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1 INTRODUCTION

As the line of demarcation between public land and private land, fences form an important part of the built environment of both rural and urban areas. However, fences in their original form are often quite fragile and easily altered. The survival of a fence depends a great deal on the durability of its construction materials and the care and maintenance of the fence over time. Only a few early residences retain the fence which was constructed at the same time as the house.

The significance and appearance of an historic building or a streetscape can be greatly enhanced by the existence of an original, or an appropriately reconstructed fence. The overall historic character of suburban areas with residences of particular periods benefits from the use of appropriate fences for those house styles.

These guideline notes cover the design, conservation, repair, reconstruction and maintenance of fences in an urban setting; the issue of rural fences is not covered. However, much of the information on fences in this note is appropriate for residences in both country and city.

Principles to follow:

– If an intact early fence remains in situ it should be retained and repaired.
– When no early fence remains, a search for physical evidence of the original fence should be undertaken on site. Early photographs may provide information.
– When a new fence is constructed, its design should match the original (as determined by on site evidence or early photographs) or be derived from an appropriate style for the period and design of the house.
– Examples still existing in the local area should be used as a model for new fences.
– The fence's contribution to the streetscape should be considered particularly if the building is within an historic area.

As part of this conservation note, various fence types have been measured up and drawn to scale to provide exact examples of existing fences. However, there are many variations within each style as early photographs and remaining examples indicate, and care should be taken to ensure appropriate details for the particular place are considered and incorporated within the design of a new fence.

Side and rear fences should be unobtrusive and utilitarian in design, constructed in materials such as corrugated iron or timber palings.

A simple wide spaced picket fence to a mid-Victorian house, and a post-and-rail fence marking the edge of the unmade street. 1893 (St Peters Council Historic Photo Collection).
2 FENCE TYPES FOR VARIOUS HOUSE STYLES

1840s to 1860s
In the new colony of South Australia, fences were initially simple stone walls or timber palisades, erected where necessary to provide enclosure of property. During the 1840s and 1850s artists' illustrations of Adelaide and village suburbs show these basic fence types around properties, with post and rail fences defining roads and parkland, or town acre boundaries. By the 1860s most houses were fenced with timber (usually crude pickets) and major public buildings and larger residences were given some distinction with fences of wrought iron railings on a masonry plinth. Very few of these early timber fences remain, although some iron fences are intact.

A small cottage in Norwood with its original split paling timber fence in the 1860s, and a new machine-sawn round headed picket fence in 1885. (Kensington and Norwood Council Historic Photo Collection)
1870s to First World War

With the consolidation of urban growth in South Australia, houses of the mid to late Victorian and Edwardian periods were usually constructed of stone in the typical Adelaide style. These houses, of all sizes, were given fences appropriate to their scale and detailing, but all front fences allowed a clear view of the front of the house.

Small cottages continued to use fences of wooden pickets (70-75mm wide) or dowels (30mm diameter) of various designs located at street alignment which in many cases meant at the edge of the verandah where the fence became a balustrade. There are many examples still existing within the city and early suburbs such as St Peters, Kensington and Norwood.

Houses on average sized allotments concentrated on decorative front fences and contemporary early photographs give an indication of the range of various iron and timber fence forms during the late Victorian and Edwardian periods up to the First World War. Many intact examples of cast iron fences can still be seen in both the city and suburbs, while timber examples have often been replaced (usually by unsympathetic modern fences).

Some suburban areas of Adelaide were not closely subdivided during this period and the large blocks were typically enclosed with a
Examples of existing simple timber picket and dowel fences constructed as railing to the narrow verandahs of small 1870s and 1880s single fronted cottages in the city and inner suburbs.
more "rural" type of fence. This was usually a simple form of post and wire (either five strands or chicken wire), often with a thick hedge planted behind and a wrought or galvanised iron gate. Fences of this type can still be found in Millswood, Kingswood, Mitcham and other outer suburbs which have been closely settled more recently.

Early photographs of public buildings in the city also show a range of fences with many utilising timber pickets or corrugated iron panels as well as more formal cast iron fences. Again, only the iron examples have survived.

Typically, fences of iron (rails or panels) were set on a masonry plinth with masonry pillars. These were most often used for more substantial houses, particularly in areas like North Adelaide.
B. Extracts from foundry catalogues: Sun Foundry Catalogue 1897 (First and Second Edition)
and St Peters. Foundries such as Stewart & Harley’s Sun Foundry and G E Fulton & Co produced many designs for fences, as their catalogues from the 1880s and 1890s indicate. The simple palisade rail designs were produced with wrought iron bars and cast iron tops, while the more complicated panel designs and wicket (single) gates, larger carriage (double) gates and standards (posts) were cast from moulds. All the examples included as measured drawings were available in the foundry catalogues which are now held at the Mortlock Library. It is interesting to note that in South Australia, cast iron panels were available in a variety of heights ranging from 1 ft 6 in (450mm) to 5 ft 2 in (1.5m). Many fences were constructed with a half height of masonry wall (often up to 750mm) and a cast iron section of similar height above. This differed from the usual practice in the state of Victoria where a low masonry plinth for cast or wrought iron fences is the norm.

Some house owners imported their gate and fence iron from English and Scottish foundries despite the availability locally of excellent products after the mid 1870s. A check of foundry marks on the iron confirms the original source of the fence iron.

Elaborate cast iron carriage gates and posts imported from Scotland for a Norwood mansion in the late 1870s.
Timber and corrugated iron were also used in combination for fences. Early photographs indicate examples of corrugated iron panels within a substantial timber frame as fences to cottages, substantial houses and public buildings such as churches. The posts were solid (150 x 150mm or larger) with carefully detailed caps in timber or cast iron, quite appropriate for the Italianate character of the buildings. This form of fence gave a solid boundary but was still quite decorative.
The variety of designs of timber fences utilised during this period is quite extraordinary. Round timber dowel balustrading was used in a wide range of combinations with masonry or solid timber elements. Timber pickets (commonly 70mm x 15mm) were used with a variety of heads, pointed, arrowhead, acorn or round being the most common patterns used in Adelaide. These were used with posts (usually 70-80mm sq) which matched the picket design. Spacing between pickets varied from 25mm to 60mm, most usually at 50mm. The fence posts were an important part of the design of the fence and often painted a darker colour than the pickets for emphasis.
The outline of the fence also was optional-straight across, curving down or curving upwards between posts. Often the pickets or dowels were of alternating heights creating an interesting repetitive pattern across the fence. This was a very common fence detail in Adelaide.

Gates were finished to continue the design of the fence or could be a more elegant design with some detail of the fence repeated.

With timber picket fences, the one design principle which is constant throughout the range of variations is that the outline of the decorative cap to fence posts always closely repeated the outline of the picket top.

Picket fence for a substantial Edwardian house in Adelaide.
(F W Dancker, 1904, Modern Dwellings).

A turn-of-the-century Adelaide dwelling with a decorative timber fence to match the architect designed house.
(F W Dancker, 1904, Modern Dwellings).

Corrugated iron and timber was used in combination for this fence in Adelaide at the beginning of this century. Note the large vehicle gates repeating the use of corrugated iron.
(F W Dancker, 1904, Modern Dwellings).
Post First World War

Cast iron fences were no longer fashionable after the War, but a wide variety of fence styles continued, related in design to the changes in the style of houses by this period. Fence designs and materials varied but the approach was the same - to establish a boundary which enhanced the property and provided a good view of the house behind. Consequently, front fences were usually no more than 1200mm high. To create privacy, hedges were often grown behind open fences, utilising planting such as duranta, pittosporum or cypress.

By the 1920s timber fences were constructed essentially of square headed palings rather than pickets. These fences were usually capped with solid timber sections (rails) and the palings created a pattern within this framework. This was the updated form of the traditional picket fence and examples can be seen throughout suburbs which were established during the 1920s. Suburbs such as Toorak Gardens, Medindie Gardens and parts of Unley, which were areas of post war residential infill, retain fences constructed when the houses were first built. Although many of these timber fences are in a dilapidated condition they should be carefully conserved, or recorded and rebuilt.
Simple woven wire fabric fences such as this one in Colonel Light Gardens were typical of the 1920s and later.


Hume’s Patent Rolled Steel

Crested Picket Double Gate.

All Rolled Steel Fence.
The Government housing program of the early 1920s resulted in the widespread use of woven wire for fences, although some limited use had been made of hand fabricated wire for fences during the pre-War period. The Cyclone Company established a wire factory in Adelaide during the 1920s so the material became readily available. Woven wire fabric was produced in a variety of patterns using crimped 12-13 gauge galvanised wire for the main pattern element and 9 gauge wire for details. Fence and gate posts were in hardwood and the fences usually had a timber base board.

Advertisements by the Cyclone company in the mid 1920s stated “Cyclone is also cheaper than wood picket fencing...” as well as being more durable. Other local manufacturers, such as A E Hall of Norwood, were also producing "ornamental wire fabric for fences" during the 1920s and 30s.

Colonel Light Gardens contains a good concentration of woven wire fences constructed with the Thousand Homes Scheme houses. Other more elaborate examples combined with other metal elements such as gates and cappings produced by Cyclone can be seen throughout the suburbs of Adelaide and country towns in South Australia.

Another form of metal fence, rolled steel ribbon fences and gates, were produced in South Australia by Hume Brothers from c.1905. The rolled ribbon was 45mm in width and curved and rivetted into decorative designs. An extensive catalogue of products was published in the 1920s by Humes and many fences and gates still extant in South Australia can be identified in this. Rolled steel tended to be a fashionable new material and was used to replace earlier deteriorated fences. One particular design echoes a picket fence form, others could be successfully used to replace cast iron and were simply installed in place of the earlier panels or rails. With new fences, the fence panels were supported by timber posts or brick pillars.
F. Extracts from Cyclone Fence and Gate Company’s 1939 Catalogue
Although advertised as "everlasting" these Hume fences suffered severely from corrosion. The steel rusted and flaked off dramatically, if the fence material was not kept well protected by paint. Galvanised iron ribbon, produced by Cyclone was much more durable and superseded the rolled steel, creating a similar decorative effect, but lasting much longer.

Into the 1930s, Tudor Revival and Californian Bungalow residences of a substantial nature had carefully designed fences which repeated the building materials and details of the house. Alternatively, the more simple fencing materials of chain wire mesh, galvanised iron pipes and timber posts were used. Variations on the treatment of post tops created some individuality and Cyclone again provided many styles to choose from. Woven wire and chain wire mesh fences invariably had hedges planted behind them to create a more solid boundary and again bushy species such as duranta, privet or cypress were used.

Wrought iron detailing to masonry fences which matched house materials became fashionable in the 1940s. The iron work was square in section and the designs generally more angular than the curved elements of earlier metal fences.

Examples of these fence types can be seen in the Cyclone Fence and Gate Co catalogues.
Post World War Two

Fences after the Second World War were still constructed from masonry and wrought iron to match the house, or in wire mesh and pipe for a more economical fence. A new material to emerge was the use of brush or tea tree (melaleuca alternifolia) and this has remained popular. Brush fences were most often 1.8m high although some low fences were constructed. Brush had the advantage of providing privacy to the garden and house behind a more "natural" fence. Brush fences most often replaced early fences which had deteriorated, or were constructed to new houses. In many suburbs the streetscape is characterised by brush fences.

Conclusion

When conservation is undertaken on a building, it should be kept in mind that the fence is an integral part of the property and deserves careful consideration.

There are many fence styles in a range of materials which were used for South Australian residences. As already noted, if an original fence remains, this should be carefully conserved. New fences should be appropriate to the period and style of the building and copied from the original where possible. This will avoid introducing styles which were not used in South Australia and are therefore not appropriate.
3 CONSERVATION, REPAIR AND MAINTENANCE

Timber
Timber fences suffer mainly from rotting where the fences touch the soil. Often timber fences have timber base boards or plinths which become covered by soil due either to a rise in garden or in street level. These timber bases or plinths should be replaced with matching new hardwood sections and, if the posts have been damaged by rotting at their base, the rotten section should be cut out and a new section spliced in to ensure the original height of the fence is retained. Avoid further soil build-up against the timber base of a fence.

Sound timber sections should be refixed with galvanised nails or plain galvanised hoop iron. Timber should be finished with a timber sealant or painted to protect the surface. Regular repainting and maintenance is essential to avoid deterioration of the fence.

Any damaged sections can be repaired by rebuilding with an appropriate epoxy system for wood repair.

When the timber has deteriorated to such a degree that the fence must be replaced, any elements and sections which are still sound should be retained and reused if possible and must be used as guide to remaking the fence to the original design.

Iron
It is important to distinguish between cast iron and wrought iron in early fences. Wrought iron can be welded if repairs are required. Many early fences had wrought bars with cast tops. The actual conservation of cast iron is a specialist undertaking as cast iron cannot be easily welded and must be carefully treated if the strength of the weld is to be guaranteed. Cast iron suffers from corrosion and deterioration, particularly where the iron section often set in lead, is housed in a masonry or slate plinth, and the pointing seal has failed. Water collects and corrosion occurs at these points.

Where the iron has deteriorated beyond repair it may be replaced with exactly similar sections of sand cast aluminium which replicates the texture and appearance of cast iron. Cast aluminium has a different shrinkage rate than that of iron so new moulds must be made which allow for this difference when matching cast iron panels with new aluminium sections. Hollow extruded aluminium sections should not be used as these are far too light and do not match the solidity and appearance of early iron.

Foundries currently operating in Adelaide are able to recast in iron or aluminium, if a mould can be formed from a clean example of the earlier iron work.

Once repaired, iron should be cleaned usually by dry grit blasting and sealed using a surface sealant which will provide protection against corrosion. It is important that correct surface preparation is undertaken prior to painting cast iron or wrought iron and all earlier corrosion must be removed. The iron must be bone dry when painted. The priming coat which is applied should include a corrosive inhibitor which will prevent further damage. The surface of the paint must be maintained to ensure that the continuous film is not broken and corrosion allowed to reoccur. Water based paint systems should not be used as these do not protect the iron and allow further corrosion. Regular spot checking and repainting are essential to prevent deterioration.

Masonry
Often fences are set on a masonry base of brick or stone. Original materials should be retained where possible and carefully repaired to ensure their long life. The remortaring of masonry bases to fences should be carefully undertaken in a weak lime mortar to match the original and not done in an artificially pigmented cement mortar as this will destroy the early appearance of the fence and also cause damage to the stonework. It is important to match the mortar and stonework in materials of similar texture, composition and colour to the original work.
Where the stonework or brickwork has deteriorated to such a degree that it must be replaced for the length of the whole fence, rendered brickwork in an appropriately coloured finish would be a cheaper acceptable alternative to the exact reconstruction of the stone wall. It is almost impossible to recreate the appearance of early stonework.

All masonry should be checked regularly to ensure that there is no water penetration through rendered areas such as capping and brick joints, or that the mortar is not deteriorating due to rising damp. Appropriate conservation works should be undertaken as soon as any damage is evident to prevent this from becoming more severe.

**Rolled Steel (Hume)**

Fences constructed of this material should be treated as for cast iron metal fences where possible. It is not possible to replicate these fences currently, so all care should be taken to retain the original detailing and form of this particularly South Australian fence type. These fences are difficult to paint, as they can be incredibly complicated in design. However, care should be taken to ensure that the surface is clean and dry before painting and that the paint coverage is continuous. This will prevent further corrosion.

**Woven Wire**

Original woven wire fences were produced by Cyclone and others in galvanised wire and then painted by the householder if required. This is an extremely durable material, most damage occurs through impact and distortion of the pattern of the fabric.

Care should be taken to reform any distorted sections and ensure that the woven wire fabric is fixed firmly to its support posts. Painting could be undertaken if required but the galvanised surface of the wire should be sufficiently weather resistant to ensure its long life. Currently replacement of woven wire is available in a galvanised finish or powder coated in various suitable colours.

**4 RECOMMENDATIONS FOR NEW FENCES**

Because of the wide range of styles of fences for all periods of residential design which can be seen in early photographs of South Australian places, the choice from amongst the appropriate fence styles (where there is no evidence of the original) rests very much with the individual owner of the house. However, certain principles should be followed to ensure that the final choice is a style suitable for the house’s age and design and is not just an imported fashion from interstate.

Consideration should be given to the size of the house and the degree of formality which is required of the front fence. Avoid creating a fence which is too formal or monumental in style for the house type or is too complicated and detailed for the design of the house. A small cottage does not look comfortable behind a large masonry and heavy cast iron fence, and a house built later than the 1920s will look equally uncomfortable with a new fancy picket fence.

The erection of high walling in concrete, masonry or timber is not encouraged, as this obscures the building from the street and disrupts any existing early streetscape. It can also create a security problem. It is recommended that front fences are no higher than 1200mm to allow the appreciation of detailing to the residences behind. Side fences can be up to 1800mm high. Hedges may be used for privacy behind front fences of open design.

It is also important to note that there should be a fence to the front street alignment for houses of these early periods. Leaving out the fence is not appropriate for an historic streetscape.

Undertaking an examination for remnants of earlier fences or evidence of materials that may be at fence line is a worthwhile process, as this will give an indication of the original base of the fence and may possibly show the original location of posts and gates. This information can be used as a guide for a new fence, although current requirements may mean the alteration of the location of such things as entrance gates, particularly when vehicle access is required.
MEASURED DRAWINGS OF SOUTH AUSTRALIAN FENCE TYPES

Note:
These drawings are intended as a record and guide. The fences were measured in their current state and chosen because little alterations seemed to have taken place. However, some detail may not be exactly original, due to repairs or maintenance over time. If reconstructing a fence, be guided by the on site evidence and correct building practice.

Hinges for gates, where not shown, should be located on the side of the lowest point of the cross brace. This will ensure the brace is in compression and working to hold the gate in shape.

Stewart & Hasley "Sun" Foundry
Design No. 270 (railing)

WROUGHT IRON AND MASONRY c.1860-1890
CAST IRON AND MASONRY c.1870-1890 (NORWOOD)
TIMBER DOWEL c.1880

Dowels - 30mm diam
Gap - 95mm
Height - 550mm and 995mm
Rails - h67mm, w80mm
Posts - 100 x 100mm
Verandah floor height - 290mm

TYPICAL ELEVATION
TIMBER PICKET c.1880-1910

- **Pickets**: w75mm
- **Gap**: 50mm
- **Height**: min 1215mm, max 1305mm
- **Posts**: 75 x 120mm x h1305mm
TIMBER PICKET c.1880-1910 (CITY)
TYPICAL ELEVATION

- Pickets: w60mm
- Gap: 50mm
- Height: 1225mm
- Posts: 70 x 70mm
- Height: 1300mm

POST DETAIL A

ALTERNATIVE POST DETAIL

TIMBER PICKET c.1880-1910 (PROSPECT)
CORRUGATED IRON IN TIMBER FRAME c.1900 (CITY)
FENCE SECTION  TYPICAL ELEVATION  GATE SECTION

GATE STILE DETAIL

CORRUGATED IRON IN TIMBER FRAME c.1900 (CITY)
TIMBER PALING c.1915 (KENSINGTON)
TIMBER FRAMED PALINGS c.1925 (NORWOOD)
TIMBER FRAMED PALINGS c.1925 (NORWOOD)
BRICK WITH GALVANISED STEEL RIBBON c.1925 (NORWOOD)
6 FURTHER READING

The subject of fences has been covered in other publications in varying degrees of detail. There are also many early pattern books, carpentry and joinery texts from last century which cover the details and specifications for erecting fences of various kinds. Production catalogues from various foundries and joineries are available through the State Library of South Australia, Mortlock Library.

Other useful sources include publications in the Heritage Conservation series particularly information on brick and stonework.

The Mortlock Library at the State Library has an excellent collection of early photographs which show houses and fences. Local Government history collections should also be consulted.

Useful Texts


Burden, Michael, Lost Adelaide, a Photographic Record, Melbourne 1983. Early photographs show fences to buildings which were part of Adelaide’s architectural heritage but are now demolished or substantially altered.

Dancker, F W, Modern Dwellings - 100 Selected Designs, Adelaide 1904. An example of an Adelaide based architects designs which includes illustrations of houses and their fences.

McDougall & Vines, Kensington & Norwood Conservation Guidelines, City of Kensington & Norwood 1992. This has a brief section on fences with early photographs from the Norwood area.


Marsden, Stark, et al, Heritage of the City of Adelaide, Corporation of the City of Adelaide 1990. This is an illustrated guide to buildings which are on the City Register and includes early photographs which indicate fencing forms.

Peterson, Richard, Fences and Gates - c.1840s-1925, National Trust of Australia (Vic) Technical Bulletin 8.1 (1988). This is an excellent guide to fence types in Victoria and much of the detail given is relevant to South Australia, however, there are regional details which readers should be aware of. It covers cast iron, rolled steel and woven wire fabric, fences which were all available from South Australia.
Catalogues

G E Fulton & Co, Engineers and Iron Founders, Adelaide, South Australia. Illustrated catalogue of Fulton's castings, Second Edition, Vol 1, 1887. This includes engravings of all the products produced by Fulton's Foundry including cast iron balustrading and panels, wicket gates and standards, double gates and carriage gates as well as other products.

Stewart and Harley, ornamental and general iron founders and blacksmiths, Sun Foundry, Adelaide, South Australia. Illustrated catalogue, First Edition, Adelaide 1897. This contains engravings of all the cast and wrought iron products produced by this foundry including cast iron railings, wrought and cast iron gates, wicket gates and standards (posts), cast iron carriage gates and standards and wrought iron carriage gates with cast iron standards as well as other products produced by the foundry including fence post caps for two sizes of posts - 4.5 and 5 inch and also 7 and 8 inch posts.

A C Harley & Co, ornamental and general iron founders and blacksmiths, Sun Foundry, Adelaide, South Australia. Adelaide 1914. This is the second volume of the Sun Foundry catalogues when the firm was controlled entirely by the Harley family. It contains almost exactly the same products as the earlier Sun Foundry catalogue.

Cyclone Fence and Gate Co Pty Ltd, Catalogue No. 50 December 1939. Cyclone Fence and Gate Co had offices in Adelaide, Melbourne, Sydney and Perth and their products were wide spread across the country. This 1939 catalogue includes woven wire fabric seen in earlier catalogues and also driveway and hand gates in cyclone mesh with galvanised ribbon trim. This catalogue also includes a large section of wrought iron detailing. Suitable locations and uses for these gates and fence trims are also illustrated.

Metters Ltd, Adelaide, Sydney and Perth
Catalogue of Castings for fences which are similar to the early foundries designs. Metters also includes two caps for gate posts, 6in x 6in posts and 5in x 5in posts. These are much more ornamental than the earlier Sun Foundry caps. This catalogue has no date but it would appear to be around 1914.

Hume Brothers Cement and Iron Co Ltd, 1920s
Patented rolled steel fences, gates, railings, gratings, columns, friezes, grave railings, brackets, etc. Catalogue published in Adelaide.