.

Cont'd

No.	Common Name	Height	Circum.	Spread	Comments and/or Treatment
111	Magnolia grandiflora	9	–	10	Good condition. See 113.
112	Liquidamber styraciflua	15	1.1	10	Prune to vertical. Overplanted. Consider removal.
113	Cedrus deodara	30	4.4	19	Prune dead wood and stubs. Prune off 111. Remove wires.
114	Trachycarpus fortunei	7.5	–	–	Good condition.
115	Cedrus deodara	33	4.8	28	Prune weak branches and dead wood. Remove wires.
116	Cedrus atlantica	25	3	16	Prune dead wood.
117	Aucuba japonica	2	–	–	Good condition.
118	Ilex cornuta	4	–	–	Good condition.
119	Sequoiadendron giganteum	31	4.8	9	Prune dead wood.
120	Acer campestre	10	–	7	Broken. Remove.
121	Nyssa sylvatica	8	0.7	5	Good condition.
122	Acer palmatum	2.5	–	2	Poor condition. Remove.
123	Cedrus atlantica	24	3.7	23	Remove wires and insulators.
124	Magnolia x soulangiana	2.5	–	–	Weak roots. Prune hard or remove.
125	Trachycarpus fortunei	6	–	–	Good condition.
126	Prunus serrulata	2	–	3	Good condition.

Cont'd

No.	Common Name	Height	Circum.	Spread	Comments and/or Treatment
127	Malus floribunda	4	-	7	Good condition.
128	REMOVED	-	-	-	
129	Cedrus deodara	21	3.1	18	Sparse crown. Prune stubs.
130	Cordyline australis	3	-	-	Transplant or container.
131	Ulmus procera "Variegata"	21	3.7	28	Epicormics. Prune off 137.
132	Cedrus atlantica	19	2.8	10	Very thin and one-sided. Consider removal.
133	Grevillea rosmarinifolia	1.5	-	-	Good condition.
134	Fagus sylvatica "Cuprea"	9	0.8	4	Good condition.
135	Ceratonia siligua	8	-	10	Trunk cavity and decay.
136	Cedrus deodara	24	4	19	Thinning on NE side. Prune dead wood.
137	Cedrus deodara	24	-	23	One-sided competing with 131. Prune competing branches.
138	Cedrus deodara	24	3.8	26	Good condition.
139	Ilex sp	3.5	-	3	Good condition.
140	Acer platanoides	8	-	6	Good condition.
141	Fraxinus excelisior "Aurea"				

Cont'd

No.	Common Name	Height	Circum.	Spread	Comments and/or Treatment
142	Cotoneaster lacteus	1.5	-	3	Consider removal (Ulmus row)
143	Cedrus deodara	21	2.5	16	Prime minor dead wood.
144	Ulmus procera	16	2.2	18	Epicormics but OK.
145	Cedrus deodara	21	3	15	Canopy thin but OK.
146	Araucaria bidwillii	23	4.4	14	Good condition.
147	Liqustrum lucidum	3	-	-	Remove.
148	REMOVED				
149	Cedrus deodara	18	2.4	12	Very thin canopy. May not improve.
150	Laurus nobilis	8	-	5	Good condition.
151	Cedrus deodara	21	2.7	14	Thin canopy. May not improve.
152	Trachycarpus fortunei	3	-	-	Tansplant or container.
153	Ulmus procera	8	1.4	6	Epicormics but OK.
154	Ulmus procera	8	1.6	9	Epicormics but OK.
155	Ulmus procera	12	2.2	10	Erect form. Epicormics.
156	Ulmus procera	12	2.9	9	Epicormics.
157	Ulmus procera	10	1.4	9	Epicormics.

Cont'd

No.	Common Name	Height	Circum.	Spread	Comments and/or Treatment
158	Ulmus procera	10	1.4	6	Epicormics.
159	Ulmus procera	10	1.5	9	Epicormics.
160	Ulmus procera	13	2.8	8	Hazardous cavity in trunk. Remove.
161	Ulmus procera	16	3	12	Epicormics. Prune dead wood.
162	Ulmus procera "Variegata"	14	1.7	11	Epicormics but minor.
163	Quercus suber	9	1.9	12	Bad epicormics. Prune and thin.
164	Acer buergeranum	3?	0.5	5	Dying. Remove.
165	Arbutus unedo	6	–	7	Good condition.
166	Prunus cerasifera "Nigra"	3	–	–	Dying. Remove.
167	REMOVED				
168	Ulmus procera "Van Houtt"	4.5	–	3	Good condition.
169	Trachycarpus fortunei	4	–	–	Good condition.
170	Viburnum tinus	2	–	–	Good condition.
171	REMOVED				
172	Ulmus parvifolia	4	–	2	Good condition.
173	Arbutus unedo	4	–	8	Good condition.
174	Ulmus parvivolia	22	2.8	21	Prune overhanging branches to clear 165 and 173.

Cont'd

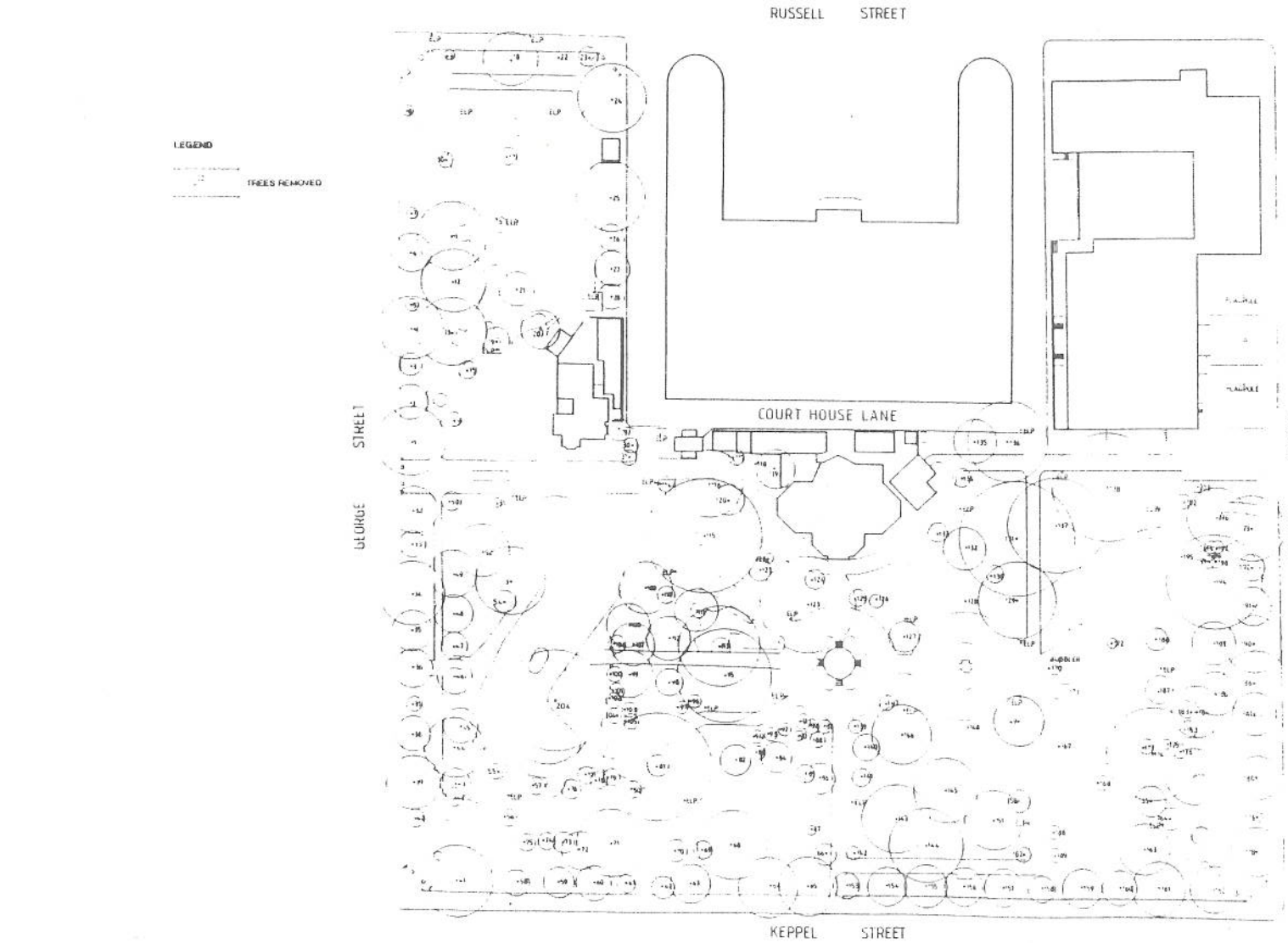
No.	Common Name	Height	Circum.	Spread	Comments and/or Treatment
175	Arbutus unedo	2	–	2	Poor condition. Remove.
176	Lonicera sp.	1.5	–	3	Remove.
177	Ulmus procera "Variegata"	22	2.5	14	Minor dead wood pruning.
178	Ulmus procera	9	2.8	12	Major trunk cavity. Hazard Tree: remove.
179	Quercus palustris	6	0.7	2	Minor branch pruning.
180	Ulmus procera	22	5.2	10	Epicormics, crown dieback. Prune hard or consider removal.
181	Ulmus procera	10	0.6	10	Suppressed, epicormics. One sided.
182	Malus floribunda	3	–	–	{
183	Malus floribunda	3	–	–	{ Week and declining. Remove. {
184	Ulmus parvifolia	13	–	12	Crown lift.
185	Malus floribunda	6	–	10	Good condition. Remove crossing branches.
186	Ulmus procera	15	3	15	Cavity in one trunk. Minor dead wood.
187	Cedrus atlantica	15	1.5	–	Declining. Remove.
188	Betula pendula	5	0.5	5	Good condition.
189	Fraxinus "Raywood"	15	1.4	10	Leaning with competition with No. 190.

Cont'd

No.	Common Name	Height	Circum.	Spread	Comments and/or Treatment
190	Ulmus procera	15	2.5	13	Erect form.
191	Ulmus procera	18	2.9	9	Erect form.
192	Ulmus procera	18	1.7	6	Suppressed. Consider removal.
193	Ulmus procera	18	3.3	16	Dead branches on side. Prune minor dead wood and stubs.
194	Ulmus procera	18	3.5	23	Good condition. Largest and best Elm.
195	REMOVED				
196	Quercus palustris	21	1.8	14	Leaning from competition with No. 194. One sided. Prune to vertical or consider removal.
197	Trachycarpus fortunei	1.5	–	–	Good condition.
198	Trachycarpus fortunei	–	–	–	
199	Trachycarpus fortunei	–	–	–	
200	Trachycarpus fortunei	–	–	–	
201	Trachycarpus fortunei	–	–	–	
202	Prunus serrulata	2	–	3	Good condition.
203	Prunus serrulata	2	–	2	Good condition.
204	Salix babylonica				

APPENDIX 5

TREE SURVEY PLAN



NOTE THIS DRAWING IS BASED ON B C C DRAWING NOS EN 4302 4303 4304 4305 AND SHOULD BE READ INCONJUNCTION WITH THE TREE INVENTORY

10 0 10 20 40

SCALE 1:500

MACHATTIE PARK

TREE SURVEY

Client: BATHURST CITY COUNCIL

Drawing No: L4

Gutteridge Haskins & Davey Pty Ltd
Consulting Engineers
Project Managers Planners Surveyors
GHD

Job No: 211/022786/00

APPENDIX 6

WATER ANALYSIS: RELEVANT CORRESPONDENCE FROM LABORATORIES

SYDNEY
ENVIRONMENTAL
AND SOIL
LABORATORY
· PTY · LTD

Water Analysis Result

Client: Treescan

Sample: Bathurst City Council water

Date: 22-3-90

TEST	Result	
pH	7.6	high pH
Salinity (mmhos/cm)	0.1	salinity low
Cations (mmols/L)		
Sodium	0.4	a sodic/alkaline water
Potassium	0.0	
Calcium	0.0	
Magnesium	0.2	some Mg
Ammonium	0.0	
Iron	0.0	
Anions (mmols/L)		
Chlorine	0.4	OK
Sulphate	0.0	
Nitrate	0.0	
Phosphate	0.1	
Bicarbonate	0.1	some carbonates

This is a very clean drinking water but the low hardness of the water (low Calcium) means that it is sodic. Over time, with frequent application of this water in small waterings in a high evaporation environment sodium will accumulate on the soil due to the lack of Calcium. The answer is to go for less frequent but deeper waterings, and make sure an input of calcium in the for of gypsum is allowed for. This gypsum addition will be very small.

It has obviously taken many years of watering with this water to give the level of sodium we have seen in the soil. This is an indication of the high drinking water quality of this water.

1002 PACIFIC HIGHWAY
PYMBLE NSW 2073

TELEPHONE
02 488 8925

SYDNEY ENVIRONMENTAL AND SOIL LABORATORY · PTY · LTD

Water Analysis Result

Client: Treescan

Sample: Bathurst City Council water

Date: 21-2-90

TEST	Result	
pH	7.6	high pH
Salinity (mmhos/cm)	0.1	low salinty
Cations (mmols/L)		
Sodium	0.3	sodic.
Potassium	0.0	
Calcium	0.0	
Magnesium	0.2	
Ammonium	0.0	
Iron	0.0	
Anions (mmols/L)		
Chlorine	0.5	
Sulphate	0.0	
Nitrate	0.0	
Phosphate	0.1	
Bicarbinate	0.1	alkaline

Identical to the other water and same comments apply.

1002 PACIFIC HIGHWAY
PYMBLE NSW 2073

TELEPHONE
02 488 8925

FOR OFFICE USE ONLY 002066

REQUEST FOR CHEMICAL ANALYSIS

THIS SECTION IS FOR LABORATORY USE ONLY

DEPARTMENT OF HEALTH—DIVISION OF ANALYTICAL LABORATORIES

TOWN: BATHURST

HEALTH DIVISION: C|W

SUBMITTING AUTHORITY: BATHURST City Council

DATE SAMPLES COLLECTED: 6-2-90

DATE SAMPLES RECEIVED: 7 FEB 1990

No. of Previous Examination and Laboratory Reference No.:

PLEASE TICK APPROPRIATE BOXES

Surface Water ☐ | Ground Water ☐ | Roof Water ☐ | Reticulated Water ☐ | Swimming pool water ☐

Surface Water
Description of Supply: ☑ Dam ☐ Reservoir ☐ Creek ☐ River

Ground Water
Description of Supply: ☐ Well ☐ Bore
Age: _____ Depth: _____

Roof Water
Details of Storage Tank: _____
Nature of roofing material: _____

Swimming Pool Water
☐ Open air pool ☐ Beach water ☐ Enclosed pool

Pool Treatment
☐ Chlorine gas ☐ Cyanuric Acid ☐ Hypochlorite

FOR OFFICE USE ONLY
WSP
Comprehensive
Routine

Results phoned:	DATE	BY	TD

Reason for Analysis
Suitability for drinking purposes
Suitability for domestic purposes, other than drinking
New source of supply
Complaints, give details:
RAN WATER

Details of Supply
☐ Untreated ☐ Filtered
☐ Fluoridated ☐ Chlorinated
☐ Public Supply ☐ Private Supply

REMARKS BY SENDER

Full CHEMICAL ANALYSIS PLEASE ON BOTH SAMPLE

THANKS

Jah

Details of Samples — Sampling Point	Your Reference Number	Marked
COTTAGE IN PARK		1
NO 5 RESERVOIR		2
		3
		4
		5
		6

Name of Inspector: JOHN F HAY (PLEASE PRINT) Telephone No: 336244 S.T.D. Code: 063

Chemical Examination — Results in mg/L where applicable (μ in microsiemens per cm. at 25° C)		1	2	3	4	5	6
Sample Marked		1	2				
Colour, Apparent		4	7				
Turbidity Units		1-3	1-2				
†Specific Conductance		310	130				
pH		8-0	7-6				
Nitrate, as N	H	<1-0	<1-0				
Silica, as SiO_2							
Phosphorus, reactive, as P		<0-01	<0-01				
Sulphate		29	3-5				
Chloride		22	3-6				
Alkalinity, as $CaCO_3$		84	47				
Total Hardness, as $CaCO_3$		87	43				
Calcium Hardness, as $CaCO_3$							
Sodium		31	9-0				
Potassium		3-1	1-0				
Iron		0-07	0-35				
Manganese		0-09	<0-01				
Copper		<0-05	<0-05				
Zinc		<0-02	<0-02				
Cadmium	H						
Chromium	H						
Lead	H						
Mercury	H						
Arsenic	H						
Selenium	H						
Fluoride	H						
Compliance with NH & MRC Criteria		PASS	PASS				

Laboratory Comments:

Unsatisfactory levels indicated by ✓
Directly health related factors marked "H"

Analyst: GMaynard 22/2/90 Date: 27 FEB 1990

APPENDIX 7

MAINTENANCE - QUESTIONNAIRE

MACHATTIE PARK, BATHURST

MAINTENANCE ASSESSMENT

Purpose of the following questions are to assess

a) The annual budgeting allocation to maintenance tasks, overheads etc

b) The overall efficiency and practically of essential operations

c) The main tasks/operations required to maintain Machattie Park

Any other supplementary information which you can supply which meets these objectives will be welcomed.

A. BUDGET ALLOCATION

Total Annual budget (Expenditure) $200,000.00

1. Staff wages
2. Purchase of Plant Material (shrubs, bedding seeds etc)
3. Machinery (annual purchase)
4. Fuel (Diesel, Petrol, Electricity and Gas)
5. Park Furniture
6. Insurance of Equipment
7. Soil, compost, mulches
8. Fertilisers and herbicides
9. Sundry: Timber, fencing, paint, glass, cement/conc etc
10. Estimate for depreciation of

    a) Grass Cutting Machinery
    b) Tractors
    c) Utility van
    d) Pumps, boilers and heaters
    e) Hand tools
    f) Others - specify

11. Estimate for annual maintenance and repair costs of

    a) Water pumps (for ponds and fountains)
    b) Heating Boilers (fernery, Begonia House and glasshouses)
    c) Glass/Glazed Rooting
    d) Irrigation System

B. TASKS AND OPERATIONS

1. Total number of staff employed for the maintenance of Machattie Park

Winter
Spring
Summer
Autumn

2. Staff Deployment Allocation of Staff time to

Path and lawn sweeping
Grass cutting & edging
Watering
Weeding - grass, shrub beds, paths
Mulching & Fertilising
Cleaning & Litter Picking
Machinery maintenance
Hedge cutting
Pruning, clipping and tree surgery and felling
Plant propogation (begonias & bedding plants).
Separate out time given to Fernery and Begonias in terms of propogation and maintenance. eg. Plant propogation & maintenance Begoanias. Plant propogation and maintennace bedding plants.
Bed Preparation and Bedding Out
Plant Removal and disposal
Building and Structural Repairs
Painting
New Shrub Planting
Administrative time
Cleaning Pond - care of birds and fish

C. OPERATIONAL QUALITIES

- Hierarchy of Parks staff

- Level of Training, skill and experience. Please write brief notes on each of the following, and quantify where possible.

  - Horticultural
  - Mechanical
  - Aboricultural
  - Structural
  - General

- Staff Quality

  - Motivation
  - Initiative
  - Co-operation
  - Work Co-operation

D. MAINTENANCE FACILITIES

1. Principal Items of Machinery for Park Maintenance

Grass cutters, number and types

trailers	)	
tractors/towers	)	Expected lifespan, current age
strimmers	)	and replacement cost at to-day's
lawn mowers	)	prices
others - specify	)	
utility vehicles	)	

When were major items last painted/overhauled

eg. Glass Houses
Bandstand
Fountain
Fernery
Begonia House
Gates & Fences etc.

SURVEY - MOUNTAIN PARK

In order to write up the survey results I need to know something about the method of obtaining the survey results.

- time/place
- who carried out the surveys
- where the surveys were carried out
  eg - at home
  - streets surrounding the park - name them
  - schools - name them
  - in the Park

- Selection of survey respondents - were they chosen at random?

Please give me an indication of the above to the best of your ability - a general breakdown will do.

APPENDIX 8

SOCIAL SURVEY – QUESTIONNAIRE

MACHATTIE PARK SURVEY
QUESTIONNAIRE FORM

1. HOW OFTEN DO YOU VISIT THE PARK?

More than once a week ☐

Less than once a week ☐

Once a month ☐

More than once a year ☐

Less than once a year ☐

2. HOW LONG DO YOU STAY IN THE PARK

5 minutes ☐

10 minutes ☐

15 minutes ☐

30 minutes ☐

Longer ☐

3. WHAT AGE GROUP ARE YOU AND THE PEOPLE WITH WHOM YOU VISIT THE PARK? (Tick all groups concerned)

0 - 9	☐
10 - 19	☐
20 - 29	☐
30 - 39	☐
40 - 60	☐
60 +	☐

4. WHY DO YOU VISIT MACHATTIE PARK

Close to the shops	☐
Close to Work	☐
Close to home	☐
You like the trees and shrubs	☐
You visit the Duck Pond	☐
You visit the Fernery or Begonia House	☐
Other	☐

YES/NO

5. WOULD YOU LIKE TO SEE MORE FACILITIES AND FEATURES IN THE PARK? ☐

6 WOULD YOU LIKE TO SEE ANY OF THE FOLLOWING FEATURES IN MACHATTIE PARK?

Some childrens play furniture ☐

Should play furniture be modern or traditional in design ☐

A Herbal Garden ☐

An Elizabethan or Formal Garden ☐

A Maze ☐

A Kiosk/sandwich shop selling food, drinks, newspapers, films etc ☐

Other, please state ☐

7. DO YOU THINK THAT THE PARK SHOULD HAVE ANY OF THE FOLLOWING CHANGES MADE? YES/NO

Relocate and improve the toilets ☐

Plant more Australian native trees and shrubs ☐

Remove diseased and dying trees over a gradual period of time ☐

Have more flowering shrubs and fewer bedding plants ☐

Replace modern style park furniture with traditionally designed furniture. ☐

eg. litter bins ☐

planters ☐

signs ☐

fences ☐

Improve the structure of the conservatory (glasshouse) and accommodate uses other than a fernery? ☐

Label the trees and shrubs with botanical name and common names ☐

Provide interpretative signs for plants ☐

Provide interpretative signs for historical featureswith both Machattie Park & Kings Parade ☐

YES/NO

8. DO YOU THINK THE PARK SHOULD BE USED FOR MORE COMMUNITY USES AND ACTIVITIES? ☐

9. IF YES, SHOULD THE PARK BE USED FOR:-

Flower Festivals and Horticultural Shows ☐

Evening Plays, Theatres and Concerts ☐

Community Fetes ☐

Park Fund Raising Events ☐

Marriage Ceremonies ☐

Civic Functions ☐

Other - please state ☐

10. DO YOU THINK THAT RESIDENTS AND BUSINESSES SHOULD HAVE THE OPPORTUNITY TO SPONSOR IMPROVEMENTS TO THE PARK? ☐

11. IF YES, PLEASE STATE YES OR NO TO THE FOLLOWING TYPES OF SPONSORSHIP?

Donations to purchase new trees ☐

Provision of furniture from registered list of products ☐

Registered Clubs and Societies to cultivate and maintain theme gardens and planters ☐

Fee levy to use the park for wedding ceremonies and receptions club and society meetings ☐

APPENDIX 9

EXTRACTS FROM THE CITY OF BATHURST LOCAL ENVIRONMENTAL PLAN 1987

(d) the land comprises an allotment lawfully created before the appointed day (being an allotment on which a dwelling-house might have been lawfully erected immediately before that day).

(2) The council shall not consent to the erection of a dwelling-house on land within Zone No. 1 (a1) unless it is satisfied that the natural surface of the land on which the dwelling-house will stand is not liable to flooding.

(3) Notwithstanding subclause (1), the council may consent to the erection of a dwelling-house on an allotment which is not vacant if the dwelling-house—

(a) is a rural worker's dwelling;

(b) not being a rural worker's dwelling, is located within 100 metres of any other dwelling-house standing upon the land; or

(c) is intended to replace a dwelling-house proposed to be demolished or altered so that it may be used for a purpose (other than as a dwelling-house) ancillary to the use of the land for the purposes of agriculture.

(4) In this clause—

"vacant" means devoid of a dwelling-house.

Residential housing

19. (1) In this clause, a reference to the area of an allotment does not, in the case of a hatchet-shaped allotment, include a reference to the area of the access corridor of the allotment.

(2) Development shall not be carried out for the purposes of a dwelling-house on an allotment of land within Zone No. 2 (a), 2 (b) or 2 (c) unless the area of the allotment is not less than 550 square metres.

(3) Notwithstanding subclause (2), a person may carry out development for the purposes of a dwelling-house on an allotment of land within Zone No. 2 (a), 2 (b) or 2 (c), irrespective of the area of the allotment, if the allotment was created by a lawful subdivision carried out before the appointed day.

(4) Development shall not be carried out for the purposes of a residential flat building on land within Zone No. 2 (a), 2 (b) or 2 (c), unless the allotment has an area of not less than 550 square metres.

(5) Notwithstanding subclause (4), development shall not be carried out for the purposes of a residential flat building containing more than 2 dwellings—

(a) within Zone No. 2 (b), unless the allotment has an area of not less than 650 square metres;

(b) within Zone No. 2 (c), unless the allotment has an area of not less than 740 square metres; or

(c) on any allotment of land having frontage to a main road, unless the allotment has an area of not less than 840 square metres.

(6) Development for the purposes of refuges—

(a) shall not, where the refuge is a dwelling-house, be carried out on land within Zone No. 2 (a), 2 (a1), 2 (b) or 2 (v) without the consent of the council; and

(b) shall not be carried out within Zone No. 2 (c).

Dual occupancy

20. (1) This clause applies to land within Zone No. 2 (a), 2 (a1), 2 (b), 2 (c) or 2 (v).

(2) In this clause—

"dual occupancy" means 2 but not more than 2, dwellings on one allotment.

(3) An allotment of land to which this clause applies may, with the consent of the council, be used for the purposes of dual occupancy where—

(a) the area of the allotment is not less than 550 square metres; and

(b) the ratio of the total of the floor areas of both dwellings to the site area does not exceed 0.5:1.

(4) The provisions of this plan, other than this clause, relating to residential flat buildings do not apply to or in respect of the carrying out of development for the purposes of dual occupancy.

Certain requirements not to apply

21. (1) For the purpose of enabling development to be carried out in accordance with this plan as in force at any time or in accordance with a consent granted under the Act in relation to development carried out in accordance with this plan as so in force—

(a) section 314 (1) (c) of the Local Government Act 1919 and Schedule 7 to that Act; and

(b) any agreement, covenant or instrument imposing restrictions as to the erection or use of buildings for certain purposes or as to the use of land for certain purposes,

to the extent necessary to serve that purpose, shall not apply to the development.

(2) Pursuant to section 28 of the Act, before the making of this plan—

(a) the Governor approved of subclause (1); and

(b) the Minister for the time being administering the provisions of the Local Government Act 1919 referred to in that subclause, concurred in writing in the recommendation for the approval of the Governor of paragraph (a) of that subclause.

Items of the environmental heritage

22. (1) A person shall not, in respect of a building, work, relic or place that is an item of the environmental heritage—

(a) demolish, renovate or extend any such building or the work;

(b) damage or despoil any such relic or any part of any such relic;

(c) excavate any land for the purpose of exposing or removing any such relic;

(d) erect a building on the land on which that building, work or relic is situated or the land which comprises that place; or

(e) subdivide the land on which that building, work or relic is situated or the land which comprises that place,

except with the consent of the council.

(2) An application for consent to the demolition of a building required by subclause (1) (a) shall be accompanied by a description of any building which is proposed to take its place and the council shall, in its consideration of the application, have regard to that proposal.

(3) The council shall not grant a consent required by subclause (1) in respect of an item of the environmental heritage, unless it has made an assessment of—

(a) the significance of the item as an item of the environmental heritage of the City of Bathurst;

(b) the extent to which the carrying out of development in accordance with the consent would affect the historic, scientific, cultural, social, archaeological, architectural, natural or aesthetic significance of the item and its site;

(c) whether any stylistic or horticultural features of the item or its site should be retained;

(d) whether the item constitutes a danger to the users or occupiers, if any, of that item or to the public; and

(e) whether the granting or refusal to grant the consent would affect public health or safety.

(4) The council shall not grant a consent required by subclause (1) (a) permitting the renovation of a building that is an item of the environmental heritage, unless it has made an assessment of—

(a) the colour, texture, size and type of finish of any materials to be used on the exterior of the building and the effect which the use of those materials will have on the appearance of the exterior of the building and of any other building in its vicinity;

(b) the style, size, proportion and position of openings for any windows and doors which will result from, or be affected by, the carrying out of the development; and

(c) the pitch and form of the roof, if any.

Conservation area

23. (1) A person shall not, in respect of a conservation area—

(a) demolish, extend or change the outside of a building or work within that area, whether or not the change to the outside of the building or work involves the repair or the painting, plastering or other decoration of the outside of the building or work;

(b) damage or despoil a relic or part of a relic within that area;

(c) excavate any land for the purpose of exposing or removing a relic within that area;

(d) erect a building within that area; or

(e) subdivide land within that area,

except with the consent of the council.

(2) The council shall not grant consent pursuant to subclause (1) in respect of a building or work within a conservation area unless it has made an assessment of—

(a) the extent to which the carrying out of development in accordance with the consent would affect the historic, scientific, cultural, social, architectural or aesthetic significance of the building or work or its site and the conservation area, and in particular—

(i) the pitch and form of the roof, if any;

(ii) the style, size, proportion and position of the openings, if any, for any windows and doors; and

(iii) whether the colour, texture, style, size and type of finish of the materials to be used on the exterior of the building are compatible with the materials used in the existing buildings on the site and in the conservation area;

(b) whether any stylistic or horticultural features of the building or work or its site should be retained; and

(c) whether the item constitutes a danger to the users or occupiers of the building or work or to the public.

Conservation incentives [illegible]

24. (1) Nothing in this plan prevents the council from granting consent to—

(a) the use for any purpose of a building within a conservation area or of the land on which that building is erected; or

(b) the use for any purpose of a building that is an item of the environmental heritage or of the land on which that building is erected,

where the council is satisfied that—

(c) the use would have little or no adverse effect on the amenity of the area; and

(d) conservation of the building depends on the council granting consent in pursuance of this subclause.

(2) The council, when considering an application to erect a building on a site upon which there is a building which is an item of the environmental heritage, may exclude from its calculation of the floor space of the buildings erected on the site the floor space of the item of the environmental heritage—

(a) for the purposes of determining the floor space ratio; and

(b) for the purposes of determining the number of parking spaces to be provided on the site,

but only if the council is satisfied that the conservation of the building depends upon the council granting consent in pursuance of this subclause.

Heritage Council to be given prior notice of demolition [illegible]

25. Where a person makes a development application for consent to demolishing a building or work that is an item of the environmental heritage, the council shall not grant consent to that application until 28 days after the council has notified the Secretary of the Heritage Council of its intention to do so.

Development in the vicinity of an item of the environmental heritage

26. The council shall not consent to a development application for consent to carry out development on land within 60 metres of the boundary of any land which is or upon which there is an item of the environmental heritage unless it has made an assessment of the effect which the carrying out of that development will have on the historic, scientific, cultural, social, archaeological, architectural, natural or aesthetic significance of the item of the environmental heritage and its setting.

Environmental Heritage Committee

27. The council, in making an assessment of any matter referred to in clause 22 (3) or (4), may consult with the Environmental Heritage Committee, being a Committee set up by the council.

Advertising of heritage applications

28. (1) Subject to subclause (2), the provisions of sections 84, 85, 86, 87 (1) and 90 of the Act apply to and in respect of—

(a) the demolition of a building or work within a conservation area;

(b) the demolition of a building or work that is an item of the environmental heritage; and

(c) the use of a building or land referred to in clause 24 for a purpose which, but for that clause, would be prohibited under this plan,

in the same way as those provisions apply to and in respect of designated development.

(2) Subclause (1) does not apply to the partial demolition of a building or work where, in the opinion of the council, the partial demolition is of a minor nature and does not adversely affect the significance of the building or work as part of the environmental heritage of the City of Bathurst.

Scenic protection area

29. (1) This clause relates to land shown on the map by black diagonal hatching and referred to thereon as "Scenic Protection Area".

(2) A person shall not carry out development upon land to which this clause applies without development consent.

(3) The council shall not consent to an application required by subclause (2) unless it has made an assessment of—

(a) the height of any proposed development and any effect this might have on views or vistas;

(b) the colours of materials to be used;

(c) the effect which the carrying out of the proposed development will have on and, in particular, its visual impact on, approaches to the City of Bathurst, places of visual significance, views and parklands;

(d) the visual impact which carrying out of the proposed development will have on the environment generally; and

(e) whether adequate provision has been made for preservation of existing trees and landscaping of the site on which the development will be carried out.

Building lines along major roads

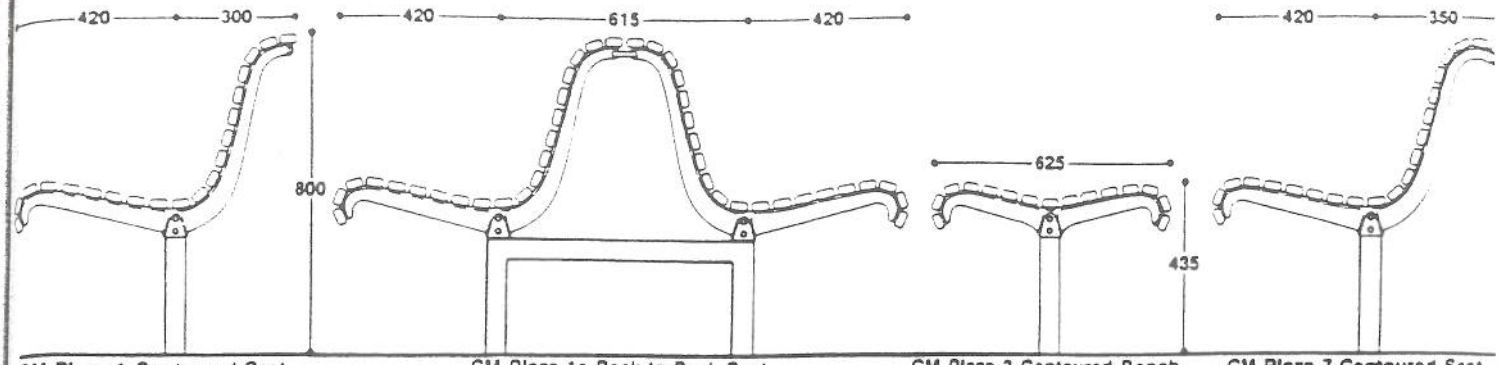
30. (1) This clause applies to land within Zone No. 1 (a), 1 (a1) or 1 (a2) having a major road frontage.

(2) A building shall not be erected for a purpose referred to in Column 1 of the Table to this clause on an allotment of land to which this clause applies if—

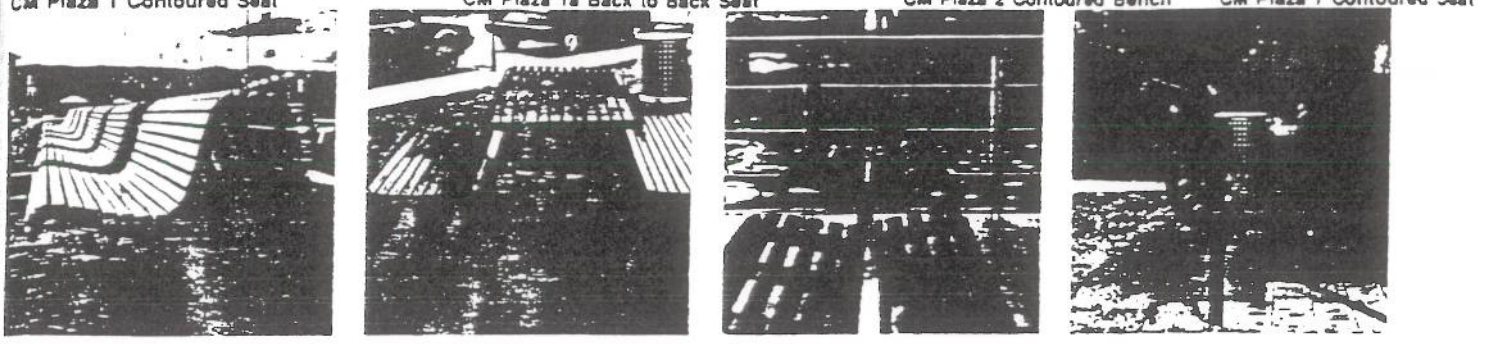
(a) in the case of an allotment having frontage to a major road of 40 metres or more, the distance between that building and the nearest alignment of that road would be less than the distance set out opposite that purpose in Column 2 of the Table; or

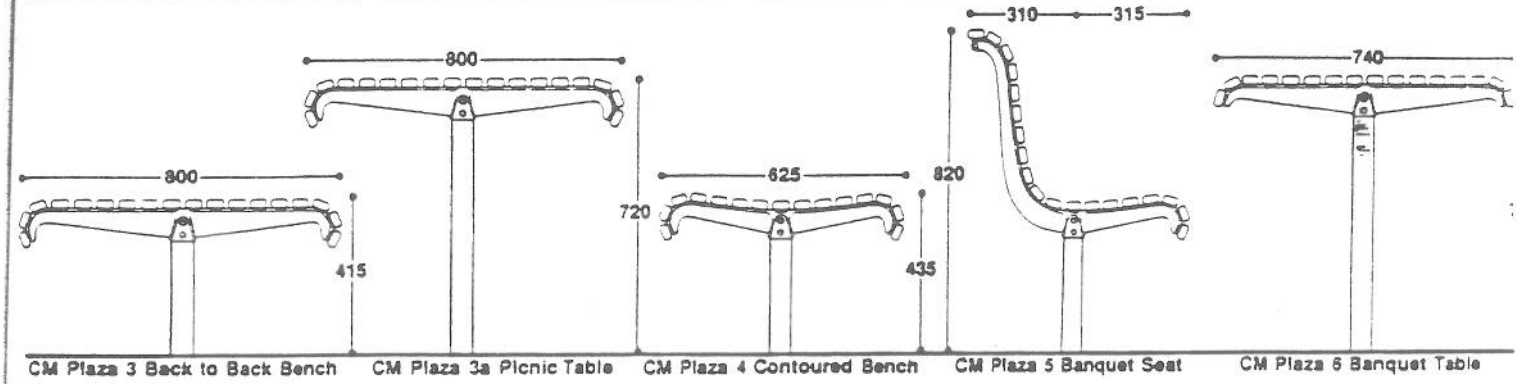
APPENDIX 10

EXTRACTS FROM THE STREET FURNITURE AUSTRALIA CATALOGUE



CM Plaza 1 Contoured Seat | CM Plaza 1a Back to Back Seat | CM Plaza 2 Contoured Bench | CM Plaza 7 Contoured Seat





CM Plaza 3 Back to Back Bench | CM Plaza 3a Picnic Table | CM Plaza 4 Contoured Bench | CM Plaza 5 Banquet Seat | CM Plaza 6 Banquet Table

CM Plaza Range

An integrated family of seats, tables and benches ideal for plazas, parks, malls and public places. Seating surfaces are formed by hardwood battens screw fixed to contoured aluminium profiles, bolted to mild steel support frames.
Timber battens are kiln dried Australian hardwood, machine pencil edged all round and finished 'natural' or with enamel paint.
Profiles are sand cast using aluminium alloy AP601.
Support frames are fabricated in 51mm SHS mild steel with baseplates for permanent fixing or glides for transportable seating.
All steel work is zincplated.
Support frames and aluminium profiles are finished in black enamel paint or powder coat.

CM Plaza History

The design for the CM Plaza 1 Contoured Seat originated in 1979 when available products were considered unsuitable for incorporation in the City Walk Pedestrian Mall, Canberra. Architects Conybeare Morrison & Partners undertook the design of a seat that would evoke the elegance of traditional seating and yet fit comfortably with the contemporary urban environment. Since then the CM Plaza Range has been established utilising the same principles of comfort, durability and elegance.

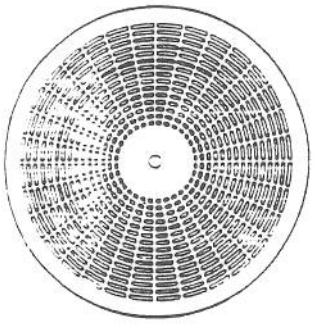
Cafe Range

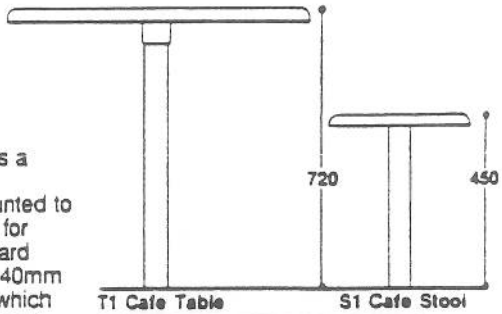
The perfect low maintenance system of tables, seats and stools well suited for outdoor cafes, refreshment areas, beer gardens, food courts, and the house patio.
Features a simple open pattern of robust appearance which permits easy self-cleaning and draining. Available in polyester powder coat.

T1 cafe table features a 800mm diameter cast aluminium table top mounted to a column/baseplate unit for permanent fixing. Standard table top incorporates a 40mm diameter umbrella hole which may be closed off on request.

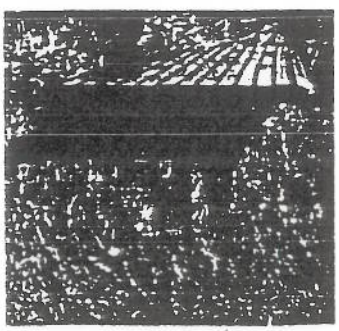
T2 freestanding cafe table with 500mm diameter by 110mm high cast aluminium base. Cast table top, as above.

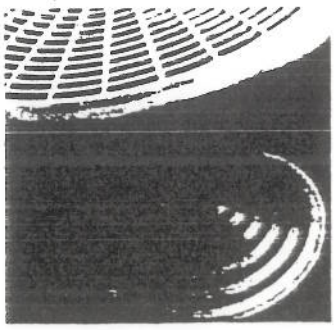
S1 cafe stool with 360mm diameter cast aluminium seat mounted to a column/baseplate unit for permanent fixing. Designed to match cafe table for an ideal setting.

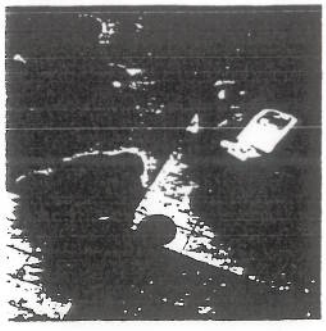


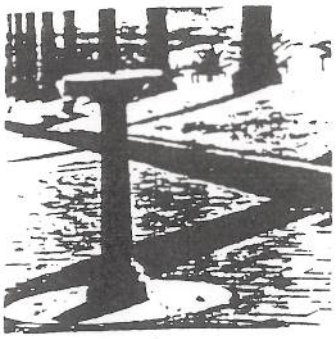


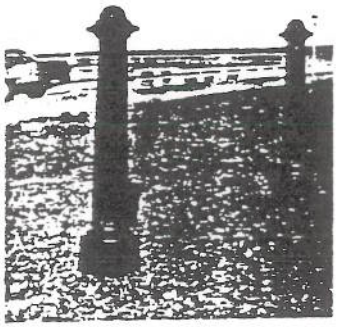
T1 Cafe Table | S1 Cafe Stool

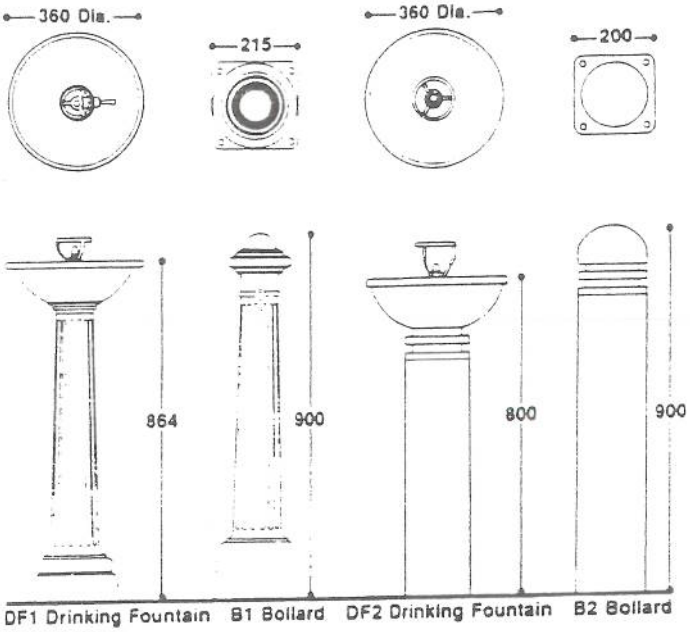




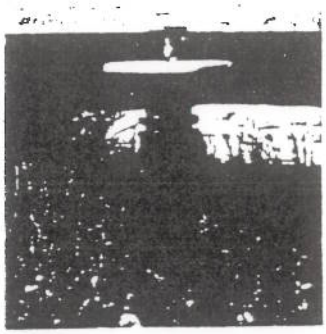


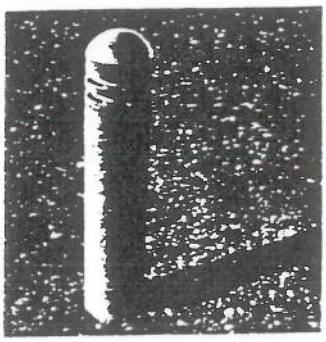


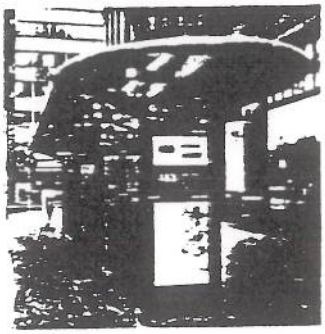




DF1 Drinking Fountain B1 Bollard DF2 Drinking Fountain B2 Bollard







Flagpoles

Flagpoles or banner poles, demountable or permanent may be manufactured to your specification. The standard demountable flagpole is 7.5m high above pavement has an internal halyard, is constructed of 80mm CHS aluminium, and may be finished natural aluminium, anodised or polyurethane paint.

Pavement Markers

Individual cast bronze markers and plaques to communicate or commemorate significant and historic events.
For mounting in pavement or wall surface. Designed and manufactured on request to individual requirements.

Drinking Fountains

DF1 traditional cast iron drinking fountain featuring polished brass bubbler. Finished in polyurethane paint, white to inside surface of bowl.

DF2 contemporary style with chrome-plated bubbler. Fabricated with cast aluminium bowl and zincplated 165mm CHS mild steel body. Variable mounting depths. Finished in either polyester powder coat or polyurethane paint, white to inside surface of bowl.

Bollards

B1 traditional style cast aluminium bollard. Surface mount or 150mm below surface mounting options. Polyester powder coat finish.

B2 contemporary styled bollard, fabricated with cast aluminium head and zincplated 165mm CHS mild steel body. Variable mounting depths available to your specification. Polyester powder coat finish.

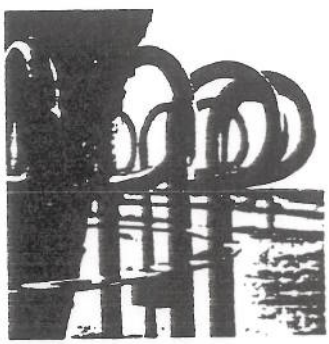
B2R demountable bollard secured to PS2 pavement socket for easy removal.

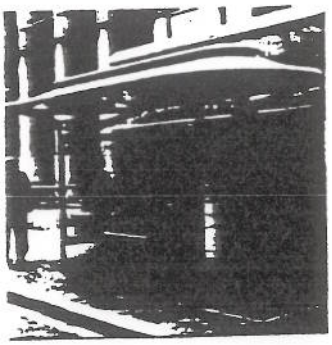
Tree Guards

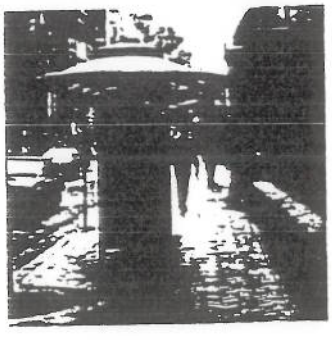
An elegant tree surround to protect trees especially during early years of growth.
The guards comprise mild steel posts fitted through and welded to top and bottom rings. Supplied in halves. Each half has extended post and foot for below ground fixing. Finished by hot-dip galvanising and polyester powder coating.

TG600 comprises 14 posts, 16mm diameter rod, centres forming 600mm circle.

TG800 comprises 18 posts, 18 mm diameter rod, centres forming 800mm circle.







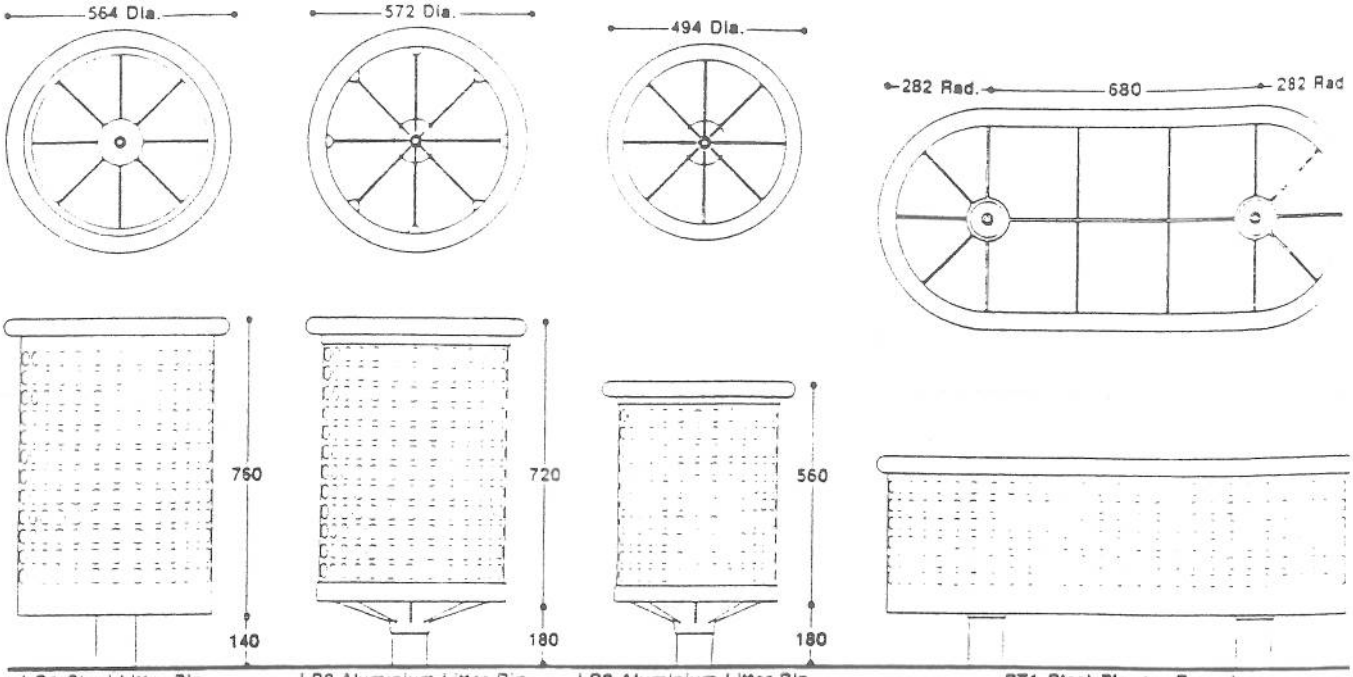
Bus Shelters

An elegant light weight, and transparent shelter providing comfortable seating and all weather protection.
The shelter is designed to suite both historic and contemporary environments. Robustly constructed, the shelters comprise:- tubular mild steel sub-structure incorporating downpipes and electrical conduit; cast aluminium roof support arms incorporating rainwater discharge channels; tubular aluminium gutter and roof framing with an aluminium plate roof; panelling to specification in either plywood, aluminium, laminated or toughened glass.

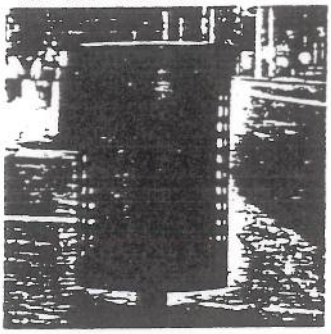
BS1 Macquarie Street Bus Shelter, features glass panels, tubular lighting in roof vault, and CMP 1 seat.

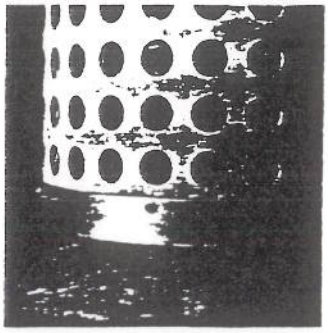
BS2 QVB Bus Shelter, features aluminium framed plywood panels, tubular lighting in roof vault, louvred air vents around upper vault, and two CMP 3 bench seats.

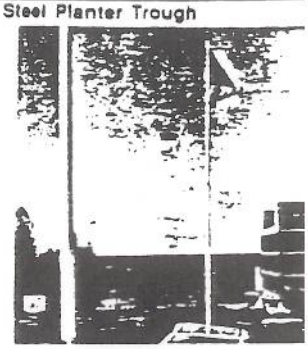
BS3 Module System features a simplified barrel vault roof enabling the manufacture of 2.4m or 3.6m module lengths.



LB1 Steel Litter Bin | LB2 Aluminium Litter Bin | LB3 Aluminium Litter Bin | PT1 Steel Planter Trough





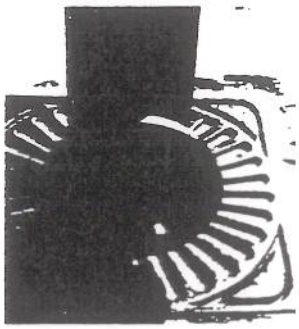


Pavement Sockets

An elegant cast iron pavement box set with a sub-surface socket which allows flagpoles, banner poles and bollards to be easily installed for special occasions and demounted for storage after use.
The cast iron cover boxes are designed to suit brick paving modules and add a decorative appearance to the pavement.

PS1 flagpole pavement socket comprises two elements - a fabricated mild steel housing set below ground, and a cover box set level to the pavement surface.

PS2 bollard socket comprises a fabricated mild steel housing bolted to a cover box with PVC protector set between. The housing is set in formwork with the cover box level to the pavement surface.



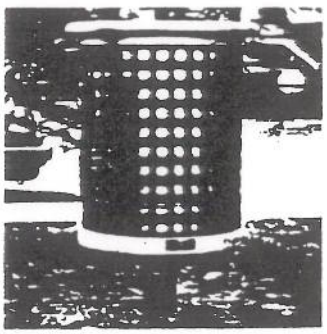
Litter Bins

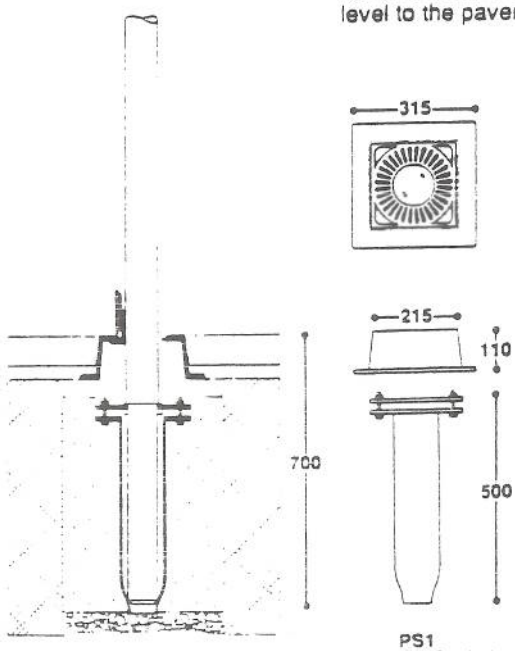
A range of sturdy litter bins designed to complement CM Plaza furniture and suit both the modern shopping mall as well as heritage environments.
Available in a range of polyester powdercoat or polyurethane paint colours.
Zincalume liners are supplied with all litter bins. Lids and smoking trays for indoor locations are also available.

LB1 mild steel litter bin to suit 80 litre capacity liner. Fabricated with 42mm tubular rim, 16mm flange, 3mm thick perforated body and spoked base assembly to suit the standard bin leg.

LB2 and LB3 aluminium litter bins to suit 80 litre and 55 litre capacity zincalume liners, comprise aluminium base and rim castings rivetted to a perforated body. Rim and base castings are 'as cast'.
Polished rims are optional.

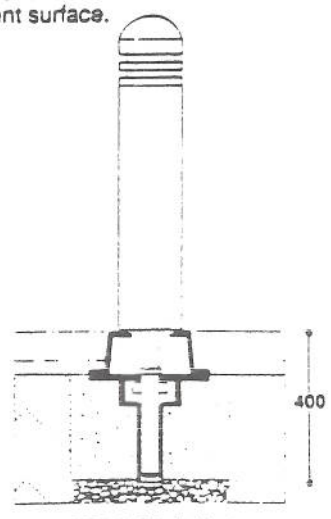
PT1 planter trough is designed as a companion to the litter bin range. Trough length and liner may be varied to suit your specification. Construction is as for LB1.



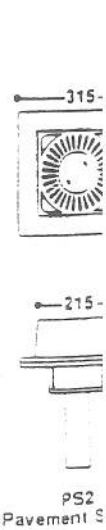


PS1 & Demountable Flagpole

PS1
Pavement Socket



PS2 & B2r Bollard



PS2
Pavement S