Canberra Brickworks Precinct

Conservation Management Plan

Volume Two—Appendices

Report prepared for Doma Group

August 2021



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Report Register

The following report register documents the development and issue of the report entitled Canberra Brickworks—Conservation Management Plan, undertaken by GML Heritage Pty Ltd in accordance with its quality management system.

Job No.	Issue No.	Notes/Description	Issue Date
17-0170	1	Draft Report	18 July 2017
17-0170	2	Second Draft Report	31 August 2017
19-0443	3	Final Draft Report	11 December 2019
19-0443	4	Final Draft Report—issued to ACT Heritage	19 February 2020
19-0443	5	Final Draft Report—Volume 1 and 2 (addressing ACT Heritage October 2020 comments)—for client review	23 December 2020
19-0443	6	Final Draft Report—Volume 1 and 2 (addressing ACT Heritage, October 2020 comments)	13 January 2021
19-0443	7	Final Report—ACT Heritage Council Approval	12 August 2021

Quality Assurance

GML Heritage Pty Ltd operates under a quality management system which has been certified as complying with the Australian/New Zealand Standard for quality management systems AS/NZS ISO 9001:2008.

The report has been reviewed and approved for issue in accordance with the GML quality assurance policy and procedures.

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Cover Image: Canberra Brickworks, December 2020. (Source: GML Heritage)

Contents

Appendix A

Inventory of Individual Historic Elements

Appendix B

ACT Heritage Register Listings for ‘Yarralumla Brickworks and the ‘Yarralumla Brickworks Railway Remnants’

Appendix C

Detailed History of the Canberra Brickworks

Appendix D

The Australia ICOMOS Charter for Places of Cultural Significance, The Burra Charter, 2013 (Burra Charter)

Appendix E

Unanticipated Finds Protocol, GML, January 2021

Appendix F

Archaeological Assessment, Navin Officer, Draft Report, September 2016

Appendix G

Yarralumla Brickworks Inspection Report, Sellick Consultants, December 2019

Appendix H

Inventory of Moveable Relics, GML, January 2021

Appendix I

ACAT Orders regarding the Railway Remnants and Dunrossil Estate

Appendix A

Inventory of Individual Historic Elements, GML, January 2021

Appendix A—Inventory of Individual Historic Elements

Purpose of the Inventory

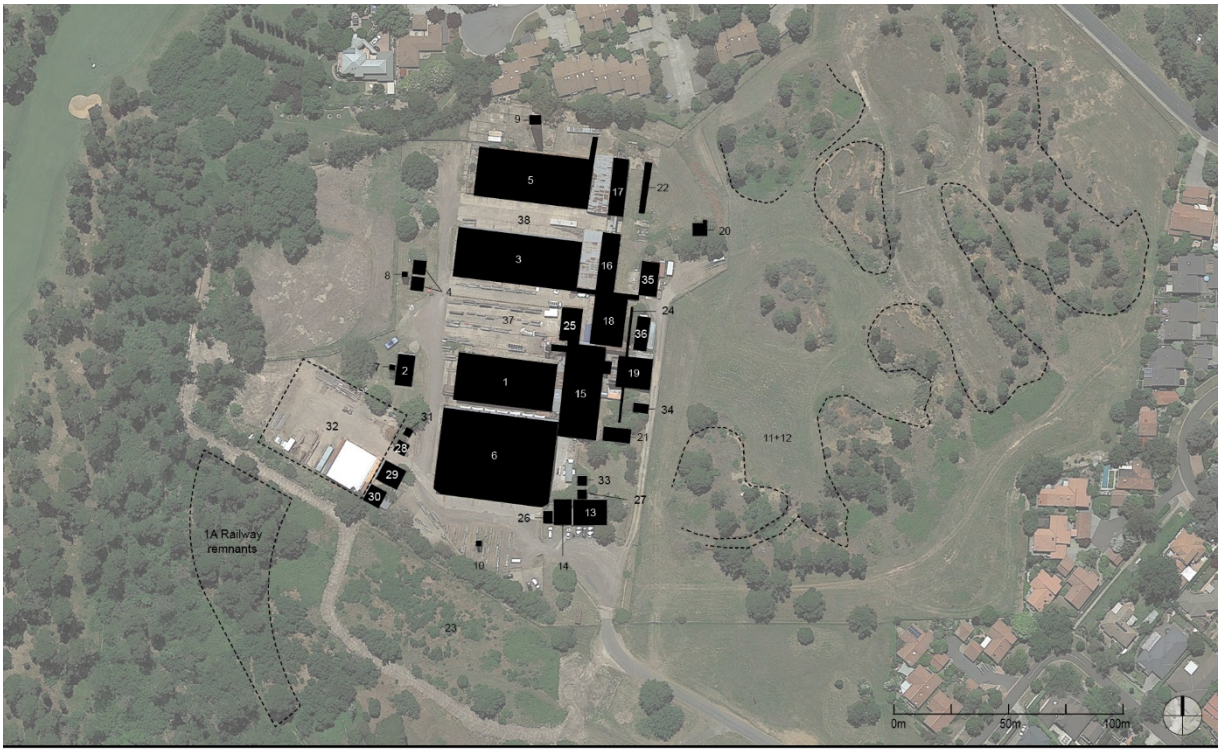
This appendix provides an inventory of the individual historic elements on the site, numbered according to Figure 1. Each inventory 'sheet' includes a history, physical description, heritage significance, and conservation policies relevant to the historic elements at the Canberra Brickworks Precinct.

The histories and descriptions have been drawn predominantly from the 2010 CMP and reviewed and updated where necessary. Information on the physical and structural condition is drawn from the 2013 Northrop structural audit report and updated by Sellick Consultants Pty Ltd in 2019 and 2021, and attached in full at Appendix G– Sellick Consultants Inspection Report/Condition Assessment Report, 2021.

The policies should be read with an understanding of the overarching conservation policies in Section 5.0 of the CMP to ensure consistency across the site. Conservation works would need to be undertaken as part of any future development proposal for the site and should take into consideration the heritage significance of the elements. Should works be required to historic elements that are intrinsic features of the Brickworks site, a Statement of Heritage Effects (SHE) must be prepared in accordance with the Heritage Act, and Council approval obtained for works.

The 2021 Inspection Report on the structural condition, prepared by Sellick Consultants applies a ranking of remediation (also referred to as reinstatement or rectification) works. The remediation ranking is as follows:

- **immediate rectification** works for Element 1 Staffordshire Kiln (Core) and Elements 16 and 17– Machine Bays (Supporting);
- **reinstatement required** for safe public access as part of the construction works; and
- of **no structural concern** and therefore no immediate works required.



Legend:

1	Staffordshire Kiln (1915)	9	Chimney Stack for Hardy Patent Kiln 2 (1953)	17	Machine Bay 3 for Hardy Patent Kiln 2 (1955)	24	Concrete retaining wall	33	Ancillary Storage Building 2
2	Fan House for Staffordshire Kiln (1915)	10	Chimney Stack for Downdraught Kilns (1963)	18	Workshop (1955)	25	Amenities Block	34	Storage Shed
3	Hardy Patent Kiln 1 (1927)	11	Quarry	19	White Pan Room (Large Crusher House/Crusher House II) (1955)	26	Downdraught Kilns Control Room	35	Model Railway Workshop
4	Fan house for Hardy Patent Kiln 1 (1953)	12	Geological features	20	Primary Crusher House (Crusher House III) (1955)	27	Toilet Block	36	Model Railway Storage Shed
5	Hardy Patent Kiln 2 (1953)	13	Offices (1916)	21	Small Crusher House (Crusher House I)	28	Ancillary Storage Building	37	Original Brickyard
6	Downdraught Kilns (1963)	14	Power House (1915)	22	Elevator/Conveyor	29	Substation/Control Room	38	Brickyard 2
7	Chimney Stack for Staffordshire Kiln (1915)	15	Machine Bay 1 for Staffordshire Kiln and Downdraught Kilns (1955)	23	Remains of the Brickworks Accommodation Village	30	Boiler House	1A	Railway remnants registration area
8	Chimney stack for Hardy Patent Kiln 1 (1927)	16	Machine Bay 2 for Hardy Patent Kiln 1 (1955)			31	Amenities Block 2	Refer also to figure 3.38 Areas of Archaeological Potential	
						32	Extrusion Plant (Remnants)		

Figure 1 The Site: Numbering and Location of Historic Elements of the Canberra Brickworks Precinct and Railway Remnants.

Canberra Brickworks: Inventory of Individual Historic Elements

Element 1—Staffordshire Kiln

Name of Element	Staffordshire Kiln	**CMP No. | ACT No.**	Element 1
Historical Phase	Establishment 1911–1920	**Date**	c1916
Construction	Brick with corrugated steel roof		





Historical Background

The Staffordshire Kiln was the first permanent kiln structure to be constructed at the Brickworks and the only example of its type to survive in Australia today.

Plans for the kiln were purchased in early 1914 from Robert E Odd, the Australian holder of the patent for the 'Staffordshire' and 'Manchester' continuous brick kilns. The Staffordshire kiln, a variation on the Hoffman model, had been patented by Dean and Hetherington of Accrington, Lancashire, England, in 1904. The continuous tunnel of the Hoffman kiln was replaced by a series of separate side-by-side chambers. This allowed a single chamber to give special treatment to its contents such as terracotta tiles or pipes, which could therefore be produced alongside brick firing. Previously, separate kilns were required.

Construction of the kiln began in November 1914 and was operational by early 1916. However, the Brickworks closed within a year due to a reduced works program in Canberra during World War I, and the 1916 coal strike.

The internal fire bricks were imported from England, with some apparently numbered to show construction sequence. Truss work in the loft was also imported with steel beams stamped 'Frodingham England' (Appleby-Frodingham Steel Co.). A single level verandah supported on timber posts enclosed the north and south elevations. By the mid-1920s, this had been removed and a more robust structure enclosed the north, south and west walls at first floor level with a timber enclosed verandah structure, thought to have been open to the firing floor internally (ie the brick walls having been demolished There is some evidence that this expanded upper level to the Staffordshire Kiln may have been used for drying tiles, presumably those produced in the tile-making plant added to the site in this period. A 1925 plan showing proposed alterations at the site indicates two 'tile lifts' adjacent to the Staffordshire Kiln. The first floor level to the verandah was demolished in the AR Marr period and the brick walls at first floor level were rebuilt in their original position at this time, but without the openings as in the original.

Significant rebuilding works took place in the mid-1950s when the Hardy Patent Kiln 1 was upgraded and extended, and the Hardy Patent Kiln 2 was constructed. At this time, the kiln chamber entrances were enlarged to permit forklift access.

Description and Condition

The Staffordshire Kiln is a 20-chamber two storey structure with a brick base, brick upper walls and a galvanised steel roof. There is a firing floor above enclosed by non-original brick side walls and original brick end walls, with a gable roof form clad in corrugated steel. The gable to the west end is infilled with corrugated steel and timber louvres, which are thought to be the original treatment. A 1917 photograph shows that the same scheme was in place at the east end, now obscured by the skillion roof structure that later enclosed the yard area between the machine bays and the kiln (see Figure 4). The first floor has been partially updated with an external brick veneer. The individual kiln numbers, originally painted above the centre of each of the arched entrances, are today incised in a rendered 'pad' to the right side of each of the openings. To the south elevation, one of the kilns at the eastern end has been infilled with brickwork and a single door opening installed, enabling the space to be secured for storage. The first-floor level of the verandah has been demolished and the supporting verandah is only extant in areas to the east, and is in an advanced state of deterioration. The timber floor is badly weathered in the interior upper floor, and the timber connections are not adequate in some locations. The timber roof framing has also weathered in some areas.

Internally, there are a number of 'trace-holes' which could be closed by dampers and were raised and lowered from the firing floor above. Within the kiln arches the feedholes and hot air off-takes are still apparent. Some kilns have been paved internally with cement tiles, a modification which occurred after the closure of the plant. The majority of the entry archways have loose bricks and voids in the brickwork bedding, resulting in displacement of some arches. The entry arches have displaced laterally in areas, which

Canberra Brickworks: Inventory of Individual Historic Elements

is likely due to swelling of the bricks. The internal areas of the kilns are generally in sound structural condition, with some loose bricks.

The upper floor and verandah of the Staffordshire Kiln has also been modified a number of times including the enclosing of the verandah with corrugated iron, bringing the line of the upper floor out to the edge of the original verandah. This modification was later reversed by A R Marr Pty Ltd when new brick walls were constructed on the line of the original building wall, with the intention of refitting the space as a commercial facility. The roofing was also replaced at this time. The glazed louvre vents are also broken and not weatherproof.

The inspection report for the building identified that the brick veneer is in reasonable condition for its age, however there is some cracking and loose brickwork throughout the arches of the kilns, and the entries to some have deteriorated. The wall sheeting has severe deterioration in places and the timber lean-to is significantly weathered. The sheet fixings are noted to be loose in some areas. The steel trussed roof is in a reasonable condition and roof sheeting appears to have been replaced more recently. The steel brace at the south elevation has buckled. There are 'chimney' holes from the kilns below throughout the floor.

Significance	Core Element

The Staffordshire Kiln, and its associated structures and underground infrastructure, is an element of core significance. It was the first permanent kiln structure on the site and is a key surviving element from the earliest phase of development. This choice of relatively elaborate kiln type with capacity to fire multiple types of products simultaneously reflected the requirements of the Brickworks as the sole provider to the new national capital. While extensively modified and rebuilt in some areas, this kiln is the only example of a Staffordshire kiln remaining in Australia.

The Fan House and Chimney Stack were both integral to the operation of the Staffordshire Kiln. While only remnants of dismantled equipment remain in the Fan House, the arrangement of the interior demonstrates the function of the building and its relationship to the kiln and the associated chimney.

Structural Advice as at 2021	Immediate rectification works required, with access to some floor areas to be restricted—refer to Appendix G for detail.

Conservation Policy and Adaptation Guidelines	Core elements must be retained and conserved

- The Staffordshire Kiln must be retained and conserved.
- The brickwork veneer should be restored and ensured that it is weatherproof.
- External fabric of the building should generally be retained, noting that non-original brickwork on the upper level could be removed/replaced.
- Locally displaced bricks should be reinstated.
- An area of the firing floor of either this kiln or one of the Hardy patent kilns should be retained intact as a single volume, allowing the nature and operations of the firing floors to be clearly understood.
- Minor changes to the exterior, such as new openings, would be acceptable.
- A limited number of roof lights would be acceptable to improve light and amenity to the upper floor.
- Installing solar panels on the roof and exploring other ESD opportunities would be acceptable.
- The remnant verandah could be removed and replaced. Any new structure (ie verandah and/or upper level walkway) should reference the industrial character.
- The current form of the entries to the kiln chambers should be retained. Chambers could be enclosed with recessed doors if needed.
- Retain kiln chambers as open space where possible in an adaptive reuse project, to provide a representative example of a kiln space for the interpretation of the historical use, rather than subdividing all of them.
- The building could be adapted internally for new use or uses, including subdivision and new fitout, provided an area of firing floor is retained for this kiln or one of the Hardy patent kilns. The kiln chambers could be linked (ie north-south or east-west connections) to extend the space, if necessary to support a new use.
- Within the interior upper level, the existing dirt floor can be excavated and replaced with a new floor, covering up the firing holes and ensuring the floor is free of trip hazards. This will lower the floor level and permit a sufficient truss clearance to allow an adaptive reuse of the space.
- Window fenestration to the upper floor should mimic the rhythm of historic openings but allow for appropriate daylight and ventilation access for an adaptive reuse.
- Restore all or part of a chamber, including the vents to show the original kiln operation, and the corresponding upper floor space sufficient so that the method of firing and controlling the kilns can be seen in future adaptative reuse.
- Bracing of the upper level should be further assessed by a structural engineer.
- Steel roof structure needs to be further assessed by a structural engineer and fixed where required.

Canberra Brickworks: Inventory of Individual Historic Elements

- Assess all proposed actions, including conservation works or adaptation, for potential adverse impacts on the heritage significance, through the preparation of a Statement of Heritage Effects (SHE) in accordance with the ACT guidelines.



Figure 1 The Staffordshire Kiln, Fan House and Chimney Stack, photographed in 1917 by Harry Connell. Note that in this view the kiln verandah does not extend to the west elevation. (Source: National Library of Australia)



Figure 2 West elevation of the Staffordshire Kiln in 2010 showing the remains of the verandah. (Source: Lovell Chen, 2010)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 3 West elevation of the Staffordshire Kiln. (Source: GML, October 2016)

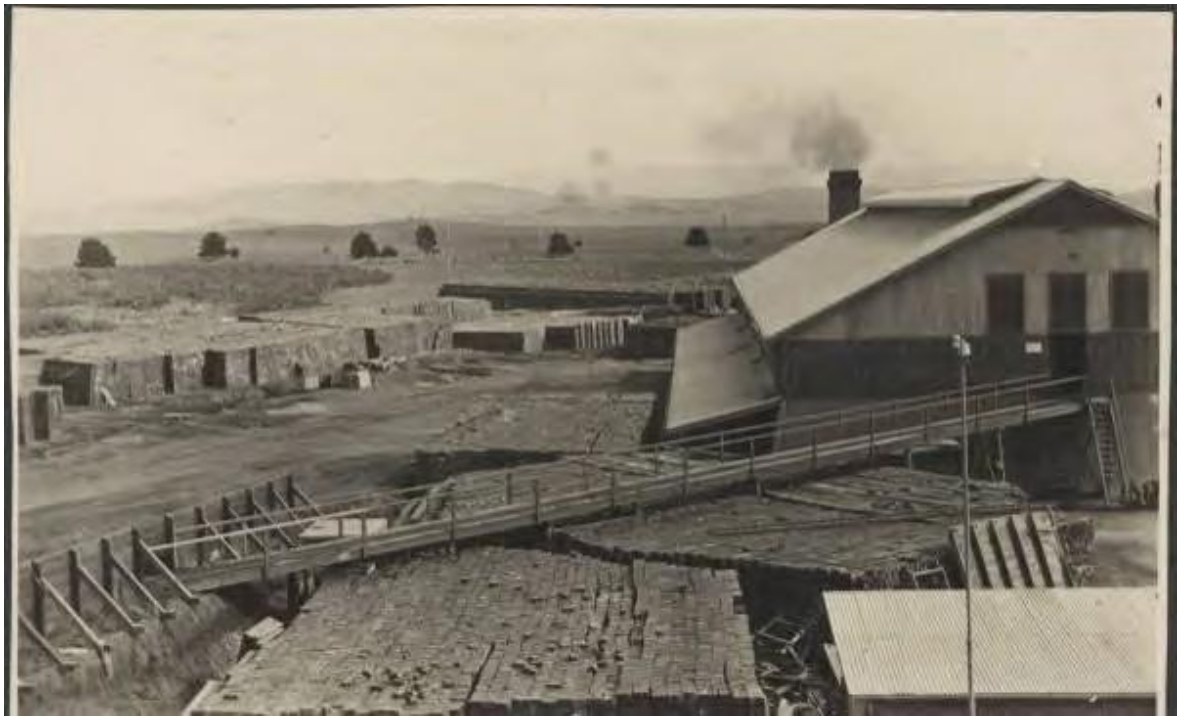


Figure 4 East elevation photographed by Harry Connell in 1917. (Source: National Library of Australia)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 5 North elevation photographed prior to the rebuilding of the verandah to support a first-floor enclosed verandah structure. (Source: National Archives of Australia)



Figure 6 View of the west elevation from the 1920s showing the later two-level verandah structure. (Source: National Archives of Australia)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 7 North elevation showing modified kiln entrances. (Source: GML, 2017)



Figure 8 Interior of kiln at north elevation. (Source: GML, 2017)

Canberra Brickworks: Inventory of Individual Historic Elements

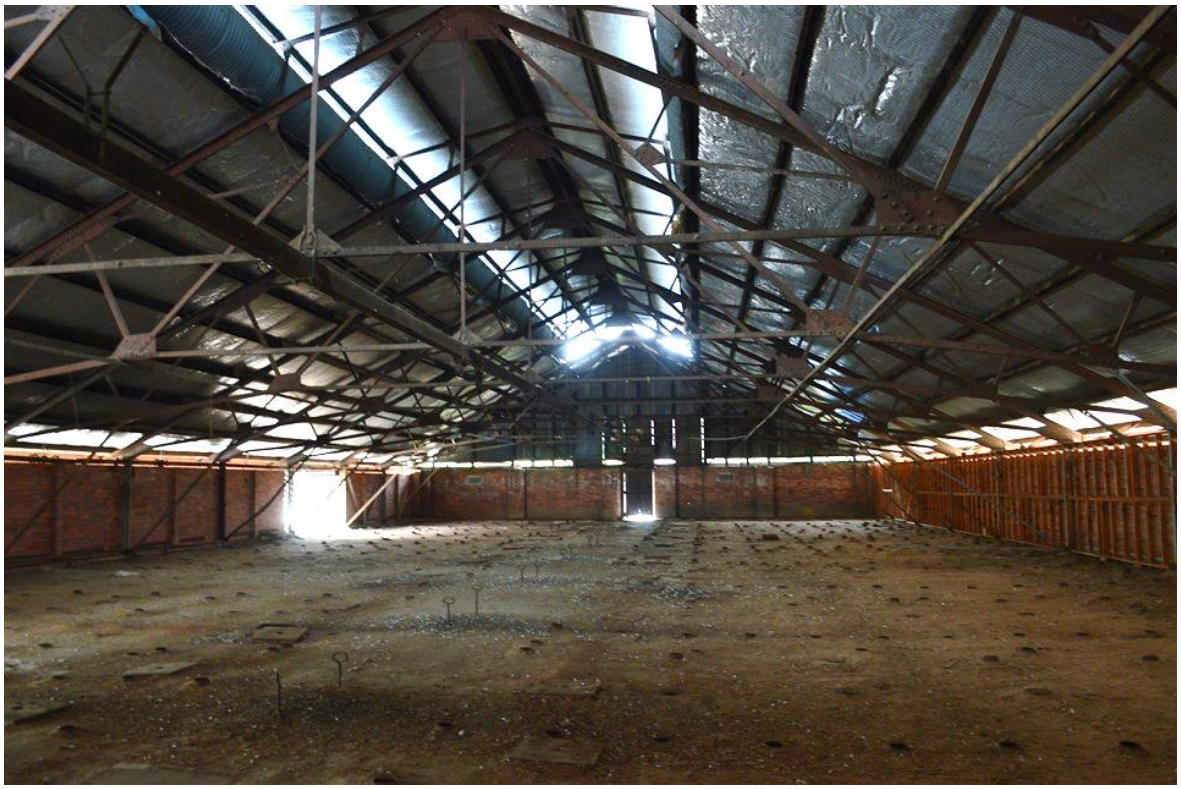


Figure 9 Interior of upper level. (Source: GML, 2016)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 1A—Railway Remnants

Name of Element	Railway Remnants	**CMP No. | ACT No.**	Element 1A | Yarralumla Brickworks Railway Remnants
Historical Phase	Establishment and Expansion 1911– c1940	**Date**	1923





Historical Background

In 1923, a 3-feet 6-inch (1067 mm) gauge steam-hauled railway was constructed to transport bricks from the Brickworks to construction sites around the fledgling Federal Capital such as Provisional Parliament House (1927), Hotel Canberra (now the Hyatt, 1927) and other public buildings and offices including Telopea Park School (1923), East Block (1927), Albert Hall (1928) and Hotel Kurrajong (1926). The southern terminus was at the Power House, where the line connected with a small engine shed.

Rail proved a more effective means of transport as the bricks were originally moved by steam traction engines that hauled heavy iron-wheeled trailers on mostly unmade roads. This proved unsatisfactory and time consuming as the traction engines only achieved two round trips a day between the Brickworks and the Parliament House.

After the failure of the standard gauge railway to Civic Centre following collapse of the causeway bridge in the floods of 1922, the Brickworks railway was extended to Civic, crossing the Molonglo River on a small timber bridge near the Scott's Crossing Road. It is understood that in the city area the abandoned standard gauge track was used by moving one rail a distance of 14.5 inches across on the existing sleepers to form the narrower gauge. It is believed the Brickworks tramway terminated about 40 feet beyond the Civic Centre platform.

In the clean-up and extensive landscaping works prior to the opening of Parliament House on 9 May 1927, and possibly also because it had by that stage become more economical to transport the bricks by motor lorry, the railway was removed.

Description and Condition

Remnants of the three lines of the former Brickworks railway are evident closest to the southwest corner of the Brickworks site, converging to form a single embankment. Close to the Brickworks, two of the former lines are evident as earth terraces, which go through a short cutting to become distinctive earth mounds. The third line runs approximately parallel to the western boundary of the Brickworks and is evident as an earth terrace. Along some sections of the embankment there are mature pine trees within close proximity, with other trees and shrubs growing alongside and over the former rail line. The setting of the Remnants within the pines creates an attractive vista.

The following provides a description of the railway from 1967:

> *The track at the Brickworks was set out in three parallel lines, one on either side of the Staffordshire kilns and the remaining one ran to the coal dump. Immediately after leaving the proximity of the kilns, these tracks swung around rather sharply to the left, the points that gave access to the sidings being at an angle of 53 degrees to the straight part along the kilns…After converging to a single track, the line ran straight for about 200 yards, then, after crossing Uriarra Road swung again to the left in a curve on an embankment and straightened out with a slight down grade for ¾ mile where a reserve curve brought it alongside Adelaide Avenue. It continued beside this road to the State Circle where it followed the left contour of the Circle for about one third of its circumference until it met Commonwealth Avenue which it crossed at an angle…*[1]

Canberra Brickworks: Inventory of Individual Historic Elements

Significance	Core Element and individually listed on the ACT Heritage Register

The Remnants of the former Yarralumla Brickworks Railway is significant for its association with the early construction of the Federal Capital from 1923 until 1927. This was a critical period in the development of Canberra and included major construction works in the lead-up to Parliament relocating to Canberra. The railway transported bricks for many prominent, as well as ordinary, buildings from this period. Major examples include the Provisional Parliament House, Hotel Canberra, East Block and the Hotel Kurrajong.

The Remnants highlight one of the many challenges of building a city within a short timeframe, in a relatively undeveloped area and with constraints on transport and technology.

The Brickworks railway, of which the Remnants is a remaining portion, transported up to six million bricks per annum. The Remnants provide tangible evidence that can assist in understanding the circumstances surrounding aspects of Canberra's construction.

The Remnants are also considered to have moderate archaeological potential for their ability to enhance our understanding of the railway and its operation.

Conservation Policy and Adaptation Guidelines	Core elements must be retained and conserved

- The Railway Remnants must be retained as a landscape element that through the form of the embankments and earth terraces reflects its origins.
- Any adaptation of this element should ensure its legibility as a former railway is retained.
- Potential impacts to the archaeological elements of this feature from development should be assessed against the sensitivity zoning outlined in the historic archaeological analysis and heritage significance assessments in this CMP.
- Assess all proposed actions, including conservation works or adaptation, for potential adverse impacts on the heritage significance, through the preparation of a Statement of Heritage Effects (SHE) in accordance with the ACT guidelines.

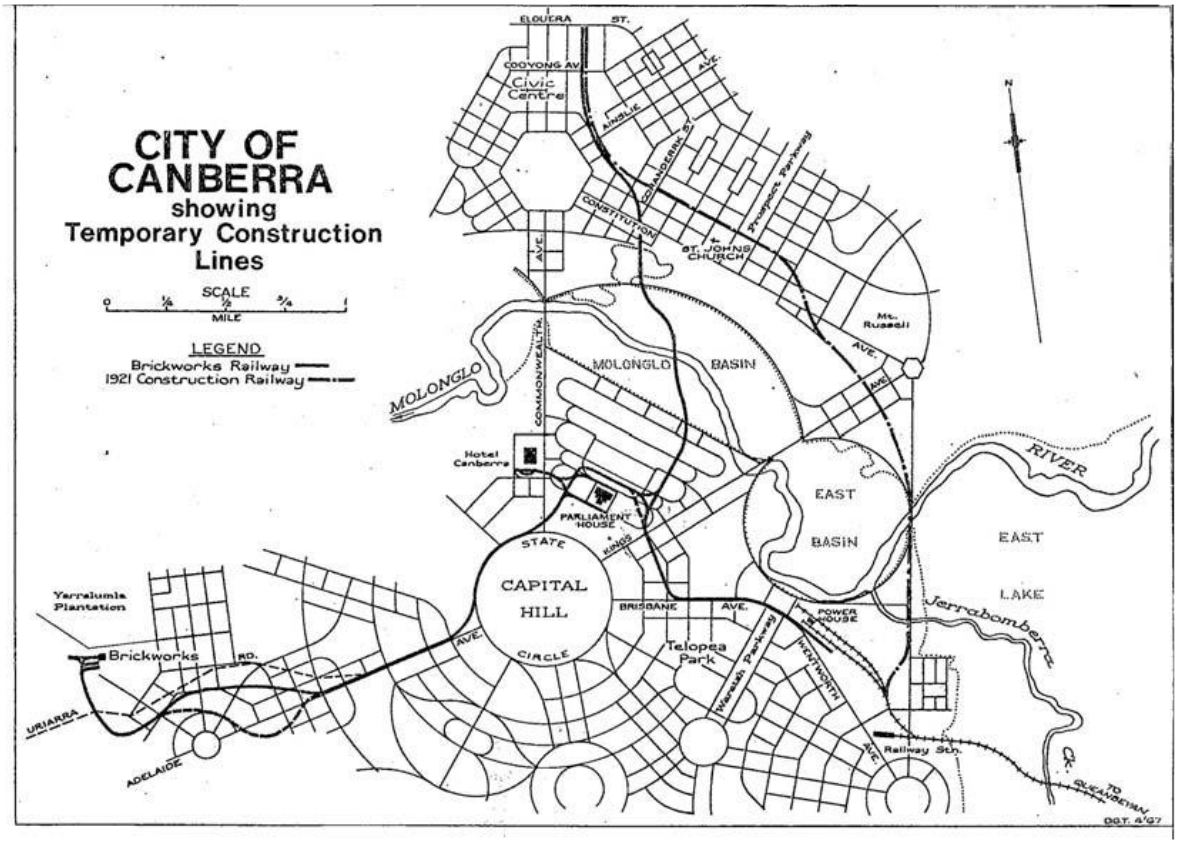


Figure 1 Map of Canberra showing the line of the Brickworks Railway. (Source: Australian Railway Historical Society Bulletin No. 355, May 1967)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 2 View toward the Canberra Brickworks, showing the Railway Remnant terracing and embankments. (Source: GML, 2017)

Endnotes

1 Australian Railway Historical Society Bulletin No. 355, May 1967.

Canberra Brickworks: Inventory of Individual Historic Elements

Element 2—Fan House for Staffordshire Kiln

Name of Element	Fan House for Staffordshire Kiln	**CMP No. | ACT No.**	Element 2
Historical Phase	Establishment 1911–1920	**Date**	c1916
Construction	Brick with corrugated steel roof		





Historical Background

An unusual feature of the design of the Staffordshire Kiln was the use of fans to help dissipate heat and burnt fuel. The use of fans compensated for the greater draw or suction a taller chimney would have provided, and allowed for the use of a lower brickstack. Accommodated in a separate building (the Fan House), fans are used to draw the heat through the kiln tunnel to be dispersed through a short brick stack, rather than a high chimney. It is possible that this aspect of the design of Brickworks Staffordshire Kiln was pursued to avoid the visual impact of a higher stack in the Canberra area.

The fan house is located approximately 20 metres west of the Staffordshire Kiln. It was constructed in conjunction with the kiln in c1915–16 and housed the machinery to induce the drafts required to disperse heat and burnt fuel through the stack.

The small brick kiln behind the Fan House is not shown in a 1917 photograph of the Brickworks but is clearly visible in a photograph taken in c1926. This indicates that it is an early site element (Figure 2).

Description and Condition

The Fan House is a single storey building with concrete basement level constructed of face red brick laid in English bond with a Dutch gabled timber frame roof clad in replaced corrugated steel. There is a central double door opening in the east (front) elevation, flanked by tripartite timber-framed casement windows with awning toplights, set on sloping sills of bullnose bricks. Additional windows are centrally placed in the north and south end walls. The west wall has windows placed directly opposite the windows that flank the entrance. Internally the ceiling is lined in beaded, painted timber boards. Within the building there is a diamond-shaped concrete apron to the entry with metal ladder-form stairs to a lower floor level to either side of the apron. There is a metal guardrail around the apron. The apron sits over the entry to the kiln draught tunnel and the tunnel to the stack. One of two fan motors remain within the basement area and the concrete engine mounts are also intact. The fan housings are partly intact with the dampers in situ and one of the tangential fans hanging on the rear wall. The ductwork which carries the exhaust to the stack is carried below ground. The bulk of the plant equipment appears to have been removed. Remnants remain of the tangential fans, as well as partially dismantled motor housing, and components of one of the electric motors remain. The dampers to the kiln tunnel are also extant. The tunnel connections with both the kiln itself and the associated chimney stack need to be further investigated.

The inspection report for the building identified that the ceiling boards are in poor condition and partially collapsed and the concrete basement is filled with debris. The front doors have been removed, the windows are broken and the glass panes are missing. The internal brickwork is graffitied and heavily stained by soot. The handrails do not fully extend around the ground floor platform, with one handrail loose. There is moderate cracking of the brick lintels above the windows. The remaining fan motor is in a dilapidated state. Sinkholes have been observed around the building due to settlement of basement backfill. The brick ‘oven’ structure next to the chimney stack is severely cracked. Little to no mortar remains in the joints, leaving bricks loose and unstable. The rainwater goods, soffits and fascias to the roof have all been removed. The condition of the roof, joinery and interior is poor. Brickwalls are in reasonable condition, with some cracking to lintels.

There is significant water ingress into the basement of the building, and presumably the tunnel connections, which needs to be further investigated.

Canberra Brickworks: Inventory of Individual Historic Elements

Significance	Core Element

The Staffordshire Kiln, its associated structures and underground infrastructure, is an element of core significance. It was the first permanent kiln structure on the site and is a key surviving element from the earliest phase of development. This choice of relatively elaborate kiln type with capacity to fire multiple types of products simultaneously reflected the requirements of the Brickworks as the sole provider to the new national capital. While extensively modified and rebuilt in some areas, this kiln is the only example of a Staffordshire kiln remaining in Australia.

The Fan House and Chimney Stack were both integral to the operation of the Staffordshire Kiln. While only remnants of dismantled equipment remain in the Fan House, the arrangement of the interior demonstrates the function of the building and its relationship to the kiln and the associated chimney.

Structural Advice as at 2021	Reinstatement required for safe public access during construction works. No structural concerns—refer to Appendix G for detail.

Conservation Policy and Adaptation Guidelines	Core elements must be retained and conserved

- The Fan House must be retained and conserved including original building form, openings, fabric, internal concrete platforms. And, if possible the 'fan' infrastructure could be reused or interpreted as part of future adaptation.
- Externally, no new openings should be introduced.
- The internal adaptation of the building is possible and alternatives for its reuse should be explored.
- The internal configuration (including lowered floor level and the tunnel connections with the kiln and chimney stack) should be retained as evidence of the original function of the building. New removable flooring could be introduced to allow for accessible movement through the building.
- Any replacement required of fabric (ie deteriorated timber window joinery) should match or be complementary to existing materials.
- Water ingress to the basement needs to be further investigated and addressed.
- Investigate the retention of the original 'fan' function and elements in an adaptive reuse scheme. Assess all proposed actions, including conservation works or adaptation, for potential adverse impacts on the heritage significance, through the preparation of a Statement of Heritage Effects (SHE) in accordance with the ACT guidelines.



Figure 1 East elevation of Fan House with Chimney Stack behind. (Source: GML, 2017)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 2 Southwest corner of Fan House next to small brick 'kiln'. (Source: GML, 2017)



Figure 3 Interior of the Fan House from entrance across ground level platform. Tangential fan mounted on rear wall. (Source: GML, 2017)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 4 Interior of the Fan House, showing poor condition ceiling boards. (Source: GML, 2017)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 3—Hardy Patent Kiln 1

Name of Element	Hardy Patent Kiln 1	**CMP No. | ACT No.**	Element 3
Historical Phase	Expansion 1921–1942	**Date**	1926–27, substantially rebuilt c1955
Construction	Brick, upper floor and roof of corrugated galvanised steel		





Historical Background

The Hardy Patent Kiln 1 was built in 1926 and became operational in 1927. It was a critical component of the drive to double the output of the Brickworks in the build-up to the relocation of the Parliament to Canberra and the transfer of public servants. Other components of the expansion of the Brickworks during the mid-1920s were two 'temporary' Downdraught kilns, which were located close to the site of the present Downdraught Kilns, and a Scotch kiln (undated and demolished) located to the north of the Staffordshire Kiln. The Hardy patent kiln fired continually in a clockwise cycle and was able to produce up to 150,000 bricks per week, though in January 1927 the *Canberra Times* estimated annual output for the kiln as up to six million bricks. A firing cycle lasted 14 days.

In the mid-1950s the partially collapsed kiln was extensively rebuilt. It was also extended from 18 to 20 bays. Further works are understood to have been undertaken in the 1970s.

Description and Condition

Hardy Patent Kiln 1 is a two-storey structure of full brick masonry construction with a light-weight upper level clad in steel trussed corrugated galvanised steel. The ground floor comprises 20 arched brick openings or 'wickets', which provide access to the two kiln chambers oriented east–west. In the late 1960s each alternate wicket was widened to permit egress of forklifts. Other wickets have been infilled with brickwork. The outer walls of the kiln are battered at approximately 60 degrees. Wicket numbers are painted onto the brickwork next to each opening. A single-storey timber verandah roofed in corrugated galvanised steel extends around all sides of the building. The verandah is supported on timber props that extend at 45 degrees from the brickwork, as well as by a series of painted steel posts. To the east, the verandah abuts the skillion roofed section of the corrugated steel Machine Bay 2 to its east.

The first-floor area (the firing floor) is of steel-framed construction, clad and roofed in corrugated sheet steel. As built, the walls to the north and south were interrupted at regular intervals by openings infilled with timber louvres, providing ventilation to the space. There are a number of metal framed casement windows to the north and south walls. The position of these is unrelated to the original configuration of louvred openings and is thought to date from the rebuilding of much of the kiln structure in the 1950s. The floor retains a number of the firing holes and handles for opening and closing the flues. A portion of the floor area has been excavated and the form of the firing holes can be seen.

Originally, access to the west end of the firing floor was via a timber stair, which rose through the verandah (see Figure 1). However, the re-cladding of the end wall and the verandah form has removed evidence of this access point. The east end has been modified with a walkway at first floor level extending from the south elevation and connecting the firing floor with the adjoining machine bay behind (the latter dating to the mid-1950s). Access to the firing floor is through a single leaf ledged and braced timber door in the east wall. The interiors of the kilns have been part floored in cement pavers, and divided by a non-original brick wall. These works were undertaken as part of the AR Marr post-closure development proposal.

The existing roof, first floor cladding and verandah roofing are thought to date from the early 1970s, when fire damaged the structure.

The inspection report for the building identified that the timber lean-to awning around the north and south elevations is in a reasonable condition with some weather damage to the rafters. The wall sheeting to exterior of structure is also in reasonable condition. Brickwork is loose throughout the wickets and some entry archways have been displaced from loose bricks and voids,

Canberra Brickworks: Inventory of Individual Historic Elements

causing a displacement of the arch. The internal kiln area has loose bricks. Mass concrete has been used to augment some of the collapsed arches.

The east and west archways between kiln halls and the northeast entry have severe cracking and displacement. Both western entries are badly damaged and have suffered from structural movement. Ceiling battens line the underside of purlins on the first floor, several of which were loose. Windows throughout the first floor have been removed or damaged. The upper floor steel trusses are in reasonable condition. Within the interior upper floor, the chimney holes are a trip hazard. There are several battens loose where timber battens were installed to the underside of purlins that were potentially implemented to support ceiling lining. The roof sheeting appears to have been replaced more recently and is in reasonable condition.

The timber rafters of the awning—external ground floor—are in average condition, some of the rafters exhibit weather damage. There is corrosion in areas of the steel fascia beam. Post connections are loose and some connections between steel fascia and posts has failed.

Significance	Core Element

Hardy Patent Kiln 1, together with its Fan House and Chimney Stack, demonstrates the expansion of the Brickworks in the 1920s in response to the increased demand for building materials for the development of the national capital. The kiln was commissioned prior to the relocation of Parliament to Canberra in 1927. The kiln has been extensively modified and extended but still provides an important link to this phase in the history of the site.

Hardy Patent Kiln 1 is also of interest as an example of an Australian patent kiln design thought to date from the late nineteenth century, one of a large number of variations of the Hoffman kiln typology developed in this period.

The associated Fan House and Chimney Stack are integral to the operation of the kiln, including in its expanded form post-World War II.

Structural Advice as at 2021	Reinstatement required as part of the construction works—refer to Appendix G for detail.

Conservation Policy and Adaptation Guidelines	Core elements must be retained and conserved

- Hardy Patent Kiln 1 must be retained and conserved (original form and fabric), allowing for adaptive reuse options.
- External fabric of the building should generally be retained.
- Reconstruction or reinstatement of former internal industrial equipment and features is not required.
- Wall sheeting and roof sheets needs to be replaced (or at minimum secured). Ensure that the roof is waterproof.
- Nail fixings to be replaced using screw fixings.
- Where possible, retain and expose the roof trusses.
- Retain/interpret the evidence of the former function of the firing floors of this kiln or the Staffordshire Kiln.
- Interpretation of the sequence of alterations to the kiln is highly desirable.
- External modifications can include new openings on the first floor and in the roof.
- Two options are proposed for the loose bricks in different conditions. Where bricks are locally loose but exhibit no overall displacement, reinstate locally displaced bricks in order to match existing ones. Where areas of brickwork are loose with significant displacement, reinstate loose brickwork areas where feasible, but if this is not feasible, structural steelwork support (or other structural support) needs to be provided.
- Timber rafters should be replaced where required.
- Steel post connection to correct as needed.
- Recessed doors in the existing openings on the ground floor can be added if required, and brick infilled openings on the ground floor can be re-opened if required. Additional openings could be inserted on the ground floor at the western end of the kiln if necessary to improve solar access to support a new use, and could reference the openings at the western end of Hardy Patent Kiln 2.
- Installing solar panels on the roof and exploring other ESD opportunities would be acceptable.
- The verandah should be retained, if possible, or reinterpreted as part of an adaptive reuse. Any new structure (ie verandah and/or upper level walkway) should reference the industrial character.
- The building could be adapted internally for new use, including subdivision of the kiln chambers and first floor, provided an area of firing floor is retained for this, the other Hardy Patent Kiln or the Staffordshire Kiln. Carefully designed openings between the north and south kiln chambers could be introduced, if necessary, to support a new use.
- Replacement of floor with concrete slab is possible, to allow the space to be used and the original proportions of the space to be retained.
- Within the interior upper level, the existing dirt floor could be excavated and replaced with a new floor, covering up the firing holes and ensuring the floor is free of trip hazards. This will lower the floor level and permit a sufficient truss clearance to allow an adaptive reuse of the space.

- Window fenestration to the upper floor should mimic the rhythm of historic openings but allow for appropriate daylight and ventilation access for an adaptive reuse.
- Timber batterns could be removed if not required, however should ceiling lining be installed, the battens should be appropriately secured.
- A structural engineer should assess the steel roof structure and upgrade where required.
- Assess all proposed actions, including conservation works or adaptation, for potential adverse impacts on the heritage significance, through the preparation of a Statement of Heritage Effects (SHE) in accordance with the ACT guidelines.



Figure 1 Hardy Patent Kiln 1 in foreground and the Staffordshire Kiln in 1928. (Source: National Archives of Australia)



Canberra Brickworks: Inventory of Individual Historic Elements

Figure 2 South elevation of Hardy Patent Kiln 1. Fan House and associated Chimney Stack in background. (Source: GML, 2017)



Figure 3 North and west elevation of Hardy Patent Kiln 1. (Source: GML, 2017)



Canberra Brickworks: Inventory of Individual Historic Elements

Figure 4 Interior of Hardy Patent Kiln 1. The kiln is divided in two by a non-original brick wall. (Source: Lovell Chen, 2010)



Figure 5 Southwest 'wicket' to Hardy Patent Kiln 1. (Source: GML, 2017)



Figure 6 First floor of Hardy Patent Kiln 1 with firing holes visible to the floor. (Source: GML, 2017)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 4—Fan House for Hardy Patent Kiln 1

Name of Element	Fan House for Hardy Patent Kiln 1	**CMP No. | ACT No.**	Element 4
Historical Phase	Expansion 1921–1942	**Date**	c1926, 1955
Construction	Timber frame, corrugated steel cladding		





Historical Background

The first stage of the Hardy Patent Kiln 1 Fan House was constructed c1926 and was a considerably more modest structure than the Staffordshire Kiln Fan House. It is located approximately 20 metres west of Hardy Patent Kiln 1.

In 1955, plans were prepared to provide additional exhaust capacity and the Fan House was augmented by a near identical structure constructed to its immediate south. This structure was set approximately 30 centimetres above the floor level of the earlier building. The need for additional capacity may have related to the rebuilding and extension works to Hardy Patent Kiln 1, which was expanded from 18 to 20 chambers c1955.

Description and Condition

The Fan House comprises two timber-framed sheds with gabled roofs, clad in corrugated steel, and a concrete basement level. There is an entry to the east elevation and windows in the rear and outer walls.

Internally, the Fan House is similar to the Staffordshire Kiln Fan House. The floor is below ground level and there is an entry apron with metal handrails. Evidence remains of the now removed fan machinery, the location of which is discernible by the pedestal mount of the fan machinery. The ducts connecting the Fan House with the stack are in-situ, and unlike the Staffordshire Kiln Fan House, these are visible rising out of the rear walls and connecting to the east elevation of the stack at approximately two metres in height (Figure 4).

The inspection report for the building identified that of the two structures, the northern-most is in worse condition. Roof and wall cladding was highly weathered and missing in places, and that the concrete basement level is filled with debris. Doors have been removed, windows are broken and all the glazing is missing or broken. The handrails do not extend completely around the ground floor platform. Sinkholes were observed around the building due to settlement of basement backfill. There is vegetative overgrowth to the north side. The condition is poor.

Significance	Core Element

Hardy Patent Kiln 1, together with its Fan House and Chimney Stack, demonstrates the expansion of the Brickworks in the 1920s in response to the increased demand for building materials for the development of the national capital. The kiln was commissioned prior to the relocation of Parliament to Canberra in 1927. The kiln has been extensively modified and extended but still provides an important link to this phase in the history of the site.

Hardy Patent Kiln 1 is also of interest as an example of an Australian patent kiln design thought to date from the late nineteenth century, one of a large number of variations of the Hoffman kiln typology developed in this period.

The associated Fan House and Chimney Stack are integral to the operation of the kiln, including in its expanded form post-World War II.

Structural Advice as at 2021	Rectification works and further inspection required as part of the construction works—refer to Appendix G for detail.

Conservation Policy and Adaptation Guidelines	Core elements must be retained and conserved

- The Fan House must be retained and stabilised in situ.

Canberra Brickworks: Inventory of Individual Historic Elements

- The internal configuration (including lowered floor level and the tunnel connections with the kiln and chimney stack) should be retained, where possible, as evidence of the original function of the building.
- The remnant substantially dismantled plant could be retained for interpretive purposes or removed as required. If removed, it should be fully recorded.
- Externally, no new openings should be introduced.
- The building could be adapted internally.
- Assess all proposed actions, including conservation works or adaptation, for potential adverse impacts on the heritage significance, through the preparation of a Statement of Heritage Effects (SHE) in accordance with the ACT guidelines.

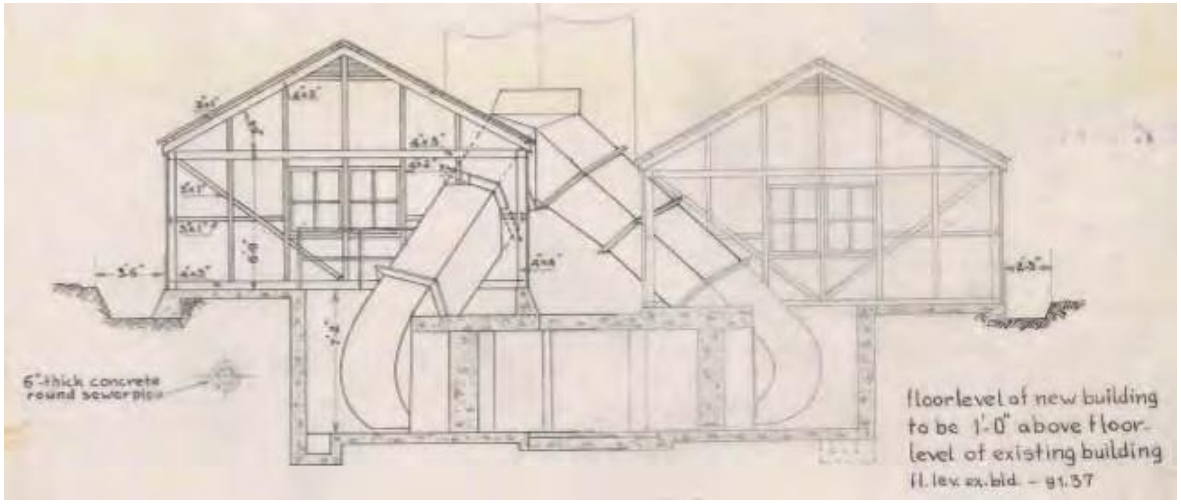


Figure 1 Section through the second stage of the Fan House for Hardy Patent Kiln 1 constructed in 1955. (Source: National Archives of Australia)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 2 View of the Hardy Patent Kiln 1 Fan House and Chimney Stack looking southwest. (Source: GML, 2017)



Figure 3 Interior of the c1955 structure showing the duct leading to the chimney stack. (Source: GML, 2017)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 4 Interior of the c1926 structure. (Source: GML, 2017)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 5 View from corner of Hardy Patent Kiln 1 looking west. (Source: GML, 2017)



Figure 6 Rear (west) elevation of the c1955 structure and base of chimney stack. Roof of Hardy Patent Kiln 1 in the background. (Source: GML, 2017

Canberra Brickworks: Inventory of Individual Historic Elements

Element 5—Hardy Patent Kiln 2

Name of Element	Hardy Patent Kiln 2	**CMP No. | ACT No.**	Element 5
Historical Phase	Postwar 1944–1976	**Date**	c1954
Construction	Brick, corrugated steel and corrugated fibro cement sheet		





Historical Background

After the decision to abort construction of the Tunnel kiln in 1952, plans were prepared and tenders called to authorise the construction of a new 20-chamber Hardy patent kiln with a 50-metre stack, kiln loft and awning to meet Canberra's post-World War II needs. The new Hardy Patent Kiln 2 was constructed on the foundations of the Tunnel kiln.

The decision not to adopt the fan-induced model of the Staffordshire Kiln and Hardy Patent Kiln 1, and instead build a taller chimney stack, did not result in the expected superior drawing power, and fans had to be installed to augment the draw shortly after completion. Plans indicate that the wicket openings were originally only a metre wide (see Figure 1). A number of these openings were widened for forklift use during the 1960s, including the west end kiln.

Description and Condition

Hardy Patent Kiln 2 is a two-storey structure with full masonry brick walls to the ground floor, which contains two large kiln halls. The first floor is open space with 'firing' holes to floor and light weight sheet walls. The roof is timber trussed with corrugated sheeting. The ground floor comprises 20 arched brick openings or 'wickets', which provide access to the two east–west kiln chambers.

Since construction, each alternate wicket has been modified to enlarge the openings for forklift access. The outer walls are battered at approximately 60 degrees and the wicket numbers are painted directly onto the brickwork surrounding each opening. A verandah roofed in corrugated steel extends around three sides of the building. The west side only has metal posts and support framing intact. The removal of the verandah cladding may have occurred prior to the part removal of the brick end wall, where the two kilns are revealed in cross-section (see Figure 2). To the east, the verandah abuts the skillion roof that bridges the space between the corrugated steel Machine Bay 3 to its east and is made of steel, extended at 45 degrees from the brickwork, supported on steel props, as well as by a series of painted steel posts. There are a number of metal-framed casement windows to the two long north and south walls and the west end wall. The removal of the verandah flashing to the north elevation and the verandah to the west elevation have exposed the wall studs.

The inspection report for the building identified that the wall sheeting is in poor condition, with sheets loose in areas. Weather damage to the rafters and roof sheeting has deteriorated. Some fascia beams have weathered and weathering is significant in certain areas. The brickwork throughout the kiln arches and masonry arch entries is loose. The brickwork bedding of most of the entry archways has loose bricks and voids, causing a displacement of the arch. The southwest corner entrance has moved substantially with differential movement between the brickwork. Fire damage is evident to the first floor and has particularly affected one of the large roof trusses. Although roof trusses are in reasonable condition, lateral bracing of the roof structure may require upgrading. A trip hazard is also created by chimney holes throughout the dirt floor. Doors and windows are in poor condition or have been removed or damaged and there are some holes throughout the roof and wall sheeting. The timber ladder on the northeast corner of the building is severely weathered. Post connections loose in areas and connections between timber fascia and posts has failed in certain areas. There is severe weathering in the timber framed flooring and is thus not suitable for use. Mass concrete has been used to augment some of the collapsed arches.

Significance	Core Element

Hardy Patent Kiln 2, together with its underground infrastructure and associated chimney stack, are key elements of a major expansion and upgrade of the Brickworks during the 1950s, along with the new crusher houses, grinding facilities, automatic conveyors, new brick presses and machine bays. The construction of this kiln greatly expanded the production capacity of the

Canberra Brickworks: Inventory of Individual Historic Elements

works. The kiln is relatively intact, including when compared with Hardy Patent Kiln 1, and is a good representative example of this typology of continuous kilns.

Structural Advice as at 2021	Reinstatement required as part of the construction works—refer to Appendix G for detail.
Conservation Policy and Adaptation Guidelines	Core elements must be retained and conserved.

- Hardy Patent Kiln 2 must be retained and conserved.
- An area of the firing floor of either the Staffordshire Kiln or one of the Hardy Patent Kilns should be retained intact as a single volume, allowing the nature and operations of the firing floors to be clearly understood.
- No significant changes should be made to the exterior of the ground floor, as an intact example (noting modifications to wickets to allow forklift access and alterations at the west end).
- Entries to the kiln chambers should generally be retained in their current modified form.
- Brick infilled openings on the ground floor can be re-opened if required.
- Installing solar panels on the roof and exploring other ESD opportunities would be acceptable.
- A walkway or upper level connection (similar to the existing walkways on the other kiln buildings) would be acceptable, to provide improved access and accessibility, and facilitate a new use.
- The building could be adapted internally for a new use, including subdivision of the kiln chambers and first floor, provided an area of firing floor is retained for this, the other Hardy Patent Kiln or the Staffordshire Kiln. Carefully designed openings between the north and south kiln chambers could be introduced, if necessary to support a new use.
- Within the interior upper level, the existing dirt floor can be excavated and replaced with a new floor, covering up the firing holes and ensuring the floor is free of trip hazards. This will also lower the floor level and permit a sufficient truss clearance to allow an adaptive reuse of the space.
- Window fenestration to the upper floor should mimic the rhythm of historic openings but allow for appropriate daylight and ventilation access for an adaptive reuse.
- Assess all proposed actions, including conservation works or adaptation, for potential adverse impacts on the heritage significance, through the preparation of a Statement of Heritage Effects (SHE) in accordance with the ACT guidelines.

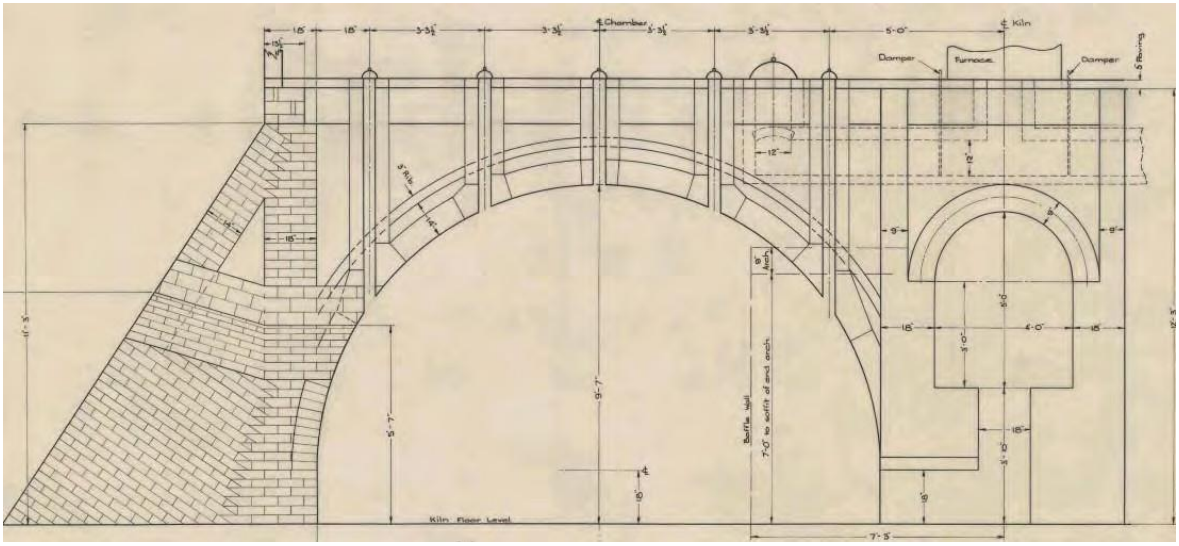


Figure 1 Section through wicket chamber and flue of the second Hardy Patent Kiln, 1953. (Source: National Archives of Australia)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 2 Front (west) elevation of Hardy Patent Kiln 2. Verandah framing evident. (Source: GML, 2017)



Figure 3 West and south elevation of Hardy Patent Kiln 2 from the gravel road. (Source: GML, 2017)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 4 Southeast kiln entrance. (Source: GML, 2017)



Figure 5 Kiln chamber looking east. (Source: GML, 2017)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 6 View of first floor from the rear (east) of the building. Firing' holes evident in the floor. (Source: GML, 2017)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 6—Downdraught Kilns

Name of Element	Downdraught Kilns (three kilns and roofed enclosure)	**CMP No. | ACT No.**	Element 6
Historical Phase	Postwar 1944–1976	**Date**	c1960–61
Construction	Brick (kilns) with corrugated steel roof enclosure (shed)		





Historical Background

In the 1960s, a series of three Downdraught kilns were built. Initially coal-fired, they were subsequently converted to oil-firing. The kilns were used almost exclusively for the production of face and special bricks.

The kilns were constructed close to the site of two 'temporary' Downdraught kilns with a brick stack (see Figure 2), which had been built in 1925 to cope with the increasing demands for the growth of the national capital after the end of World War I. The temporary kilns were demolished around c1958.

The three kilns have each been altered internally to serve as antique market stalls or storage areas in the period immediately following on from the closure and relocation of the brickworks in 1976. Works typically involved the paving of the interior floors with brick, the installation of electric wiring and lighting—generally in the form of spotlights which have reused the hot air off-takes, or suspended fluorescent fittings.

Description and Integrity

The three kilns are oriented north–south and are constructed of face brick laid in an English bond and fitted with large fire brick faced metal doors to either end. There are feedholes along both the east and west sides for the ingress of coal, and later oil, each of which is topped with a segmented brick arch and infilled with brickwork. Each kiln is enclosed by steel framing that extends above each of the kilns and is reinforced by a system of tensioned tie rods. The kilns have a stepped profile, with the domed roof surface enclosed to the east and west sides by a traversable brick pier. The kilns are numbered 1 through 3 from east to west, with 1 being closest to the Power House.

Internally, the kilns are designed to be accessed via the metal doors to either end. None of the three kilns are currently accessible from the north. Apart from Kiln 1, the doors to the south end comprise metal cladding to the exterior face and a wall of firebricks, held in place to the surface of the metal door by a heavy-duty metal mesh. The doors to Kiln 1 are metal without the firebrick lining. The doors are fitted with easy clean hinges, enabling them to be folded fully back flat against the kiln wall to permit access to the interior. Internally the north doors are either bricked over or, as for Kiln 1, a false stud wall with plaster has been installed.

Between the three kilns, racks have been installed by the current site tenant for the storage of salvaged timber. A secure display space has been created to the east of Kiln 1, within the form of the open-sided corrugated steel roof structure. It is a metal-framed corrugated steel enclosure with corrugated laserlite let into the east wall. The whole kiln structure is enclosed by an open-sided metal framed corrugated steel canopy. The date of construction of this has not been confirmed although the structure appears on the 1976 aerial photograph (see Figure 1). The roof cladding has been replaced.

The kilns are in poor condition braced with steel posts and cables, which appear be in reasonable condition. Internally, the brickwork is in a reasonable condition with isolated loose bricks.

The steel roof sheeting has been replaced more recently and is damaged in some areas. Removal would require that restoration and waterproofing of the kilns as a high priority (and should be undertaken before removing the steel roof).

Significance	Core Element

The Downdraught Kilns, and their associated underground infrastructure, Control Room and Chimney Stack, are part of the evolved Brickworks complex and date from one of the last phases of expansion on this site. They contribute to an understanding of the

Canberra Brickworks: Inventory of Individual Historic Elements

operation of such complexes; in this case the choice of Downdraught kilns appears likely to have been made on the basis of their suitability for specialist lines.

Structural Advice as at 2021	Reinstatement required for safe public access during construction works. Kilns require stabilisation and water proofing—refer to Appendix G for detail.
Conservation Policy and Adaptation Guidelines	Core elements must be retained and conserved.

- The Downdraught Kilns should be retained and conserved.
- The kilns require further structural assessment to inform remediation works. While thought to be broadly contemporary with the kilns, the enclosing shed roof structure could be retained or demolished as required.
- The internal adaptation is possible and alternatives for reuse should be explored. The kiln chambers could be subdivided if required.
- Assess all proposed actions, including conservation works or adaptation, for potential adverse impacts on the heritage significance, through the preparation of a Statement of Heritage Effects (SHE) in accordance with the ACT guidelines.

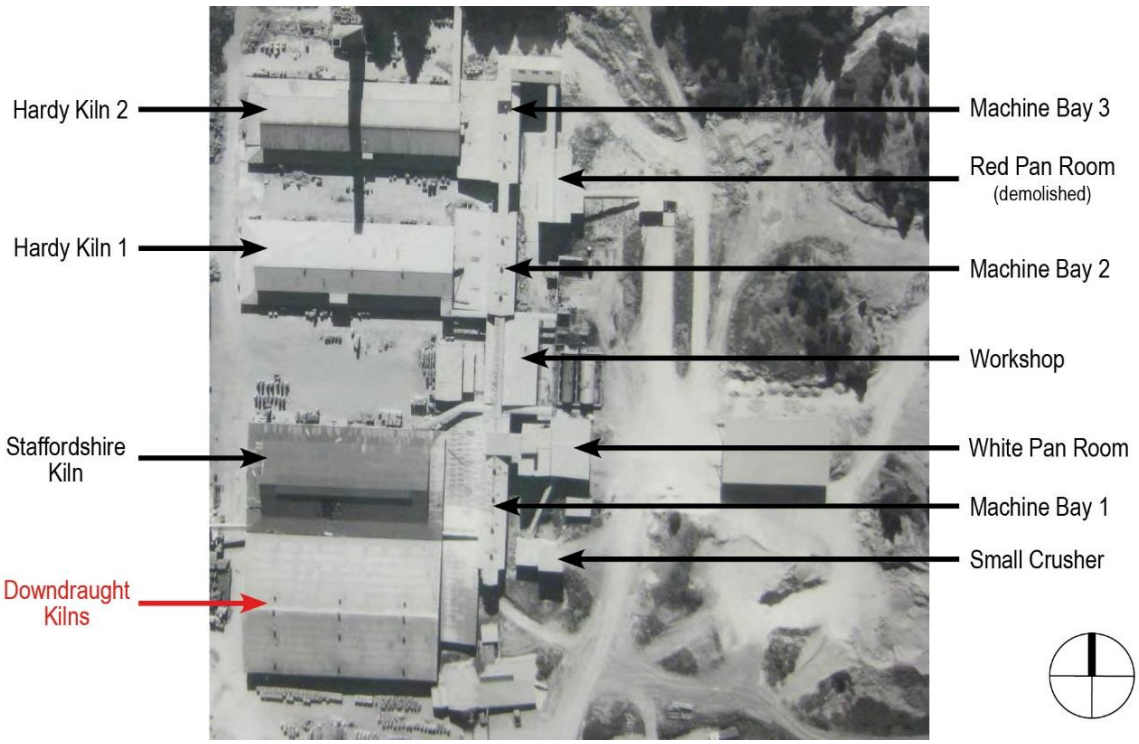


Figure 1 1976 aerial photograph with major site elements in the vicinity of the machine bays labelled. The Downdraught Kilns are indicated in red. (Source: ACT Heritage Library with GML overlay)

Canberra Brickworks: Inventory of Individual Historic Elements

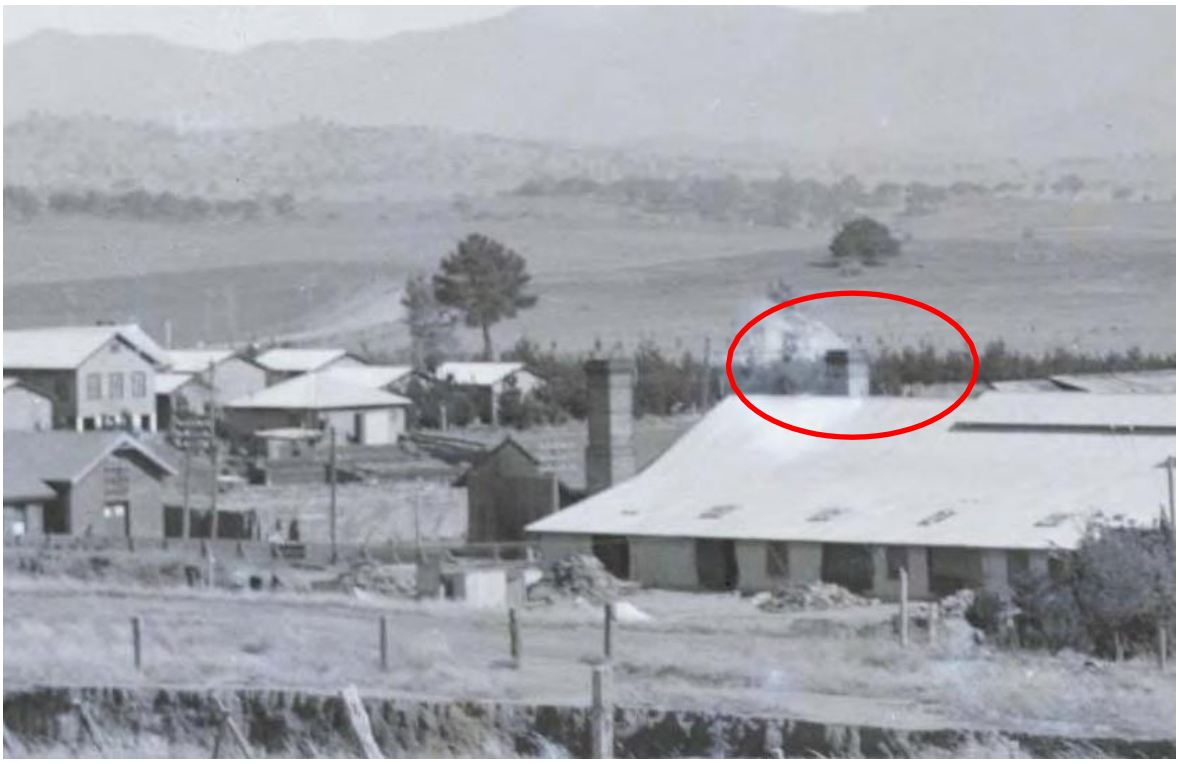


Figure 2 Detail from a 1929 photograph of the Brickworks, with the chimney of the temporary downdraught kilns highlighted. (Source: National Archives of Australia, with Lovell Chen overlay)



Figure 3 Interior of enclosure showing the north elevation of two of the three kilns, under the large steel roof, a later addition. (Source: Lovell Chen, 2010)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 4 Kiln roof with brick walkway to sides. (Source: Lovell Chen, 2010)



Figure 5 Kiln entry showing stepped side wall. (Source: Lovell Chen, 2010)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 6 Side elevation showing steel framing and fire holes. (Source: Lovell Chen, 2010)



Figure 7 Interior of kiln showing entry and deteriorating fire bricks. (Source: Lovell Chen, 2010)

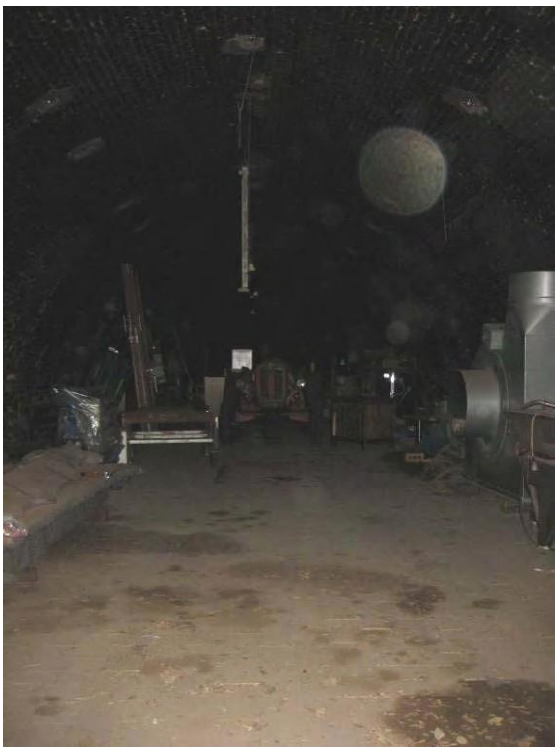


Figure 8 Interior of kiln showing later cement paving. (Source: Lovell Chen, 2010)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 7—Chimney Stack for Staffordshire Kiln

Name of Element	Chimney Stack for Staffordshire Kiln	**CMP No. | ACT No.**	Element 7
Historical Phase	Establishment 1911–1920	**Date**	c1916
Construction	Brick		





Historical Background

Fans were installed to draw the heat and burnt fuel from the Staffordshire Kiln through the subterranean duct and out through the stack. The use of fans allowed for the construction of a shorter brick stack.

The small brick kiln next to the stack is not shown in a 1917 photograph of the Brickworks but is clearly visible in a photograph taken in c1926. This indicates that it is an early site element (Figure 2).

Description and Condition

The chimney stack is located approximately 30 metres west of the Staffordshire Kiln separated by a gravel road and is adjacent to the Fan House. It is constructed of red face brick, capped with several courses of corbelled brickwork and surmounted by nine rows of brickwork. Metal bracing to the corners of the section above the stepped brickwork is partly intact. There is evidence of rebuilding to some of the upper courses. A lightning conductor is a recent installation. An arched opening in the west face of the stack has been infilled with brickwork. Within the stack, iron rungs have been installed on a diagonal to provide internal access.

A small brick 'experimental' kiln abuts the stack and has arched openings to both its west and south faces.

The inspection report for the building identified that the stack has cracking at the base, however it appears to be stable. Bricks are loose at the top and some have fallen. There is also some visible cracking at the top. The brick kiln is in a partially ruinous state. It is severely cracked with little to no mortar remaining in the joints, leaving the bricks loose and unstable. There is vegetative overgrowth impacting the structure.

Significance	Core Element

The Staffordshire Kiln, its associated structures and underground infrastructure, is an element of core significance. It was the first permanent kiln structure on the site and is a key surviving element from the earliest phase of development. This choice of relatively elaborate kiln type with capacity to fire multiple types of products simultaneously reflected the requirements of the Brickworks as the sole provider to the new national capital. While extensively modified and rebuilt in some areas, this kiln is the only example of a Staffordshire kiln remaining in Australia.

The Fan House and Chimney Stack were both integral to the operation of the Staffordshire Kiln. While only remnants of dismantled equipment remain in the Fan House, the arrangement of the interior demonstrates the function of the building and its relationship to the kiln and the associated chimney.

Conservation Policy and Adaptation Guidelines	Core elements must be retained and conserved

- The Chimney Stack and attached kiln must be retained and conserved.
- Closer inspection of upper areas of chimney recommended.
- Additional structural support may be required. The loose bricks at top of chimney should be secured/reinstated. Assess all proposed actions, including conservation works or adaptation, for potential adverse impacts on the heritage significance, through the preparation of a Statement of Heritage Effects (SHE) in accordance with the ACT guidelines.

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 1 The full extent of the stack with a smaller, near-contemporary kiln adjoining to the right. (Source: Lovell Chen, 2010, Canberra Brickworks CMP, p 68)

Canberra Brickworks: Inventory of Individual Historic Elements

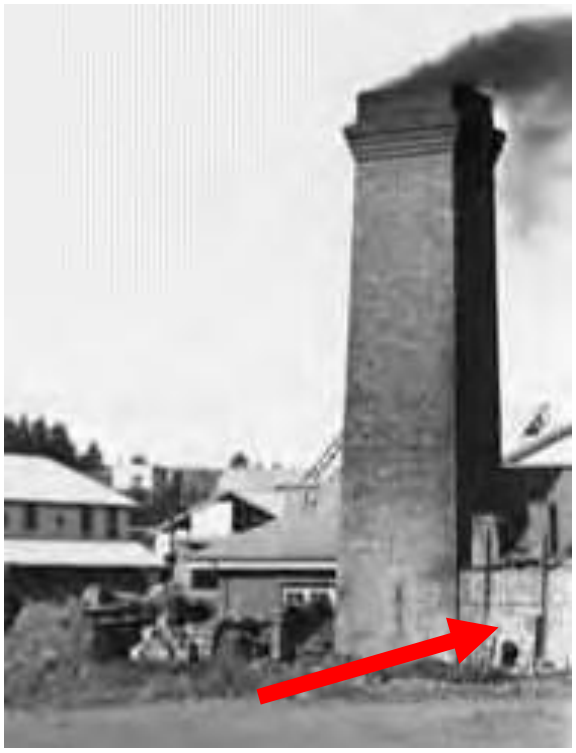


Figure 2 Detail of a photograph of c1926. The kiln abutting the stack is indicated by the arrow. (Source: National Archives of Australia)

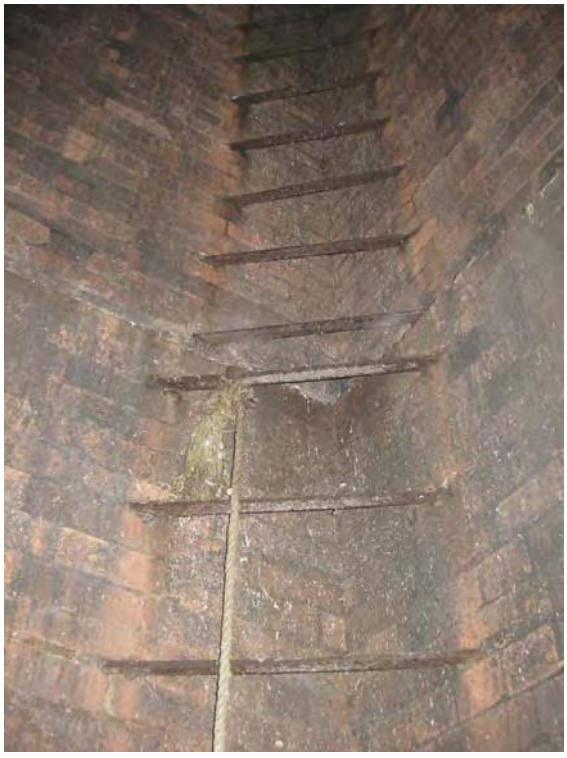


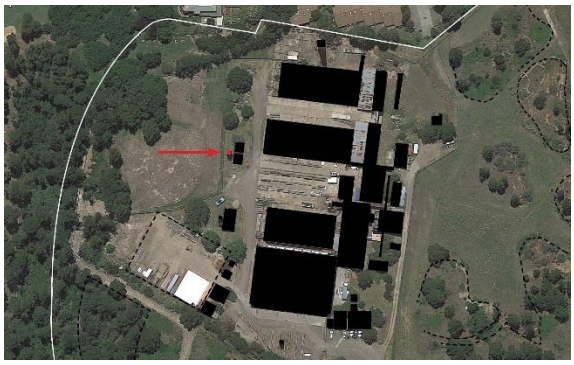
Figure 3 Interior of the chimney stack. (Source: Lovell Chen, 2010, Canberra Brickworks CMP, p 69)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 8—Chimney Stack for Hardy Patent Kiln 1

Name of Element	Chimney Stack for Hardy Patent Kiln 1	**CMP No. | ACT No.**	Element 8
Historical Phase	Expansion 1921–1942	**Date**	c1926–27
Construction	Brick		





Historical Background

The brick chimney stack was built to service the 1927 Hardy Patent Kiln 1. While the stack is virtually identical to the Chimney Stack for the Staffordshire Kiln, the ductwork linking to the Fan House is not placed below ground and adjoins it through an opening in the east elevation, approximately two metres above ground.

Description and Condition

The Chimney Stack is adjacent to the Fan House, located approximately 30 metres west of the kiln building. A gravelled roadway separates the kiln from the stack and fan house. Constructed of red face brick, the stack is capped with several courses of corbelled brickwork and surmounted by nine rows of brickwork.

The inspection report identified cracking at the base of the chimney but overall appears stable. More severe cracking was observed at the top of the stack and bricks are loose and some have fallen. The arched opening in the south face of the stack is infilled with brickwork. The condition is good —reasonable.

Significance	Core Element

Hardy Patent Kiln 1, together with its Fan Houses and Chimney Stack, demonstrates the expansion of the Brickworks in the 1920s in response to the increased demand for building materials for the development of the national capital. The kiln was commissioned prior to the relocation of Parliament in 1927. The kiln has been extensively modified and extended but still provides an important link to this phase in the history of the site.

Hardy Patent Kiln 1 is also of interest as an example of an Australian patent kiln design thought to date from the late nineteenth century, one of a large number of variations of the Hoffman kiln typology developed in this period.

The associated Fan House and Chimney Stack are integral to the operation of the kiln, including in its expanded form post-World War II.

Conservation Policy and Adaptation Guidelines	Core elements must be retained and conserved

- The Chimney Stack must be retained and conserved.
- Closer inspection of upper areas of chimney recommended. Additional structural support may be required. The loose bricks at top of chimney should be secured/ reinstated.
- Assess all proposed actions, including conservation works or adaptation, for potential adverse impacts on the heritage significance, through the preparation of a Statement of Heritage Effects (SHE) in accordance with the ACT guidelines.

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 1 Chimney Stack north elevation. (Source: GML, 2017)



Figure 2 Hardy Patent Kiln 1 Fan House and Chimney Stack. (Source: GML, 2017)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 3 Infilled archway at south elevation. (Source: GML, 2017)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 9—Chimney Stack for Hardy Patent Kiln 2

Name of Element	Chimney Stack for Hardy Patent Kiln 2	**CMP No. | ACT No.**	Element 9
Historical Phase	Postwar 1944–1976	**Date**	c1953, c2005
Construction	Brick, steel cladding		





Historical Background

A tall stack for superior drawing power was specified as part of the new Hardy patent kiln in 1952. This represented a break with tradition at the Brickworks, as the two existing continuous kilns were fan induced requiring only short stacks. However, the tall stack was not a success, and fans were installed to augment the draw shortly after completion.

The stack may have been designed by architect Eric Nicholls (1902–1966). However, this has not been confirmed. Nicholls had designed the much earlier and architecturally distinctive Canberra Incinerator (for the Reverberatory Incinerator and Engineering Company) in 1938–39.

The opening has been part-capped with steel roofing as a part of a series of works undertaken c2005. An internal steel frame and timber work platforms were installed as part of those building works, which stabilised the structure and repaired significant cracking and damage to the top.

Description and Condition

The chimney stack comprises a brick plinth, a shaft, and a 'crown' or capital of corbelled brickwork. It is constructed of red face brick laid in Colonial bond courses and is approximately 45 metres high. It is located north of Hardy Patent Kiln 1, and is surrounded by a large concrete slab. There is an arched brick entry hatch at ground level to all four elevations with the entry to the east elevation fitted with a secured wire mesh gate. The west and north openings are infilled with brick and to the south a concrete tunnel rises from underground indicating the location of the kiln tunnel. To the west elevation there is a large rectangular opening approximately 3.5 metres above the ground, secured by a metal grille. This may have been the location of ducts that linked the stack to a now demolished fan house facility. The chimney steps inwards, rising from a brick plinth, capped with brickwork laid on a 45-degree angle. A lightning conductor has been fixed to its south elevation. Sections of the upper courses of brickwork have been re-laid with new mortar visible. Internally the tunnel connection to the kiln is visible and there is a steel frame and timber work platforms installed within the stack.

The inspection report notes the base is in good condition for its age, and the upper areas appeared to be in reasonable condition.

The top of the chimney has more severe cracking and loose bricks. Although the chimney appears to be stable overall, some observations of cracking were made at the base.

Significance	Core Element

Hardy Patent Kiln 2, together with its underground infrastructure and associated Chimney Stack, are key elements of a major expansion and upgrade of the Brickworks during the 1950s, along with the new crusher houses, grinding facilities, automatic conveyors, new brick presses and machine bays. The construction of this kiln greatly expanded the production capacity of the works. The kiln is relatively intact, including when compared with Hardy Patent Kiln 1, and is a good representative example of this typology of continuous kilns.

In addition to its role as a key element in the post-World War II expansion of the Brickworks, the Chimney Stack for Hardy Patent Kiln 2 is also of aesthetic significance as a prominent element in the immediate vicinity and a marker for the site. It is also visible from more distant views at the north shore of Lake Burley Griffin and from Black Mountain.

Canberra Brickworks: Inventory of Individual Historic Elements

Structural Advice as at 2021	No structural concern, as viewed from ground level. Closer inspection of the upper chimney required. Rectification may be required as part of the construction works—refer to Appendix G for detail.
Conservation Policy and Adaptation Guidelines	Core elements must be retained and conserved

- The Chimney Stack must be retained and conserved.
- Loose bricks should be reinstated and secured at the top of the chimney.
- Additional structural support may be required.
- Assess all proposed actions, including conservation works or adaptation, for potential adverse impacts on the heritage significance, through the preparation of a Statement of Heritage Effects (SHE) in accordance with the ACT guidelines.



Figure 1 View of the chimney stack from the east. (Source: Lovell Chen, 2010)



Figure 2 West elevation, base of the chimney stack. (Source: Lovell Chen, 2010)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 3 Chimney stack and the first floor of Hardy Patent Kiln 2 to the right. (Source: GML, 2017)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 10—Chimney Stack for Downdraught Kilns

Name of Element	Chimney Stack for Downdraught Kilns	**CMP No. | ACT No.**	Element 10
Historical Phase	Postwar 1944–1976	**Date**	c1961
Construction	Brick		





Historical Background

The brick chimney stack located northwest of the three Downdraught Kilns was linked by underground tunnels to a now-demolished fan house. The large opening in the east face of the stack is thought to be for a duct from the fan house, which has since been removed. The method of operation is thought to have been similar to that of the fan house and stack associated with Hardy Patent Kiln 1. There is no obvious evidence of the fan house remaining.

Description and Condition

The Chimney Stack is located approximately 30 metres south of the Downdraught Kilns. The stack is surrounded by a gravelled carparking area with timber stored at its base. The design of the stack is a simpler version of the Staffordshire and Hardy patent kiln stacks, without the corbelled brickwork. In recent years, the stack has been used by the site's tenants as an incinerator.

There is a large oblong opening approximately three metres above the ground in the north face, indicating where a duct channelled spent fuel and heat to the stack for dispersal. There is an opening at low level in the south face, set within a steel door surround. The door is missing.

The Chimney Stack is in reasonable condition and appears to be stable. No significant cracking was observed (from ground level), but the upper section is in poorer condition, with loose and deteriorated bricks. There is evidence of brickwork spalling, particularly to the west and north faces.

Significance	Core Element

The Chimney Stack for the Downdraught Kilns (Element 10) and the associated underground infrastructure is part of the evolved Brickworks complex and date from one of the last phases of expansion on this site.

The Chimney Stack and association with the Downdraught Kilns is a core element of the heritage significance of the site.

Structural Advice as at 2021	Reinstatement may be required as part of the construction works—refer to Appendix G for detail.
Conservation Policy and Adaptation Guidelines	Core elements must be retained and conserved

Canberra Brickworks: Inventory of Individual Historic Elements

- The Chimney Stack for Downdraught Kilns must be retained and conserved.
- A structural assessment is required, and structural reinforcement may be needed.
- Assess all proposed actions, including conservation works or adaptation, for potential adverse impacts on the heritage significance, through the preparation of a Statement of Heritage Effects (SHE) in accordance with the ACT guidelines.

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 1 East and north elevation of the Chimney Stack for the Downdraught Kilns. (Source: GML, 2017)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 2 Opening at base of southern facade. (Source: GML, 2017)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 11 + 12—Quarry and Geological Features

Name of Element	Quarry (also known as the 'brick pit') and geological features	**CMP No. | ACT No.**	Element 11 and 12 A, B, C, D
Historical Phase	Establishment and Expansion (1911–c1940)	**Date**	Shale extraction from 1913





Historical Background

The underlying geology of Canberra is made up of sedimentary and volcanic rock types formed when the landscapes were positioned on the margins of the supercontinent, Gondwana.[1] The quarry reflects an integral part of Canberra's geology, which consists of a range of sedimentary and volcanic rock types. The main rock types are:

- deep water sediments of late Ordovician and early Silurian age;
- shallow water sediments of middle to late Silurian age; and
- volcanic rocks of middle Silurian to early Devonian age.

The Brickworks site lies on the early Silurian age (424–423 million years ago) Yarralumla Formation. The Formation was created 425 million years ago by sedimentary mudstone or siltstone deposited in a shallow sea. Evidence of fossils including brachiopods, trilobites, corals, bivalves, bryozoans and crinoids remain as evidence of this ancient landscape.[2]

The geological composition also included shale, a fine-grained sedimentary rock, ideal for brickmaking as it was both hard and porous. However, the shale varied greatly in quality and limestone and sandstone intrusions into seams of the rock made processing more expensive and some material unusable.

Land on Frederick Campbell's 'Yarralumla' property was selected for the new Commonwealth Brickworks site following tests on shale samples, which were considered capable of producing bricks of good hardness and porosity. The quality proved not to hold over time.

The raw material quarried for the 'temporary' Brickworks from 1913 was a hard yellow shale, obtained by levelling a knoll to the east of the site. The shale varied greatly in quality and material from the various seams had to be mixed thoroughly to secure a uniform colour in the bricks, which led to increased production costs. Raw materials were transported from the quarry to the Brickworks by a narrow gauge tramway, which was constructed so that tram trucks ran downhill and empty trucks returned to the quarry area using manpower. The tram lines could be relocated as the quarry face advanced.

Quarrying at the site was reported to be a complex process, and costlier than comparable brickworks due to seams of unusable material such as limestone and sandstone. From the mid-1930s, raw materials were brought in from outside the Brickworks.

Levelled areas of the quarry floor were subsequently used to house Brickworks-related facilities, including an open-sided roofed enclosure for clay storage, which has since been removed. It is shown in an aerial photograph of the site taken in 1976 (see Figures 2 and 7). Another smaller structure, located farther east, is also shown although its purpose is not known.

After the closure of the Brickworks, AR Marr Pty Ltd proposed the construction of a narrow-gauge railway and a 'reflection pool' in the former quarry (see Figures 3 and 5). However, the pool failed to retain water and was frequently dry.

Description and Condition

The quarry comprises sections of grass and its edges are lightly treed with predominantly self-seeded conifers. It has been fenced off due to safety concerns regarding the eroding quarry face. A concrete dividing wall capped with stone paving is a remnant of the walkway proposed by AR Marr to cross the 'reflection pool'. The railway has been dismantled.

Canberra Brickworks: Inventory of Individual Historic Elements

There are four specific locations at the quarry that demonstrate particular aspects of the site and the Yarralumla Formation:

- Location 12: A and D show excellent examples of anticline in calcareous siltstone. The siltstone can be seen to grade to sandstone from the inner strata to the outer.[3]
- Location 12: B shows a typical tuffaceous mudstone and siltstone of the Yarralumla Formation. The tuff is poorly cemented and consists of a fine-grained white clay matrix containing large fragments of siltstone.[4]
- Location 12: C shows abundant fossils of mainly brachiopods, trilobites and crinoids preserved in a bedding plane. The quarry is one of the only locations in which the fossil contents of the Yarralumla Formation can be closely observed.[5]

Other than for the works undertaken by Marr, the quarry appears to be little altered since the closure of the Brickworks in 1976. It retains a series of rock outcrops that possibly contained unsuitable material, with quarrying continuing around them. It is not clear the extent to which sections of the quarry floor may have been modified and filled since the 1970s.

As of 2019, the quarry is in a partially maintained state with clear walking routes. The rest of the quarry is overgrown and unmaintained. There is a gravelled path running along the west bank of the remains of the 'reflection pool'. Some trees have fallen over. There is no water in the 'reflection pool'. Condition; generally reasonable. It is unused and holds public safety concern.

Significance	Core Element

The quarry dates from the establishment of the Brickworks and demonstrates a key aspect of the original brick making operation and as it existed up until c1940.

The quarry is also considered to be of scientific significance as the type locality for the geological Yarralumla Formation, a major sedimentary sequence dating from the Silurian Period, 424–423 million years ago. The rock units at the site provide the reference section for comparison with other outcrops within the Yarralumla Formation and, in this context, are of both research and educational value.

The quarry was assessed as having high archaeological potential[6] based on its ability to yield further information about the history and operation of the Brickworks over time.

Conservation Policy and Adaptation Guidelines	Core elements must be retained and conserved

- The quarry should be retained as a landscape element that through form and presentation reflects the quarry form and its origins as an excavated brick pit.
- The identified rock outcrops of the quarry must be retained, protected and made safe as geological features.
- New development within the quarry should be confined to the area to the north, east and south, along the ridgeline and away from the historic core of the brickworks.
- New development should be appropriately sited and of a scale, and form that supports the presentation and interpretation of the retained section of the quarry.
- The western section of the quarry closest to the Brickworks buildings, including all four of the identified geological sites of significance, should be retained as an open landscape feature. While at least two small process-related buildings (clay storage shed and another, specific use unknown) are known to have been built on the levelled floor of this part of the quarry, the preference is for no new permanent buildings to be constructed in this area.
- New development including any levelling, infilling or earthworks required to support new development should be assessed for impacts on the heritage significance, through the preparation of a Statement of Heritage Effects (SHE) and in reference to the sensitivity zoning outlined in the historic archaeological analysis of the site provided at Section 3.5 of this CMP.

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 1 View of the quarry showing the narrow-gauge tramway used to transport shale to the crusher, 1921. (Source: National Archives of Australia)



Figure 2 Detail of a 1976 aerial photograph showing the clay storage shed and an unknown smaller structure to the right (both demolished). (Source: ACT Heritage Library with Lovell Chen overlay)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 3 Detail of site landscaping plan prepared by A R Marr Pty Ltd showing the reflection pond and the location of the model railway, c1977. (Source: ACT Heritage Library)



Figure 4 View from northwest corner of the quarry looking south across the elevator/conveyor and Machine Bays 1, 2 and 3. The Primary Crusher House is to the left. (Source: GML, 2017)



Figure 5 View looking southwest to the Brickworks from main access route to the quarry. (Source: GML, 2017)





Canberra Brickworks: Inventory of Individual Historic Elements

Figure 6 View of the northwest corner of the Quarry. Lane Poole residences to the left, Bentham Street above on the right. (Source: GML, 2017)



Figure 7 View looking south across the quarry. (Source: GML, 2017)



Figure 8 A R Marr's walkway designed to cross the 'reflection pool'. (Source: GML, 2017)



Figure 9 View looking east across walkway. Bentham Street is located beyond the ridgeline of the quarry. (Source: GML, 2017)

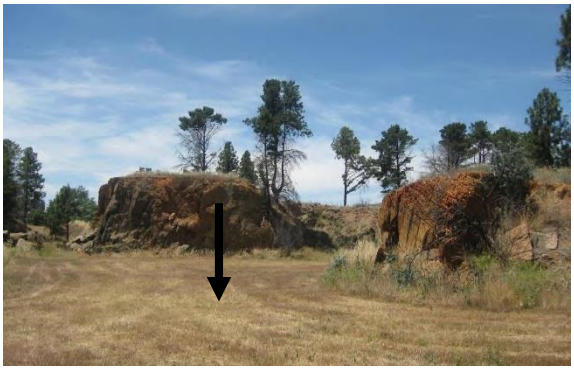


Figure 10 Quarry looking north towards Bentham Street. (Source: Lovell Chen, 2010)

Figure 11 The approximate site of the clay storage shed, demolished after the closure of the works, is indicated by the arrow. (Source: Lovell Chen, 2010)

Endnotes

[1] Finlayson, D 2008, Landscapes Around Canberra, ACT Division, Geological Society of Australia, p 2.

[2] Land Development Agency & Lovell Chen 2010, Canberra Brickworks, Denman Street, Yarralumla, Canberra—Conservation Management Plan, Land Development Agency, Canberra, p 199.

[3] SMEC Australia Pty Ltd 2013, Preliminary Geotechnical Site Investigation for the Canberra Brickworks, Land Development Agency, Canberra, p 15.

[4] SMEC Australia Pty Ltd 2013, Preliminary Geotechnical Site Investigation for the Canberra Brickworks, Land Development Agency, Canberra, p 17.

[5] SMEC Australia Pty Ltd 2013, Preliminary Geotechnical Site Investigation for the Canberra Brickworks, Land Development Agency, Canberra, p 16.

[6] Navin Officer Heritage Consultants, Archaeological Assessment Canberra Brickworks and Environs, report prepared for the Land Development Agency, September 2016.

Canberra Brickworks: Inventory of Individual Historic Elements

Element 13—Office

Name of Element	Office	**CMP No. | ACT No.**	Element 13
Historical Phase	Expansion 1921–1942	**Date**	c1925, extended c1953 and 1970s
Construction	Brick with terracotta tiled roof, brick additions, steel sheet roof		





Historical Background

The 1916 Survey Plan indicates a galvanised iron 'Office' located approximately 40 metres north of the present office building (see Figure 1). This was subsequently removed and the site developed for the original machine shed. The date of construction for the original portion of the present offices, comprising two rooms, has not been established (an office is shown in the same location in the 1916 plan; however, this is not confirmed to be the present building). It is not indicated on a site plan dated September 1921, but is represented in outline on a site plan of April 1926 (see Figure 2). It also appears in a 1929 photograph (see Figure 3).

The offices have been extended in at least two phases: 1953 and during the 1970s. The 1953 works doubled the size of the original building, extending the structure to the south to provide a General Office, office for the Manager and for a Costing Clerk, as well as a store room. A lavatory and washroom were located between the office and the Power House (see Figure 4). The extension had a skillion roof of corrugated iron. A later extension, thought to have been built during the 1970s, extended the building to the east and further altered the south elevation.

Description and Integrity

The original structure comprises red face brick with a terracotta tiled gable roof located adjacent to the Power House to the east. A number of extensions have been made to the original building, with extant drawings prepared in both 1953 and 1958 for alterations and extensions to the original two-roomed structure. The 1958 works appear not to have gone ahead. During the 1970s a brick addition to the east and a new verandah partially enclosed the remainder of the south elevation, abutting the Power House. In addition, a small brick extension was added to the rear (north) of the building, and small skillion roofed outbuildings were constructed to the east and north. The subsequent alterations have diminished the integrity and obscured the presentation of the building. Windows and doors are boarded up and the external condition of the office building appears to be reasonable.

Significance	Supporting Element (c1953 and 1970s extensions are 'incidental')

While the original section of the office building is associated with an early phase of development at the Brickworks, the building has been extensively modified and overbuilt, the result being that the original form is substantially obscured.

Conservation Policy and Adaptation Guidelines	Supporting elements preferably should be retained and conserved

- The Offices (original form and fabric) should preferably be retained and conserved, noting that the Heritage Register citation allows for its relocation subject to the relocation process being fully documented and full reconstruction of the building taking place within a specified period.
- The 1950s/1970s later extensions are not significant and could be removed.
- The building could be adapted internally for a new use.
- Remove intrusive ad-hoc additions.
- Assess all proposed actions, including conservation works or adaptation, for potential adverse impacts on the heritage significance, through the preparation of a Statement of Heritage Effects (SHE) in accordance with the ACT guidelines.

Canberra Brickworks: Inventory of Individual Historic Elements

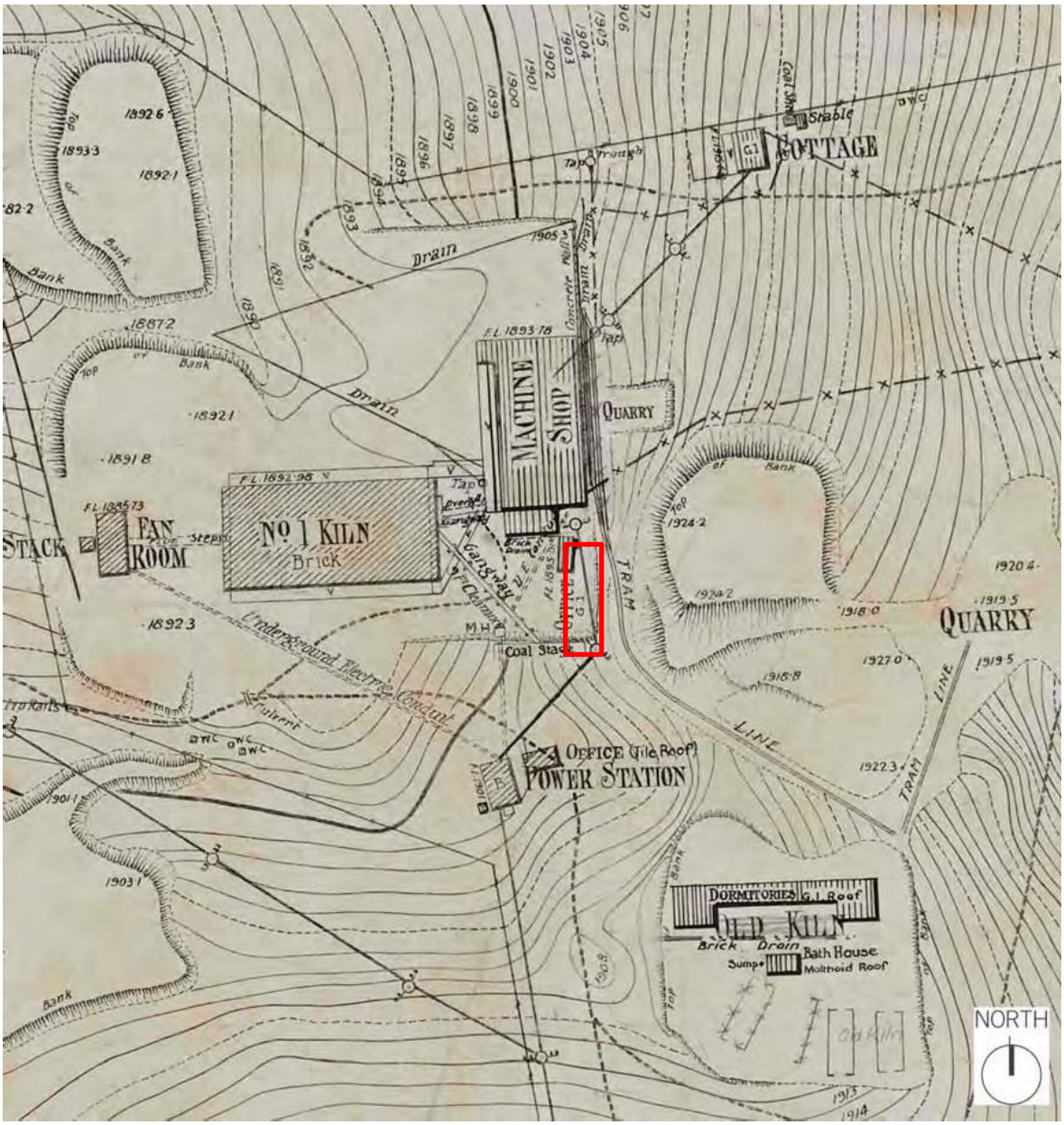


Figure 1 Detail of Contour and Detail Survey, Canberra Brick Yards, 20 December 1916, with the subsequently removed office south of the machine shop outlined in red. (Source: NAA: A6664, L165A, 1916 with GML overlay)

Canberra Brickworks: Inventory of Individual Historic Elements

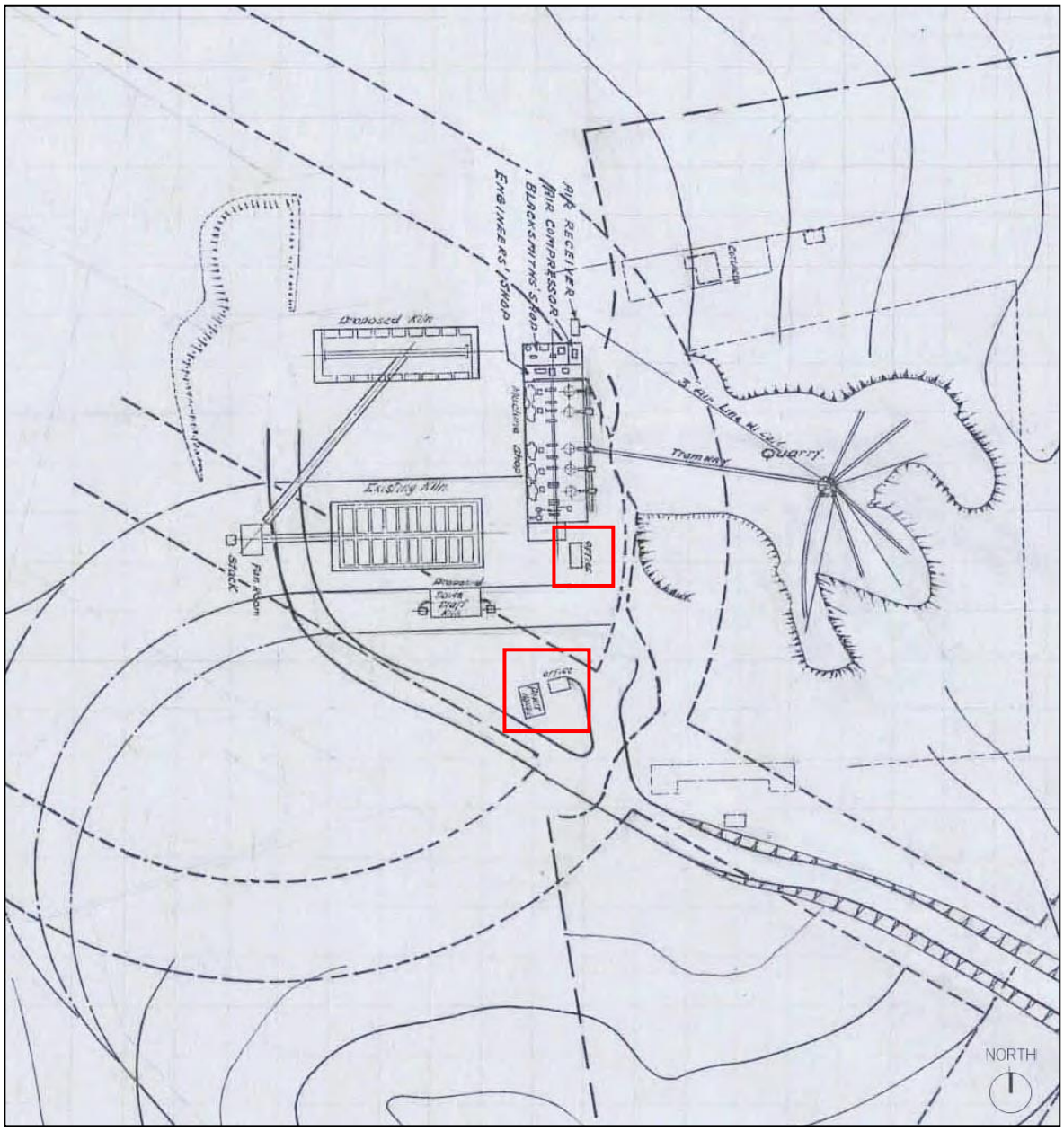


Figure 2 Detail from the Canberra Brickworks site plan, April 1926. The present office building (below), subsequently extended, and the original office (above), later demolished, are outlined. (Source: National Archives of Australia with GML overlay)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 3 Detail of a photograph of the Brickworks site in 1929 taken from the quarry area, showing the original form of the office building to the east of the Power House (foreground). Note that at this date the main entrance to the Power House is from the north. The married quarters camp is in the background. (Source: National Archives of Australia)

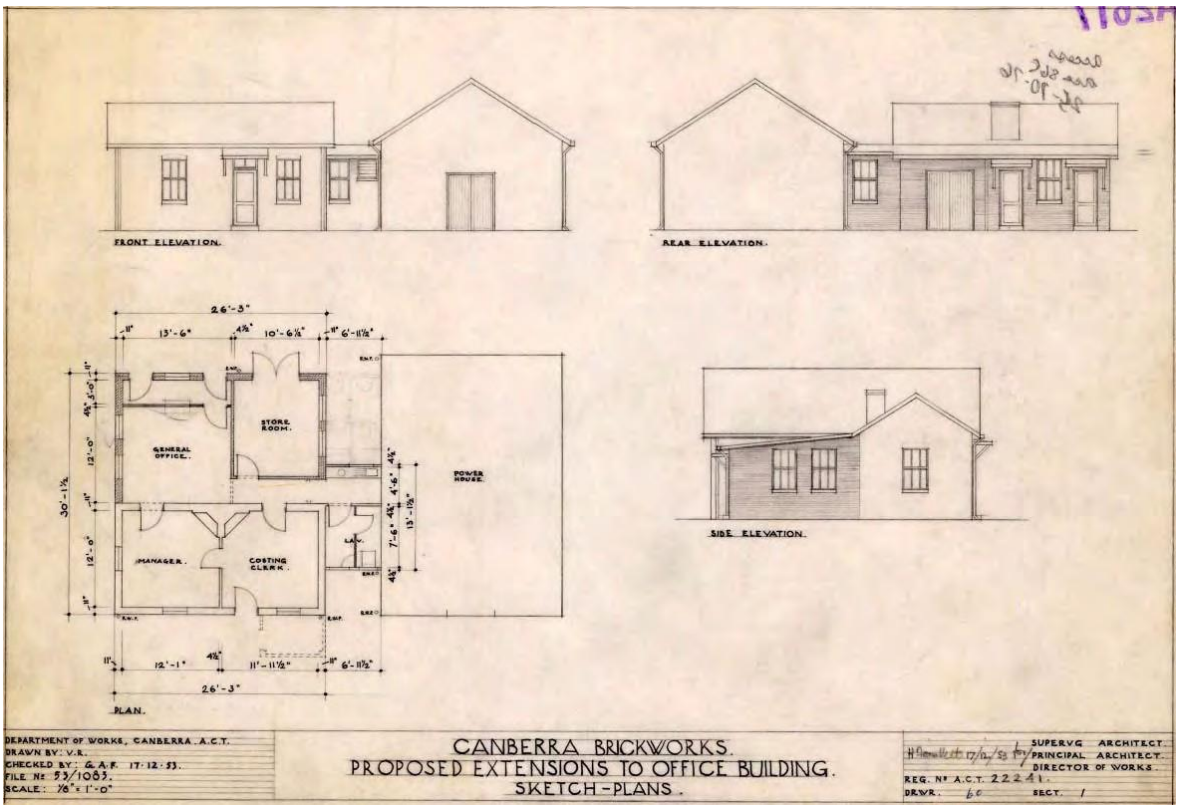


Figure 4 Office extension consisting of a two roomed addition to the south and a lavatory/washroom infilling the space between the original structure and the Power House, 1953. (Source: National Archives of Australia)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 5 East and north elevations, showing the extent of the 1950s/1970s additions. The only portion of the original two-roomed structure, not enclosed by additions, is indicated by the arrow. (Source: Lovell Chen, 2010)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 14—Power House

Name of Element	Power House	**CMP No. | ACT No.**	Element 14
Historical Phase	Establishment 1911–1920	**Date**	c1915–16
Construction	Brick with terracotta tiled roof		





Historical Background

Prior to the commissioning of the Central Generating Station (Kingston Power House) in 1915, the Brickworks was powered by a steam driven donkey engine. When the Kingston Power House came on line in July 1915, the high voltage supply was broken down by transformers to lower voltages and distributed across the Brickworks. This was achieved by three overhead cables connected to the purpose-built Power House, described as the 'Power Station' on the 1916 Survey plan (see Figure 1). The locations of the original entry points for the cables are visible on the south elevation.

It is possible that the openings in the south elevation have undergone alteration.[1]

Description and Condition

The Power House is a single storey face red brick building, with a gable roof clad in terracotta tiles and timber vents within the gable at both the south and north end. Access is via paired, ledged and braced timber doors to the south and north ends of the building. Highlight windows on the east wall and three access points for transmission cables in the south wall are bricked up and there are two non-original multi-paned metal-framed windows in the west wall.

Internally, the Power House has half a concrete floor and half dirt floor and the ceiling is lined with a narrow profile painted corrugated iron. Some early electrical equipment is in situ within the building, including circuit breakers, ammeters, watt meters and distribution boards. Other early high voltage switchgear and transformers are thought to have been removed. The original connection high up in the south wall has been discontinued and power is now relayed underground from a power pole in close proximity to the structure.

The inspection report for the building identified that the roof tiles are in a sound condition, the roof sheets and brickwork in general are in a reasonable condition, and the doors and windows are damaged but are boarded up. The timber fascia is weathered in some areas. The extension of the adjoining office block to the east and the siting of the small service building to the immediate west are intrusive elements to the Power House building. Comparing photographs from 2010, it appears some works have been undertaken to the roof, gable and brickwork.

No internal observations of the condition could be made by Sellick Consultant as they did not have access on the date of their inspection.

Significance	Supporting Element

The Power House is associated with the earliest phase of the permanent brickworks and was a key element in the development of the site, providing power to the site after the Kingston Power House came on line in 1915.

The provision of continuous power supply was fundamental to the operation of the plant.

Structural Advice as at 2021	Reinstatement required for safe public access during construction works—refer to Appendix G for detail.
Conservation Policy and Adaptation Guidelines	Supporting elements should preferably be retained and conserved

Canberra Brickworks: Inventory of Individual Historic Elements

- The Power House should preferably be retained and conserved to the extent of the external fabric (ie brickworks, tile roof, timber soffits etc) to retain original building form, noting that the Heritage Register citation allows for its relocation subject to the relocation process being fully documented and full reconstruction of the building taking place within a specified period.
- Consideration could be given to the reinstatement of infilled openings to the exterior. Original windows and doorways could be re-opened and repaired.
- The remnant equipment could be retained as part of a new fitout, or removed as required.
- The building could be adapted internally for a new use.
- Remove intrusive external elements/structures.
- Assess all proposed actions, including conservation works or adaptation, for potential adverse impacts on the heritage significance, through the preparation of a Statement of Heritage Effects (SHE) in accordance with the ACT guidelines.

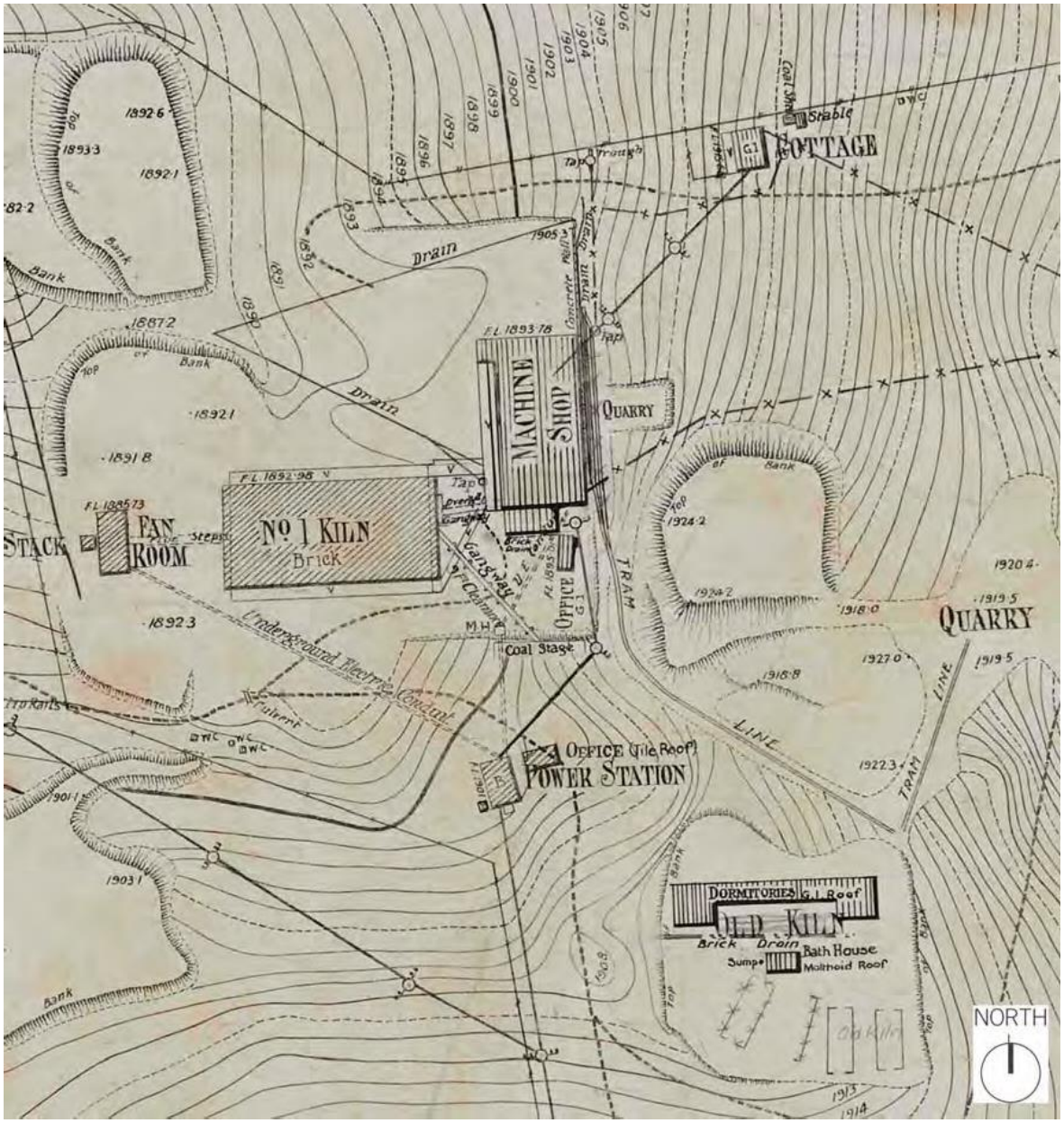


Figure 1 Detail of Contour and Detail Survey, Canberra Brick Yards, 20 December 1916. The Power House is referred to as the 'Power Station'. (Source: NAA: A6664, L165A, 1916)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 2 The Power House is the tile roofed building in the centre of the image. The Office building (Element 13) adjoins it to the right and the small cream brick structure to the left is the Downdraught kiln control room (Element 26). (Source: Lovell Chen, 2010, Canberra Brickworks CMP, p 55)



Figure 3 South elevation and entry, showing bricked up openings. (Source: Lovell Chen, 2010, Canberra Brickworks CMP, p 56)



Figure 4 Interior showing retained plant. (Source: Lovell Chen, 2010, Canberra Brickworks CMP, p 56)

Endnotes

[1] A drawing dated 17 December 1953 (ref. Canberra Brickworks Proposed extension to Office Building Sketch-plans, National Archives of Australia) detailing additions to the adjoining office refers to the north elevation of the Power House as the 'front' and the south elevation as the 'rear'. The drawing details the doors to the north elevation but does not detail any openings to the south, possibly implying that the openings to the south are not original. No original drawings of the Power House have been located to confirm or refute this evidence, but a visual inspection of the fabric suggests that the door opening and the cable access points are original details or alterations of long standing, predating the 1953 drawing.

Canberra Brickworks: Inventory of Individual Historic Elements

Element 15—Machine Bay 1 for Staffordshire Kiln and Downdraught Kilns

Name of Element	Machine Bay 1 for Staffordshire Kiln and Downdraught Kilns	**CMP No. | ACT No.**	Element 15
Historical Phase	Postwar 1944–1976	**Date**	c1955
Construction	Corrugated galvanised steel, over steel frame		





Historical Background

Also known as Brick Press No. 1, Machine Bay 1 is partly located on the site of the earlier 1915 machine bay and tile making plant. The present machine bay was constructed in 1955 as part of the upgrading of the Brickworks to meet post-World War II production requirements. After grinding and processing through the crusher houses and pan rooms, raw materials were fed along the top-level conveyor system housed within the loft areas of the three machine bays and passed through the upper roof area of the Workshop to hoppers. It was then gravity fed via chutes to the brick presses below. After pressing, the bricks were transported by forklift to the adjoining kiln for firing. Machine Bay 1, which serviced the Staffordshire Kiln, also received white clay material refined in the adjoining White Pan Room (also known as the Large Crusher House) immediately to the east. The machine bay was extended by two additional bays to service the 1960s Downdraught Kilns. This addition was subsequently demolished.

Description and Condition

Machine Bay 1 is a three-level, steel-framed and corrugated galvanised steel-clad structure. It comprises the loft gallery containing the overhead conveyor, which extends through the loft space of all three machine bays and the Workshop. It also contains hoppers, which would feed the brick presses located on the 'shop floor' below. The loft space has a concrete floor and the conveyor in the roof space, which is accessed by steel ladder-form stairs. There is a timber conveyor level walkway 'catwalk'. There is a row of windows previously fitted with glass louvres to the east and west sides of the loft space, and a row of windows to the rear (east) wall of the shop floor below. The shop floor is raised on a concrete slab and the space between the end (west) wall of the kiln and the machine bay has a skillion roof clad in corrugated steel over a series of warren trusses. Several skylights punctuate the roof. This roof form is thought to be original (see Figure 2).

The brick making machinery (brick presses and the like) has been removed and the southern extension to service the Downdraught Kilns has been demolished.

The inspection report for the building identified the steel roof and wall sheeting is weathered and some sheets are loose and missing. The steel columns appear in sound condition and the steel trusses of the lean-to roof are in reasonable condition. The raised 'catwalk' appears in a reasonable condition, though the timber flooring is severely weathered and missing. The south end of the upper floors is also open.

Significance	Supporting Element

Replacing earlier structures on the site between the kilns and the quarry, the machine bays present as a series of utilitarian steel-framed and clad process buildings constructed as part of the post-World War II expansion and modernisation of the Brickworks. The form and location of these related structures, and the conveyor that connects them, demonstrate important aspects of the historical pattern and layout of the complex. Despite the removal of most of the equipment including the brick presses, the machine bays assist in the understanding of the brick making process post-World War II.

Structural Advice as at 2021	Reinstatement and rectification may be required as part of the construction works. Loose roof and wall sheeting should be fixed to prevent a safety risk—refer to Appendix G for detail.

Canberra Brickworks: Inventory of Individual Historic Elements

Conservation Policy and Adaptation Guidelines	Supporting elements preferably should be retained and conserved

- Machine Bay 1 should preferably be retained and conserved to interpret the historical use of the place or adopted to suite a new use for the place.,.
- The conveyors, hoppers and walkways at the upper level could be retained, or may be replaced with new development that is generally consistent with the scale, form, external materials and industrial character of the place. .
- Externally, there is scope for modifications to be made while retaining the industrial character and presentation of the building.
- Windows and other openings should be allowed for appropriate access, daylight and ventilation for an adaptive reuse purpose.
- Internal adaptation is possible and alternatives for its reuse could be explored. .
- The loose roof sheets are a safety hazard and foot traffic are not recommended on the roof. Rectification works should take place.
- Assess all proposed actions, including conservation works or adaptation, for potential adverse impacts on the heritage significance, through the preparation of a Statement of Heritage Effects (SHE) in accordance with the ACT guidelines.

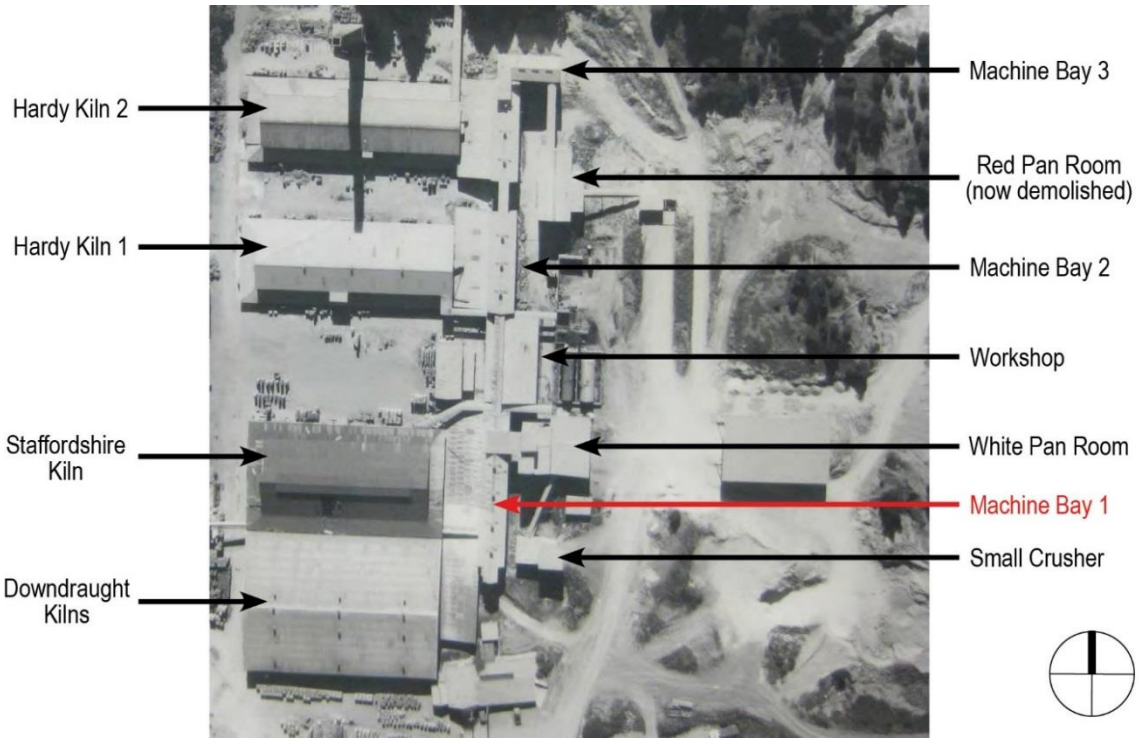


Figure 1 1976 aerial photograph with major site elements in the vicinity of the machine bays labelled. Machine Bay 1 is indicated in red. (Source: ACT Heritage Library with GML overlay)

Canberra Brickworks: Inventory of Individual Historic Elements

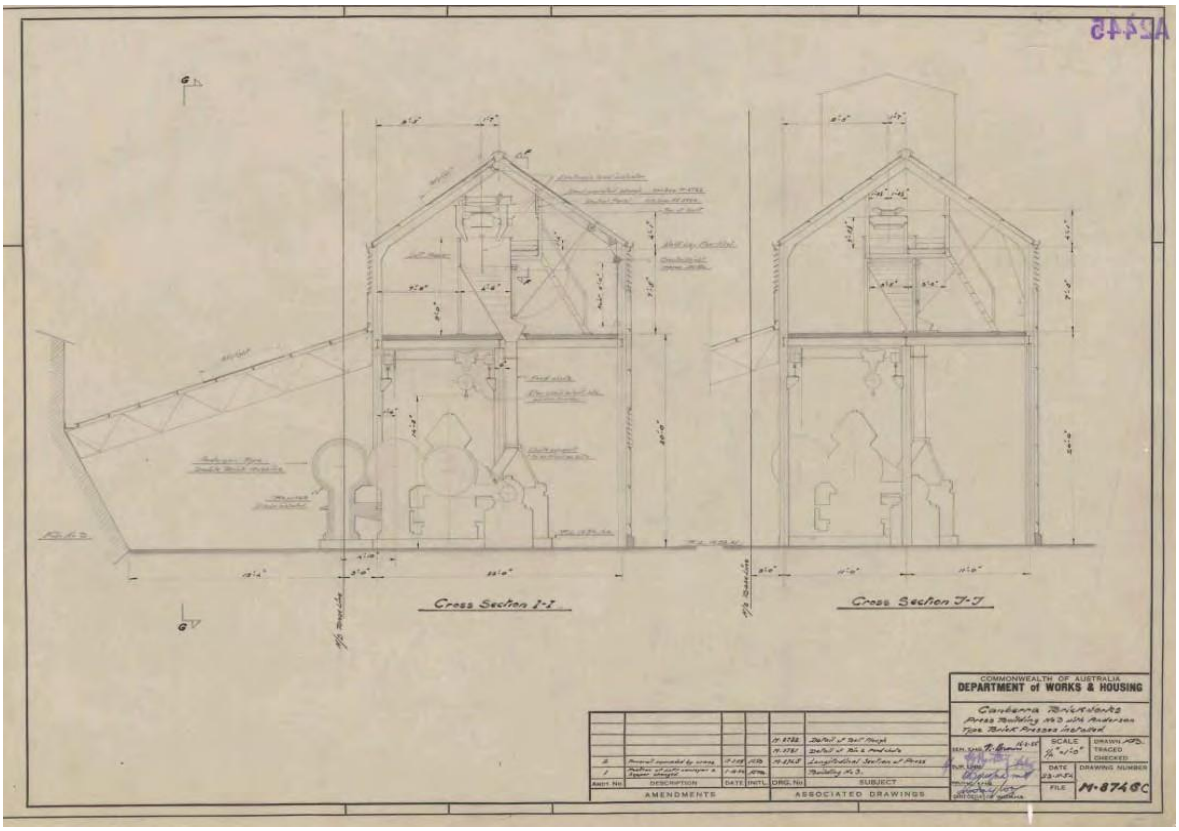


Figure 2 Canberra Brickworks Press Building III, 23 November 1954. Cross-sections showing internal structure and machinery installation, Machine Bay 3. (Source: National Archives of Australia)



Figure 3 The truncated south end of Machine Bay 1, showing location of former headgear housing. (Source: Lovell Chen, 2010)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 4 Interior of the Machine Bay shop floor, previously used by a timber recycling business. (Source: GML, 2016)



Figure 5 West side of Machine Bay 1 from the Staffordshire Kiln. (Source: GML, 2017)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 16—Machine Bay 2 for Hardy Patent Kiln 1

Name of Element	Machine Bay 2 for Hardy Patent Kiln 1	**CMP No. | ACT No.**	Element 16
Historical Phase	Postwar 1944–1976	**Date**	c1955
Construction	Corrugated galvanised steel, over steel frame		





Historical Background

Machine Bay 2 was built in 1955 as part of the upgrade of the Brickworks to meet post-World War II production requirements. It is interlinked with Machine Bays 1 and 3, and the Workshop. After grinding and processing through the crusher houses and pan rooms, raw materials were fed along the top-level conveyor system housed within the lofts of the three machine bays and passed through the upper roof area of the Workshop to hoppers. It was then gravity fed via chutes to the brick presses below. After pressing, the bricks were transported by forklift to Hardy Patent Kiln I for firing. Machine Bay 2 received raw materials transported via conveyor from Machine Bay 3, which was fed from the 400-ton hopper (now demolished) that adjoined the west end of Machine Bay 3.

Description and Condition

Machine Bay 2 is a three-level steel-framed and corrugated galvanised steel-clad structure. The structure comprises the loft gallery containing the overhead conveyor, which extends through the loft space of all three machine bays and the Workshop, and hoppers, which fed the brick presses housed on the 'shop floor' below. The loft space has a concrete floor and the conveyor, housed within the peak of the roof space, is accessed by steel ladder-form stairs from this level. There is a timber conveyor level walkway 'catwalk', and an open walkway at the height of the concrete floor level, which interconnects this building with Machine Bay 3, to the north. There is a row of windows, previously fitted with glass louvres to the east and west sides of the loft space and a row of windows to the east (rear) of the shop floor. The shop floor is raised on a concrete slab and the space between the end (west) wall of the kiln and the machine bay is roofed by a skillion roof, clad in corrugated steel over a series of warren trusses. Several skylights punctuate the roof. This roof form is thought to be original—refer to the section drawing for Machine Bay 3 (see Figure 2).

The brick making machinery has been removed.

The inspection report for the building identified that the suspended concrete slabs to the upper floor appear to be in a reasonable condition with some minor spalling to the underside near a drilled penetration, which has exposed reinforcement. The raised timber deck walkway is weather damaged. Windows are weathered and have been broken or removed throughout the upper floors exposing the building's interior to weather and some roof sheeting has also been removed, which has caused rot to the timber purlins. Some steel truss bottom chords to the walkway extending from the machine bays to Hardy Patent Kiln 1 and the Staffordshire Kiln are significantly distorted.

Significance	Supporting Element

Replacing earlier structures on the site between the kilns and the quarry, the machine bays present as a series of utilitarian steel-framed and clad process buildings constructed as part of the post-World War II expansion and modernisation of the Brickworks. The form and location of these related structures and the conveyor that connects them demonstrate important aspects of the historical pattern and layout of the complex. Despite the removal of most of the equipment including the brick presses, the machine bays assist in the understanding of the brick making process post-World War II.

Structural Advice as at 2021	Immediate rectification works required. Loose roof sheets are a hazard, with access to some areas to be restricted—refer to Appendix G for detail.

Canberra Brickworks: Inventory of Individual Historic Elements

Conservation Policy and Adaptation Guidelines	Supporting elements should preferably be retained and conserved

- Machine Bay 2 should preferably be retained and conserved to interpret the historical use of the place or adopted to suite a new use for the place.
- Externally, there is scope for modifications to be made while retaining the industrial character and presentation of the building, that is generally consistent with the scale, form, external materials and industrial character of the place.
- Windows and other openings should be allowed for appropriate access, daylight and ventilation for an adaptive reuse purpose.
- The loose roof sheets are a safety hazard and foot traffic are not recommended on the roof. Rectification works should take place.
- The internal adaptation is possible and alternatives for its reuse could be explored.
- Assess all proposed actions, including conservation works or adaptation, for potential adverse impacts on the heritage significance, through the preparation of a Statement of Heritage Effects (SHE) in accordance with the ACT guidelines.

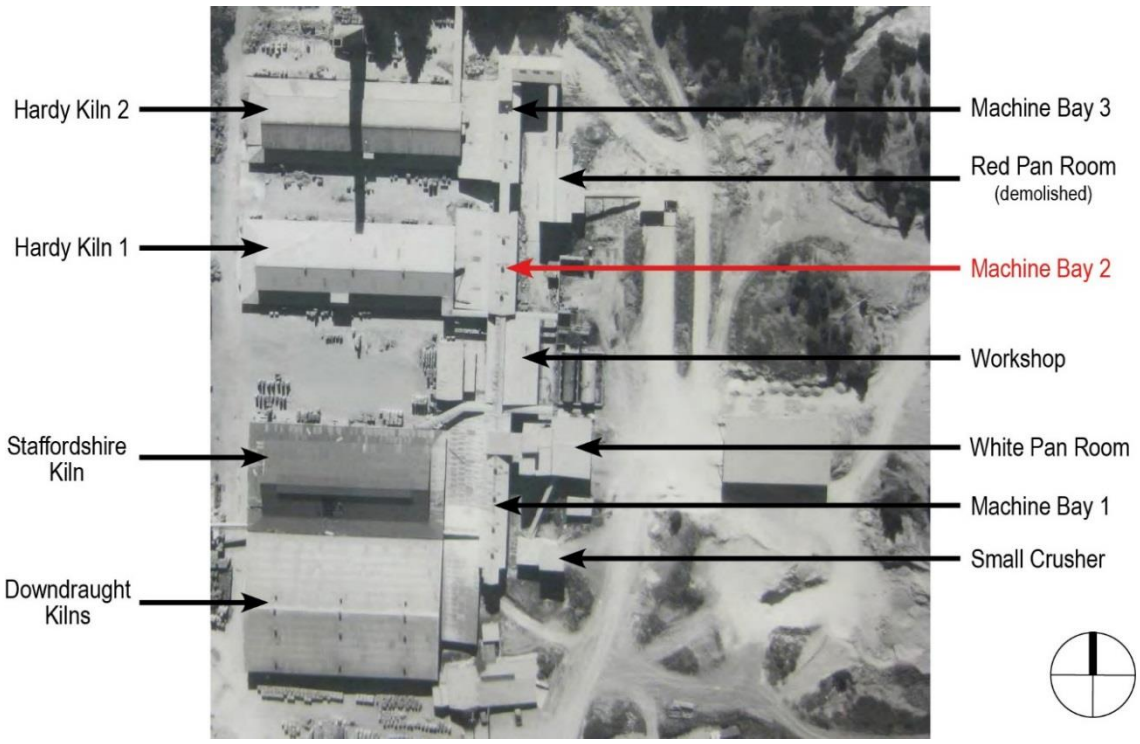


Figure 1 1976 aerial photograph with major site elements in the vicinity of the machine bays labelled. Machine Bay 2 is indicated in red. (Source: ACT Heritage Library with GML overlay)

Canberra Brickworks: Inventory of Individual Historic Elements

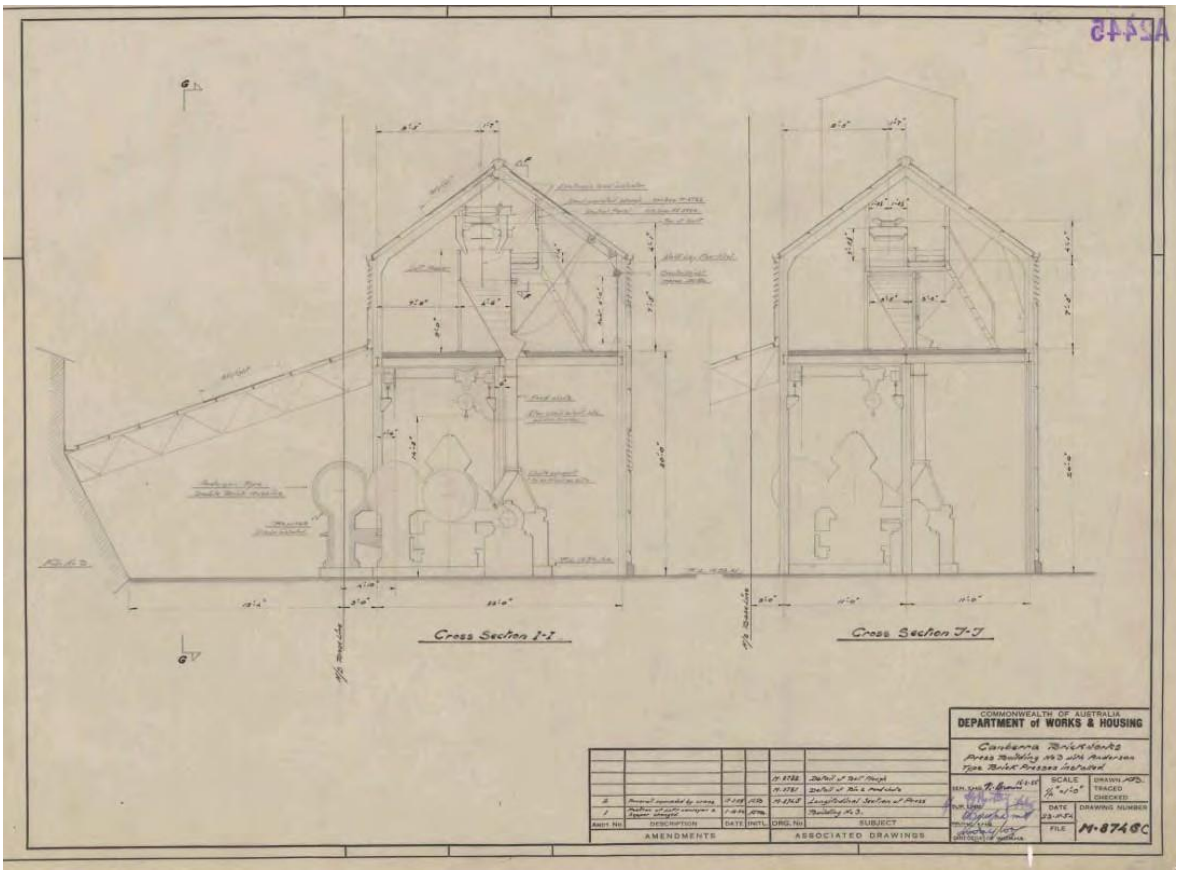


Figure 2 Canberra Brickworks Press Building III, 23 November 1954. Cross-sections showing internal structure and machinery installation, Machine Bay 3. (Source: National Archives of Australia)



Figure 3 The rear (east) elevation of Machine Bay 2. (Source: GML, 2017)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 4 Interior of the Machine Bay 2 shop floor with Hardy Patent Kiln 1 in the background. (Source: GML, 2017)



Figure 5 Shop floor of Machine Bay 2. (Source: GML, 2017)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 6 Conveyor bridge connecting Machine Bay 2 (left) to Machine Bay 3 (right). (Source: GML, 2017)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 17—Machine Bay 3 for Hardy Patent Kiln 2

Name of Element	Machine Bay 3 for Hardy Patent Kiln 2 (Brick Press Building)	**CMP No. | ACT No.**	Element 17
Historical Phase	Postwar 1944–1976	**Date**	c1955
Construction	Corrugated galvanised steel, over steel frame		





Historical Background

Machine Bay 3 was built in 1955 as part of the upgrade of the Brickworks to meet post-World War II production requirements. It is interlinked with Machine Bays 1 and 2, and the Workshop. After grinding and processing through the crusher houses and pan rooms, raw materials were fed along the top-level conveyor system housed within the lofts of the three machine bays and passed through the upper roof area of the Workshop to hoppers. It was then gravity fed via chutes to the brick presses below. After pressing, the bricks were transported by forklift to Hardy Patent Kiln 2 for firing. Machine Bay 3 received raw materials directly from the 400-ton hopper (now demolished) that adjoined the north end of the structure.

Description and Condition

Machine Bay 3 is a three-level steel-framed and corrugated galvanised steel-clad structure. The structure comprises the loft gallery containing the overhead conveyor, which extends through the loft space of all three machine bays and the Workshop, and hoppers, which fed the brick presses housed on the 'shop floor' below. The loft space has a concrete floor and the conveyor, housed within the peak of the roof space, is accessed by steel ladder-form stairs from this level. The northernmost section is blocked off as it approaches the site of the part-demolished headgear housing and site of the removed hopper. There is an open walkway at the height of the concrete floor level which interconnects this building with Machine Bay 2, to the south. There is a row of windows, previously fitted with glass louvers to the east and west sides of the loft space, and a row of windows to the east (rear) wall of the shop floor below. The shop floor is raised on a concrete slab, and the space between the end (west) wall of the kiln and the machine bay is roofed by a skillion roof, clad in corrugated steel over a series of warren trusses. Several skylights punctuate the roof. This roof form is thought to be original (see Figure 2).

Some elements of the dismantled brick making machinery have been relocated to this building and are located in its northeast corner. The hopper and part of the headgear for the loft conveyors has also been removed.

The inspection report for the building identified that the suspended concrete slabs to the upper floor appear to be in a reasonable condition with some minor spalling to the underside near a drilled penetration, which has exposed reinforcement. The raised timber deck walkway is weather damaged. Windows are weathered and have been broken or removed throughout the upper floors exposing the building's interior to weather and some roof sheeting has also been removed, which has caused rot to the timber purlins. Some steel truss bottom chords to the walkway extending from the machine bays to Hardy Patent Kiln 1 and the Staffordshire Kiln are significantly distorted.

Poor condition: This structure is in worse condition than Machine Bay 2 to its south, with the upper level missing most of the cladding.

Significance	Supporting Element

Replacing earlier structures on the site between the kilns and the quarry, the machine bays present as a series of utilitarian steel-framed and clad process buildings constructed as part of the post-World War II expansion and modernisation of the Brickworks. The form and location of these related structures, and the conveyor that connects them, demonstrate important aspects of the historical pattern and layout of the complex. Despite the removal of most of the equipment including the brick presses, the machine bays assist in the understanding of the brick making process post-World War II.

Canberra Brickworks: Inventory of Individual Historic Elements

Structural Advice as at 2021	Immediate rectification works required. Loose roof sheets are a hazard, with access to some areas to be restricted—refer to Appendix G for detail.

Conservation Policy and Adaptation Guidelines	Supporting elements should preferably be retained and conserved

- Machine Bay 3 should preferably be retained and conserved, including the skillion form connection to Hardy Patent Kiln 2 and the elevated conveyor 'bridge' that connects to Machine Bay 2.
- The conveyors, hoppers and walkways at the upper level could be retained, or may be replaced with new development that is generally consistent with the scale, form, external materials and industrial character of the place. Windows and other openings should be allowed for appropriate access, daylight and ventilation for an adaptive reuse purpose.
- Externally, there is scope for modifications to be made while still retaining the industrial character and presentation of the building.
- The internal adaptation is possible and alternatives for its reuse could be explored.
- Assess all proposed actions, including conservation works or adaptation, for potential adverse impacts on the heritage significance, through the preparation of a Statement of Heritage Effects (SHE) in accordance with the ACT guidelines.

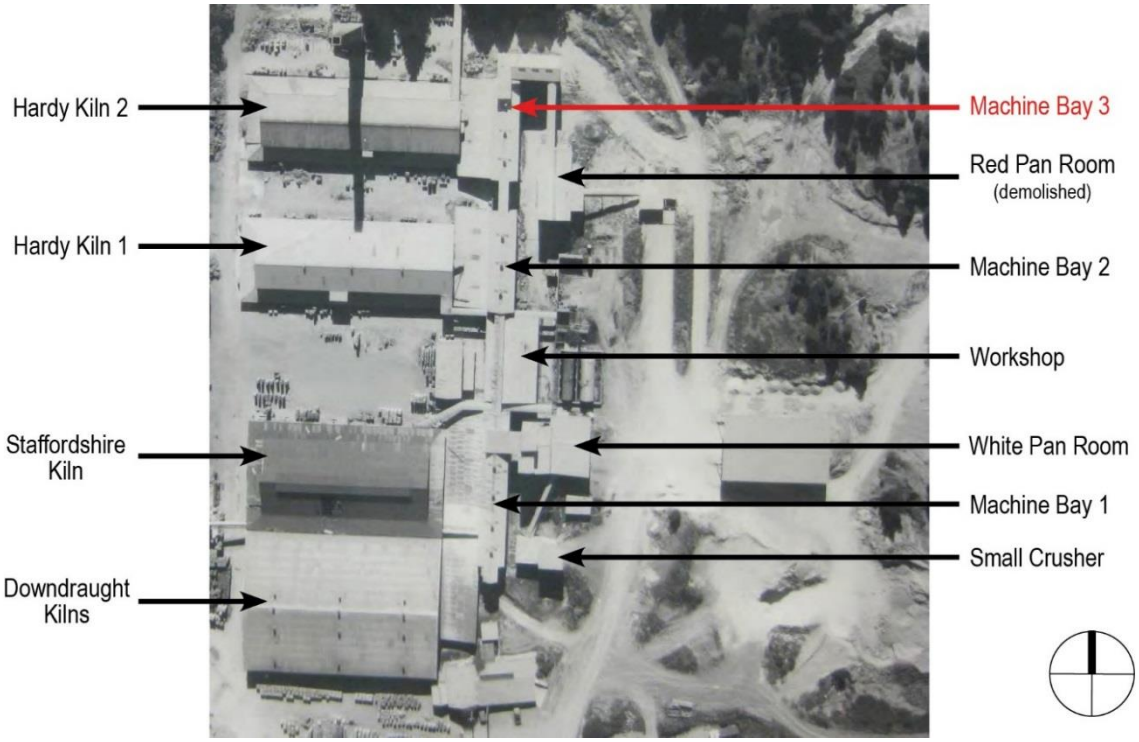


Figure 1 1976 aerial photograph with major site elements in the vicinity of the machine bays labelled. Machine Bay 3 is indicated in red. (Source: ACT Heritage Library with GML overlay)

Canberra Brickworks: Inventory of Individual Historic Elements

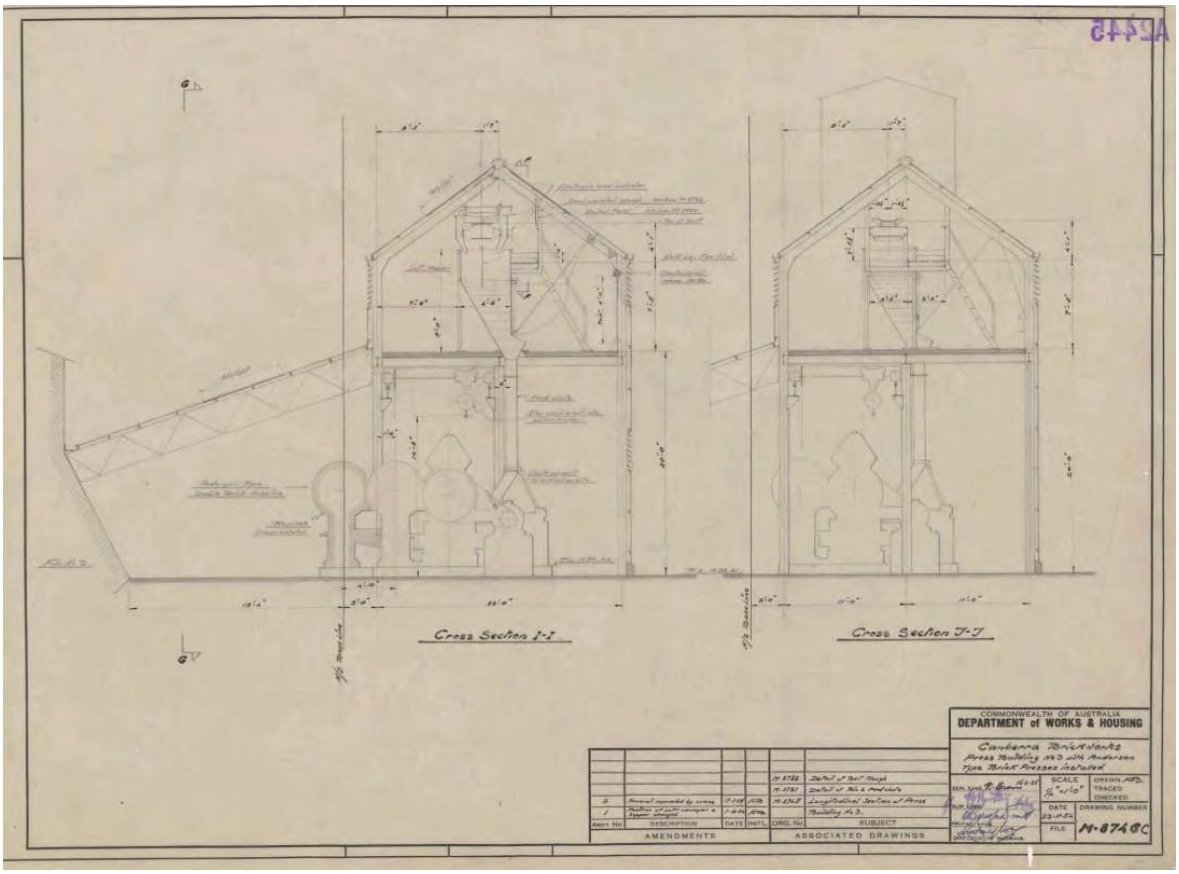


Figure 2 Canberra Brickworks Press Building III, 23 November 1954. Cross-sections showing internal structure and machinery installation, Machine Bay 3. (Source: National Archives of Australia)

Canberra Brickworks: Inventory of Individual Historic Elements

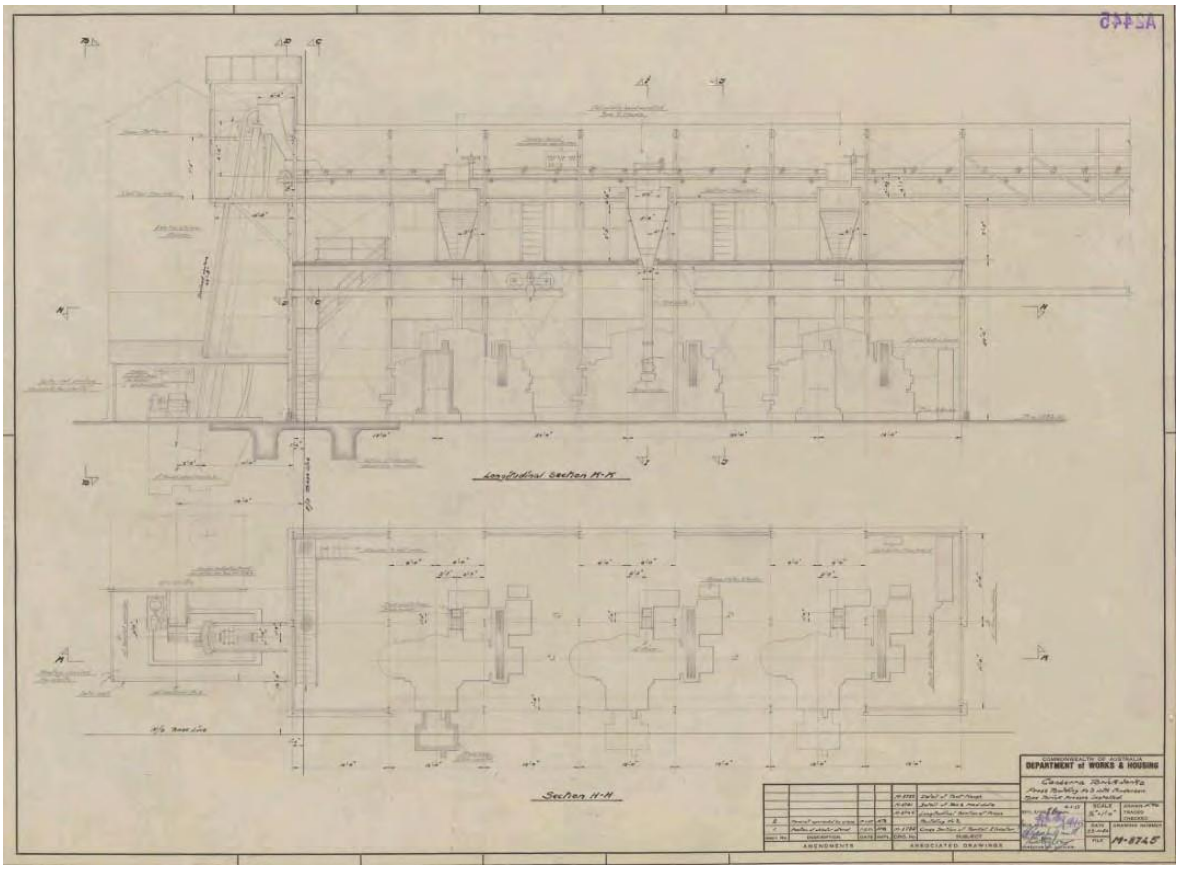


Figure 3 Canberra Brickworks Press Building III, 23 November 1954. Longitudinal sections showing internal structure and machinery installation, Machine Bay 3. (Source: National Archives of Australia)



Figure 4 Machine Bay 3 behind the Elevator/Conveyor. Chimney Stack for Hardy Patent Kiln 2 to the right. (Source: GML, 2017)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 5 Machine Bay 2 (left) and Machine Bay 3 (right), looking west, showing the conveyor 'bridge' and open walkway between the two structures. (Source: Lovell Chen, 2010)



Figure 6 North end of Machine Bay 3 showing remains of headgear housing for the loft conveyor. (Source: Lovell Chen, 2010)



Figure 7 Interior with remnants of the Anderson brick machinery at the north end. (Source: Lovell Chen, 2010)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 8 Interior of the Machine Bay 3 shop floor, looking north. (Source: Lovell Chen, 2010)



Figure 9 Interior of Machine Bay 3 shop floor looking north. (Source: GML, 2017)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 18—Workshop

Name of Element	Workshop	**CMP No. | ACT No.**	Element 18
Historical Phase	Postwar 1944–1976	**Date**	1955
Construction	Corrugated galvanised steel over steel frame		





Historical Background

The Workshop was constructed in 1955 and was used for general workshop repairs and the maintenance of machinery. It runs north–south across the Brickworks complex and was built on the approximate site of the original machine shop, which was constructed in 1915 and demolished in the 1950s.

Description and Condition

The Workshop is a two-storey steel framed building clad in corrugated steel over a brick base with a concrete slab floor. There is a sliding corrugated steel door in the west elevation and another entry to the north elevation. Due to vandalism, the original louvred glazing to both the west and east elevation has partly been replaced by corrugated fibreglass sheeting. The window openings as shown on the original plan differ from those shown today. To the north and south the building is partly enclosed at the upper level by walkways that connect the conveyor gallery with the higher ground to the east. The conveyor connecting the three machine bays extends through the gabled roof space to the north of the Workshop where the overhead gantry crane remains.

Internally the building has a concrete floor and the walls are unlined.

The inspection report identified that the building is generally in a reasonable condition, with wall sheeting damaged in some areas. The windows throughout the ground floor are broken and the timber walkway above the building is badly weathered. Roof sheeting and structural steel is in reasonable condition. Windows have been removed from the walkway resulting in weather damage to the timber elements. The timber structure has significant weathering.

Significance	Supporting Element

Replacing earlier structures on the site between the kilns and the Quarry, the Workshop is one of a series of utilitarian steel-framed buildings constructed as part of the post-World War II expansion and modernisation of the Brickworks. The form and location of these related structures and the conveyor that connects them, demonstrate important aspects of the historical pattern and layout of the complex. The Workshop performed a key function in the operation of the complex but was not directly involved in brickmaking processes.

Structural Advice as at 2021	Reinstatement required as part of the construction works, with upper areas requiring inspection—refer to Appendix G for detail.

Conservation Policy and Adaptation Guidelines	Supporting elements should preferably be retained and conserved

- The Workshop, including the conveyor that connects this building to the machine bays could be retained in situ, and may be conserved to interpret the historical use of the place or adopted to suite a new use for the place.
- The gantry crane and other remnant equipment unrelated to the brickmaking process can be retained, or removed if required.
- Windows and other openings should be allowed for appropriate access, daylight and ventilation for an adaptive reuse purpose.
- External modifications could be made.
- Internal adaptation is possible and alternatives for its reuse could be explored.

Canberra Brickworks: Inventory of Individual Historic Elements

- A structural assessment is advised for the upper level, and public access should be restricted.
- Assess all proposed actions, including conservation works or adaptation, for potential adverse impacts on the heritage significance, through the preparation of a Statement of Heritage Effects (SHE) in accordance with the ACT guidelines.

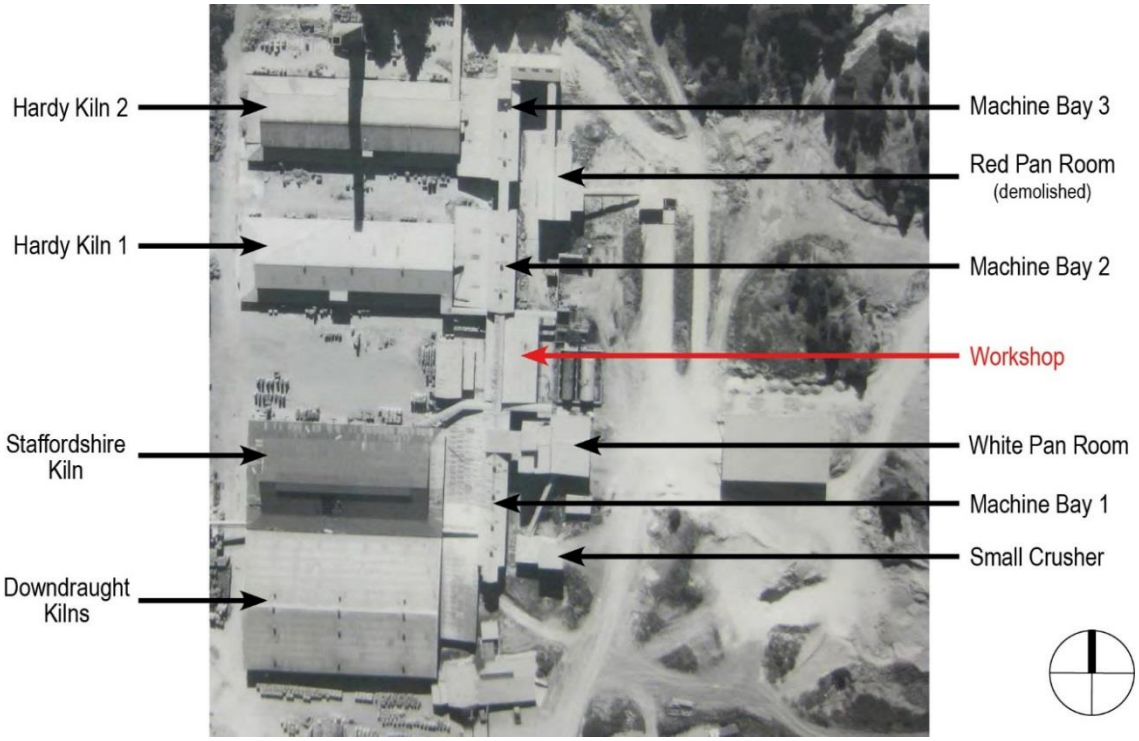


Figure 1 1976 aerial photograph with major site elements in the vicinity of the machine bays labelled. The Workshop is indicated in red. (Source: ACT Heritage Library, Woden, ACT, with GML additions)

Canberra Brickworks: Inventory of Individual Historic Elements

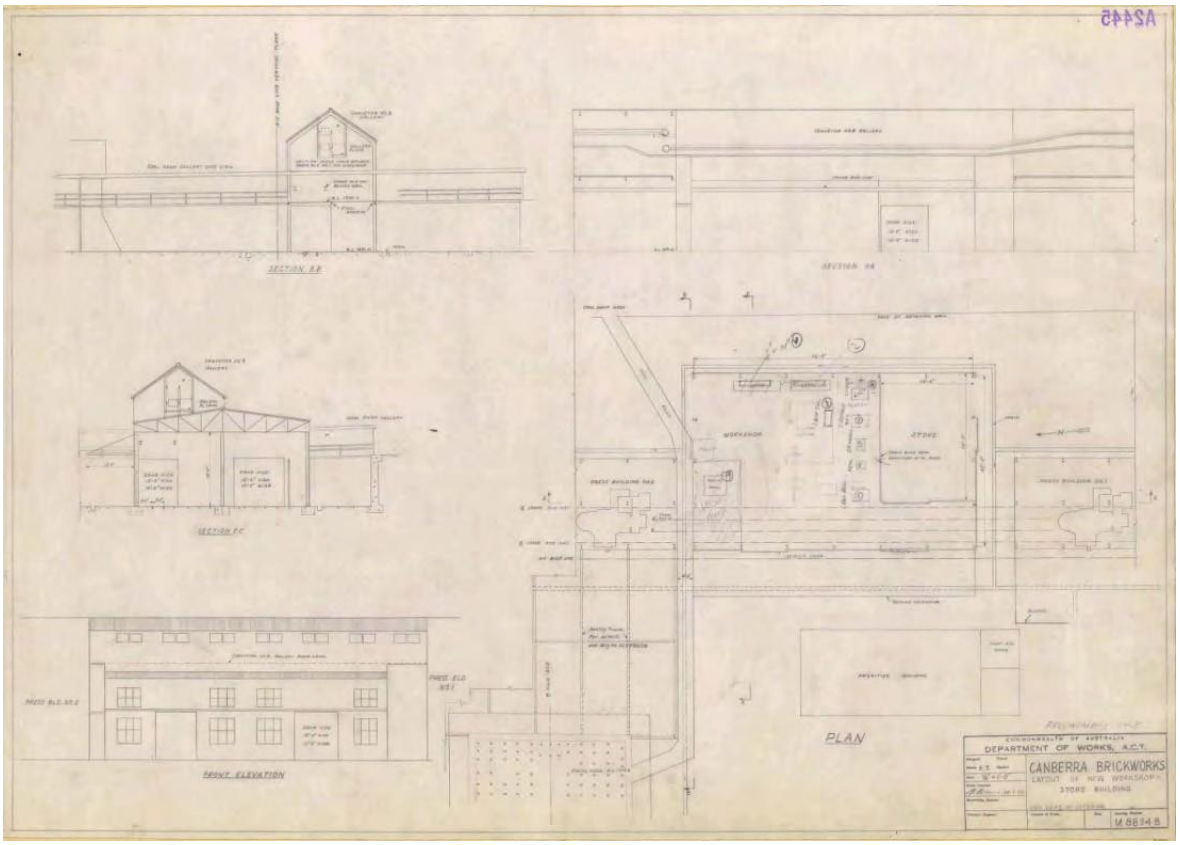


Figure 2 Canberra Brickworks—layout of new Workshop—Store Building, 1955. (Source: National Archives of Australia)



Figure 3 Interior of Workshop. (Source: Lovell Chen, 2010)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 4 West elevation showing entry. (Source: Lovell Chen, 2010)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 19—Large Crusher House

Name of Element	Large Crusher House (White Pan Room)	**CMP No. | ACT No.**	Element 19
Historical Phase	Postwar 1944–1976	**Date**	c1955
Construction	Corrugated galvanised steel over steel frame		





Historical Background

The Large Crusher House (White Pan Room) is thought to have been constructed in c1955 as part of the expansion and modernisation of the Brickworks. Along with the now demolished 'Red Pan Room' located further north, the Large Crusher House refined raw materials including shale and white clay prior to processing and feeding into the brick presses housed in the machine bays.

Located to the east of Machine Bay 1 (Element 15), this facility was solely used for the crushing and refining of white clay. The clay was brought to the crusher house/pan house by truck where it was placed in the two hoppers ready to be fed into grinding pans. The grinding pans comprised a rotating perforated metal disc or pan over which large rollers crushed the clay. After grinding, the raw material was elevated and screened. Where material was still too coarse it was returned to the grinding pans and then elevated to the top of the adjoining machine bay to be fed into the brick presses.

The building was later connected to the Small Crusher House (Element 21) by a conveyor, which transported crushed raw materials for further refining in the Large Crusher House. This increased the processing capacity of the complex. The relationship between the Small Crusher House and Large Crusher House generally mirrored that of the Primary Crusher House (Element 20) and the Red Pan Room. However, unlike the Red Pan Room, the White Pan Room also had a hopper for directly loading raw materials.

Description and Condition

The Large Crusher House is a steel-framed, corrugated steel-clad machinery house with a distinctive roofline of skillion forms in varying heights. Like the Small Crusher House, there is an unloading bay at a higher level where white clay material was directly unloaded into one of two hoppers, which have both been removed. The structure is framed by off-form concrete walls and the interior has been gutted with most of the machinery removed. This has exposed large holes in the concrete surrounding the former location of the hoppers.

The inspection report for the building identified that several bracing members have been removed from the structure and that the wall sheeting is weathered and loose in some areas. There is debris scattered throughout the building and areas of the suspended slab have collapsed.

Significance	Supporting Element

Along with the machine bays, the three related crusher houses were new process buildings constructed as part of the post-World War II expansion and modernisation of the Brickworks. The form and location of these related structures demonstrate important aspects of the historical pattern and layout of the complex. Despite the removal of most of the equipment, the form of the buildings, the remnant hopper, and other elements internally reflect aspects of the brickmaking process post-World War II.

The Large Crusher House is a particularly prominent site element with its collection of skillion roofed forms rising above the machine bays.

Structural Advice as at 2021	Reinstatement and rectification may be required as part of the construction works. Loose roof and wall sheeting should be fixed to prevent a safety risk—refer to Appendix G for detail.

Canberra Brickworks: Inventory of Individual Historic Elements

Conservation Policy and Adaptation Guidelines	Supporting elements should preferably be retained and conserved

- The Large Crusher House should preferably be retained and conserved. However, it is recognised that this may be difficult to achieve given the current condition.
- The structure could be adapted for a new use, retained as an interpretative feature, or replaced with a new sympathetic façade would likely need to be added to the eastern elevation, which is generally consistent with the scale, form, external materials and industrial character of the place.
- While not essential, consideration could be given to the retention of the remnant platforms and hopper.
- Additional structural support maybe be required. A detailed structural assessment is required and any loose sheeting to be secured.
- Clean up debris and reinstate slab if required.
- Restrict public access unless the building is made safe.
- Assess all proposed actions, including conservation works or adaptation, for potential adverse impacts on the heritage significance, through the preparation of a Statement of Heritage Effects (SHE) in accordance with the ACT guidelines.

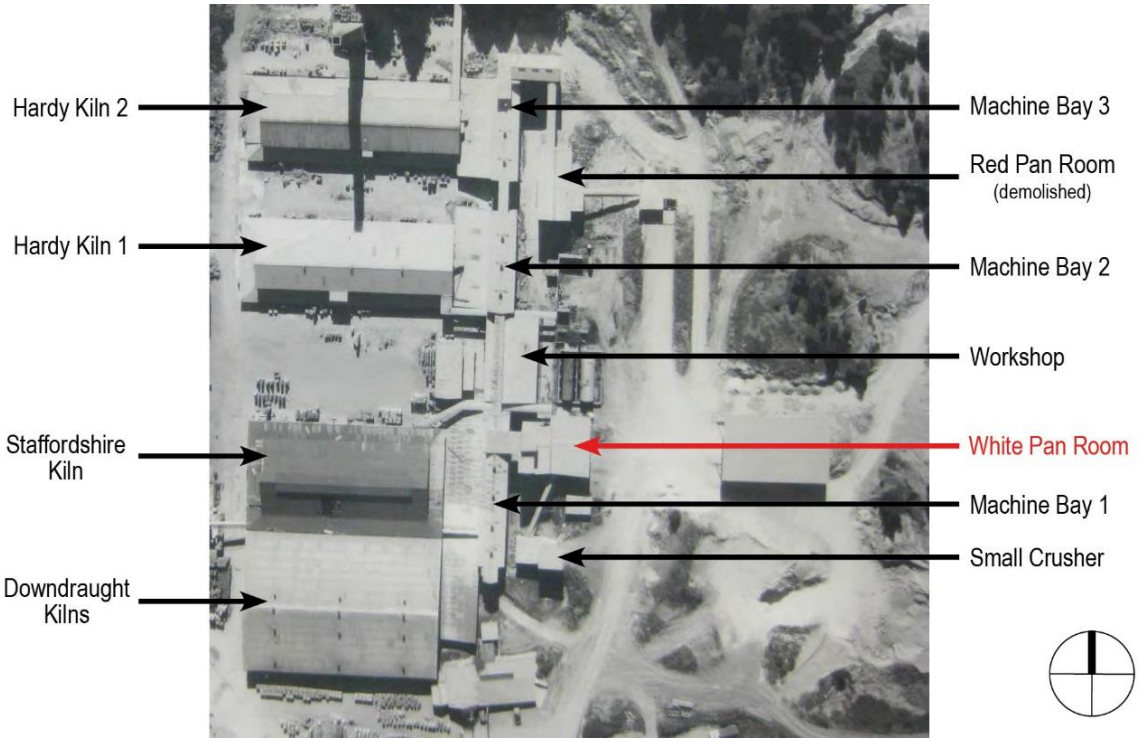


Figure 1 1976 aerial photograph with major site elements in the vicinity of the machine bays labelled. Large Crusher House/White Pan Room is indicated in red. (Source: ACT Heritage Library with GML overlay)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 2 The Large Crusher House viewed from the east. The shed in the foreground is Element 36—Model Railway Storage Shed. (Source: Lovell Chen, 2010)



Figure 3 Interior of the Large Crusher House looking west. The site of the now-removed hoppers is in the foreground. (Source: Lovell Chen, 2010)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 4 South elevation showing the 'high-level' connection to Machine Bay 1, which is shown at left. (Source: Lovell Chen, 2010)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 21—Small Crusher House

Name of Element	Small Crusher House	**CMP No. | ACT No.**	Element 21
Historical Phase	Postwar 1944–1976	**Date**	Unknown, mid to late 1950s
Construction	Corrugated galvanised steel cladding over steel frame		





Historical Background

Though its construction date is unknown, the Small Crusher House appears to have been constructed as part of the 1950s expansion works. Its later construction date may suggest the requirement to augment the operations of the newly completed White Pan Room and Primary Crusher House at comparatively short notice.

The Small Crusher House was fitted with a 'Hazemag' brand crusher and a single hopper. Raw materials could be unloaded directly from the truck bay at the higher level into the hopper and then into the crusher. The 'Hazemag' crusher was a rotary crusher that ground and screened the raw material through a perforated plate. Material was then transported by conveyor to the White Pan Room, which solely processed white clay for further refining. Here materials would be further ground and screened. Crushed clay would then be conveyed by elevator to the three machine bays adjoining the crusher houses to the west.

Description and Condition

The Small Crusher House is a steel-framed, corrugated, galvanised steel-clad machinery house. The building at the upper level is flanked by low sloping walls of off-form concrete, which frame the unloading bay. At the lower level, the structure presents as a two-storey building with some of the machinery platforms and framing, including the hopper, in place. The conveyor connecting the crusher to the White Pan Room has been removed. Part of the roof cladding and lower sections of the wall cladding and the internal flooring have been removed.

The building is in a reasonable condition.

Significance	Supporting element

Along with the machine bays, the three related crusher houses were new process buildings constructed as part of the post-World War II expansion and modernisation of the Brickworks. The form and location of these related structures demonstrate important aspects of the historical pattern and layout of the complex. Despite the removal of most of the equipment, the form of this building, the remnant hopper, and other elements internally reflect aspects of the brickmaking process post-World War II.

Conservation Policy and Adaptation Guidelines	Supporting elements should preferably be retained and conserved

- The remnant platforms and hopper could be retained, adapted for a new use or retained as an interpretative feature. Or may be replaced with new development that is generally consistent with the scale, form, external materials and industrial character of the place. .Assess all proposed actions, including conservation works or adaptation, for potential adverse impacts on the heritage significance, through the preparation of a Statement of Heritage Effects (SHE) in accordance with the ACT guidelines.

Canberra Brickworks: Inventory of Individual Historic Elements

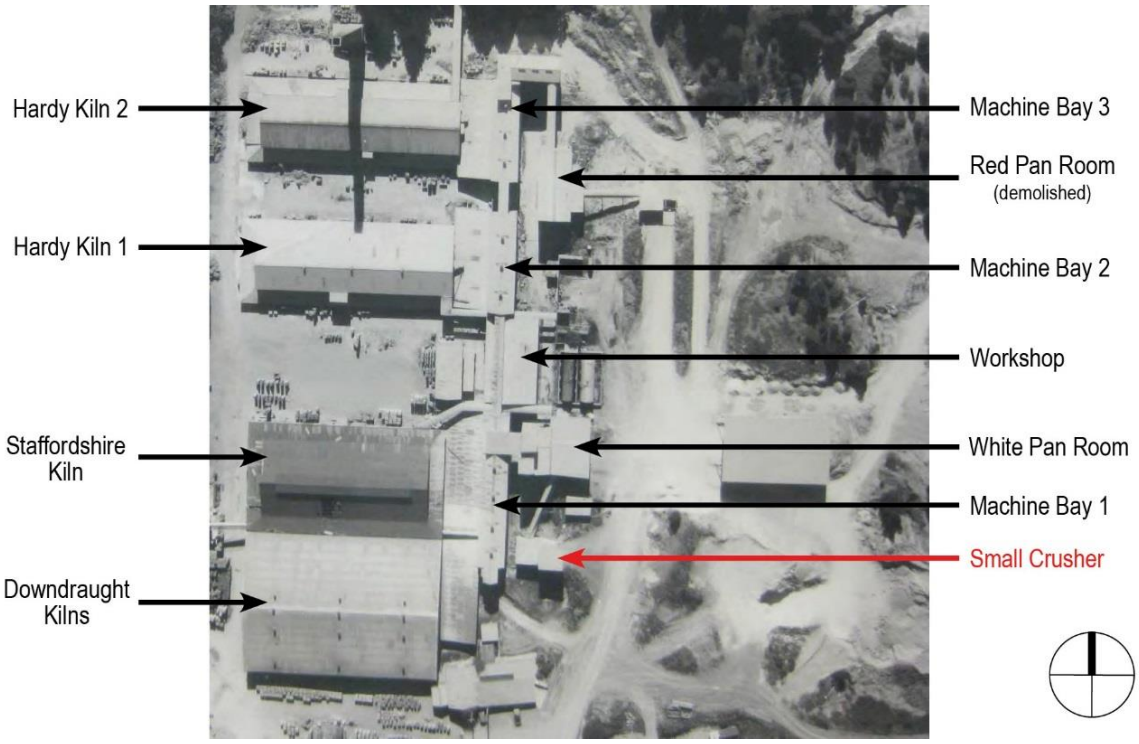


Figure 1 1976 aerial photograph with major site elements in the vicinity of the machine bays labelled. Small Crusher House is indicated in red. (Source: ACT Heritage Library with GML overlay)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 2 Small Crusher House viewed from the north. (Source: Lovell Chen, 2010)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 22—Elevator/Conveyor

Name of Element	Elevator/Conveyor	**CMP No. | ACT No.**	Element 22
Historical Phase	Postwar 1944–1976	**Date**	c1955
Construction	Corrugated galvanised steel cladding over steel frame, partially dismantled		





Historical Background

The Elevator/Conveyor was constructed c1955 as part of the postwar expansion and modernisation of the Brickworks. In two parts, the conveyor transported the crushed shale from the Primary Crusher House to the now demolished Red Pan Room located to the rear (east) of Machine Bay 2 and Machine Bay 3. The Red Pan Room ground and screened the crushed shale, and the other section of the conveyor transported it to a distribution hopper which adjoined Machine Bay 3. From this point the shale travelled vertically down to the table measures where it was then conveyed by elevator to the top of Machine Bay 3, joining the loft conveyors to be distributed to the brick presses. The presses were housed within the machine bays, which serviced each of kilns.

Description and Condition

The Elevator/Conveyor is a steel-framed structure clad in corrugated galvanised steel supported on steel stanchions. Part of the conveyor remains in situ. Footings of the demolished structures are present, including sections of the dismantled gangway that led from the firing floor of Hardy Patent Kiln 2 to an oil storage depot, the current site of the houses in Lane Poole Place.

The structure is in poor condition. The section linking the Red Pan Room (demolished) to the distribution hopper is only partly intact and the section linking to the crusher has been demolished. The adjoining distribution hopper structure has also been demolished.

Significance	Supporting Element

The Conveyor was an integral element in the transport and refining of raw material from the Primary Crusher House to the brick kilns. While much of the structure's fabric is missing, the remaining portion demonstrates aspects of the layout and sequence of processes on the site.

Structural Advice as at 2021	Rectification works required as part of the construction works—refer to Appendix G for detail.
Conservation Policy and Adaptation Guidelines	The ACT Heritage Register citation requires this element to be conserved, although it can be relocated

- The Elevator/Conveyor should preferably be retained and conserved, noting that the Heritage Register citation—Specific Requirements—allows for its relocation subject to the relocation process being fully documented and full reconstruction of the building taking place within a specified period.
- A structural assessment is required, and loose sheeting should be secured.
- The structure could be adapted for a new use, or retained as an interpretative feature.
- Integral equipment and machinery may be retained and conserved for their ability to demonstrate the historic industrial processes and aesthetic, industrial character.
- Assess all proposed actions, including conservation works or adaptation, for potential adverse impacts on the heritage significance, through the preparation of a Statement of Heritage Effects (SHE) in accordance with the ACT guidelines.

Canberra Brickworks: Inventory of Individual Historic Elements

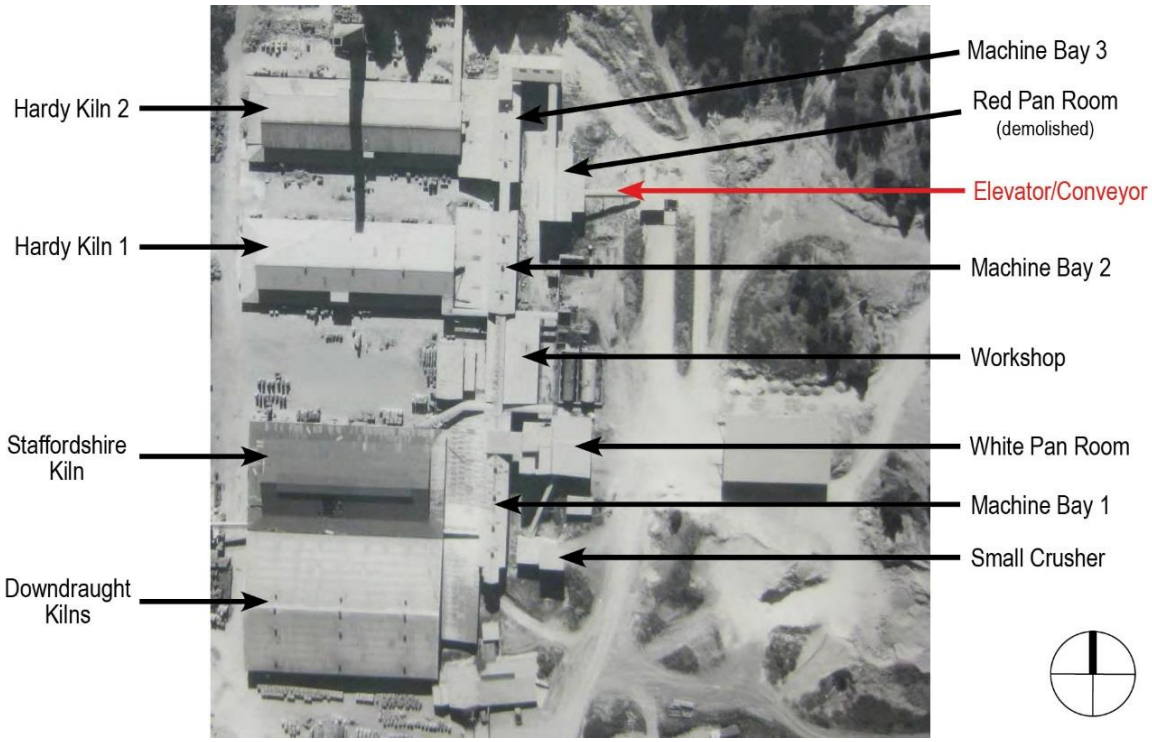


Figure 1 1976 aerial photograph with major site elements in the vicinity of the machine bays labelled. (Source: ACT Heritage Library with GML overlay)



Figure 2 East side of the Elevator/Conveyor with Machine Bay 3 in the background. (Source: GML, 2017)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 3 Front of the Elevator/Conveyor. (Source: GML, 2017)



Figure 4 View of the Elevator/Coveyor and Machine Bay 3 west of the quarry. (Source: GML, 2017)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 24—Concrete Retaining Wall

Name of Element	Concrete Retaining Wall	**CMP No. | ACT No.**	Element 24 | n/a
Historical Phase	Establishment 1911–1920	**Date**	c1913–16
Construction	Off-form concrete cast in situ		





Historical Background

A concrete retaining wall separating the quarry and the working area is shown on the 1916 Survey Plan. It is likely that it was constructed as part of the permanent works during 1915 to 1916. At its southern end, the wall returned to form the 'Coal Stage', also shown on the 1916 Survey Plan. The wall extended to the north, approximately to the concrete base of the demolished Pan Room, where it returned to the east (see Figure 3). The rear of the original 'Machine Shop' abutted the retaining wall (see Figure 1).

Description and Condition

The cast in situ off-form concrete wall is approximately four metres high. Its depth has not been established. The original extent of the wall remains legible, although the former Coal Stage has been demolished. The crusher houses and the east and north brick walls of the Model Railway Workshop (Element 35) are built on top of the wall. It also carries the pedestrian bridge that provides access to the firing floor of Hardy Patent Kiln 1 (see Figure 3).

The inspection report notes that the brickwork part of the retaining wall appears to be sliding off the concrete retaining wall, and the wall has partially collapsed with loose bricks. There is also a large tree that has become unstable due to the collapse of the wall. The condition is reasonable.

Significance	Element is not identified to be of heritage significance

The concrete retaining wall is an early feature of the site but does not have a heritage significance.

Conservation Policies	Element can be retained or demolished as required

- The retaining wall continues to operate to mediate the levels between the quarry and the brickworks. Although it is not required to be retained, it is likely to be largely retained as it interacts with many supporting heritage elements. Where retained, it should be stabilised as required.
- The Model Railway Workshop (Element 35), and non-original brickwork atop the wall could be retained or demolished as required.
- Assess all proposed actions, including conservation works or adaptation, for potential adverse impacts on the heritage significance, through the preparation of a Statement of Heritage Effects (SHE) in accordance with the ACT guidelines.

Canberra Brickworks: Inventory of Individual Historic Elements

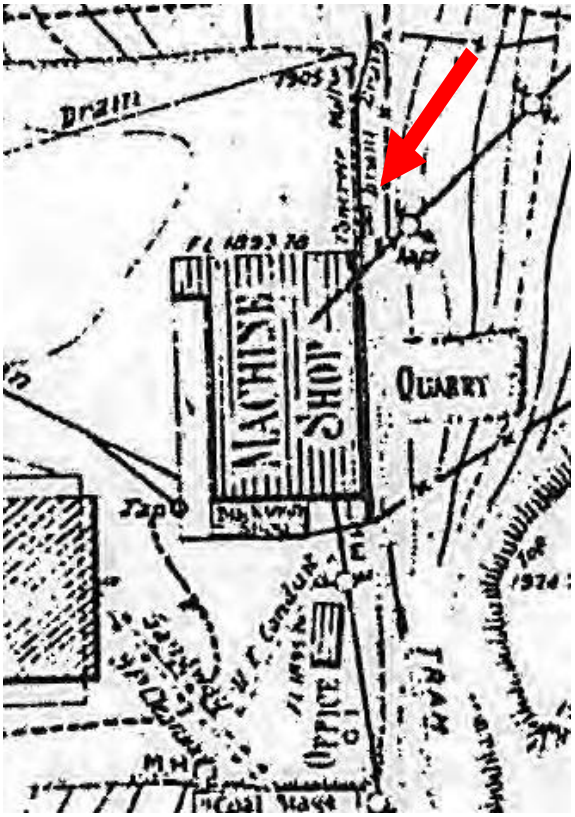


Figure 1 Detail from 1916 Survey Plan with the concrete retaining wall identified. (Source: NAA: A6664, L165A, 1916)



Figure 2 Retaining wall to the rear of the Workshop. (Source: Lovell Chen, 2010)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 3 The north end of the concrete / brick retaining wall. (Source: Lovell Chen, 2010)

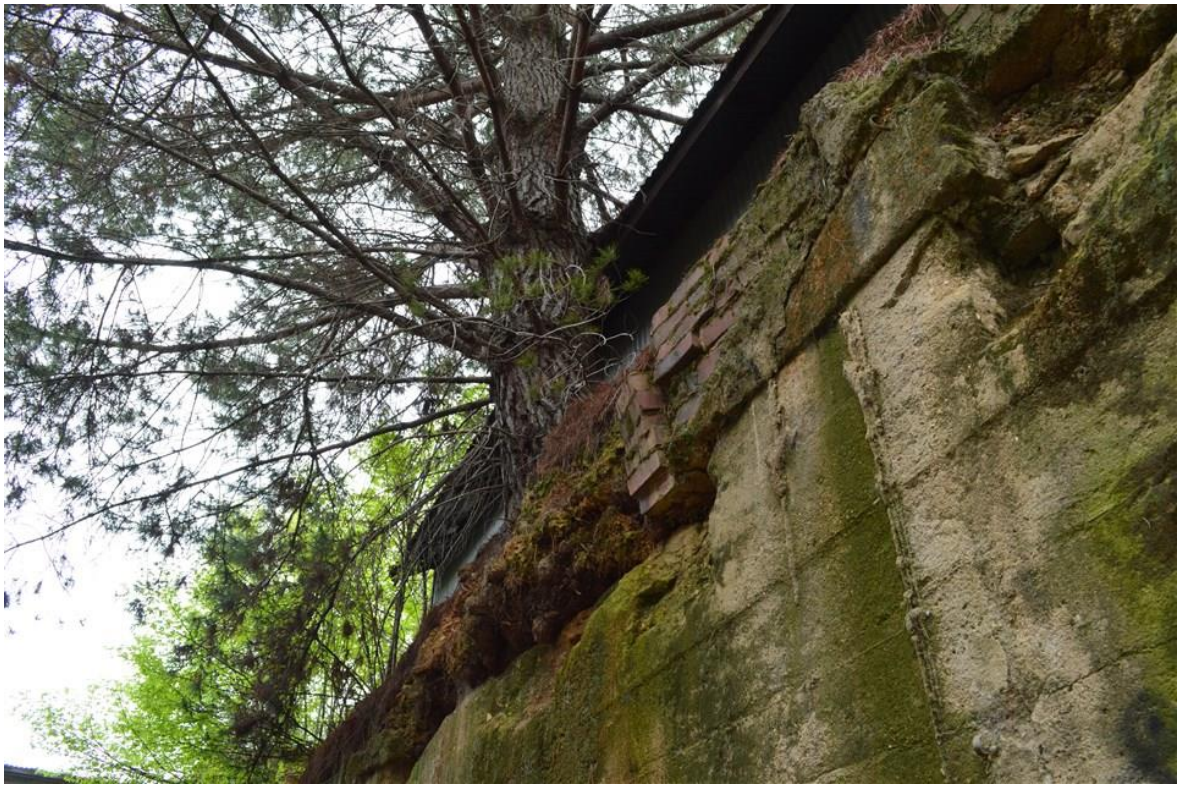


Figure 4 Top of retaining wall showing unstable tree. (Source: GML, 2016)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 5 Concrete top and upper masonry work to the retaining wall partially collapsed. (Source: GML, 2016)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 25—Amenities Block

Name of Element	Amenities Block	**CMP No. | ACT No.**	Element 25 | n/a
Historical Phase	Postwar 1944–1976	**Date**	c1950, c1977
Construction	Brick reinforced concrete, galvanised steel		





Historical Background

The provision of a purpose-built amenities building, consolidating toilet, changing and lunch room facilities, was one of the first actions of the Brickworks administration in the years following World War II. It heralded an era of significant expansion and modernisation and saw the provision of a modern, up-to-date facility that centralised workers' amenities.

The first floor originally accommodated a lunch room with access from a concrete staircase to both the north and south ends of the east (front) elevation. Toilet and changing facilities including showers, a drying room and a locker room were located on the ground floor. The present entrances to the ground floor toilets were originally windows and the ground floor spaces were originally accessed from the stairwells. However, the date of these works has not been established. The building previously had a covered breezeway protecting the entry. A single-storey first aid room was appended to the south end of the building after the A R Marr lease period.

Description and Condition

The Amenities Block is a two-storey building of red face brick, with a gable roof clad in corrugated galvanised steel. There is ramp access to both toilets. The white painted area to the ground floor facade indicates the scale of the breezeway enclosure since removal.

Internally the former locker room, showers and drying room have been reconfigured. A wall has been constructed dividing the ground floor in half on an east–west axis to provide male and female washrooms and toilet facilities. These alterations were undertaken by A R Marr Pty Ltd as part of the conversion of the site to a tourist precinct in the late 1970s. The finishes are typical of the period—ceramic tile, modular basins, laminate partitions and mosaic tiled floors.

The inspection report for the building identified that the brickwork is in a reasonable condition, with the roof sheets, fascia boards and window frames weathered. There are signs of vandalism including graffiti, broken glass, and debris on the floor. As there was restricted access to the interior, from the external inspection the internal structure appears in sound condition.

Significance	Element is not identified to be of heritage significance

The Amenities Block was constructed as part of a major consolidation and expansion of the Brickworks in the 1950s and reflects the need to provide improved facilities for workers on site.

Structural Advice as at 2021	No structural concern—refer to Appendix G for detail.
Conservation Policy and Adaptation Guidelines	Element can be retained or demolished as required

- The Amenities building can be retained or demolished as required. While retention is preferred as part of the larger group of 1950s buildings reflecting the operation of the complex in the post-World War II period, the Amenities Block is an incidental building unrelated to process.
- The building could be adapted internally or demolished and replaced.

Canberra Brickworks: Inventory of Individual Historic Elements

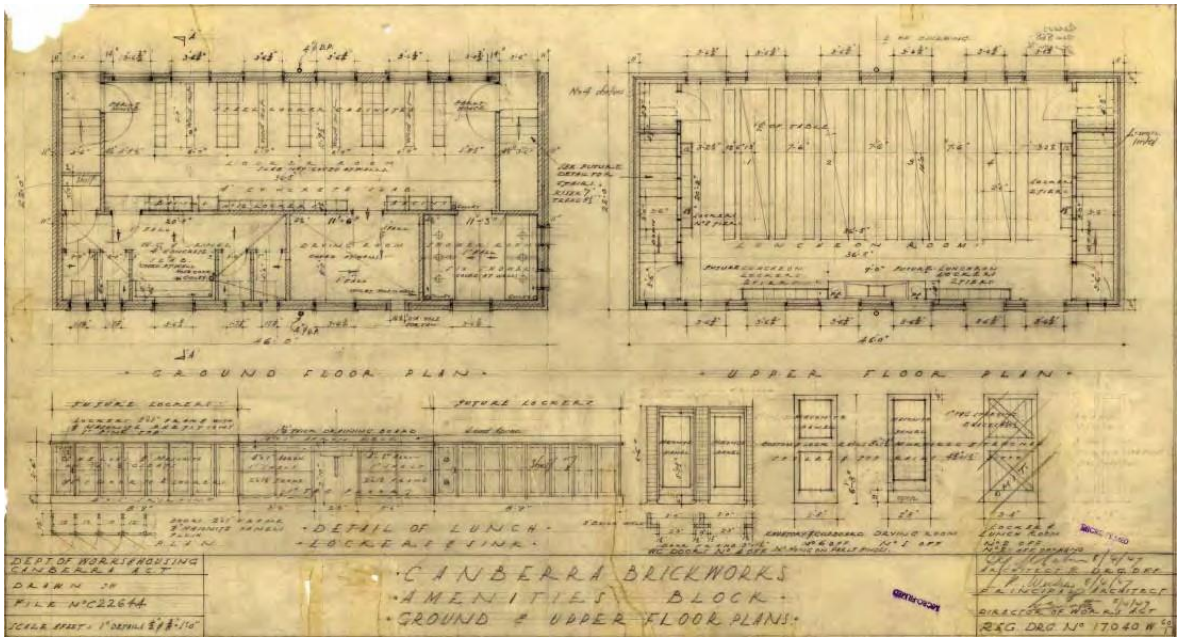


Figure 1 Amenities Block floor plans, 1947. (Source: National Archives of Australia.)



Figure 2 The Amenities Block. The Chimney Stack for the Staffordshire Kiln is visible in the background. (Source: GML, 2017)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 26—Downdraught Kiln Control Room

Name of Element	Downdraught Kiln Control Room	**CMP No. | ACT No.**	Element 26 | n/a
Historical Phase	Postwar 1944–1976	**Date**	c1961
Construction	Brick with corrugated steel roof		





Historical Background

The Control Room was constructed during the early 1960s to coincide with the construction of the three Downdraught Kilns. The windows were timber framed louvres to the south and west elevations, which were broken prior to being boarded over with plywood. The ceiling was originally corrugated asbestos cement sheet but has recently been replaced.

Description and Integrity

The Control Room is constructed of orange and cream brick with a gable roof of corrugated asbestos cement. There is a brick stair with concrete treads to the west elevation leading to the entry in the north elevation.

The inspection report for the structure notes the external brickwork is in a generally reasonable condition. The roof and gable ends have been updated and repainted. The windows and doors have been boarded up and are damaged in places.

Significance	Element is not identified to be of heritage significance

The Control Room to the Downdraught Kilns is an incidental element of neutral significance to the site.

Structural Advice as at 2021	Minor rectification works, but not of structural concern—refer to Appendix G for detail.
Conservation Policy and Adaptation Guidelines	Element can be retained or demolished as required

- The building can be removed or demolished as required.

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 1 The Downdraught Kiln Control Room is the cream brick building adjoining the Power House (Element 14). (Source: Lovell Chen, 2010)



Canberra Brickworks: Inventory of Individual Historic Elements

Figure 2 South elevation of the Control Room. (Source: GML, 2017)



Figure 3 North and partial west facade of the Control Room. (Source: GML, 2017)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 27—Toilet Block

Name of Element	Toilet Block	**CMP No. | ACT No.**	Element 27 | n/a
Historical Phase	Postwar 1944–1976	**Date**	c1960s
Construction	Brick, steel roof decking		





Historical Background

A small brick toilet adjoins the rear of the Office (Element 13) and is located adjacent to the Ancillary Storage Building 2 (Element 33). It is similar in size and materials to the Amenities Block 2 (Element 31), which adjoined the brick extrusion plant at the other side of the Brickworks. It contained a toilet cubicle. Its construction of various coloured brickwork, suggests it was built from materials at hand.

Description and Condition

The toilet is constructed of coloured brickwork and has a skillion roof of metal roof decking. There is a window in the north wall and a boarded-up door to the east elevation.

The building is in poor condition.

Significance	Element is not identified to be of heritage significance

The Toilet Block is one of a series of relatively minor ancillary and service buildings at the Brickworks from the postwar phase. A number of these buildings are typical of the support functions found on any industrial site and do not inform the process or contribute to its significance.

Conservation Policy and Adaptation Guidelines	Element can be retained or demolished as required

- The Toilet Block could be retained or demolished as required.



Figure 1 The toilet block is indicated by the arrow. (Source: Lovell Chen, 2010)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 28—Ancillary Storage Building

Name of Element	Ancillary Storage Building	**CMP No. | ACT No.**	Element 28 | n/a
Historical Phase	Postwar 1944–1976	**Date**	c1971
Construction	Brick, corrugated galvanised steel		





Historical Background

The Ancillary Storage Building is a small structure located on the edge of the brick extrusion plant site to the west of the Brickworks complex. Its construction date is possibly c1971, the time when the extrusion plan was constructed. Its original function is not known. The building has been used by the site tenants as an artist's studio space.

Description and Condition

The building is constructed of tan wire-cut brick with a skillion roof of metal roof decking. Internally, it has a concrete floor, partly brick walls painted white with some areas of painted lining panels, and window openings to both the south and east elevations. There is a doorway in the east elevation. The glazing and window framing as well as the door have been removed. The ceiling is also lined and painted.

The building is vacant and in poor condition.

Significance	Element is not identified to be of heritage significance

The Ancillary Storage Building is one of a group of buildings/elements at the Brickworks associated with the extrusion plant that was constructed c1971 in the postwar phase and has since been demolished. A number of these buildings and remnants are typical of the support functions found on any industrial site and do not inform the process or contribute to its significance.

Structural Advice as at 2021	No structural concerns—refer to Appendix G for detail.
Conservation Policy and Adaptation Guidelines	Element can be retained or demolished as required

- The Ancillary Storage Building could be retained or demolished as required.

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 1 The rear (west) elevation of the Ancillary Storage Building. The Downdraught Kilns storage shed is in the background. (Source: GML, 2017)



Figure 2 South elevation of the Ancillary Storage Building. (Source: GML, 2017)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 29—Substation/Control Room

Name of Element	Substation/Control Room	**CMP No. | ACT No.**	Element 29 | n/a
Historical Phase	Postwar 1944–1976	**Date**	c1971
Construction	Brick, corrugated galvanised steel		





Historical Background

The Substation/Control Building was constructed in 1971, to house the new extrusion brick making plant as well as a series of brick drying kilns. The extrusion plant was connected to the machine shed complex at the east side of the site by an overhead conveyor, which passed between the Staffordshire and Downdraught kilns. In August 1972, the *Canberra Times* reported that the $500,000.00 extrusion machine raised the total production capacity of the Brickworks from around 20 million bricks per year to more than 40 million.

To service the new plant, the Substation/Control Room and adjoining Boiler House were erected. After the closure of the plant, both buildings were refitted to serve as stalls as part of a larger antique market, which operated from the late 1970s to the early 1980s.

Description and Condition

The former Substation/Control Room is located to the north of the Boiler House. It is constructed of brick and has a gabled roof clad in corrugated steel. The gable is infilled with corrugated steel to the front and rear. There is a single door entry in the north elevation and a window, with metal bars fixed to its outside face. The door is a painted timber ledged door set within a timber frame. There is a steel roller door to the east elevation with a crude corrugated steel canopy above supported on timber posts with angled brackets. A verandah extends further south than the extent of the building, almost abutting the verandah of the adjoining Boiler House. This last element is thought to date from the use of the building as an antique stall. A painted timber sign fixed to the building's facade adjoining the louvre window by the roller door reads 'Nicky's Antiques'. A metal cable tray that previously extended from the rear (west) wall into the extrusion plant proper has been crushed against the wall.

Internally, the brickwork is painted and there is a concrete floor and painted concrete ceiling. The space is largely stripped out.

The building is in a reasonable condition. It has been impacted by minor vandalism, including broken windows, graffiti and smoke damage. The corrugated galvanised steel roofing appears recent and is in very good condition. The verandah and sign date from the post-closure phase and are related to its subsequent use as an antique stall.

Significance	Element is not identified to be of heritage significance

The Substation/Control Room is one of a group of buildings/elements at the Brickworks associated with the extrusion plant that was constructed c1971 in the postwar phase and has since been demolished. A number of these buildings and remnants are typical of the support functions found on any industrial site and do not inform the process or contribute to its significance.

Conservation Policy and Adaptation Guidelines	Element can be retained or demolished as required

- The Substation/Control Room could be retained or demolished, as required.

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 1 Front of Substation/Control Room with the Boiler House (Element 30) to the left. (Source; GML, 2017)



Figure 2 The Substation/Control Room (left) and Boiler House photographed from the location of the former extrusion plant. (Source: Lovell Chen, 2010)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 30—Boiler House

Name of Element	Boiler House	**CMP No. | ACT No.**	Element 30 | n/a
Historical Phase	Postwar 1944–1976	**Date**	c1971
Construction	Brick, corrugated galvanised steel		





Historical Background

The Boiler House was constructed in 1971 to house the extrusion brick making plant as well as a series of brick drying kilns. The extrusion plant was connected to the machine shed complex at the east side of the site by an overhead conveyor which passed between the Staffordshire and Downdraught kilns. In August 1972, the *Canberra Times* reported that the $500,000.00 extrusion machine raised the total production capacity of the Brickworks from around 20 million bricks per year to more than 40 million.

To service the new plant, the Boiler House and adjoining Substation/Control Room were erected. After the closure of the plant, both buildings were refitted to serve as stalls as part of a larger antique market, which operated from the late 1970s to the early 1980s.

Description and Condition

The Boiler House is a double-height structure constructed of brick with a gabled roof clad in corrugated steel. The gable is infilled with corrugated steel to both the front and rear. Access is through a steel roller door. There is a crude corrugated steel canopy above the roller door entry in the east elevation, supported on timber posts. This last element is thought to date from the use of the building as an antique stall. There is a crudely laid brick and concrete paver apron to the entry.

Internally, the brickwork is painted and there is a concrete floor and painted ceiling lining boards with a narrow bead. There are two fixed pane windows to the east and west walls, approximately 2.5 metres above the internal floor level. No machinery or equipment relating to its original use remains.

The building is in good condition apart from the impacts of minor vandalism, including the broken windows.

The verandah is thought to date from the post-closure phase and related to its subsequent use as an antique stall.

Significance	Element is not identified to be of heritage significance

The Boiler House is one of a group of buildings/elements at the Brickworks associated with the extrusion plant that was constructed c1971 in the postwar phase and has since been demolished. A number of these buildings and remnants are typical of the support functions found on any industrial site and do not inform the process or contribute to its significance.

Conservation Policy and Adaptation Guidelines	Element can be retained or demolished as required

- The Boiler House could be retained or demolished, as required.

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 1 Former boiler house building showing east entry and later verandah addition. (Source: Lovell Chen, 2010)



Figure 2 The Boiler House (right) and Substation/Control Room photographed from the site of the former extrusion plant. (Source: Lovell Chen, 2010)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 3 Detail of entry through sliding door at east elevation. (Source: GML, 2017)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 31—Amenities Block 2

Name of Element	Amenities Block 2	**CMP No. | ACT No.**	Element 31 | n/a
Historical Phase	Postwar 1944–1976	**Date**	c1960s
Construction	Brick, metal roof decking		





Historical Background

This small brick Amenities Block 2 is located to the eastern edge of the brick extrusion plant (Element 32). It adjoins and predates a small tan brick Ancillary Storage building (Element 28). It is similar in size and is constructed of similar materials to the storage shed (Element 34) on the southern edge of the quarry, behind the White Pan Room and Toilet Block (Element 27). It contained a toilet cubicle and shower recess and may also have functioned as a laundry post-closure of the Brickworks.

Its construction of vari-coloured brickwork suggests it was built from materials at hand.

Description and Condition

Amenities Block 2 is of vari-coloured brickwork and has a skillion roof of metal roof decking. Internally, it has a concrete floor and there are window openings to the north, east and south. Entry is from the south. The interior has been heavily vandalised with all fittings and finishes in poor condition.

Significance	Element is not identified to be of heritage significance

Amenities Block 2 is one of a series of relatively minor ancillary and service buildings at the Brickworks from the postwar phase. A number of these buildings are typical of the support functions found on any industrial site and do not inform the process or contribute to its significance.

Structural Advice as at 2021	No structural concerns—refer to Appendix G for detail.
Conservation Policy and Adaptation Guidelines	Element can be retained or demolished as required

- Amenities Block 2 could be retained or demolished as required.

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 1 East and north elevation of the Amenities Block. (Source: GML, 2017)



Figure 2 Amenities Block 2 to the left with the Downdraught Kilns opposite and the Staffordshire Kiln and Hardy Patent Kiln 1 in the background. (Source: GML, 2017)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 32—Brick Extrusion Plant

Name of Element	Brick Extrusion Plant (Remnant Slab for Brick)	**CMP No. | ACT No.**	Element 32 | n/a
Historical Phase	Postwar 1944–1976	**Date**	c1971
Construction	Concrete slab		





Historical Background

An extrusion brick making plant was constructed in 1971, as well as a series of brick drying kilns. The brick extrusion plant was connected to the machine shed complex at the east side of the site by an overhead conveyor, which passed between the Staffordshire and Downdraught kilns. This is shown in an aerial photograph of the Brickworks site taken in May 1976 (see to Figure 1). The *Canberra Times* reported in August 1972 that the $500,000 extrusion machine raised the total production capacity of the plant from approximately 20 million bricks per year to over 40 million per year.

After the closure of the Brickworks, the shed building that enclosed the drying kilns and brick making machinery was relocated to the Canberra Showgrounds and the conveyor was dismantled. The drying kilns have also been demolished. The slab is now used as a timber store.

Description and Condition

The brick extrusion plant has been demolished, and the slab for the brick extrusion plant and only the slab remains. . The Substation/Control Room and Boiler House adjacent to the element were constructed to service the extrusion plant.

The concrete slab is in poor condition.

Significance	Element is not identified to be of heritage significance

The slab for the brick extrusion plant is one of a group of buildings/elements at the Brickworks associated with the extrusion plant, which was constructed c1971 in the postwar phase and has since been demolished. A number of these buildings and remnants are typical of the support functions found on any industrial site and do not inform the process or contribute to its significance.

Conservation Policy and Adaptation Guidelines	Element can be retained or demolished as required

- The concrete slab could be retained or demolished as required.

Canberra Brickworks: Inventory of Individual Historic Elements

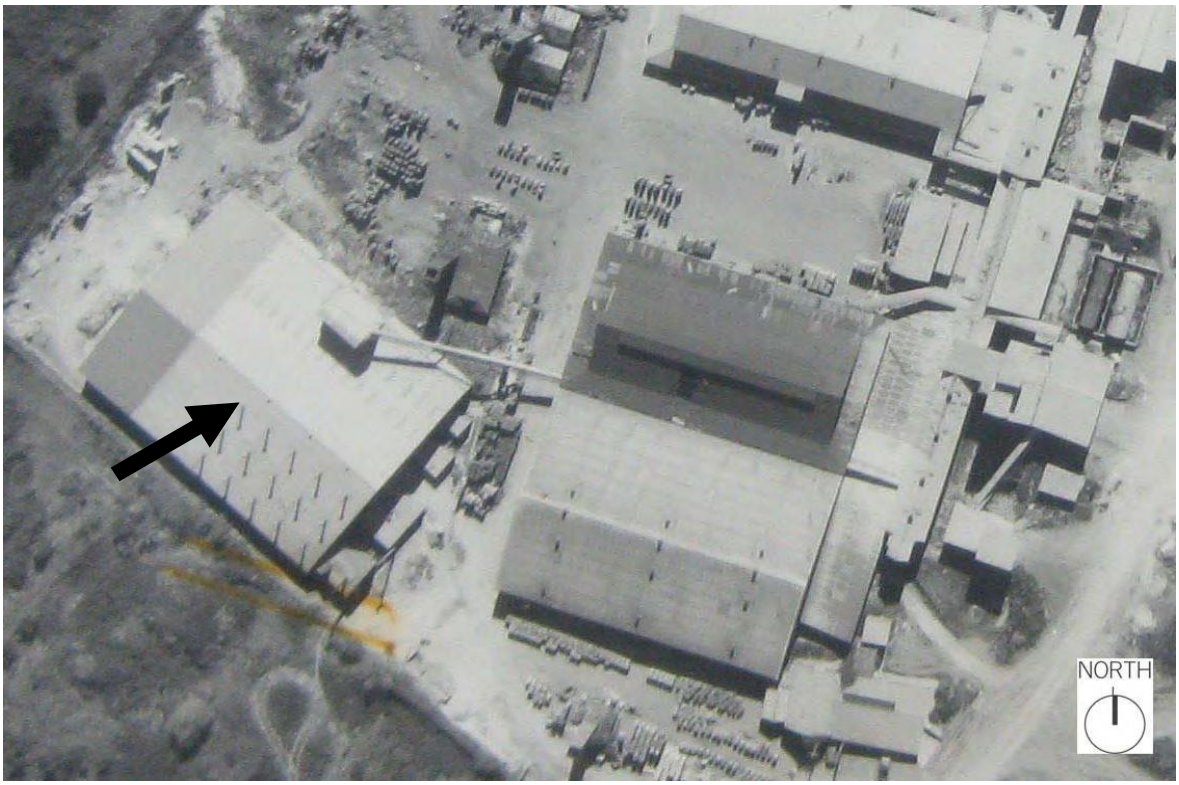


Figure 1 Detail of a 1976 aerial photograph showing the extrusion plant and overhead conveyor (indicated). (Source: ACT Heritage Library)



Figure 2 Site of the Brick Extrusion Plant, looking northeast. (Source: Lovell Chen, 2010)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 33—Ancillary Storage Building 2

Name of Element	Ancillary Storage Building 2	**CMP No. | ACT No.**	Element 33 | n/a
Historical Phase	Postwar 1944–1976	**Date**	c1960s
Construction	Brick, corrugated galvanised steel		





Historical Background

Ancillary Storage Building 2 is a small brick storage building, which abuts the Toilet Block (Element 27) behind the Office (Element 13). It has been constructed of similar materials to the storage shed that adjoins the Larger Crusher House/White Pan Room, further to the north. It appears to have been built as a store related to the nearby office building.

Description and Condition

The building is of orange face brick with a timber framed door and window to the south elevation. It has a skillion roof of metal roof decking. The interior walls are lined and part- fitted with shelving unit brackets.

The building is unsecured, impacted by vandalism and in poor condition.

Significance	Element is not identified to be of heritage significance

Ancillary Storage Building 2 is one of a series of relatively minor ancillary and service building at the Brickworks from the postwar phase. A number of these buildings are typical of the support functions found on any industrial site and do not inform the process or contribute to its significance.

Conservation Policy and Adaptation Guidelines	Element can be retained or demolished as required

- Ancillary Storage Building 2 could be retained or demolished as required.

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 1 Ancillary Storage Building 2 is sited behind the Office (Element 13). (Source: Lovell Chen, 2010)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 34—Storage Shed

Name of Element	Storage Shed	**CMP No. | ACT No.**	Element 34 | n/a
Historical Phase	Postwar 1944–1976	**Date**	c1960s
Construction	Brick, corrugated galvanised steel		





Historical Background

The Storage Shed is a small brick building located on the southern edge of the quarry, behind the Large Crusher House/White Pan Room. It is similar in size and uses similar materials to the Toilet Block (Element 27) and Ancillary Storage Building 2 (Element 33) behind the Offices, and Amenities Block 2 (Element 31) adjacent the brick extrusion plant. The original function of the shed is not known. Its construction of vari-coloured brickwork suggests it was built from materials at hand, as needs dictated.

Description and Condition

The shed is of vari-coloured brickwork and has a skillion roof of metal roof decking. Internally, it has a concrete floor and the timber door to the large opening at its north elevation is stored within the building. The walls are not lined, and the reflective insulation has been damaged by vandals. The shed is vacant and in reasonable condition.

Significance	Element is not identified to be of heritage significance

The Storage Shed is one of a series of relatively minor ancillary and service buildings at the Brickworks from the postwar phase. A number of these buildings are typical of the support functions found on any industrial site and do not inform the process or contribute to its significance.

Conservation Policy and Adaptation Guidelines	Element can be retained or demolished as required

- The Storage Shed could be retained or demolished, as required.

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 1 The storage shed. (Source: Lovell Chen, 2010)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 35—Model Railway Workshop

Name of Element	Model Railway Workshop	**CMP No. | ACT No.**	Element 35 | n/a
Historical Phase	Post-closure 1976–2017	**Date**	c1979
Construction	Brick, corrugated galvanised steel		





Historical Background

Similar to the Model Railway Storage Shed, the Model Railway Workshop was constructed in 1979, utilising the brick walls of a former oil storage facility/coal storage bay associated with the Brickworks (see Figure 1). The workshop relates to the post-closure phase and housed an engine and carriages for a narrow-gauge railway, established as part of A R Marr Pty Ltd's operation at the site. A 1970s site plan showing works relating to the proposed re-use of the site outlines the sites of both model railway buildings and annotates the drawing 'replace demolished buildings'.

Description and Condition

Located to the west of the quarry, the shed is a steel framed skillion-roofed structure clad in corrugated galvanised steel. To the west, north and south the building incorporates the brick walls of a former fuel storage facility or coal bay. The structure abuts a deep excavated pit to its west, and the brick wall to the north and west is atop the concrete retaining wall. It has a row of louvred windows running along the northern wall looking out onto the quarry. There is a roller door entry and a single door entry to the south elevation.

Internally the corrugated galvanised steel walls are lined, with much of the lining panels damaged. The brick is not lined. The floor is of concrete and the roof is not lined. The louvred glazing has been broken/removed.

Significance	Element is not identified to be of heritage significance

The Model Railway Workshop is one of two buildings constructed following the closure of the Brickworks. It does not inform the process of the site or contribute to its significance.

Structural Advice as at 2021	No structural concern. Rectification may be required as part of the construction works—refer to Appendix G for detail.

Conservation Policy and Adaptation Guidelines	Element can be retained or demolished as required

- The Model Railway Workshop could be retained or demolished as required.

Canberra Brickworks: Inventory of Individual Historic Elements

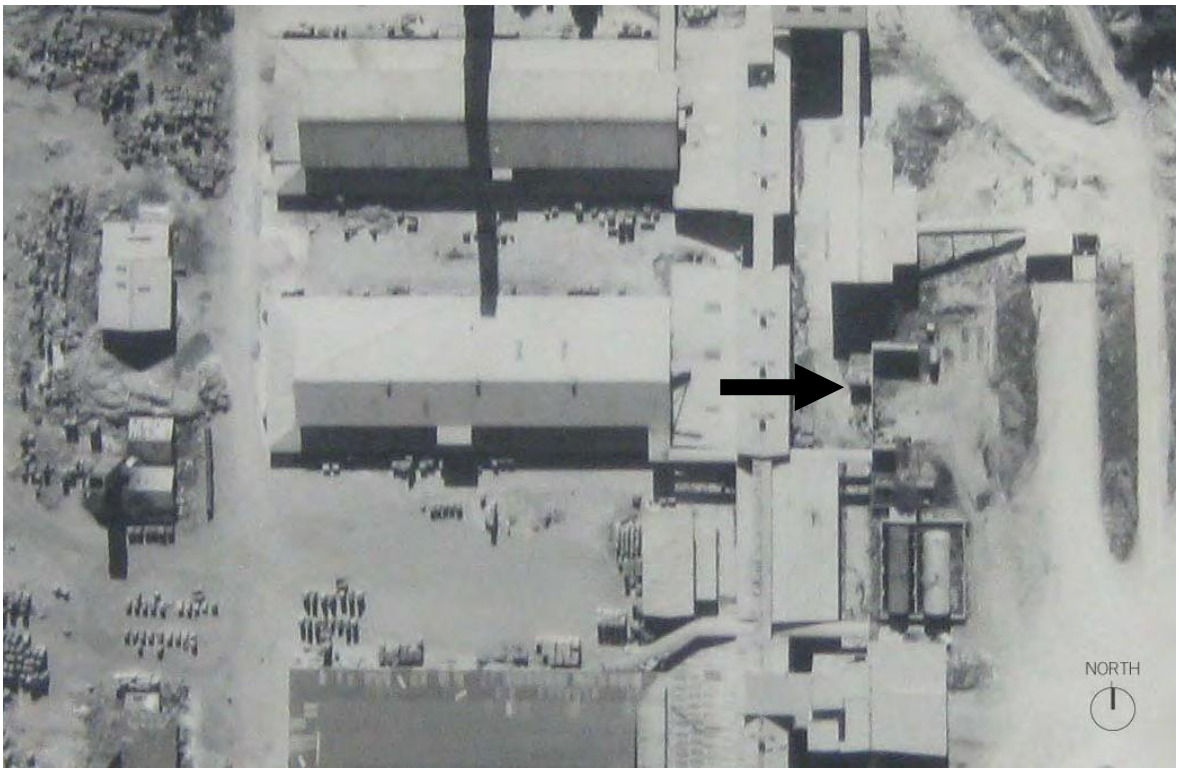


Figure 1 Detail of a 1976 aerial photograph, with the brick component of the Model Railway Workshop—at that time a storage bunker—indicated. (Source: ACT Heritage Library)



Figure 2 Exterior of the Model Railway Workshop showing the south and east elevations. The brick wall is an earlier element incorporated into the workshop building. (Source: Lovell Chen, 2010)

Canberra Brickworks: Inventory of Individual Historic Elements

Element 36—Model Railway Storage Shed

Name of Element	Model Railway Storage Shed	**CMP No. | ACT No.**	Element 36 | n/a
Historical Phase	Post-closure 1976–2017	**Date**	c1979
Construction	Corrugated galvanised steel on brick plinth		





Historical Background

The Model Railway Storage Shed was constructed in 1979 utilising the brick footings and dwarf walls of a former oil storage facility/coal storage bay, associated with the Brickworks, and shown on the 1976 aerial photograph (see Figure 1). It housed an engine and carriages for a narrow-gauge railway, which formed part of A R Marr Pty Ltd's operation of the site. A 1970s site plan showing works relating to the proposed re-use of the site outlines the sites of both model railway buildings and annotates the drawing 'replace demolished buildings'.

Description and Condition

The Model Railway Storage Shed is of steel frame construction over an earlier brick base and is similar in scale to a domestic garage with corrugated galvanised steel cladding on the walls and roof. It has a tilt-up metal garage door and is presently used for timber storage. It is in reasonable condition.

Significance	Element is not identified to be of heritage significance

The Model Railway Storage Shed is one of two minor buildings constructed following the closure of the Brickworks. It does not inform the process of the site or contribute to its significance.

Structural Advice as at 2021	No structural concern to the building, although the embankment should be stabilised. Rectification may be required as part of the construction works—refer to Appendix G for detail.

Conservation Policy and Adaptation Guidelines	Element can be retained or demolished as required

- The Model Railway Storage Shed could be retained or demolished as required.

Canberra Brickworks: Inventory of Individual Historic Elements

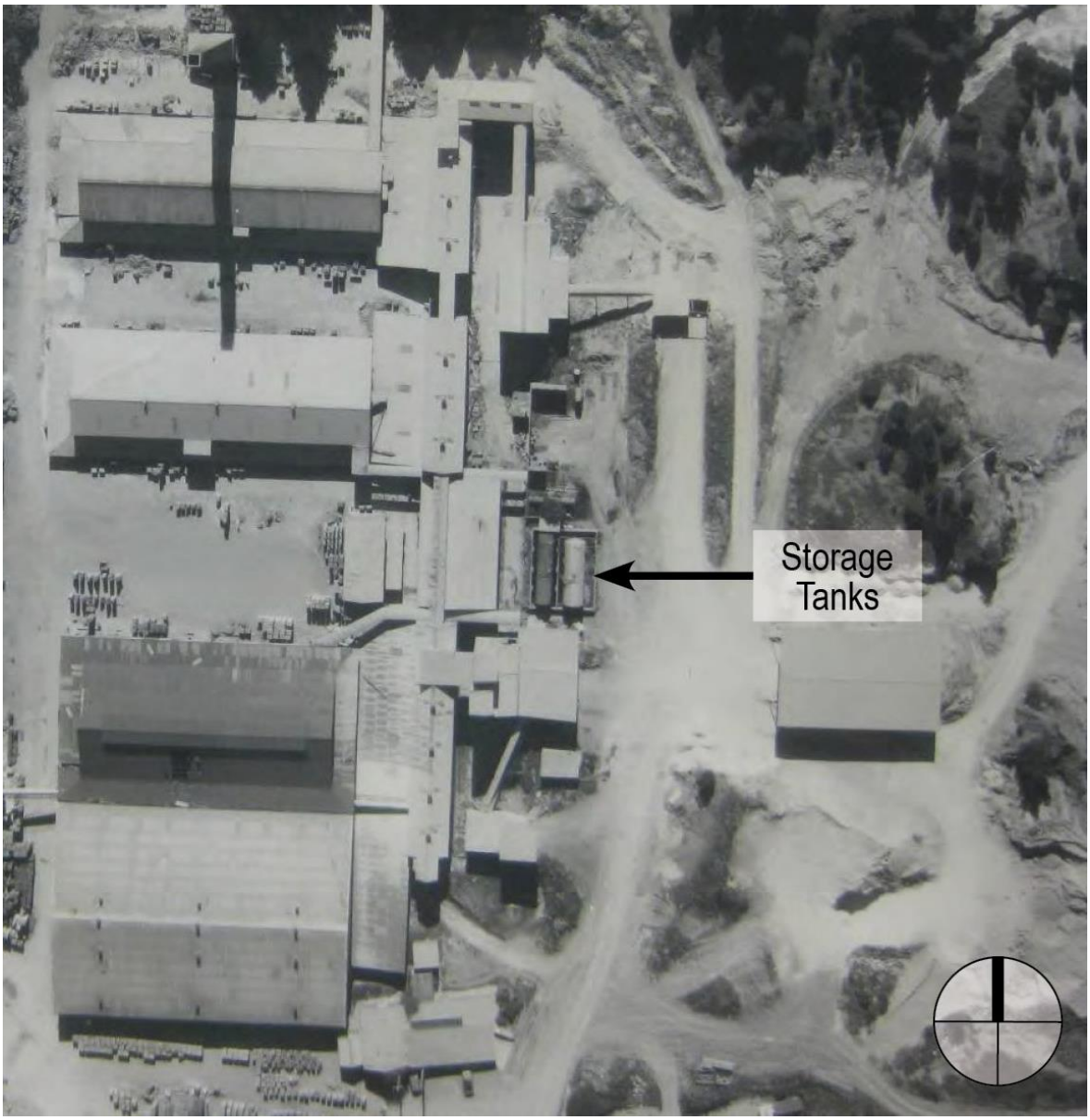


Figure 1 Detail of a 1976 aerial photograph, with the site of Element 36—at that time an oil storage facility—indicated. (Source: ACT Heritage Library, Woden, ACT, with GML additions)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 2 Exterior, showing the east and north elevations. (Source: Lovell Chen, 2010)

Canberra Brickworks: Inventory of Individual Historic Elements

Elements 37 and 38—Brickyards

Name of Element	Brickyard	**CMP No. | ACT No.**	Element 37 and Element 38 | n/a
Historical Phase	Establishment 1911–1920	**Date**	c1915, c1926
Construction	Concrete slab base		





Historical Background

The brickyard area forms part of the original core of the Brickworks, from the early establishment of the site. The space was 'enclosed' following the construction of the Hardy Patent Kiln 1 in 1926 to the north of the Staffordshire Kiln. Originally the ground surface was unfinished, and later laid with concrete slabs. The area has been used for open-air storage.

Description and Condition

The brickyard area is the open space between the Staffordshire Kiln and Hardy Patent Kiln 1, extending west to the fan houses and chimneys and east to the Amenities Block. The ground between the kilns is covered with concrete slabs, with deep concrete drainage pits in front of both buildings. A gravel roadway separates the kilns and fan houses.

The brickyard is in reasonable condition. Grass is growing in some gaps between the concrete slabs, and cracks are evident.

Significance	Element is not identified to be of heritage significance

The open yard area between the two earliest kilns historically was the early brickyard and was a key space within the complex. It demonstrates key aspects of the layout of the site and its operation.

Conservation Policy and Adaptation Guidelines	Element can be retained or demolished as required

- The brickyard should be retained and conserved, as a landscape element with an associated historic function of the Brickworks.
- New development within the historic core area of the Brickworks should be managed in a way that retains an understanding of the historic function of the yard.
- Any change to the area should be of a nature that relates to the industrial character of the surrounding built forms and the site. They should consider the surrounding elements in their massing, scale and form and respect the orthogonal layout of the existing built elements, and follow the same arrangement.
- Some repairs/replacement of surface to remove trip hazards should be undertaken. .Avoid impacts on the underground flue systems and connections between the kilns and fan houses, if services and earthworks beneath the slab are required.
- Assess all proposed actions, including conservation works or adaptation, for potential adverse impacts on the heritage significance, through the preparation of a Statement of Heritage Effects (SHE) in accordance with the ACT guidelines and in reference to the sensitivity zoning outlined in the historic archaeological analysis of the site provided at Section 3.5 of this CMP.

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 1 Staffordshire Kiln (Element 1), showing ground surface and open area of the original brickyard c1928. (Source: NAA A3560 BC 3149348)



Figure 2 View toward the Staffordshire Kiln over the original brickyard in 1926, prior to the completion of Hardy Patent Kiln 1. (Source: NAA A3560 BC 3130625)

Canberra Brickworks: Inventory of Individual Historic Elements



Figure 3 View toward the Staffordshire Kiln over the original brickyard in 1929. (Source: NAA A3560 BC 3174823)



Figure 4 Original brickyard in 1927. (Source: NAA A3560 CS2696)

Appendix B

ACT Heritage Register Listings for ‘Yarralumla Brickworks’ and the ‘Yarralumla Brickworks Railway Remnants’

ACT Heritage Council

Entry to the ACT Heritage Register

Heritage Act 2004

20068. Yarralumla Brickworks

Section 102 Block 1

YARRALUMLA

This document has been prepared by the ACT Heritage Council.

This entry which was previously part of the old heritage places or the old heritage objects registers (as defined in the ***Heritage Act 2004***), as the case may be, is taken to be registered under the ***Heritage Act 2004***.

Conservation Requirements (including Specific Requirements), as defined under the ***Heritage Act 2004,*** that are contained within this document are taken to be Heritage Guidelines applying to this place or object, as the case may be.

Information restricted under ***the old heritage places register or old heritage objects register*** is restricted under the ***Heritage Act 2004***.

Contact: ***ACT Heritage Council*** ***c/o Secretary*** ***PO Box 144*** ***Lyneham ACT 2602***
Enquiries: ***phone 02 6207 2164*** ***fax 02 6207 5715*** ***e-mail heritage@act.gov.au***

68. Yarralumla Brickworks, Yarralumla [V118][1]

Location

District of Canberra Central, Division of Yarralumla, Section 102 Block 1 as identified in Figure 68 and indicated on the Territory Plan Map by the Heritage Places Register Overlay H68.

Features Intrinsic To The Heritage Significance Of The Place
The place comprises the elements listed in Schedule 1 (rated as possessing exceptional significance) and Schedule 2 (rated as possessing considerable significance), as identified in Figure 68a.

Schedule 1 Elements Of Exceptional Significance

1) Kiln - Staffordshire (1915)
2) Fan House for Staffordshire Kiln (1915)
3) Kiln - Hardy-Patent (1927)
4) Fan House for Hardy Patent Kiln (1953)
5) Kiln - Hardy-Patent (1953)
6) Kilns - Downdraft a, b, c (1963)
7) Chimney Stacks for Staffordshire Kiln (1915)
8) Chimney Stack for Hardy Patent Kiln (1927)
9) Chimney Stack for Hardy Patent Kiln (1953)
10) Chimney Stack for Downdraft Kiln (1963)
11) Quarry
12) Geological features A, B, C, D

Schedule 2 Elements Of Moderate Significance

13) Office (1916)
14) Power House (1915)
15) Machine Bay for Staffordshire and Downdraft Kilns (1955)
16) Machine Bay for Hardy-Patent (1955)
17) Machine Bay for Hardy-Patent (1955)
18) Workshop (1955)
19) Large Crusher House (1955)
20) Primary Crusher House (1955)
21) Small Crusher House
22) Elevator Conveyor (1955)
23) Remains of the Brickworks Accommodation Village

Statement Of Significance

Operational from 1913 to 1976, the Yarralumla Brickworks is of historical value as the first industrial manufacturing facility within the ACT, and for its integral role in providing the base material used in the construction of the early buildings in the National Capital.

The Yarralumla Brickworks is a relatively intact representative example of large urban brickworks from the early 20th Century, a type that is becoming increasingly rare nationally and internationally. The Brickworks comprise a cultural landscape where the remaining buildings, structures, equipment and landscape features have the ability to demonstrate the evolution of a range of industrial processes associated with brick and clay production-over a 60 year period.

The Yarralumla Brickworks is of considerable technical value from the presence in the one location of a number of different kiln types: Staffordshire (1915), Hardy-Patent (1927) and Downdraft (1953) kilns, which demonstrate an unusually wide range of firing processes. The Staffordshire kiln is especially significant as the only surviving example of this kiln type in Australia. The Staffordshire kiln variation to the Hoffman design of kiln allowed bricks, tiles and pipes to be fired in cycles and utilises an unusual fan-forced draft system to aid firing.

[1] [V118: Added to Heritage Places Register Number 68 10/05/2001 (Variation Number 118)]

The largest chimney stack (element 9) is of aesthetic and social value as a prominent landmark in the central urban area, visible from the Lake Burley Griffin foreshores, New Parliament House and mountain lookouts around the City. Additional aesthetic value is associated with the composition and sculptural forms of the built elements, specifically the kilns, stacks and larger elements of equipment.

The Yarralumla Brickworks is one of a broad thematic group of remnant industrial and engineering heritage places that were built to facilitate the initial development of Canberra including the Cotter Dam and Pumping Station and the Kingston Power House.

The brickpits have historical value as a primary source of clay and are also of considerable geological value as the type locality for the 'Yarralumla Formation', dating from the Silurian Period 425 million years ago. The scheduled stratigraphic rock units constitute the reference section against which all other outcrops within the Formation are compared. It is the only fossil marine unit within the extensive volcanic marker horizons of South Canberra. Sites A and D show excellent examples of an anticline in calcareous siltstone, Site B shows a typical tuffaceous mudstone and siltstone of the Yarralumla Formation and Site C shows abundant fossils of mainly gracitiopods, trilobites, coral and a simple crinoid preserved in a bedding plane.

Specific Requirements

In accordance with s54 (1) of the *Land (Planning and Environment) Act 1991* the following requirements are identified as essential to the conservation of the heritage significance of the place. These requirements are prepared to implement the following conservation policy for the place:

The identified heritage values and intrinsic features of the place shall be conserved whilst allowing for the integrated and sympathetic redevelopment of the place as a single entity, consistent with contemporary practices for the adaptive reuse of industrial and commercial heritage places. In conserving and developing the place, its significant historical use as an industrial site for the production of bricks and clay products shall continue to be evident and accessible to the public.

Redevelopment of all or part of the place shall be in accordance with a Conservation and Management Plan endorsed by the ACT Heritage Council.

i) Landscape Setting

a) The quarry landform (11) should be retained in a manner whereby it is clearly evident to be a man made excavation, associated with the industrial use of the site. Subject to the recommendations of the Conservation and Management Plan, revegetation, enhanced hard and soft landscaping and low-medium height buildings with a high proportion of landscape open space may be permitted in the vicinity of the quarry, including on land overlooking the quarry and within the quarry excavation. The shape of the quarry may be altered in a minor manner, however access points into and out of the quarry area should utilise existing openings and gradients within the landform. The historical linkage between the quarry and kiln areas shall be expressed in any new development.

b) The geological features (12 A-D) shall be integrated within any site landscaping treatment. Disturbance of the immediate surface shall be limited to works that protect, stabilise or enhance the interpretation of the geological values. The immediate environs of the geological features to a distance of approximately 10 metres shall be retained as landscape open space.

c) To reflect historical usage patterns at the site and protect the setting of significant elements, the immediate environs of the kilns (1, 3, 5, 6) as identified below shall be retained as landscape open space, clear of any major structures. Minor structures and landscaping treatments that retain the kilns, stacks and fan houses as the dominant visual elements to the space may be permitted within:

- The open concourse running north-south from the Hardy Patent Kiln (Element 5) to the Downdraft Kilns (6a-c), between the kilns and fan houses (2, 4),
- The spaces between the kilns: (5-3, 3-1, 1-6)
- The immediate environs of the chimney stacks (7, 8, 9, 10), fan houses (2, 4) and primary crusher house and elevator conveyor (20, 22) to a distance of generally 10m.

d) New hard and soft landscaping treatment should generally express the historical spatial relationships and movement patterns of brick making operations about the site.

ii) Built Structures - including alterations and additions

a) The existing large chimney stack (9) shall be conserved and maintained in its current form as a prominent urban landmark.
b) The external form, including the arrangement of openings and detailing that reflects the industrial use of the built elements in Schedule 1 (1-10) and the Primary Crusher House (Schedule 2: 20) shall be retained.
c) Minor external alterations and additions and major internal alterations to the built elements in Schedule 1 may be permitted to suit a new use where the proposed works will not adversely affect the heritage significance of the elements or the place as a whole.
d) Alterations and additions to the original built fabric of elements in Schedule 1, including alterations to external finishes, shall complement the historical industrial use and architectural style of the place.
e) Subject to the recommendations of the Conservation and Management Plan, the elements in Schedule 2 may be conserved to interpret the historical use of the place or adapted to suit a new use for the place.
f) Elements in Schedule 2 that no longer include substantial evidence to describe industrial processes (15, 16, 17, 18, 19 and 21) may be replaced with new development that is generally consistent with the scale, form, external materials and industrial character of the place. The Office, the Powerhouse, Primary Crusher House and the Elevator Conveyor (13, 14, 20 and 22) may be relocated elsewhere within the place, subject to the relocation process being fully documented and full reconstruction of the buildings taking place within a specified period. Development may occur on the site of the remains of the Brickworks Accommodation Village (23), subject to detailed recording and suitable interpretation of the historical significance of the site.
g) Construction of new buildings or elements in the place may be permitted if any new building(s) or element(s) do not significantly diminish the heritage value of the place. The scale, form, detailing and external materials of any new buildings or structures shall be consistent with the architectural style and industrial character of the built elements in Schedule 1.

iii) Industrial Equipment

a) Major equipment and machinery associated with the historical industrial use of the place shall be retained and conserved in situ. Minor equipment should be retained and conserved but may be relocated to a new location within the site for interpretative purposes and/or its own protection.
b) The Primary Crusher House (20), including the integral equipment and machinery, and the Elevator Conveyor (22) shall be conserved for their ability to demonstrate and interpret industrial processes and secondary aesthetic values.

iv) Demolition

a) Subject to (iv)(b) (c) and (d) demolition of elements listed in Schedule 1 and 2 shall not be permitted, other than in exceptional circumstances, including circumstances in which the building or structure is structurally unsound and beyond economic repair or where there are significant public health and safety reasons to warrant demolition. Demolition shall not be permitted unless it can be demonstrated that there is no prudent and feasible alternative.
b) The demolition of the original internal fabric of buildings within Schedule 1 shall only be permitted in the context of sympathetic alteration and additions, as identified within the Conservation and Management Plan.
c) Elements in Schedule 2 may be demolished only to allow for new development in accordance with the Conservation and Management Plan and specific requirements (ii) (e) and (f).
d) Comprehensive recording of a building or structure shall be undertaken prior to any demolition or removal of fabric.

Figure 68: Yarralumla Brickworks, Yarralumla: Location

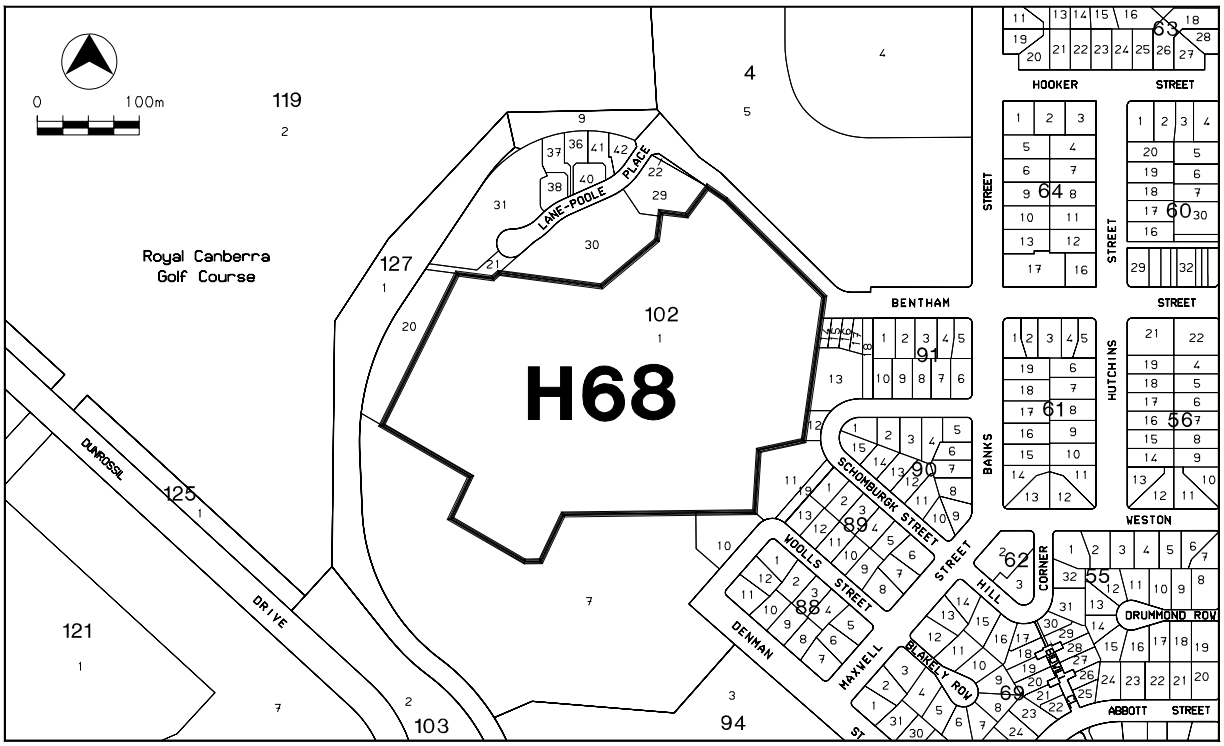
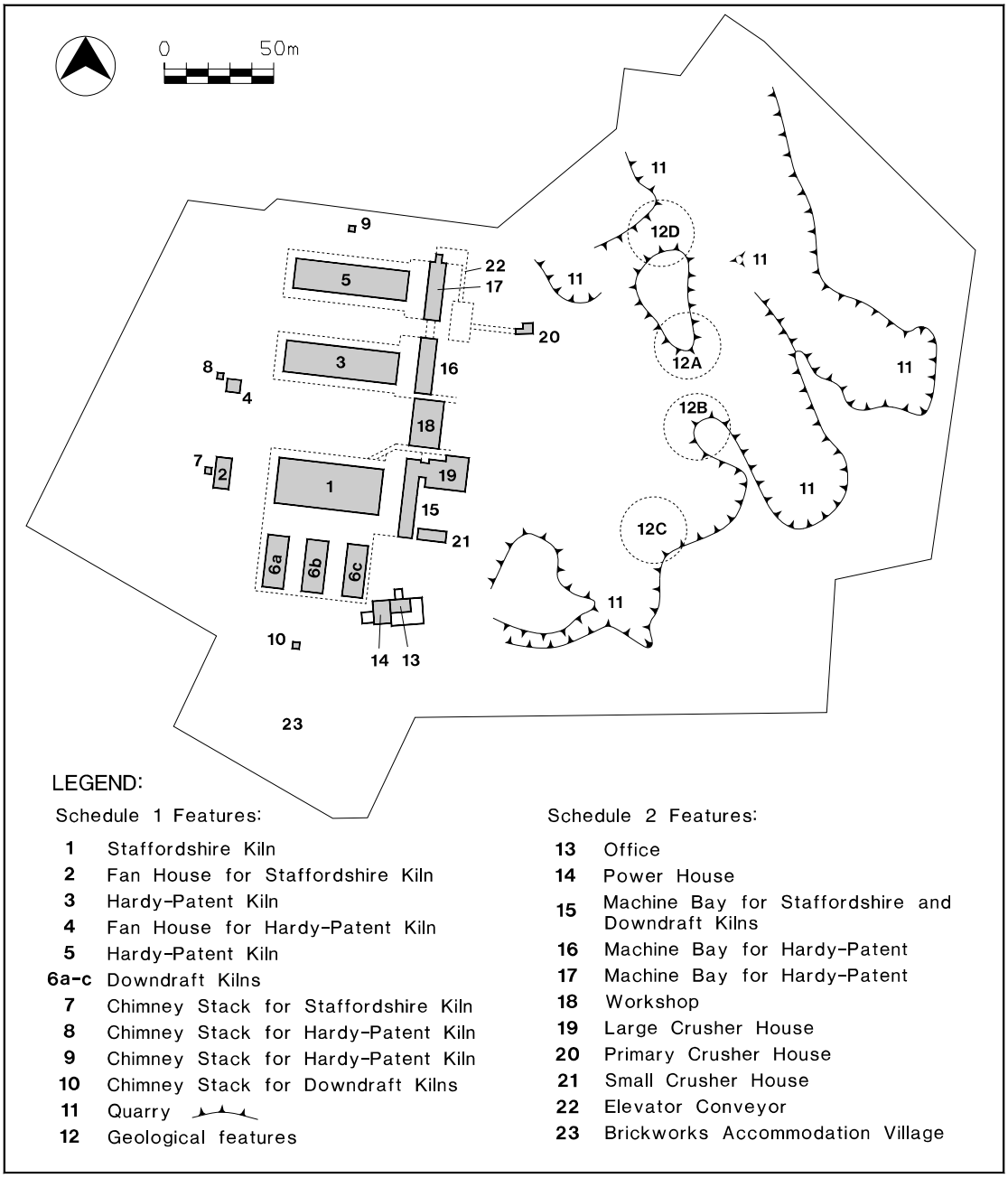


Figure 68a: Yarralumla Brickworks, Yarralumla: Significant Features



Australian Capital Territory

Heritage (Decision about Registration of Yarralumla Brickworks Railway Remnants) Notice 2013 (No 2)*

Notifiable Instrument NI2013–507

made under the

Heritage Act 2004, section 42 Notice of decision about registration

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1 Revocation

This instrument revokes the *Heritage (Decision about Registration of Yarralumla Brickworks Railway Remnants) Notice 2013*, NI 2013-38.

2 Name of instrument

This instrument is the *Heritage (Decision about Registration of Yarralumla Brickworks Railway Remnants) Notice 2013 (No 2).*

3 Registration details of the place

Registration details of the place are at Attachment A: Register entry for Yarralumla Brickworks Railway Remnants.

4 Reasons for decision

On 24 January 2013, the ACT Heritage Council (the **Council**) decided to register the Yarralumla Brickworks Railway Remnants (the **Decision**), see NI 2013-38.

On 5 March 2013, the Land Development Agency made an application to the ACT Civil and Administrative Tribunal (the **Tribunal**) seeking a review of the **Decision**.

On 10 September 2013, the Tribunal made orders by consent to vary the Decision.

On 7 November 2013 the Council prepared a register entry for the Remnants to accord with the Tribunal orders. The register entry is at Attachment A.

5 Date of registration

7 November 2013

Jennifer O'Connell
A/g Secretary (as delegate for)
ACT Heritage Council
8 November 2013

*Name amended under Legislation Act, s 60

Authorised by the ACT Parliamentary Counsel—also accessible at www.legislation.act.gov.au

ACT Heritage Council

AUSTRALIAN CAPITAL TERRITORY

HERITAGE REGISTER
(Registration Details)

For the purposes of s. 41 of the *Heritage Act 2004*, an entry to the heritage register has been prepared by the ACT Heritage Council for the following place:

Yarralumla Brickworks Railway Remnants

Part Block 7 Section 102 Yarralumla, Canberra Central

DATE OF REGISTRATION

7 November 2013 Notifiable Instrument: 2013—

Copies of the Register Entry are available for inspection at the ACT Heritage Unit. For further information please contact:

The Secretary
ACT Heritage Council
GPO Box 158
Canberra ACT 2601

Telephone: 13 22 81 Facsimile: (02) 6207 2229

IDENTIFICATION OF THE PLACE

Part Block 7, Section 102 Yarralumla, extending south of the Yarralumla Brickworks (See Figure 1).

This statement refers to the Heritage Significance of the place as required in s12(d) of the *Heritage Act 2004*.

STATEMENT OF HERITAGE SIGNIFICANCE

The Remnants of the former Yarralumla Brickworks Railway is significant for its association with the early construction of the national capital from 1923 until 1927. This was a critical period in the development of Canberra, and included major construction works in the lead-up to the Commonwealth Parliament moving to Canberra. The railway transported bricks for many prominent as well as ordinary buildings from this period, and major examples include Old Parliament House, Hotel Canberra, East Block and the Hotel Kurrajong.

The Remnants highlights one of the many challenges of building a city within a short time frame, in a relatively undeveloped area and with constraints on transport and technology.

The brickworks railway, of which the Remnants is a remaining portion, transported up to six million bricks per annum. The Remnants provides tangible evidence that can assist an understanding of the circumstances surrounding aspects of Canberra's construction.

FEATURES INTRINSIC TO THE HERITAGE SIGNIFICANCE OF THE PLACE

Features intrinsic to the heritage significance of the place which require conservation include:

- Remnants of the original earthen railway embankment, cutting and terraces.

APPLICABLE HERITAGE GUIDELINES

The guiding conservation objective is that the Yarralumla Brickworks Railway Remnants shall be conserved and appropriately managed in a manner respecting its heritage significance and the features intrinsic to that heritage significance, and consistent with a sympathetic and viable use or uses. Any works that have a potential impact on significant fabric shall be guided by a professionally documented assessment and conservation policy relevant to that area or component (i.e. a Statement of Heritage Effects – SHE).

The ACT Heritage Council may adopt heritage guidelines applicable to the place under s25 of the *Heritage Act 2004*.

For further information on whether guidelines apply please contact the ACT Heritage Council.

REASON FOR REGISTRATION

The Yarralumla Brickworks Railway Remnants have been assessed against the heritage significance criteria and been found to have heritage significance when assessed against three criteria under the ACT *Heritage Act 2004*:

(c) it is important as evidence of a distinctive way of life, taste, tradition, religion, land use, custom, process, design or function that is no longer practised, is in danger of being lost or is of exceptional interest;

(f) it is a rare or unique example of its kind, or is rare or unique in its comparative intactness;

(h) it has strong or special associations with a person, group, event, development or cultural phase in local or national history;

ASSESSMENT AGAINST THE HERITAGE SIGNIFICANCE CRITERIA

Pursuant to s.10 of the *Heritage Act 2004,* a place or object has heritage significance if it satisfies one or more of the following criteria. Significance has been determined by research as accessed in the references below. Future research may alter the findings of this assessment.

(a) it demonstrates a high degree of technical or creative achievement (or both), by showing qualities of innovation, discovery, invention or an exceptionally fine level of application of existing techniques or approaches;

The Yarralumla Brickworks Railway Remnants does not meet this criterion.

(b) it exhibits outstanding design or aesthetic qualities valued by the community or a cultural group;

The Yarralumla Brickworks Railway Remnants does not meet this criterion.

(c) it is important as evidence of a distinctive way of life, taste, tradition, religion, land use, custom, process, design or function that is no longer practised, is in danger of being lost or is of exceptional interest;

The Yarralumla Brickworks Railway Remnants meets this criterion.

Bricks were first manufactured at the Canberra (Yarralumla) Brickworks in 1913 for use in the construction of major developments across Canberra including provisional Parliament House and the Hotel Canberra. From 1923 – 1927 bricks were transported from the Brickworks via rail across the city to major developments. The railway ceased operation in 1927 and the remnants of the embankment, cuttings and terraces are important as evidence of the process by which bricks used in the construction and development of the new city were transported.

(d) it is highly valued by the community or a cultural group for reasons of strong or special religious, spiritual, cultural, educational or social associations;

The Yarralumla Brickworks Railway Remnants does not meet this criterion.

(e) it is significant to the ACT because of its importance as part of local Aboriginal tradition;

The Yarralumla Brickworks Railway Remnants does not meet this criterion.

(f) it is a rare or unique example of its kind, or is rare or unique in its comparative intactness;

The Yarralumla Brickworks Railway Remnants meets this criterion.

The Remnants of the former railway is rare in their comparative intactness, an example of one of few surviving remnants of the once extensive rail network used in the early development of Canberra.

(g) it is a notable example of a kind of place or object and demonstrates the main characteristics of that kind;

The Yarralumla Brickworks Railway Remnants does not meet this criterion.

(h) it has strong or special associations with a person, group, event, development or cultural phase in local or national history;

The Yarralumla Brickworks Railway Remnants meets this criterion.

The Remnants of the former Yarralumla Brickworks railway have a strong association with the development of Canberra between 1923 – 1927. Bricks (especially those referred to colloquially as 'Canberra Reds') manufactured at the Brickworks were loaded onto timber tip wagons and transported via a narrow gauge rail line to major developments across the city such as Parliament House, the Kingston Powerhouse, Hotel Canberra and buildings in Civic.

The railway enabled faster transport of the bricks than the previous use of steam traction engines that hauled heavy iron wheeled trailers on mostly unmade roads. The railway was removed in 1927 prior to the opening of Parliament House. However, it had a strong association with the early development of the new city.

(i) it is significant for understanding the evolution of natural landscapes, including significant geological features, landforms, biota or natural processes;

The Yarralumla Brickworks Railway Remnants does not meet this criterion.

(j) it has provided, or is likely to provide, information that will contribute significantly to a wider understanding of the natural or cultural history of the ACT because of its use or potential use as a research site or object, teaching site or object, type locality or benchmark site;

The Yarralumla Brickworks Railway Remnants does not meet this criterion.

(k) for a place—it exhibits unusual richness, diversity or significant transitions of flora, fauna or natural landscapes and their elements;

The Yarralumla Brickworks Railway Remnants does not meet this criterion.

(l) for a place—it is a significant ecological community, habitat or locality for any of the following;

(i) the life cycle of native species;

(ii) rare, threatened or uncommon species;

(iii) species at the limits of their natural range;

(iv) distinct occurrences of species.

The Yarralumla Brickworks Railway Remnants does not meet this criterion.

SUMMARY OF THE PLACE
HISTORY AND PHYSICAL DESCRIPTION

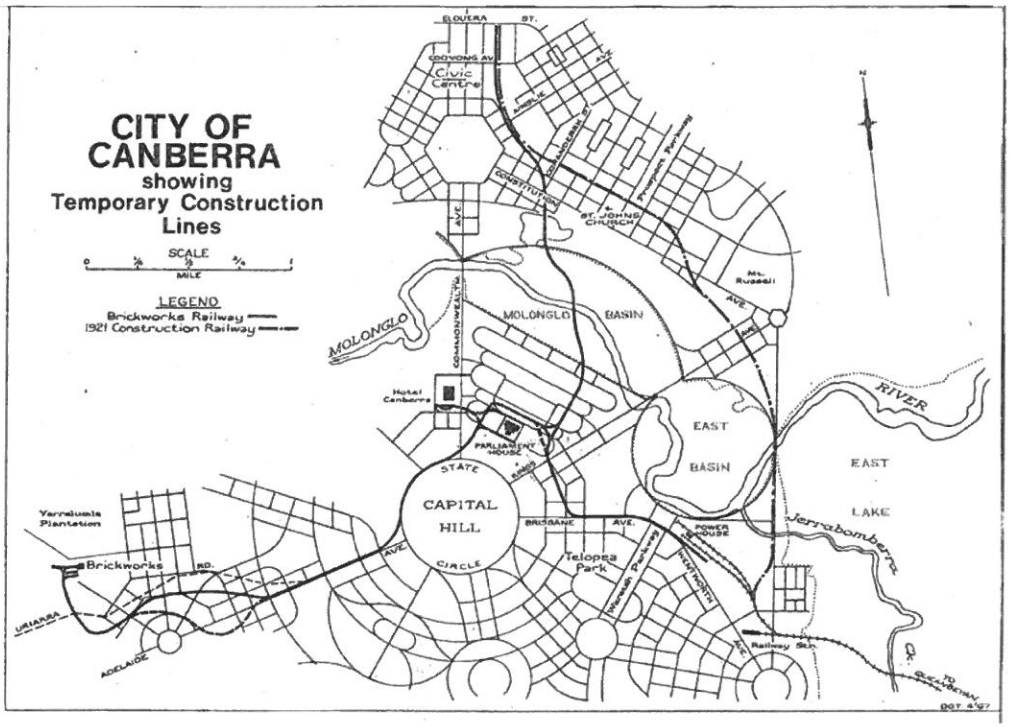
Description of Place

Remnants of the three lines of the former Brickworks railway are evident closest to the southwest corner of the Yarralumla Brickworks, converging to form a single embankment. Close to the Brickworks two of the former lines are evident as earth terraces, which go through a short cutting to become distinctive earth mounds. The third line runs approximately parallel to the western boundary of the Brickworks and is evident as an earth terrace. Along some sections of the embankment there are mature pine trees within close proximity, with other trees and shrubs growing along side and over the former rail line. The setting of the remnants of the former rail line within the pines creates an attractive vista.

In 2011 the area was extensively slashed and cleared for survey purposes, allowing greater visibility and identification of the railway remnants.

The following description is given of the former railway: *The track at the Brickworks was set out in three parallel lines, one on either side of the Staffordshire kilns and the remaining one ran to the coal dump. Immediately after leaving the proximity of the kilns, these tracks swung around rather sharply to the left, the points that gave access to the sidings being at an angle of 53 degrees to the straight part along the kilns.....After converging to a single track, the line ran straight for about two hundred yards, then, after crossing Uriarra Road swung again to the left in a curve on an*

embankment and straightened out with a slight down grade for ¾ mile where a reverse curve brought it alongside Adelaide Avenue. It continued beside this road to the State Circle where it followed the left contour of the Circle for about one third of its circumference until it met Commonwealth Avenue which it crossed at an angle……'. (Australian Railway Historical Society Bulletin No 355- May, 1967)



Source: the *Australian Railway Historical Society Bulletin No 355- May, 1967*

History

One of the most obvious prerequisites to the speedy establishment of Canberra, which was in an open, relatively uninhabited area, was an adequate supply of good bricks. No time was lost therefore in seeking out a local site for a brick-works, and satisfactory clays were found at Yarralumla or "Westridge" as Griffin had named it. There the Commonwealth Brickworks was established in 1913.

Bricks were required for construction at the Power House at Kingston (completed 1915), Parliament House(1927), Hotel Canberra (now the Hyatt, 1927) and other public buildings and offices including Telopea Park School (1923), East Block (1927), Albert Hall (1928) and Hotel Kurrajong (1926).

The bricks were moved by steam traction engines that hauled heavy iron-wheeled trailers on mostly unmade roads. This proved unsatisfactory and time consuming as the traction engines only achieved two round trips a day between the brick-works and the Parliament House. By the end of 1923, a 3 ft 6 inch (1067 mm) gauge steam-hauled railway was constructed to provide more effective transport. The southern terminus was at the Power House, where the line connected with a small engine shed.

After the failure of the standard gauge railway to Civic Centre, following collapse of the causeway bridge in the floods of 1922, the brickworks railway was extended to Civic, crossing the Molonglo River on a small timber bridge near the Scott's Crossing

Road. It is understood that in the city area the abandoned standard gauge track was used by moving one rail a distance of 14.5 inches across on the existing sleepers to form the narrower gauge. It is believed the brickworks tramway terminated about 40 feet beyond the Civic Centre platform.

In the clean up and extensive landscaping works prior to the opening of Parliament House on 9 May 1927, and possibly also because it had by that stage become more economical to transport the bricks by motor lorry, the railway was removed. At the time of closure, the capacity of the brickworks was 6 million bricks per annum. The bricks produced at the Brickworks are often colloquially referred to as 'Canberra Reds'.

References

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Draft Proposed Entry to an interim Heritage Places Register Yarralumla Brickworks Railway Remnants, National Trust of Australia c 2004

IMAGES



One of the three former lines where it goes through a short cutting

SITE PLAN

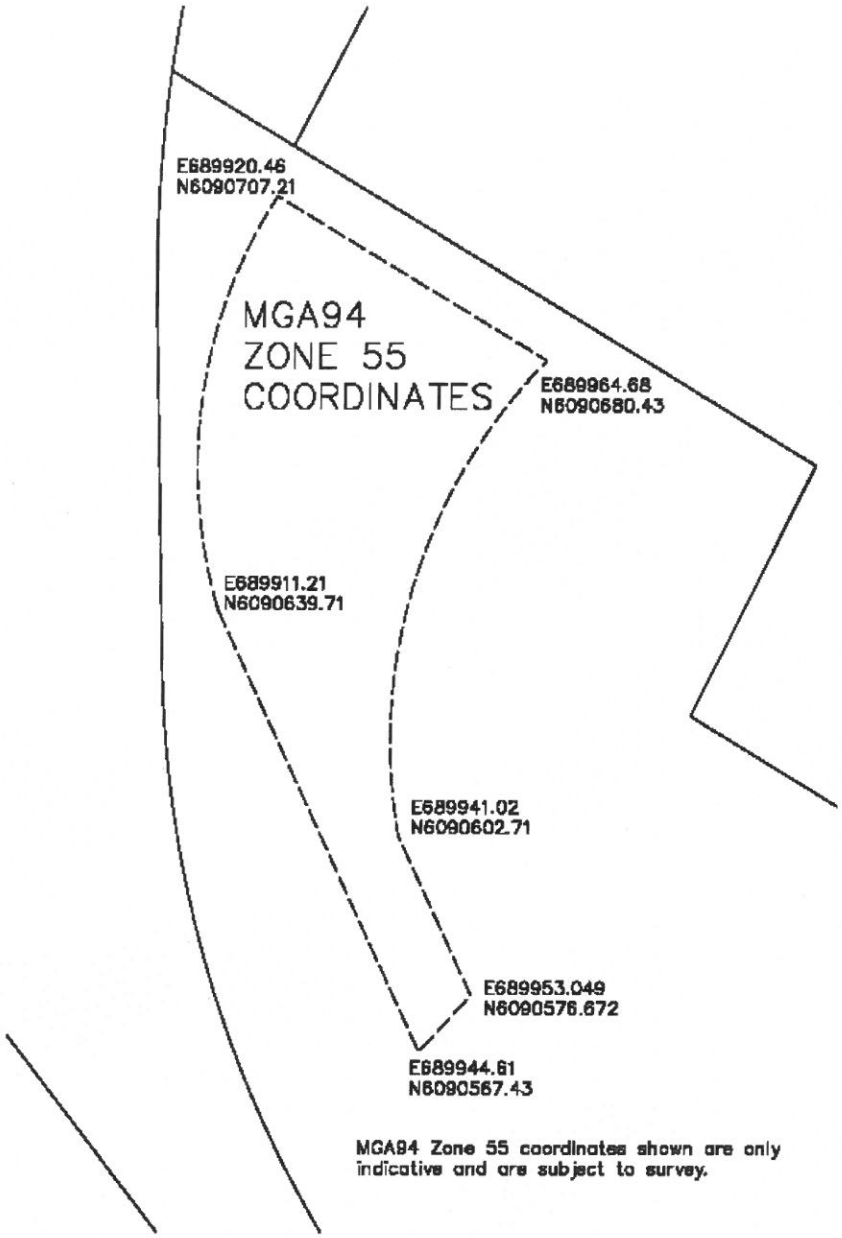


Figure 1 – Yarralumla Railway Brickworks Remnants GPS references

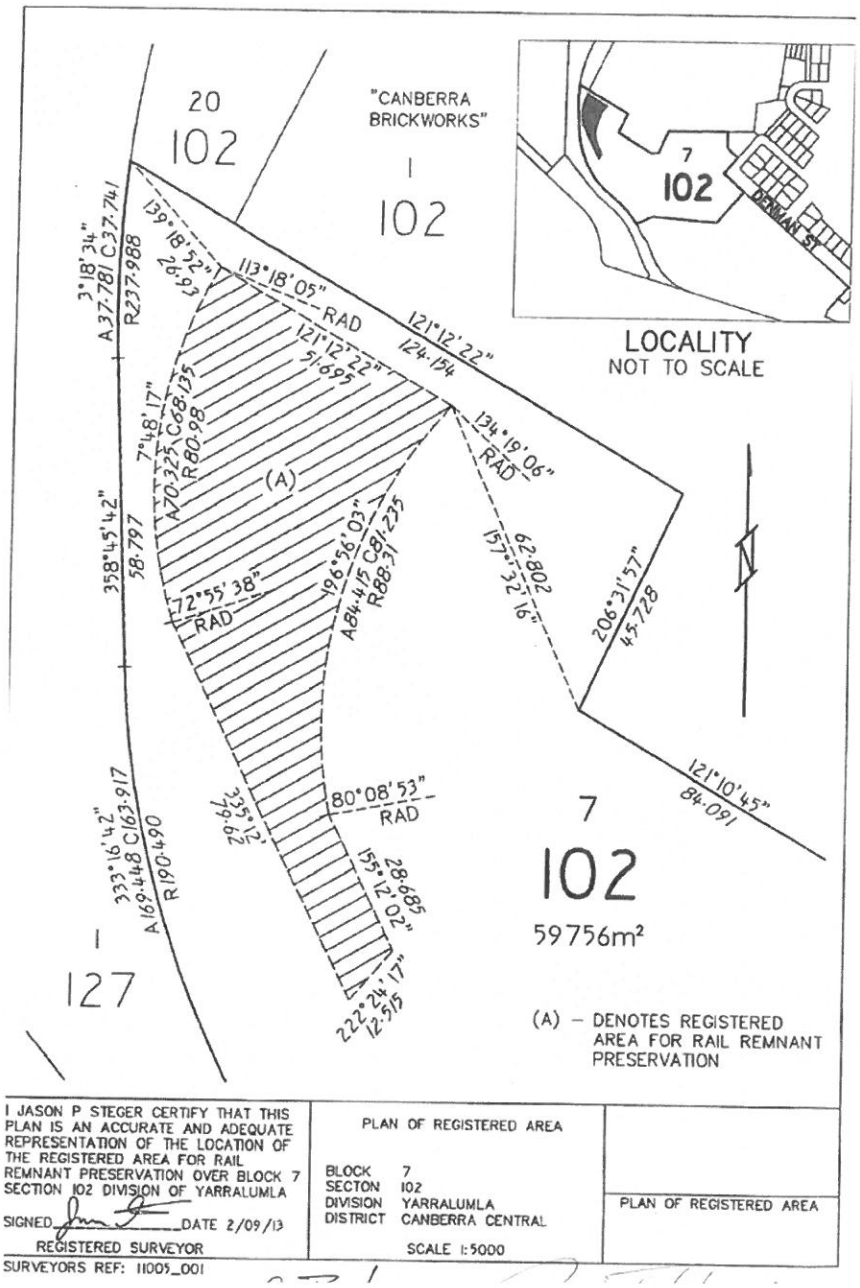


Figure 2 – Yarralumla Railway Brickworks Remnants boundary survey

Appendix C

Detailed History of the Canberra Brickworks

Appendix C—Detailed History of the Canberra Brickworks

C.1 Introduction

The following detailed history of the development of the Canberra Brickworks Precinct has been drawn predominantly from the 2010 CMP, and revised and updated where necessary. The 2010 CMP history also references the history provided in the 1986 Conservation Plan by Lester Firth Associates.

C.2 The Operation of the Canberra Brickworks

C.2.1 The Process of Brick Production

A number of processes and elements related to brick production are common to large twentieth century brickworks and are summarised below.

Quarrying

Because of the cost of transporting raw materials in both the nineteenth and early twentieth centuries, the raw materials of clay and shale for brickmaking were typically quarried close to the brickworks.

In the case of the Canberra Brickworks, the shale was quarried on site (though clay is thought to have been brought onto the site for tilemaking from the early 1920s) up until c1940. From around this time onwards, all raw materials were quarried elsewhere and delivered to the site.[1]

Crushing, Grinding and Pressing

Raw materials, quarried in lumps, were crushed to a manageable size in a crusher. In some brickworks, crushers were located at the point of quarrying with the material then conveyed to another location closer to the brick presses, where it would pass through grinding mills and pugmills to be further refined, worked and mixed. The material was then fed into the brick presses.

A series of conveyors and hoppers moved the materials between and within buildings and through the different stages of the process. In the nineteenth century, the presses and other machinery were steam powered but this changed to electricity in the twentieth century. Electricity was the only source of power used for machinery at the Canberra Brickworks.

Firing

Once pressed, the bricks were transported (the means varied at different sites), and loaded into the kilns. The loading was done by hand until the mid to late-twentieth century when the use of forklifts began. This often necessitated the widening of the wicket openings to the kiln chambers.

In terms of the firing process there were a number of different kiln types used in Australian brickworks of the late nineteenth and twentieth centuries. Refer to Section B.2.4.

Transport Offsite

Once fired, bricks were rarely stored for any length of time or in large quantities. They were generally transported off site relatively quickly. At many brickworks, the bricks were transported by rail. At the Canberra Brickworks, the bricks were transported for a period by traction engine, and in the 1920s by a dedicated light rail line to the major construction sites in the centre of Canberra.

Types of Bricks Produced

The 'Canberra Red' was the quintessential Brickworks product. This product came to house the provisional parliament house (Old Parliament House- 4 million bricks), the engine room powering the Capital (Kingston Powerhouse), the heart of the city (Civic), governance, postal and telegraph communications (Secretariat–East Block and West Block 813,000 bricks); the new Canberra suburbs and the roofs over, not only politician's heads (Hotel Canberra, Hotel Kurrajong – 544,00 bricks), but the brickmakers (Yarralumla Brickworks Housing) and the public servants who lived in the Hotel Acton and other 'hostel' accommodation—Gorman House. The bricks themselves had unique frogged symbols: *C'WEALTH CANBERRA* or *CANBERRA C'WEALTH* (1920s), *CANBERRA* (1930s) and following Second World War simply *CB*.[2] Commentary in some of the building and design publications reported the shift in taste away from the red, the *Building* magazine reporting: 'the brick made at Canberra is excellent, but unfortunately it is without variety.'[3]

White shale from the Attunga Point Quarry was used to make the Canberra Cream. This was reported as the 'result of a challenge thrown out by architects who maintained that the red brick did not tone with Canberra surroundings.'[4] The Canberra Times described the:

> *The development of new types of light-coloured bricks that have established favour with architects in Canberra is expected to lead to substantial orders for housing requirements, while experiments in tinted briquettes and glazed tiles have established further avenues for employment.*[5]

However, ultimately the Brickworks was unable to keep pace with the demand for bricks with supplementary bricks purchased from the Bowral works in New South Wales during 1939.[6] The last major output recorded the annual production of 7.25 million bricks in 1940. The subsequent 1959 report by HH Macey concluded that bricks were a 'little on the coarse side' and only moderate in quality.[7]

C.2.2 Operation of the Canberra Brickworks, 1913–1940s

At the beginning of operations at the Canberra Brickworks, the raw material for brick making was obtained on site, primarily by levelling a knoll comprised a hard, yellow shale to the north of the 'temporary' works. Minor quarrying also occurred on the western side of the site. Due to variety in the shale, material from various seams was mixed thoroughly to achieve a uniform colour in the bricks. Quarrying at the site was reported to be a complex process, and costlier than the average brickworks due to numerous seams of unusable material such as limestone and sandstone.

After spalling, the shale was conveyed to the works in tip trucks running on small gauge rails. It first passed through a jaw crusher that reduced the material to 75mm and was then raised by bucket elevator to an overhead storage bunker. From the storage bunker, the crushed material was taken in one cubic yard truck that lead to grinding mill hoppers. After grinding to pass through a fine mesh screen, the shale was elevated by bucket to a loft immediately above the brick presses and moved by gravity to the presses. Owing to the comparatively high lime content of the shale, a 'semi-plastic' pressing process was employed. The pressed bricks were then transported to the kilns for firing.

A description of the kilns, presses and output in the 1930s is given below:

- one 20 compartment 'Staffordshire', with an output capacity of 125,000 per week;
- one 'Hoffman' continuous kiln (Hardy patent), with an output of 120,000 per week; and
- two single compartment down-draft kilns, with a capacity of 30,000 each per week.

The Downdraught kilns were used almost exclusively for the production of face and special bricks. The bricks presses were the ‘New Era’ semi-plastic type, made by Messrs Whittaker Bros. in England.

There were six brick making units, three for each of the two large kilns, and each unit consisting of a 10ft grinding mill, a ‘New Era’ brick press, and pug mixer, driven by a 150-horsepower electric motor. The output of each unit is approximately 1500 bricks per hour. Two units are required to serve each kiln, the third unit being a spare.

In addition to ordinary bricks, wire-cuts and specials were made, and the attractive colour range produced was the subject of favourable comment from many quarters.[8]

Aspects of the brickmaking process as it occurred in this phase of the site’s history remain legible through the overall site layout and key buildings and site elements remaining from the establishment and expansion periods (1913–1940s). However, the early crushing, grinding and pressing buildings have all been removed as has much of the associated plant.

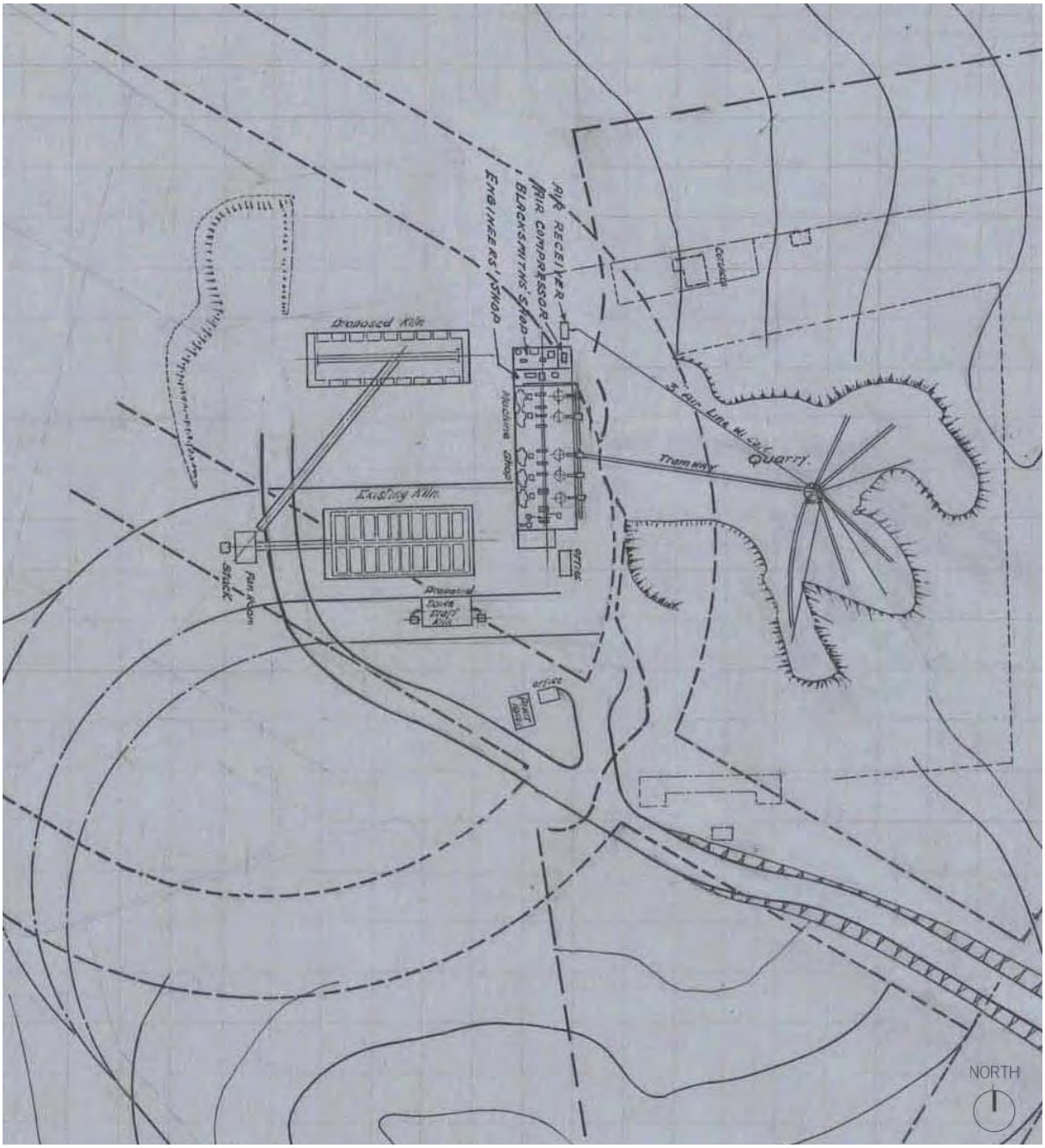


Figure 1 Site plan, 6 April 1926. On this plan, the processes occurred from east to west (right to left on this plan); the quarried material was transported via a tramway to the machinery shop to be crushed, ground and pressed in the centre, and then to the kilns on the left. The plan shows both the existing Staffordshire kiln and the proposed Hardy patent kiln to its north. It also shows the power house and office. (Source: National Archives of Australia)



Figure 2 View from the northeast towards the brick processing buildings, c1926. (Source: National Archives of Australia, A3560, 2447)



Figure 3 Another view, c1929. Note the excavated quarry on the left. (Source: National Archives of Australia, A3560, 5843)

C.2.3 Operation of the Canberra Brickworks, 1950s–1976

While the major brick kilns on the site were retained, the expansion of the Brickworks that occurred in the 1950s saw the replacement of other early plant features and buildings (see Figure 5). The early machine shop was replaced with a series of brick press buildings (machine bays) and a workshop, all of which remain today. The Brickworks was also equipped with a series of new crushers and 'pan rooms' connected to a conveyor system.

A Hazemag crusher (small crusher house, Element 21) was located closest to the office building and was connected by a conveyor to the 'White Pan Room' (large crusher house, Element 19), where 10'6" diameter grinding pans were used to further reduce the shale. The large crusher house could also be fed directly from the quarry area and had two hoppers. Material was crushed, elevated, sorted, re-crushed and then conveyed across to the brick press at the top conveyer level. It was then directed southwards into hoppers above the gravity fed individual brick presses.

The primary crusher house (Element 20) was located further north of the site. This building had two hoppers, a Ross feeder and a 'grissly feeder', with rail bars across the opening to allow manual crushing. A Jacques swing jaw crusher was located under the Ross feeder. Material was then fed by conveyer to a 'Pan Building' for further processing. Only the foundations of this building remain today. From this pan building, material was elevated by conveyor (Element 22, which is partially demolished) and could be stored in massive bins or taken into the northern end of the brick press buildings for distribution throughout the plant. The material was conveyed along the length of the press buildings on conveyors and could be manually diverted into hoppers directly above the brick presses. The conveyor system, hoppers, control panels and chutes remain today. The southern brick press building was subsequently extended by two structural bays to service the 1970s extrusion plant.

Anderson double re-press semi plastic presses were in use from the 1950s. Bricks were pressed twice for additional strength. While no brick presses survive at the site, it is possible that they were removed to the new brickworks at Mitchell following the closure of the Canberra Brickworks in 1976.[9]

Comparative to the earlier phases of the site's history, the brickmaking processes from the 1950s through to the 1970s are strongly represented on the site with the majority of physical evidence remaining dating to this period. It is, however, not a complete representation of the Brickworks at the time with buildings like the Red Pan Room and the conveyor linking this with the Primary Crusher having been demolished.

Critically, while sections of the conveying system and associated hoppers remain in the machine bays, the ability of the complex to demonstrate the processes is limited following the removal of the majority of the manufacturing plant including crushing and pressing machinery.



Figure 4 Aerial view of the Brickworks, c1976. Raw materials had for many years been brought onto the site but the process continued to occur moving from east to west across the site. The 'spine' of process buildings (grinding, crushing and pressing) was located east of the kilns (between the kilns and the quarry). (Source: ACT Heritage Library)

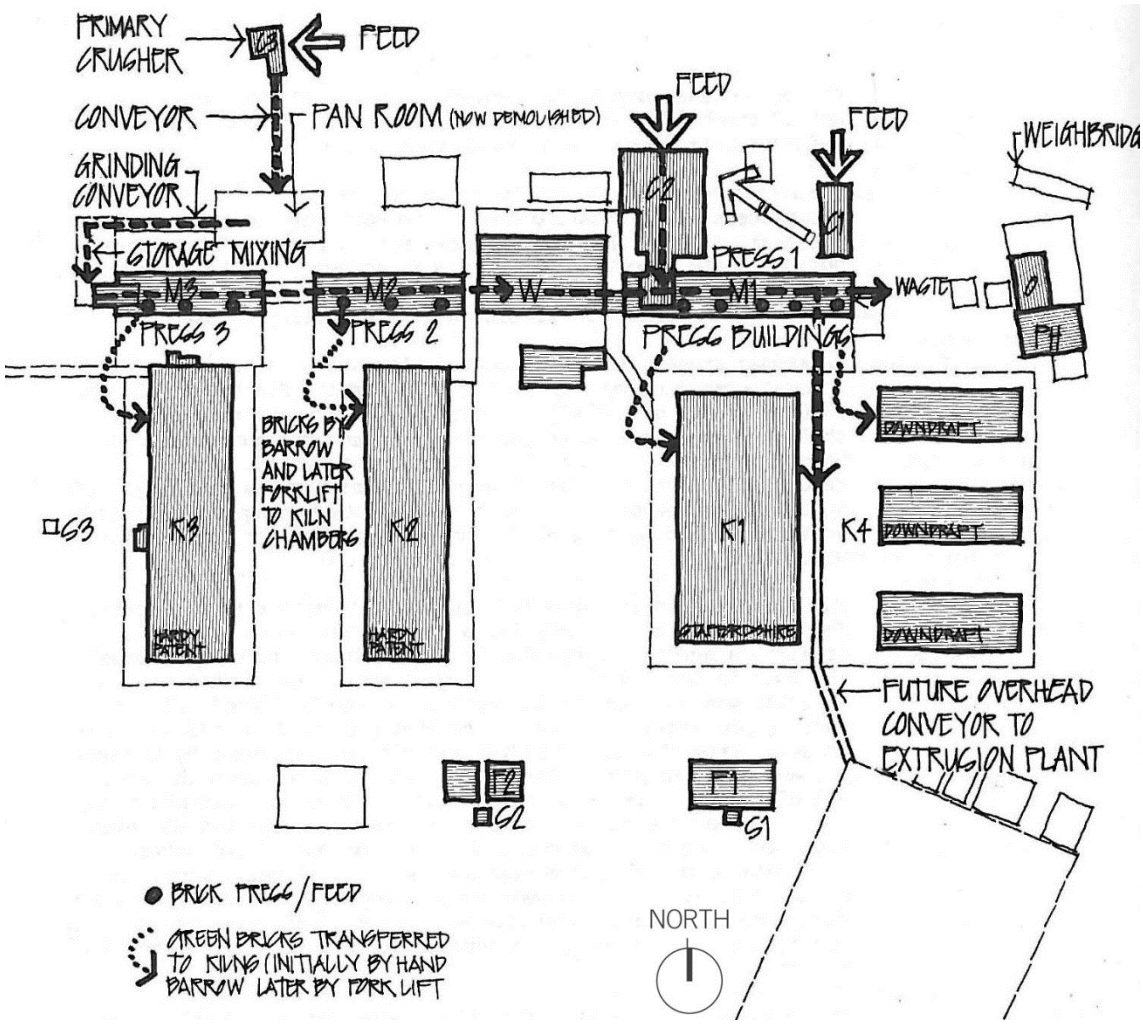


Figure 5 Sketch diagram of site operation c1960. (Source: Lester Firth Associates Pty Ltd, Old Canberra Brickworks, Conservation Plan, 1986, Section 2.2.1.)

C.2.4 Major Brick Kiln Types in Australia

Intermittent Kilns

All kilns in Australia prior to the 1870s were intermittent, meaning that the fires went out after each burning.

Clamp Kilns

The earliest kilns were clamps, an ancient technique used globally where stacks of unfired (green) bricks with fire holes below are sealed, possibly with mud, and fired in the open air (see Figure 7). In clamps, heat distribution is extremely uneven and brick wastage unavoidably high. Clamps typically leave little archaeological residue apart from a shallow depression in the ground; however, channels and flues have survived in the more sophisticated examples of the kiln.[10] Four clamp kilns were built at the Canberra Brickworks as part of the 'temporary' works, and these were operational by August 1913. The clamp kilns were located southeast of the present office building (see Figure 6).

Scotch Kilns

Among the first permanent kiln types to be constructed in Australia were 'Scotch' kilns. They were roofless constructions with three permanent walls and one temporary wall, which would be erected

after the green bricks were placed in the kiln and demolished after firing (see Figure 8). The permanent walls directed the draught upwards. A Scotch kiln was in operation at Canberra during the mid-1920s (see Figure 9).

Downdraught Kilns

The last of the broad typologies of intermittent kiln used in Australia was the Downdraught. Downdraught kilns are typically circular or rectangular in plan with fire holes and wickets in the walls. Inside the single chamber the fire gases are funnelled to the roof through flues built against the side walls and channelled out through underground flues to a detached chimney stack (see Figure 10). Two temporary Downdraught kilns were built at the Canberra Brickworks in 1925 close to the site of the present Downdraught kilns (Element 6) and prior to the construction of the first of the Hardy patent kilns (Element 3). They were demolished in 1958. The present Downdraught kilns, constructed in 1963, are barrel vaulted. Circular kilns with domed roofs were also common. As occurred at the Canberra Brickworks site, it was typical to build Downdraught kilns in groups to enable consistent use through rotation.

Downdraught kilns were common prior to World War II, particularly in small country works. The three extant examples at Canberra are relatively late examples of the typology.

Continuous Kilns

Continuous kilns are fired consistently to enable full-time use and production. This is achieved through the principle of continuous burning around a fire passage, which is typically circular or rectangular. The passage accommodates a series of chambers, each with an opening (or wicket) through which the bricks are loaded and unloaded. A branch flue leads to a main flue and chimney stack. The chambers can be set, burnt, cooled, and emptied independently with the kiln's excess heat used to dry green bricks prior to firing.

One of the earliest continuous kilns, and arguably the best known, is the Hoffman kiln, designed by German Friedrich Hoffman in 1856 and patented in 1858 (Figure 12, Figure 13).[11] The Hoffman kilns in Australia are generally oval in form with straight sides and semi-circular ends. Each kiln contains a continuous vaulted annular firing chamber, which is filled with bricks for firing through wickets along the outer walls of the kiln. As for other continuous kiln types, Hoffman kilns are fired from above with the fire holes located in the roof of the vault and controlled from a floor above. Originally coal was dropped through the firing holes but later the kilns were adapted to use oil and gas, still from the firing holes.

The first Hoffman kiln in Australia was built in 1870 by the Hoffman Patent Brick and Tile Company at its works on Albert Street in Brunswick, Melbourne.[12] By the 1890s the Hoffman Company was claimed to be the largest enterprise of its kind in the Australian colonies.[13]

From the 1880s, multiple variations of the Hoffman concept were developed around the world. Generally known as 'patent kilns', these involved subtle variations on the original Hoffman model. Modifications were related to avoiding brick discolouration, and achieving a more even heat distribution and more efficient regulation of heat to allow greater certainty about the quality of products.

Many patent kilns were developed in Australia in this period. In 1889, a patent for an 'improved kiln' was taken out by Isaac Button, Edward Peters, and John Wesley Goodsell, all of Sydney. This was the 'Centennial kiln', which was built at the Croydon Brickworks in Sydney. Architectural historian Miles Lewis offers a detailed description of the form of the Centennial kiln.

> *Compared with the Hoffman kiln, [the Centennial kiln] was rectangular in plan, and consisted of two rows of chambers in parallel, none of them sweeping around at either end. The chambers were separately barrel vaulted, running in at*

> *right angles to the length of the kiln as opposed to the continuous vault of the Hoffman, and they were large enough for a dray or truck to be driven right into them for loading and unloading. Fuel was fed through holes in the top. The chambers at either end continued right across the kiln, with provision to divide them, but the rest were separated by a relatively long and narrow 'smoke chamber' along the spine, which connected with flues from either end of each chamber, and discharged to a stack. The kiln as built at Croydon had eighteen chambers, held 35,000 bricks, and was reckoned to turn out 200,000 bricks in a fortnight.*[14]

Evidence indicates that the Centennial kiln was typically constructed with a long chimney or flue at one end of the main chamber.

Another variation on the Hoffman format was known as the 'Hardy patent', which was developed at around the same time as the Centennial kiln.

Patent records from 1889 indicate that Samuel Kirk, Thomas Kirk, and John Richardson Hardy, all from Sydney, had also developed an improved brick kiln design, specifically described as 'improvements in the construction of kilns for burning bricks, tiles, pottery or other analogous materials'.[15] On 4 December 1891, the specifications of their application were accepted and the patent granted in Victoria.[16] The following year the men attempted to register the patent in New South Wales and Queensland.[17]

Hardy patent kilns are distinguished by their freestanding stacks, as opposed to the integrated and centralised stack of the standard Hoffman kiln.

Two Hardy patent kilns were constructed at the Canberra Brickworks and are associated with major expansions at the Brickworks. The first kiln (Element 3, and its stack and fan house, Elements 4 and 8) was built in 1926–27 as part of the drive to double the output of the plant ahead of the relocation of Parliament and public servants to Canberra.[18] The second kiln (Element 5 and its associated stack, Element 9) (see Figure 16) was constructed in 1953 as part of the post-World War II expansion of the site.

Another variation of the Hoffman model of continuous kiln was developed in the 1890s, when the capacity of the kilns was increased through the introduction of transverse arches. The maximum arch span of Hoffman kilns had previously been around 5.5m; orientating the arches so that they lay across the flow of fire allowed the length of arches to be increased without increasing the distance that the fire was required to travel in a circuit.[19]

In 1904, Dean and Hethrington of Lancashire, England, patented the 'Staffordshire kiln', incorporating transverse arches, a detached chimney stack and a complex system of flues and dampers (see Figure 20). This enabled the use of a combination of chambers at any time, thereby allowing the simultaneous production of a range of products, bricks, tiles, and pipes.

The first of the permanent continuous kilns at the Canberra Brickworks was based in this model and built in 1915 (Element 1), along with its associated fan-house and stack (Elements 2 and 7). The fan induced draught of Element 1 enabled even greater temperature control, and obviated the requirement for a tall stack.

The construction of a Staffordshire kiln at the Canberra Brickworks was commissioned in 1913, less than a decade after the model was patented. The kiln was completed and brought into service in 1915. At the time, Staffordshire kilns were at the leading edge of brick burning technology, offering the potential for firing multiple types of products simultaneously. Given its isolation from the major urban centres and suppliers of construction materials, this flexibility was ideally suited to the requirements of the nascent Federal Capital.

Tunnel kilns (also referred to as car tunnel kilns) are a contemporary form of continuous kiln, albeit with eighteenth-century origins. The model, used by the French Royal Porcelain Factory in 1751, comprises a pair of tunnels linked by flues.[20] Green bricks are set on cars and passed through the first tunnel, which is divided into zones for preheating, firing and cooling. Clean hot air from the cooling zone of the kiln is channelled to the parallel drying tunnel. In England, until the 1970s, tunnel kilns were considered expensive to build and beset by technical problems, which outweighed the benefits of fuel saving and improved working conditions. Subsequent revisions improved the model, which is now commonly used in industrial brick production, with kilns as large as 1.8m wide by 120m long.[21]

A tunnel kiln was planned and partially built at the Canberra Brickworks after World War II, before being abandoned in 1952. The foundations were incorporated into the second Hardy patent kiln completed in 1953 (Element 5).[22]

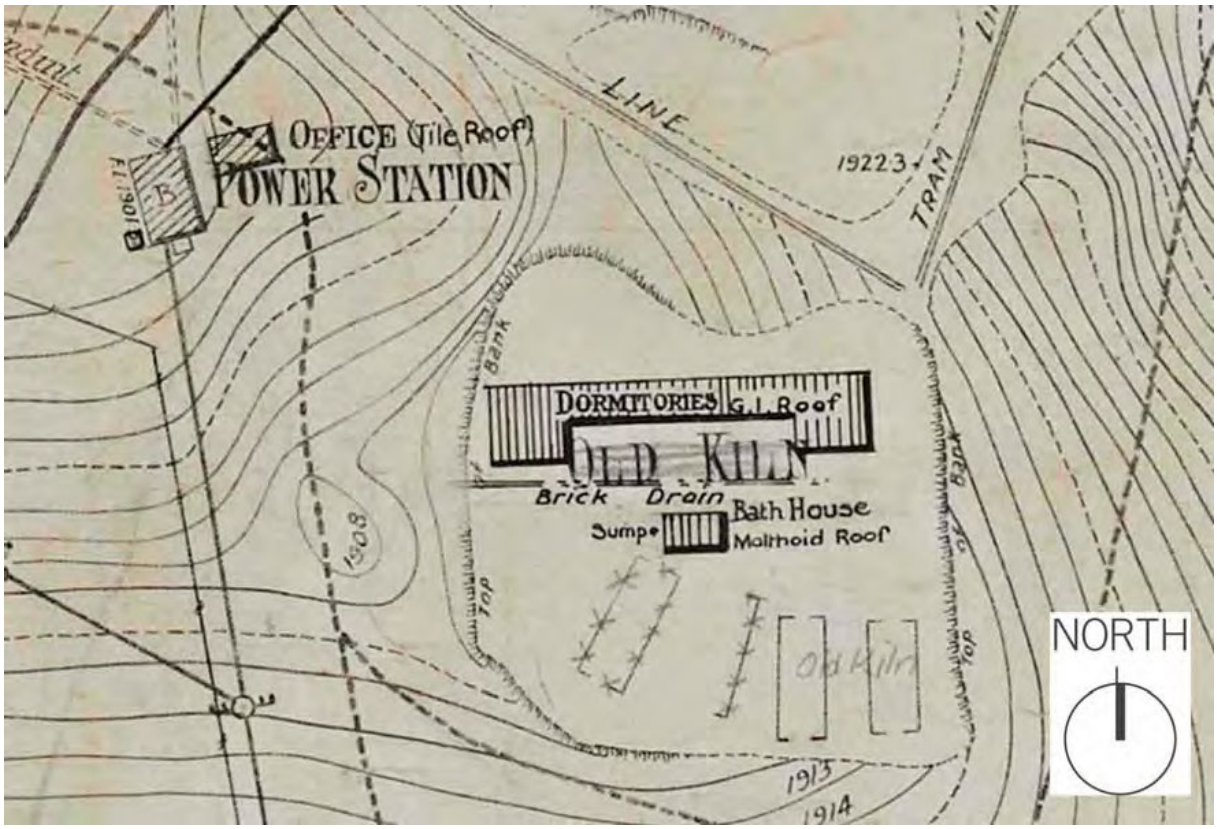


Figure 6 Detail of 'Contour and Detail Survey, Canberra Brick Yards, 20 December 1916'. Note the four clamp kilns ('Old Kiln') below the 'Dormitories' to the southeast of the power station. (Source: National Archives of Australia)

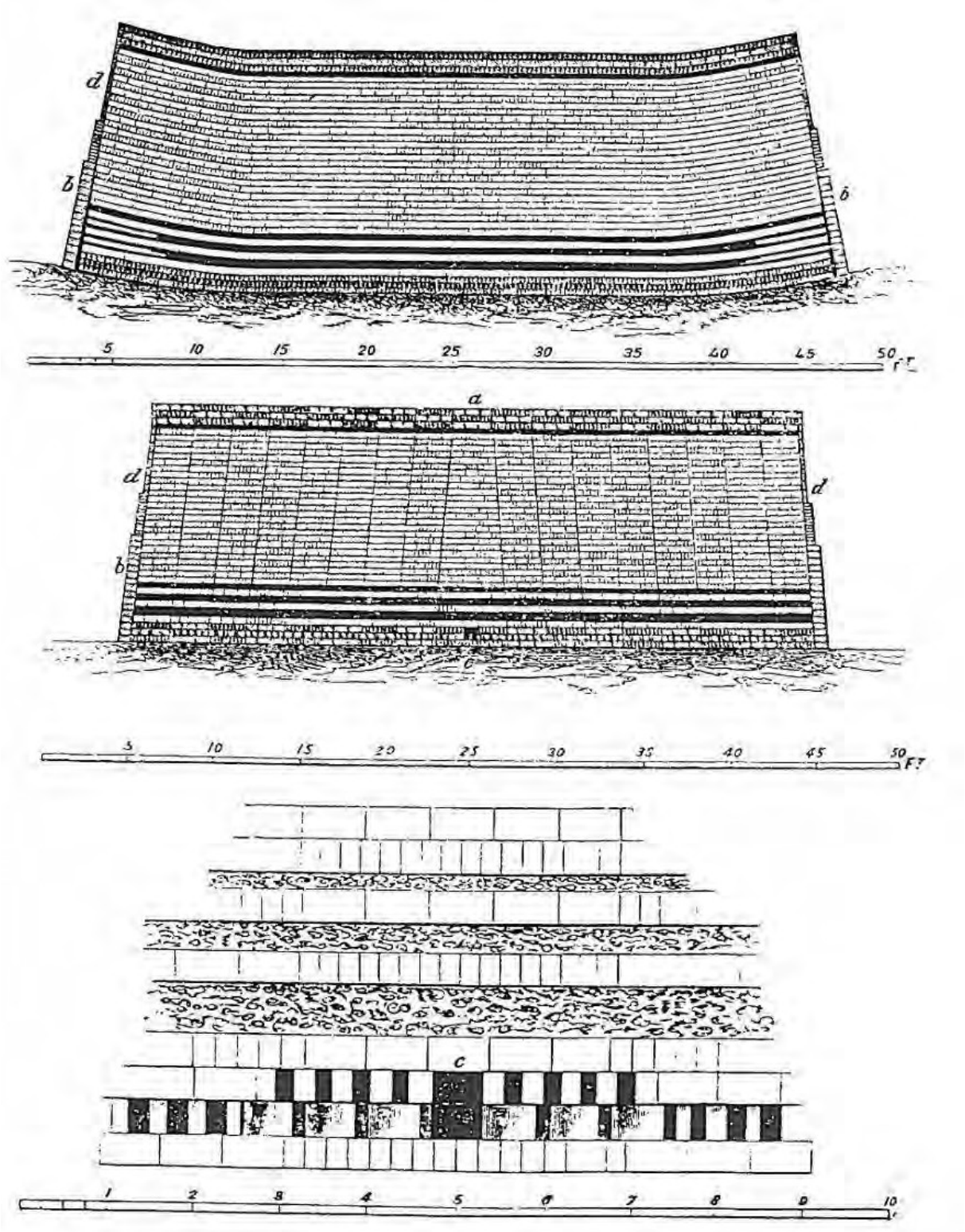


Figure 7 Sections through a clamp kiln, c1850, demonstrating the typical arrangement of bricks and fuel. (Source: Edward Dobson, *Rudimentary Treatise of the Manufacture of Bricks and Tiles*, 1850, from John Warren, *Conservation of Bricks*, 1999, p 24)

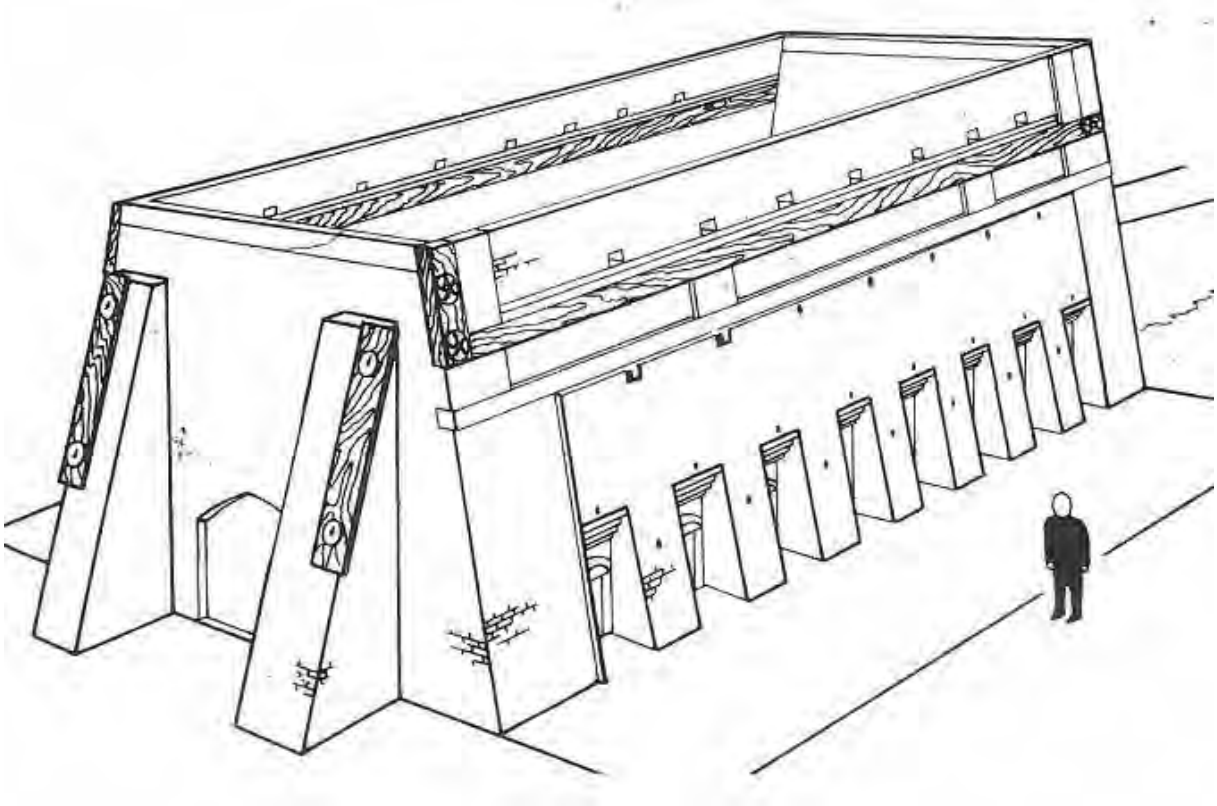


Figure 8 Sketch of Scotch kiln: roofless with three permanent walls to direct the draught upwards. (Source: Alan Cox, *Brickmaking: A History and Gazetteer,* 1979, p 26)



Figure 9 Scotch kiln at the Brickworks (right), 1926. The first Hardy patent kiln is under construction at the rear of the picture. (Source: National Archives of Australia)

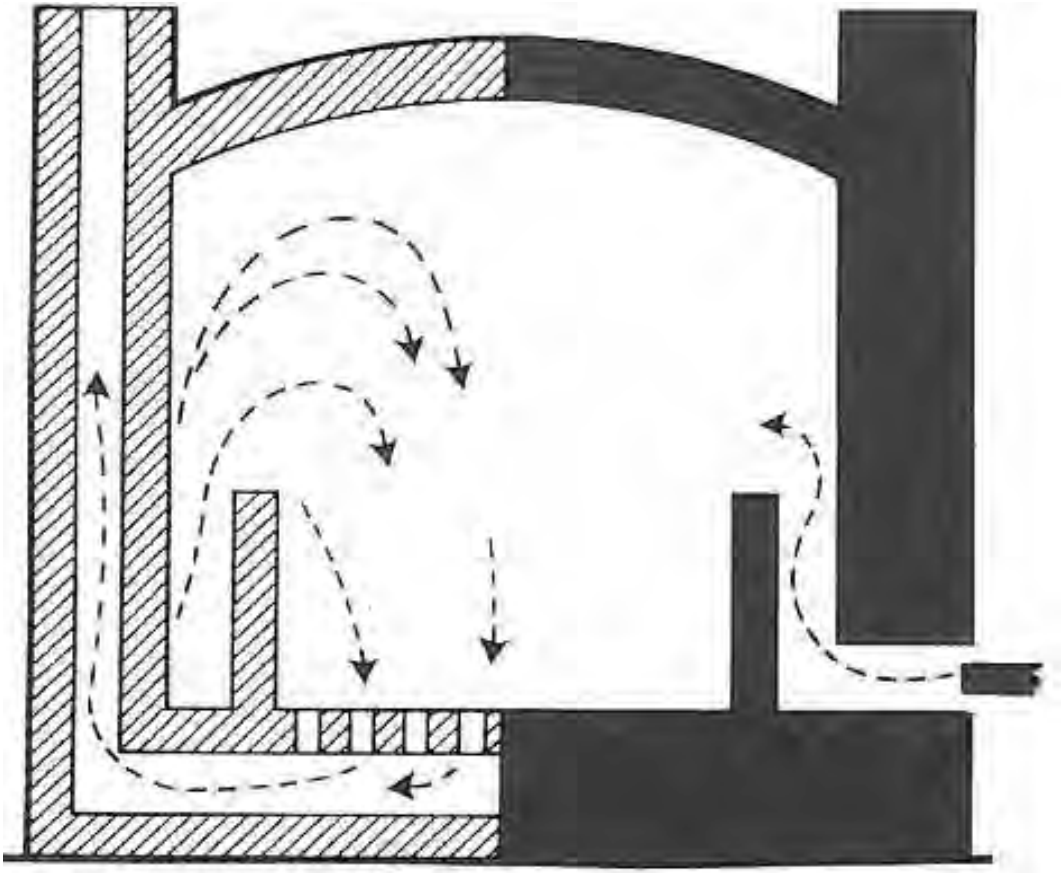


Figure 10 Section through a Downdraught kiln. (Source: Alan Cox, *Brickmaking: A History and Gazetteer*, 1979, p 26)



Figure 11 Downdraught kilns at the Brickworks (Element 6). (Source: Lovell Chen, 2010, Canberra Brickworks CMP, p 25)

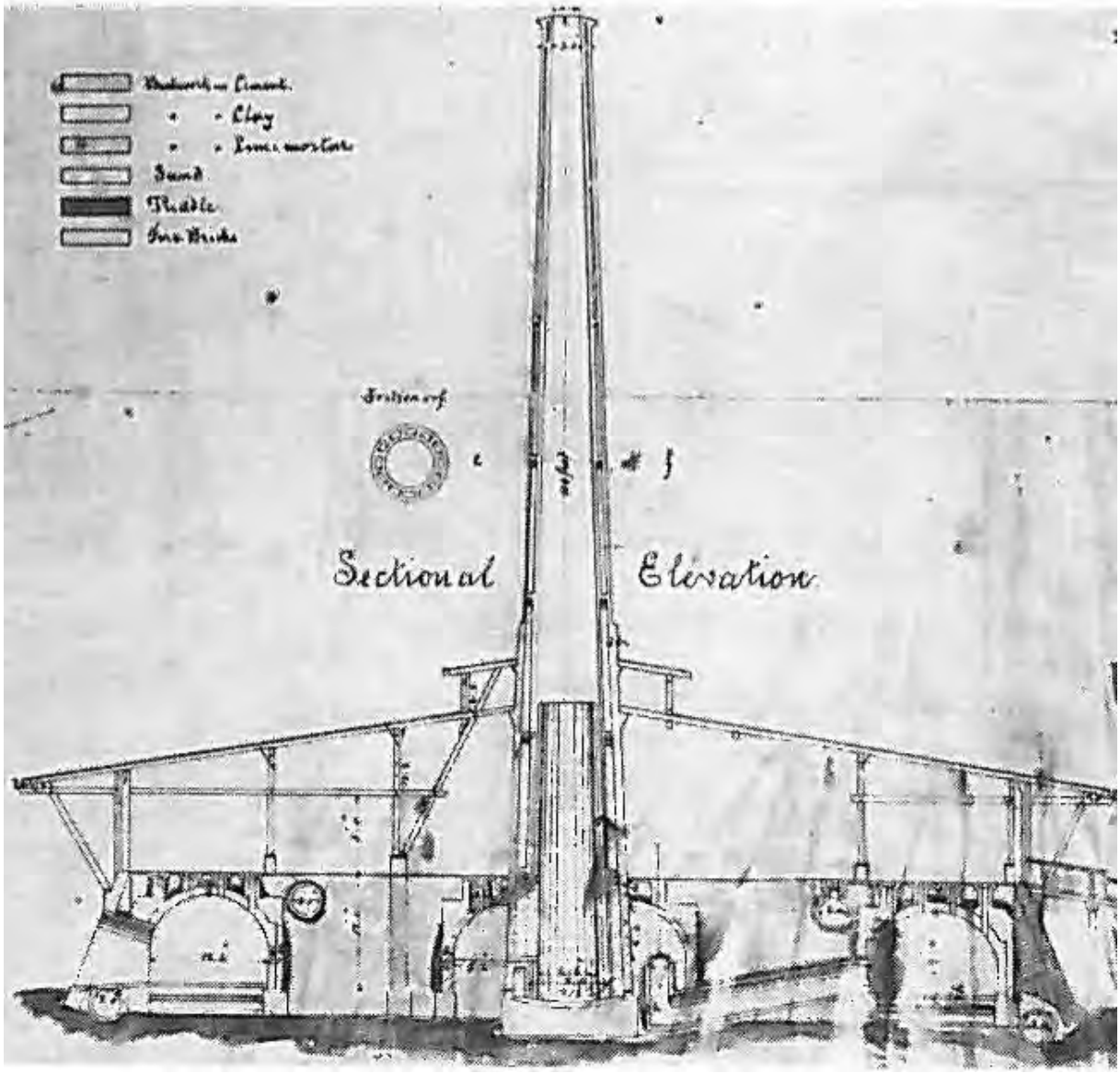


Figure 12 Section through a circular Hoffman kiln prepared by the office of Friedrich Hoffman, Berlin, in 1875. (Source: Martin Hammond, *Bricks and Brickmaking*, p 23)

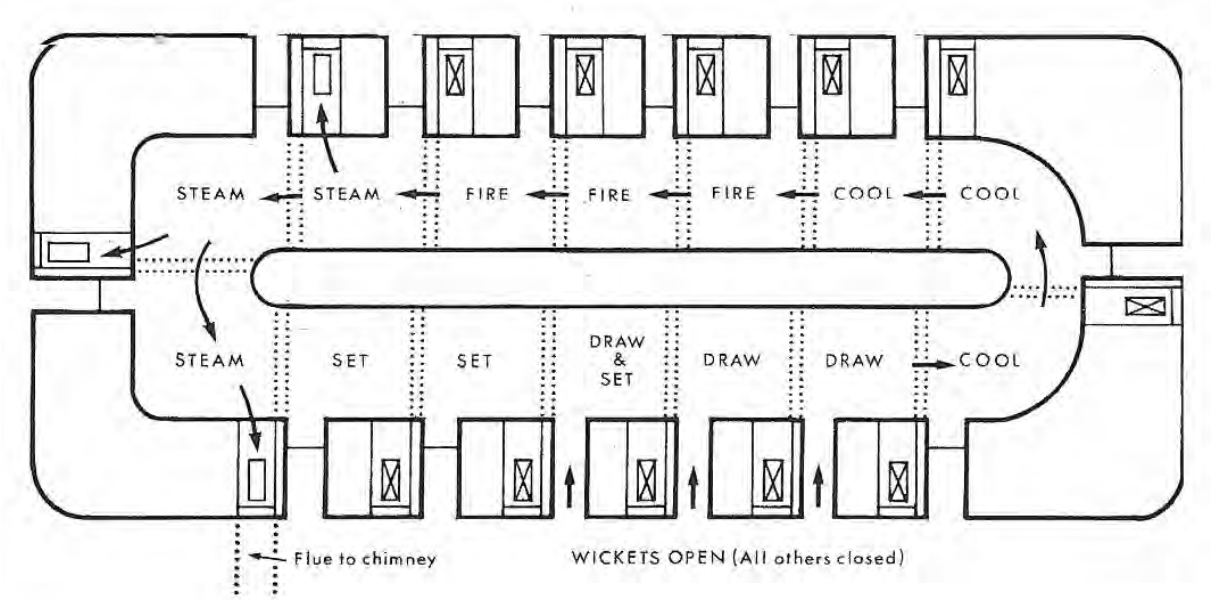


Figure 13 Plan of a rectangular 14-chamber Hoffman kiln. (Source: Alan Cox, *Brickmaking: A History and Gazetteer*, 1979, p 43)



Figure 14 Hoffman kiln at the former Standard Brickworks at Box Hill in Victoria. (Source: Lovell Chen, January 2010)

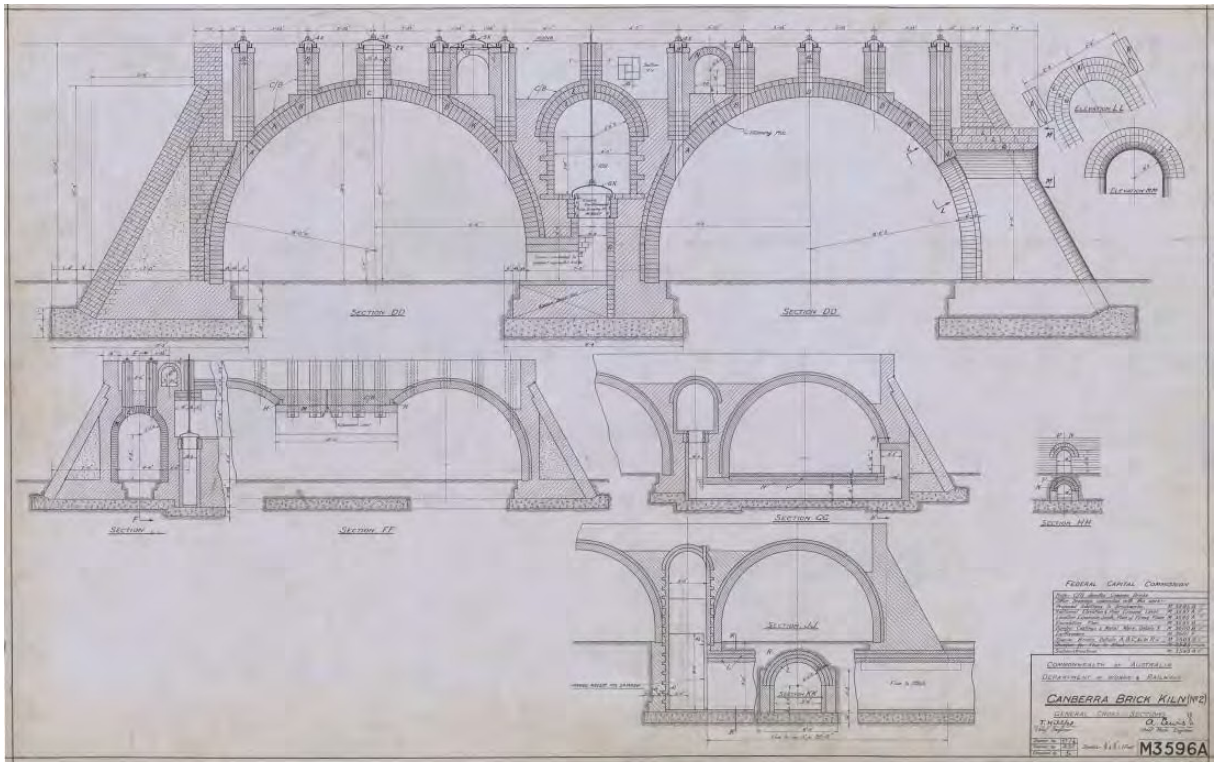


Figure 15 Cross-section of the first Hardy patent kiln at the Brickworks (Element 3), 1926. (Source: National Archives of Australia)

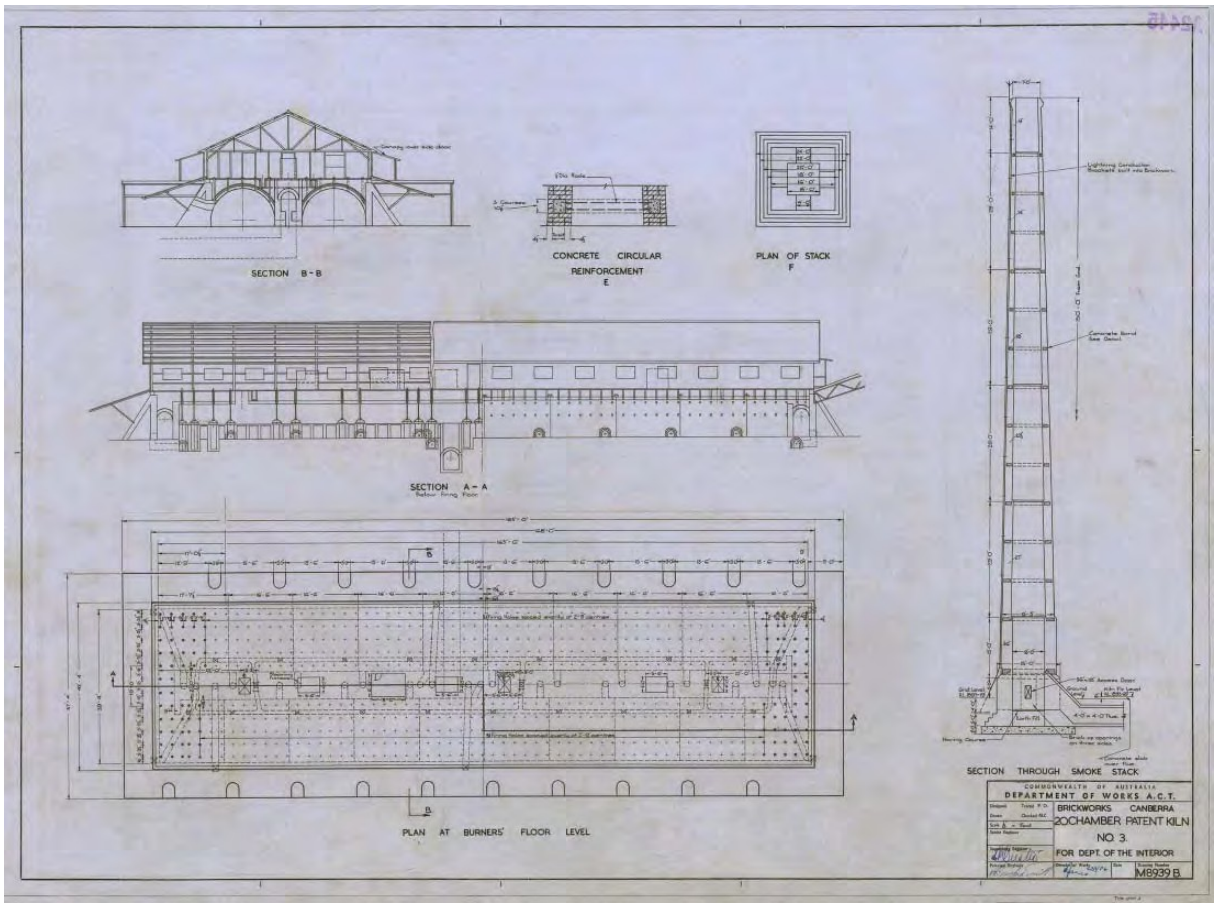


Figure 16 Drawing of 20-chamber Hardy patent kiln (Element 5) and stack (Element 9) at the Brickworks, 1953. (Source: National Archives of Australia)



Figure 17 Hardy Patent Kiln 1 at the Brickworks. (Source: Lovell Chen, 2010, Canberra Brickworks CMP, p 29)



Figure 18 View into the firing chamber of one of the Hardy patent kilns at the Brickworks. Note the wickets (openings) on the right where the bricks were loaded and unloaded, and the firing holes in the ceiling/walls. (Source: Lovell Chen, 2010, Canberra Brickworks CMP, p 30)



Figure 19 Interior of the firing floor to one of the Hardy patent kilns at the Brickworks. (Source: Lovell Chen, 2010, Canberra Brickworks CMP, p 30)

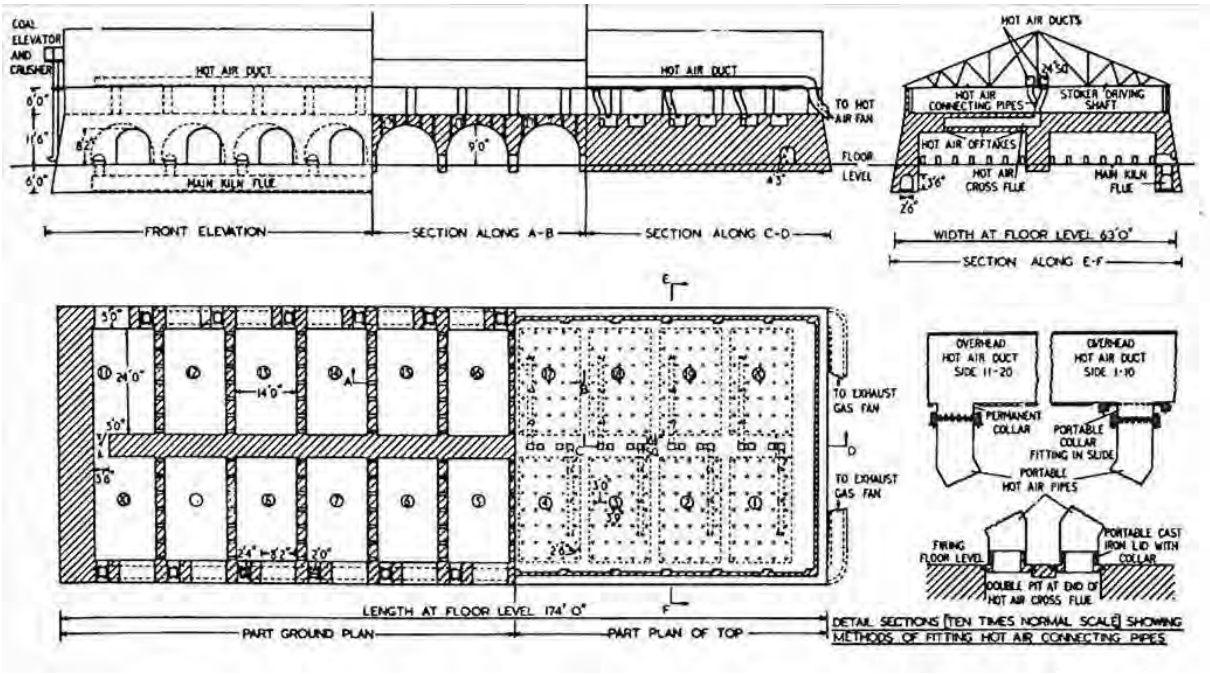


Figure 20 Plan, sections, front elevation and details of a Staffordshire kiln. (Source: Martin Hammond, *Bricks and Brickmaking*, p 25)



Figure 21 The Staffordshire Kiln at the Brickworks. (Source: Lovell Chen, 2010, Canberra Brickworks CMP, p 30)



Figure 22 Interior of one of the Staffordshire Kiln chambers. (Source: Lovell Chen, 2010, Canberra Brickworks CMP, p 30)

C.3 Background History of Canberra

C.3.1 Yarralumla Formation

The underlying geology of Canberra is made up of sedimentary and volcanic rock types formed when the landscapes were positioned on the margins of the supercontinent, Gondwana. The Brickworks site lies on the Yarralumla Formation created 425 million years ago by sedimentary mudstone or siltstone deposited in a shallow sea. Evidence of fossils including brachiopods, trilobites, corals, bivalves, bryozoans and crinoids remain as evidence of this ancient landscape. This geological composition included shale, a fine-grained sedimentary rock, ideal for brickmaking as it was both hard and porous. However, the shale varied greatly in quality, limestone and sandstone intrusions into seams of the rock made processing more expensive and some material unusable.

From the 1950s, geologists in Canberra explained in greater detail the geological significance of the Brickworks. They traced the sedimentary sequences of the Yarralumla Formation identifying in the

centre of Canberra principally at the Brickworks but also at Red Hill, the outcrops in suburbs of Deakin, Hughes and west of Curtin.

C.3.2 Ngunnawal Country

The Brickworks is located on traditional lands held by the Indigenous people of the Ngunnawal group. The Ngunnawal people have occupied the land for thousands of years and their descendants continue to live in Canberra and the surrounding region. Several Indigenous groups, including the Ngunnawal and Ngambri, were recorded to have settled along the sandy banks of the Molonglo River. As an important resource, the Molonglo River corridor attracted a hunter-gatherer lifestyle and Aboriginal people set up shelter and camps throughout the area as they travelled in response to the availability of natural resources.

The Aboriginal people were displaced from their land following European settlement of the area and their numbers dwindled dramatically, possibly associated with a smallpox epidemic in 1830, influenza and a measles epidemic in the 1860s. There are few records of Aboriginal people on the Limestone Plains after it was settled by pastoralists, perhaps because of Indigenous seasonal lifestyles, or because they retreated from settlers and their horses, and moved to the hills. The new settlers may also have simply failed to record their ongoing presence in any detail.

C.3.3 Colonial History

European colonisation of the area commenced in the 1820s with small and large estates for farming and grazing. The Brickworks site was established on part of a large sheep grazing property held by Frederick Campbell, a descendant of Robert Campbell who owned the early Canberra pastoral estate ‘Duntroon’.

During the late 1890s, there was much debate over the location of the seat of government for the new Commonwealth of Australia. It was eventually decided that the future capital’s location would be selected by the new Parliament following Federation in 1901. On the recommendation of Commonwealth surveyor Charles Scrivener, the district of Yass–Canberra was chosen in 1908. Scrivener’s specific choice was an elevated site straddling the Molonglo River with mountains and hills to the northwest, northeast and south.

C.4 Establishment Phase 1911–1920

C.4.1 Historical Background

Establishing the National Capital

The location of the capital of a federated Australia was debated for at least 10 years before Federation was achieved in 1901. The matter was raised at the Australian Federation Conferences in Melbourne in 1890 and in Sydney in 1891, and the National Australasian conventions of 1897–98.[23] The debates over the location of the capital were dominated by inter-colonial rivalries. However, a broad consensus was reached on the requirement for an inland location to obviate the perceived security risk presented by a coastal location. It was eventually decided that the decision on the location of the future capital would be taken by the new Parliament following Federation.[24]

The Australian Constitution of 1900 included direction to hold land for the National Capital:

> *(125) The seat of Government of the Commonwealth shall be determined by the Parliament, and shall be within territory which shall have been granted to or acquired by the Commonwealth, and shall be vested in and belong to the*

> *Commonwealth, and shall be in the State of New South Wales, and be distant not less than one hundred miles from Sydney.*
>
> *Such territory shall contain an area of not less than one hundred square miles, and such portion thereof as shall consist of Crown lands shall be granted to the Commonwealth without any payment therefore. The Parliament shall sit at Melbourne until it meets at the seat of Government.*[25]

At least 40 districts were proposed for the national capital, of which 23 were inspected by parliamentarians, a Commission and a Royal Commission. In 1904, a Seat of Government Act was introduced nominating Dalgety in New South Wales. However, the New South Wales State Government objected and refused to release the land to the Federal Government.[26] Finally, on 8 October 1908 (following the repeal of the 1904 Act), it was determined that the site would be in the Yass-Canberra district. The New South Wales District Surveyor, Charles Scrivener, was dispatched to Yass-Canberra to determine the precise location of the future city. His brief was as follows:

> *The Federal Capital should be a beautiful city, occupying a commanding position with extensive views, and embracing distinctive features … consequently the potentialities of the site will demand careful consideration from a hygienic stand-point, with a view to securing picturesqueness, and also with the object of beautification and expansion.*[27]

Scrivener's choice was an elevated site straddling the Molonglo River, with mountains and hills to the northwest, northeast, east, and south. The *Seat of Government Surrender Act 1909* (NSW) and *Seat of Government Acceptance Act 1909* (Cwlth) officially named Yass-Canberra as the site of the federal capital. The site was formally handed over to the Commonwealth on 1 January 1911.

In April 1911, King O'Malley, Minister for Home Affairs for the standing Labor Government, initiated an international competition for designs for the layout of the new city. The conditions of the competition stated: 'The premiated [sic] Designs shall become the property of the Government for its unrestricted use… Any claim for further remuneration by… the authors… will not… be recognised…'[28] In May 1912, a proposal by architect Walter Burley Griffin (1876–1937) and his wife and fellow architect Marion Mahony Griffin (1871–1961), of Chicago, was awarded first prize (see Figure 23). Second prize was awarded to Eliel Saarinen of Helsinki (Helsingfors), Finland, and third prize to Alf Agache of Paris, France.[29] The emphasis of the Griffins' proposal, largely determined by topography, combined a number of specialised centres (such as for administration, government, and the capitol) in circular, octagonal and hexagonal street systems. The centres were linked by the primary axes, which were aligned to the surrounding hills and mountains.

In November 1912, O'Malley established a Departmental Board to review the three winning schemes. The Board prepared a new plan, which incorporated aspects of all of them. The composite 'Departmental Plan' was accepted by O'Malley in January 1913 and the foundation stone of the city was laid on 12 March 1913. The city was formally named Canberra at the ceremony.[30]

A change of government stalled progress and led to Walter Burley Griffin being invited to Australia to advise on the development of the city. The new Minister for Home Affairs, W H Kelly, subsequently disbanded the Departmental Board and appointed Griffin as Federal Director of Design and Construction for the National Capital, a position that he held from 1913 to 1920.[31]

In October 1913 Griffin submitted a revised version of his plan ('Preliminary Plan', see Figure 24), with a report expanding on his ideas for the development of the city ('Report Explanatory'). Parliamentary factions and funding cutbacks caused by World War I contributed to the slow progress in the development of the national capital in the following years.



Figure 23 Walter Burley Griffin's winning competition entry (1912), overlaid on the contour map prepared by CR Scrivener. (Source: National Archives of Australia, A710, 36–37)

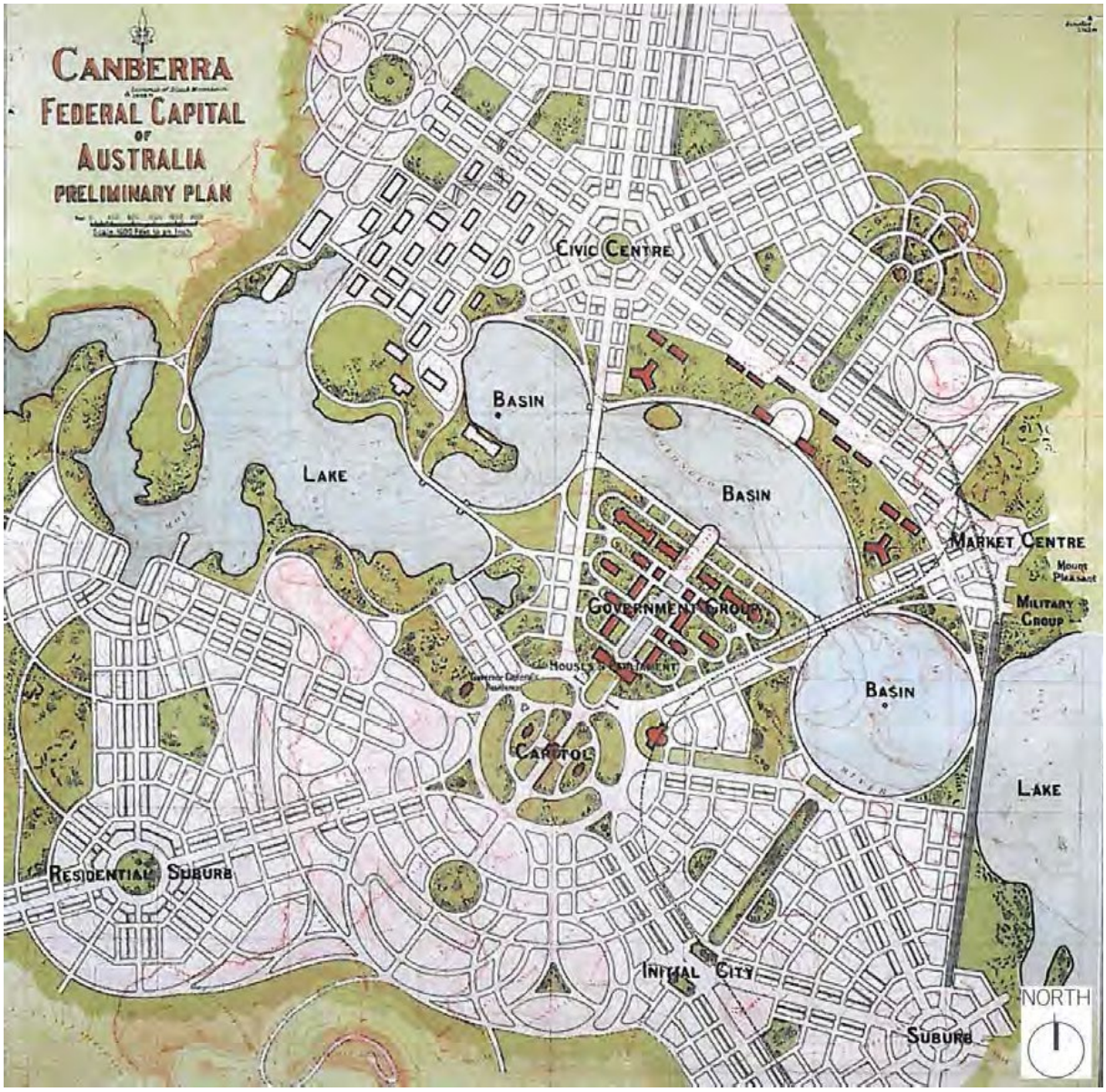


Figure 24 Plan prepared by Griffin to accompany his 'Report Explanatory' of 1913. (Source: National Archives of Australia, A1, 1917/7242)

Commonwealth Brickworks

In 1910, King O'Malley announced Government plans for the construction of a brickworks to serve the Federal Capital.[32] Other industries considered essential for the inland city included a power station, a dam and a pumping station, which became the Kingston Power House and the Cotter Dam.

Various experiments on shale in the region were carried out in early 1911. Two potential sites were investigated, one at the Duntroon Station and the other on Frederick Campbell's Yarralumla property. Samples from both sites were sent for testing.[33] Reports concluded that samples from Yarralumla produced bricks of excellent quality, equal to the best commercially produced bricks for hardness and porosity, while those produced from the Duntroon sample produced bricks of a better colour, but the material was 'little in weight, its absorption is greater and it has not burnt too well'.[34] The Yarralumla site was selected on this basis. Frederick Campbell agreed to the acquisition of approximately 38 acres of his land holding (see Figure 25). The area was gazetted on 27 July 1912, and development of the site began in 1913.[35]

As originally proposed, the permanent Commonwealth Brickworks was to include three Staffordshire kilns, one rock breaker, five American Ring Pulverisers, five Whittaker mixing pans and 10 Whittaker presses (see Figure 26). The kilns were to have induced draft fans in place of high chimneys. It was proposed to convey the bricks by aerial ropeway to a city depot.[36]

At this time (c1911–12), no other kilns of the Staffordshire type had been constructed in Australia, although the New South Wales State Brick Works at Homebush, west of Sydney, had announced plans for the imminent construction of several.[37]

A temporary plant was established and operational by 19 June 1913.[38] This comprised a grinding pan, brick making machine and elevator made by Geo. Foster and Sons, Sydney, and a portable steam engine. By contrast the permanent plant was to be electrically driven, with power from the 'Central Generating Station' (Kingston Power House), then under construction. By August 1913, four open kilns were in use at the temporary plant (see Figure 27), with plans for a fifth.[39] The temporary brickworks plant had an output of between 44,000 and 50,000 bricks per week[40] and was producing bricks for the construction of the kilns for the permanent brickworks,[41] and the Kingston Power House complex.[42]

The first stage of the construction of the permanent Brickworks, which comprised a single Staffordshire kiln, was approved on 1 December 1913 by PT Owen, the Director-General of Works.[43] It was proposed to use this kiln to produce bricks for the construction of a further two kilns.

The decision to build the Staffordshire kiln type at the site was based on the recommendations of Andrew Christie, a consulting engineer, who together with Owen, had inspected 'the latest equipment' at the State Brickworks in Homebush. In correspondence dated 24 July 1911, Christie noted in relation to the Staffordshire that:

> *… all drying, burning and cooling temperatures are under perfect control and high class goods of perfect colouring is the result. The kiln can also be for fancy and facing bricks, finials, pipes, etc., as well as ordinary bricks, the use of downdraught kilns is dispensed with and the cost of fuel materially reduced'.*[44]

Plans for the Staffordshire kiln were purchased in early 1914 from the Australian agent of the patentees, RE Odd, and Christie prepared plans for machinery sheds to be constructed adjacent to the kiln. Tenders were accepted in March 1915 for major plant, equipment and materials for the permanent works. Messrs Jaques Bros. of Richmond tendered for three rotary rockbreakers at a cost of £502; Messrs Timmings and Gardiner of Sydney for two grinding mills at a cost of £834; George Foster for ironwork for the Staffordshire kiln at a cost of £842; and George Weymouth of Melbourne for electric motors at a cost of £494.[45]

In September 1915, the brickwork for a 20 chamber Staffordshire kiln was nearing completion (see Figures 28–30).[46] The internal chamber bricks, shaped to provide the arched form, were imported from England together with the steel work trusses in the kiln loft. Three burners are also believed to have been imported from England.[47]

A Survey Plan of the site, dated 20 December 1916 (see Figure 27), shows a small galvanised iron office building close to the 'Machine Shop', and a galvanised iron 'Cottage' with associated coal store and stable to the northeast of the site. Other features shown on the plan include the temporary 'Old Kiln' area with four kilns (shown in outline on the plan, with 'Dormitories' immediately to the north), a coal stage, a long concrete retaining wall separating the quarry zone and the working areas, water storage tanks on a high knoll, a remote powder depot, three detached WCs south of the kiln, an elevated gangway connecting the coal stage to the kiln and overhead electrical connections linking the 'Power Station' to the 'Fan Room', and the 'Power Station' to the 'Machine Shop' and 'Cottage'. A tram line is indicated linking the quarry to the machine shop. The 2ft (610mm) gauge line was laid so that

loaded trucks ran downhill to the works, and the empty trucks were pushed uphill by manpower. The tram lines could be relocated as the quarry face advanced.[48]

Elements shown on the 1916 plan and remaining on the site today are the 'Power Station', the Staffordshire kiln (without verandahs to the north and south), the 'Fan Room' and 'Stack', and the long concrete retaining wall.

The Staffordshire kiln, together with crushing, processing equipment and brick presses, was ready for production in early 1916. However, the commitments of World War I and consequent restrictions on the works program for Canberra, together with a coal strike, saw the brickworks close in December 1916.[49]

In 1917, the Royal Commission on Federal Capital Administration considered the validity and functionality of the Brickworks at Canberra.[50] Walter Burley Griffin had complained that the Brickworks were a 'nullification' of his plan and that they were 'established without any consultation with him'. It was found that this charge was not fairly made since the Brickworks were established while the Departmental Plan was in force, and before Griffin came to Australia.

The Royal Commission also established that the 250,000 bricks made at the temporary plant were of poor quality and not suitable for major building work. Instead they were used for filling and lining drains, and for the Staffordshire kiln. The Commission also reported that construction of the Staffordshire kiln was begun in November 1914; that it was the first Staffordshire kiln built in Australia; and that there was evidence of construction errors in estimating and design. The findings of the Royal Commission are confusing when compared with the report in which Andrew Christie recommended the use of a Staffordshire kiln, following an inspection of the works at Homebush, which suggests a Staffordshire in operation there. This anomaly in the historical record has not been resolved.

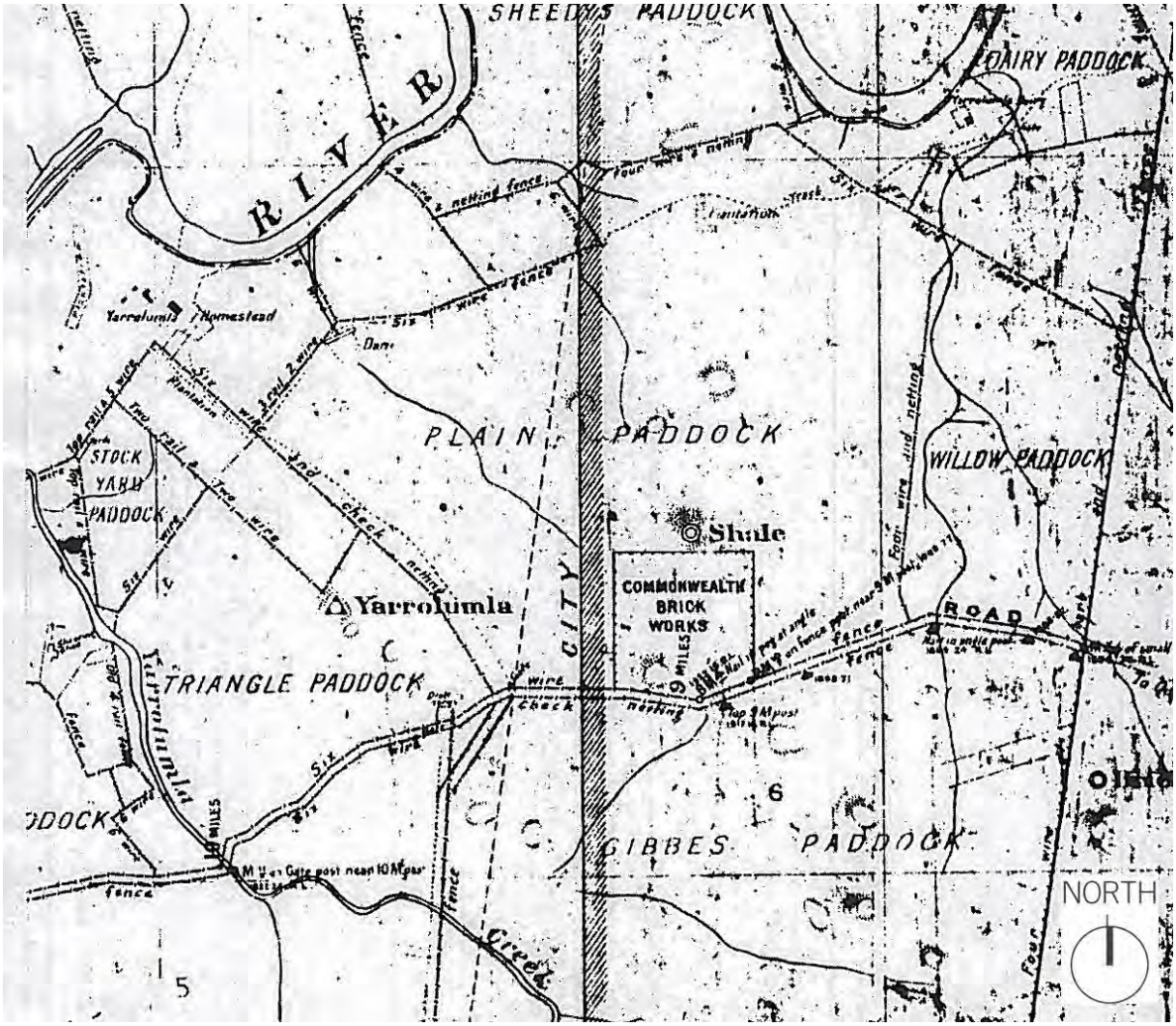


Figure 25 Site survey c1911, showing the dimensions of the 38ha site acquired in 1912. (Source: Lester Firth Associates, Section 2.1.1., original source not cited)

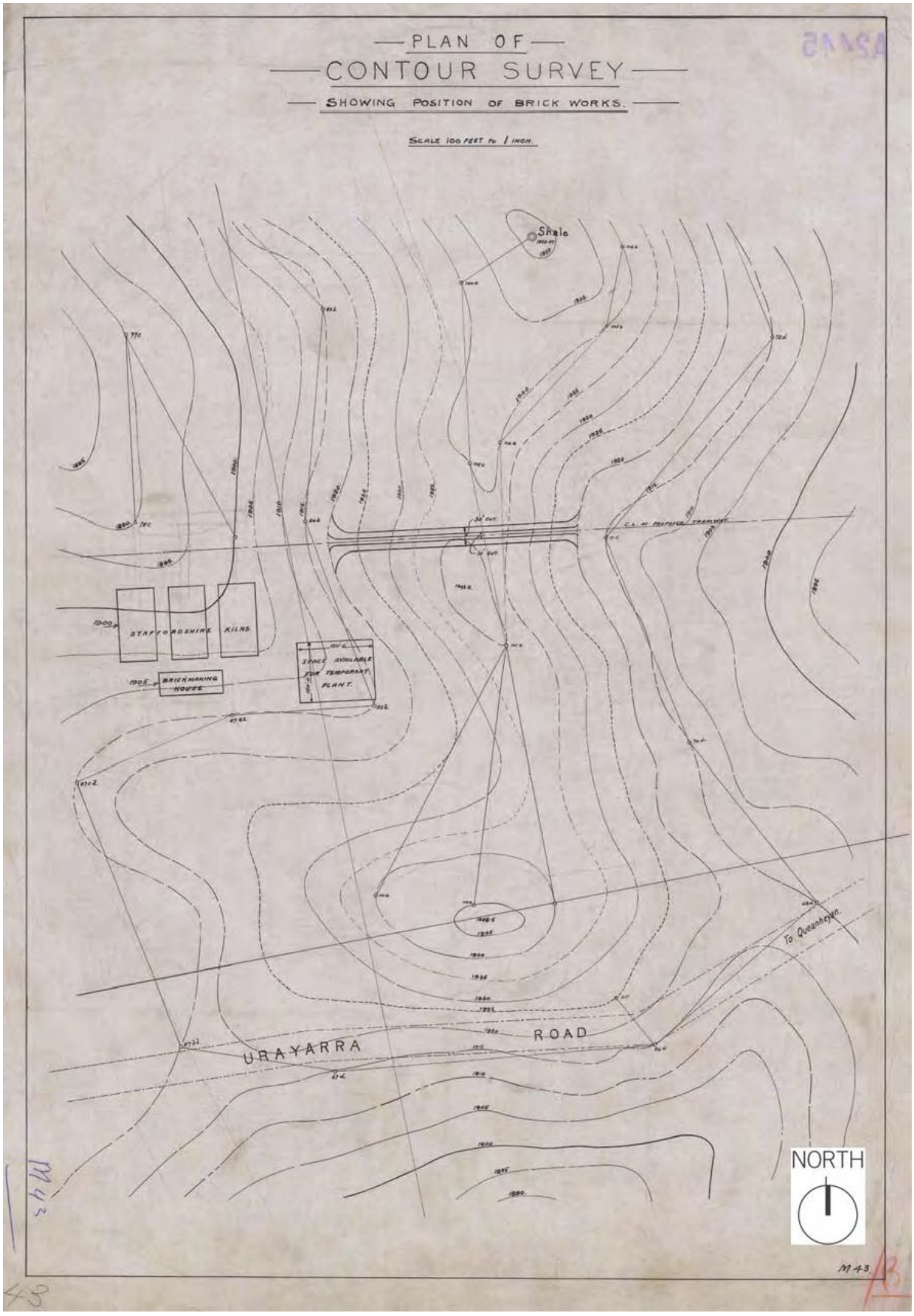


Figure 26 Contour plan with the layout of the Brickworks as proposed in c1911, showing three Staffordshire kilns and the location of the brick making plant. (Source: National Archives of Australia)

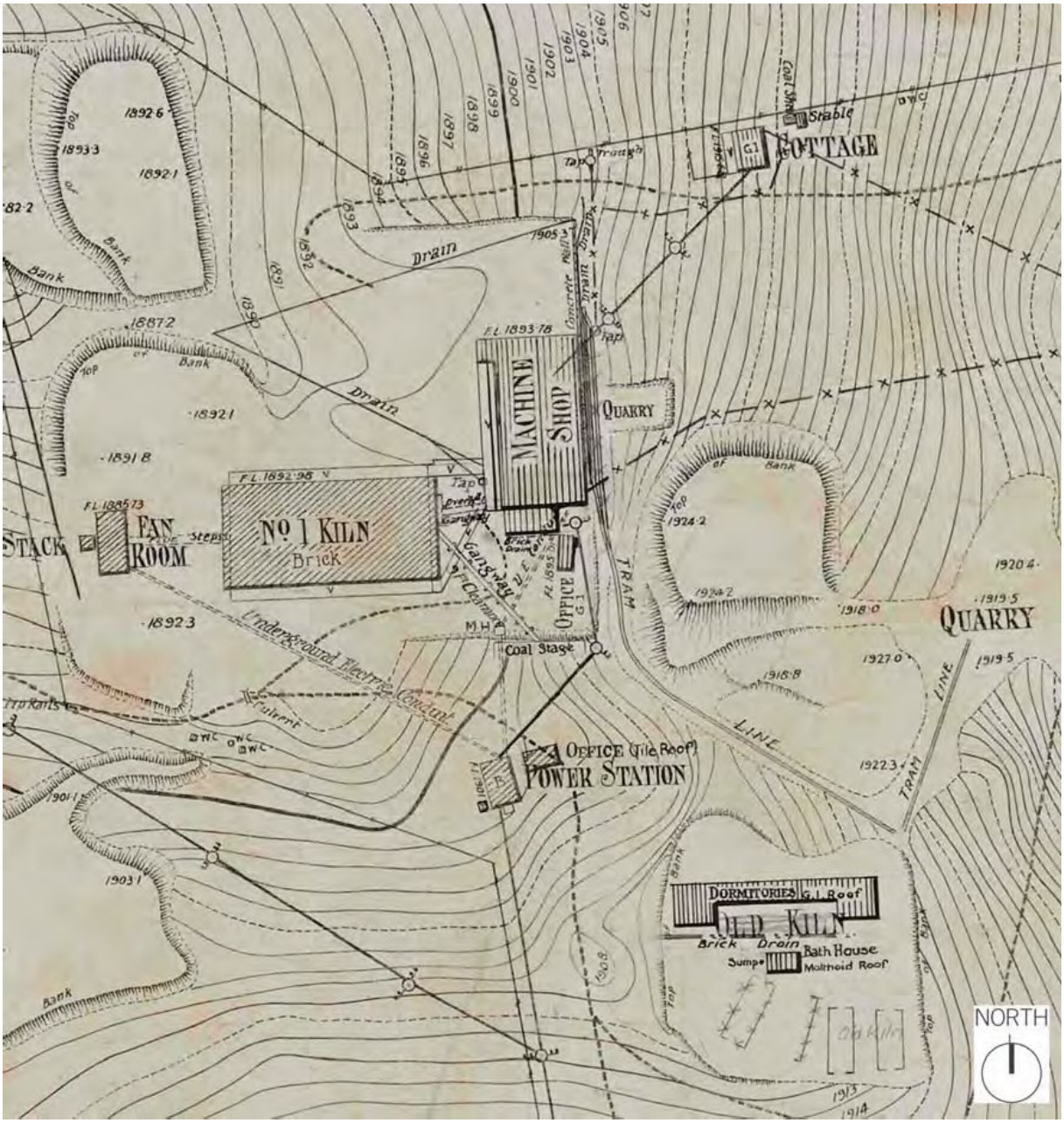


Figure 27 Excerpt from the 'Contour and Detail Survey, Canberra Brick Yards, 20 December 1916'. Note the locations of the clamp kilns below the 'Dormitories' to the southeast of the power station. (Source: National Archives of Australia)



Figure 28 Staffordshire Kiln under construction, c1915. (Source: National Library of Australia)



Figure 29 Constructing the transverse arches of the Staffordshire Kiln, c1915. (Source: National Library of Australia)

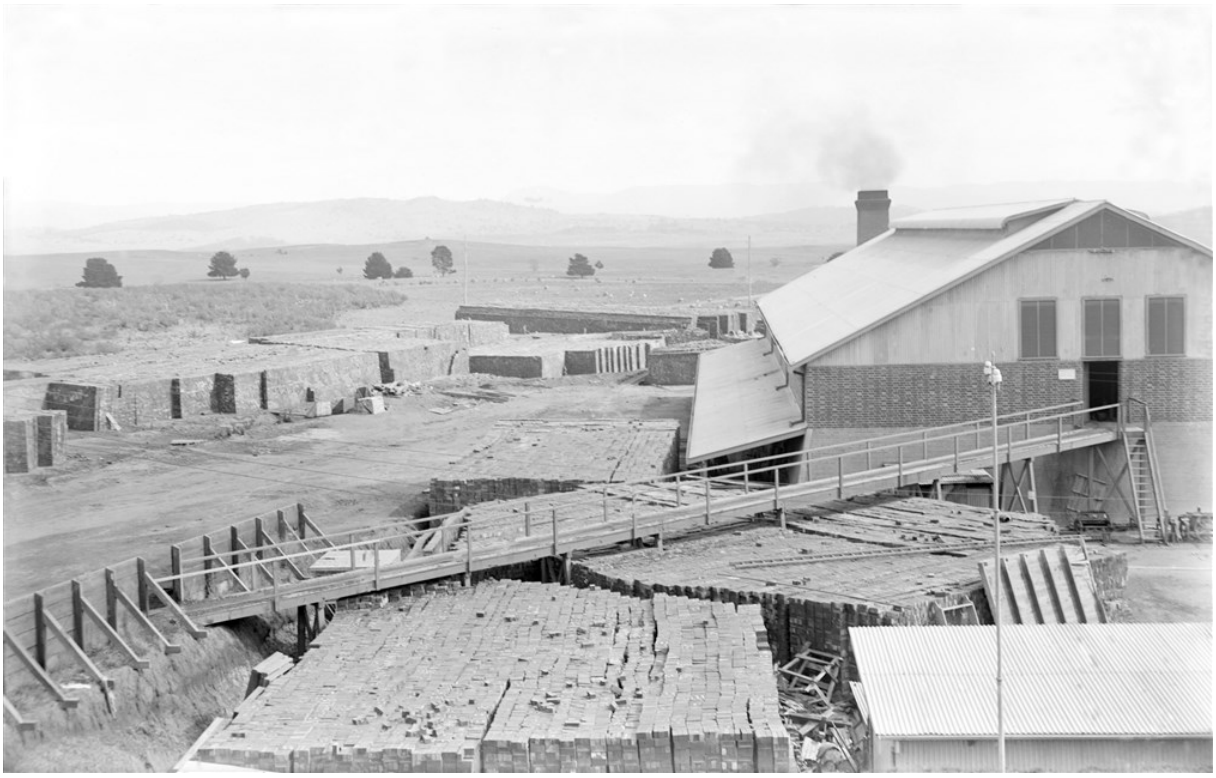


Figure 30 The Staffordshire Kiln pictured in c1917. (Source: National Archives of Australia, A3560, 188)

The Development of 'Westridge' (Yarralumla)

Walter Burley Griffin envisaged the area to the west of the 'Capitol Centre' as a lakefront suburb. The Plan (of City and Environs) of 1918, which was the last plan signed by Griffin during his tenure as Federal Capital Director of Design and Construction,[51] shows a broadly triangular area extending from the 'Capitol Centre' in the west, and defined by 'Adelaide Avenue' to the south, 'Westlake Esplanade' to the north and 'Mountain Way' to the west (see Figure 31).

Some elements of this plan were developed, including Adelaide Avenue and the southern section of 'Mountain Way', which is on the approximate alignment of the present Novar Street. 'West Lake', which is the western element of the waterway now known as Lake Burley Griffin, was formed in 1963, following the construction of the Scrivener Dam. Griffin named the suburb 'West Lake'. The area to the west of this proposed suburb, now Yarralumla, was popularly known as 'Westridge'.

Two enterprises underpinned the development and identity of the area between the city boundary and the west of Griffin's proposed layout for Westlake. The first, operational from June 1913, was the Canberra Brickworks. The second, established in 1914, was Westbourne Woods Arboretum (also known as Westbourne Woods), which was a proving ground for the suitability of native and exotic plants to the Canberra climate. The Arboretum is associated with Charles Weston, the first Superintendent of Park and Gardens for the national capital.

Since 1960, much of the site has been incorporated into the grounds of the Royal Canberra Golf Course.[52]

During the establishment phase of the Canberra Brickworks, prior to its closure from late 1916 until 1920, workers were accommodated in two camps of tents: one for married couples; the other for single men. The camps were located on Banks Street, near the present Forestry School (see Figure 31).[53]

The census of 31 December 1913 recorded a total of 62 residents of Westridge (Yarralumla), comprising 37 men and 25 women, the majority of whom were employed at the Brickworks.[54]

A dormitory block is shown on the site of the 'Old Kilns' on later versions of the 1916 survey plan (see Figure 32). It has not been established whether this was built. The first recorded permanent dwellings for workers at the Yarralumla works were constructed in the 1920s: at the top of Denman Street was a single men's camp; and to the southwest of the Brickworks was married quarters.[55]

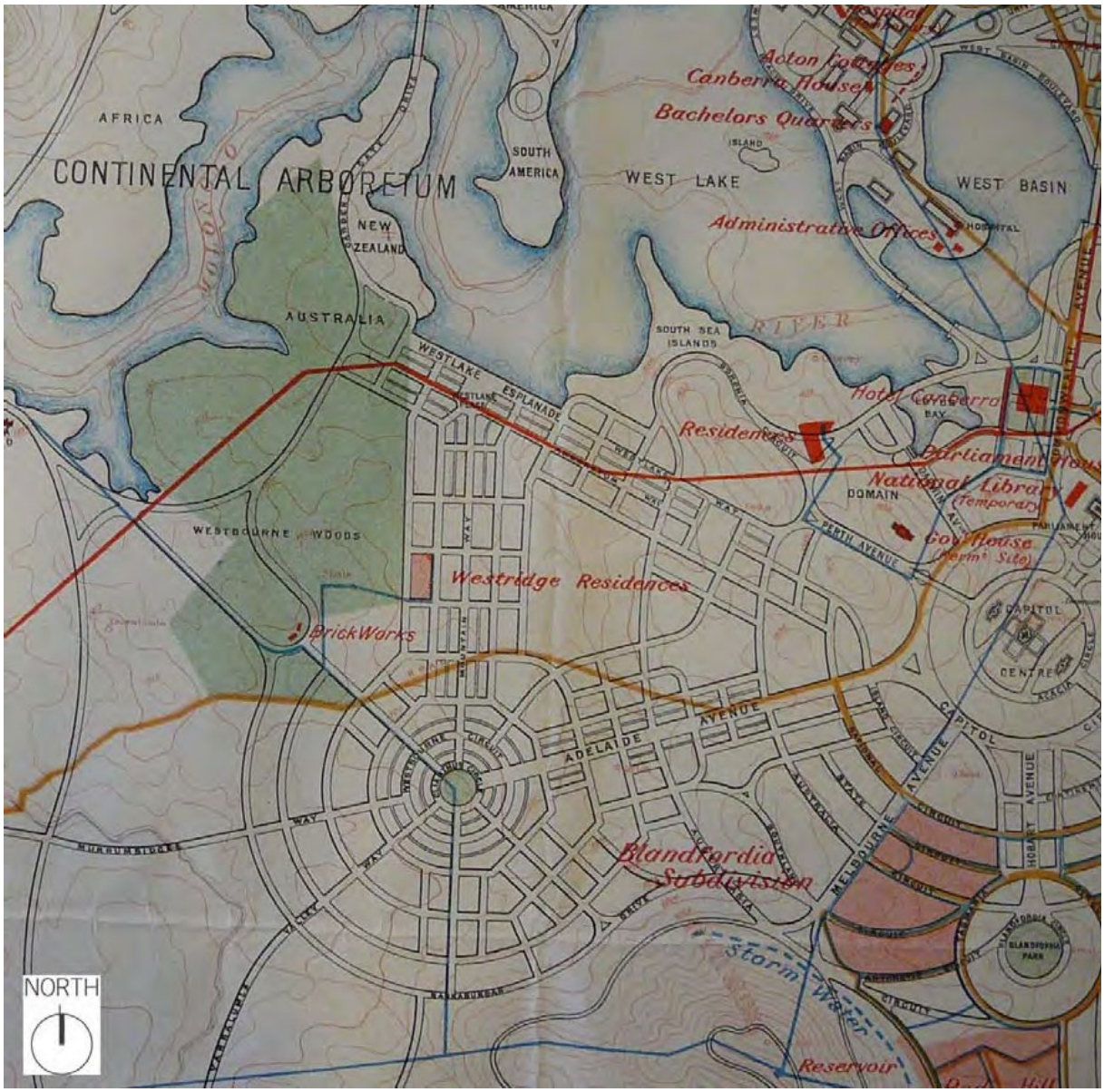


Figure 31 Detail of *Plan (of City and Environs*), 1918. The 'Westridge Residences' may be the location of the Brickworks Camp. (Source: State Library of Victoria)

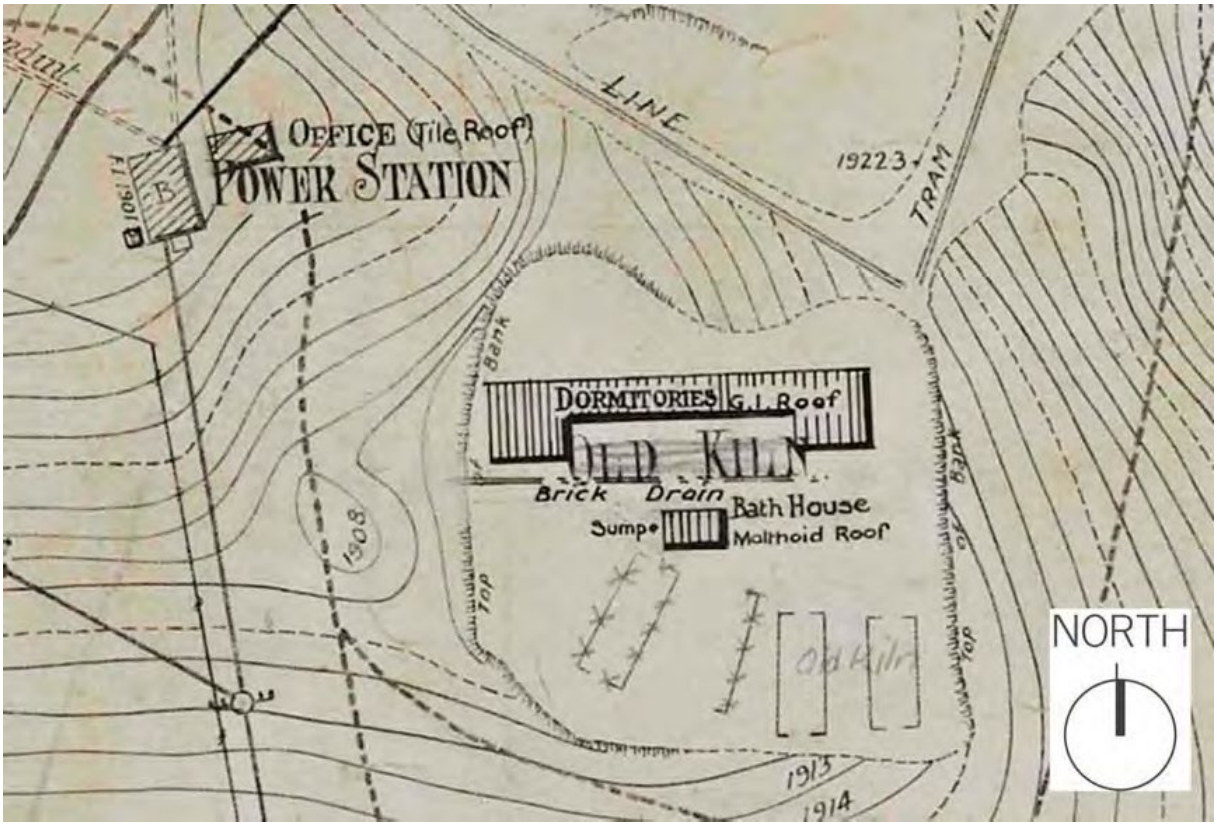


Figure 32 'Contour and Detail Survey, Canberra Brick Yards, 20 December 1916'. It has not been established if the 'Dormitories' on the site of the 'Old Kiln' had been built. (Source: National Archives of Australia)

C.4.2 Establishment Phase Elements at the Brickworks

Remaining Elements

The following elements at the Brickworks date from the establishment phase of the site. They are listed with their identifying number (refer to Figure 1.4) and date of construction. For a full history of each element refer to the Element Inventory Sheets at Appendix C.

- No. 11 + 12: Quarry, shale extraction undertaken from 1913 until c1940;
- No. 24: Concrete retaining wall, c1913–16;
- No. 14: Power house, 1915–16;
- No. 1: Staffordshire kiln, 1914–15;
- No. 2: Fan house for Staffordshire kiln, 1914–15; and
- No. 7: Stack for Staffordshire kiln, 1914–15.

C.5 Expansion Phase 1921–1942

C.5.1 Historical Background

Interwar Canberra

At the end of 1920, following the end of World War I, the Hughes Government decided to proceed with the construction of Canberra. Major works completed in the 1920s included the Provisional Parliament House, Sydney and Melbourne Buildings, Albert Hall, Forestry School, Hotel Canberra, Hotel Ainslie and the Capital Theatre, as well as housing at Ainslie, Reid, Forest and elsewhere. Residential construction peaked in 1927, the year that Parliament first sat at Canberra, and just prior to the transfer of public servants to the national capital in May 1928.

During the 1920s, the population of Canberra was approximately 3000, the majority being construction workers. The influx of public servants effectively doubled the population of the city.[56] The construction workers were housed in 'barrack-like camps'[57] located around the edges of the evolving city. One of these camps was built on Stirling Ridge, elevated ground to the east of the Brickworks. Westridge (as Yarralumla was then known) was also the location of Canberra's night soil depot, located on Adelaide Avenue, close to the present-day Kent Street–Novar Street overpass.[58]

When the Canberra Brickworks was reactivated (see Section B.4.2), accommodation was required to attract workers to Canberra. In 1921/22, seven timber tenements and a number of brick cottages were constructed adjacent to the Brickworks Camp, near the present Forestry School on Banks Street. These were among the first permanent dwellings at Westridge. At around this time, a recreation ground and tennis courts were also constructed for the benefit of the workers at the Brickworks Camp. Further development in Westridge followed during the 1920s and included the construction of 62 timber cottages for workers involved in building the Provisional Parliament House.

The next phase of residential development at the Brickworks began in February 1927, when a new single men's camp was constructed on the south side of Denman Street, close to the entrance to the site. New married quarters were located to the south of the Brickworks in the same year (see Figure 33).[59]

In 1925, Yarralumla was selected as the site of the Australian Forestry School (see Figure 34). A new building, designed in the Interwar Stripped Classical style by JH Kirkpatrick of the Federal Capital Commission (FCC), was completed in 1927. This was followed in 1928 by Westridge House, a house designed by Melbourne architect Harold Desbrowe Annear in collaboration with the noted interior designer Ruth Lane Poole as the premises of the Principal of the Forestry School, Charles Lane Poole (see Figure 35).[60] The property survives, and the Lane Pooles are remembered in the name of the residential street to the north of the Brickworks.[61] Also in 1927/28, 27 'lined cubicles' and 'mess, recreation and ablution areas' for students were constructed in the grounds of the Forestry School.[62]

In the late 1920s, Westridge was an isolated outpost of the emerging national capital. The area was not recognised as a suburb until October 1935, following complaints from local residents that they had been overlooked by the authorities (see Figure 36 and Figure 37).[63]



Figure 33 The married quarters camp (background), built to the southwest of the Brickworks in 1927. (Source: National Archives of Australia)



Figure 34 Forestry School, Banks Street, Yarralumla, built 1927. (Source: National Archives of Australia)



Figure 35 Westridge House, Yarralumla, built 1927/28. (Source: National Archives of Australia)



Figure 36 Plan of Canberra, 1933, showing the Brickworks to the west of the camp at 'Westridge' (Yarralumla). (Source: National Library of Australia, G8984 C3 G45)

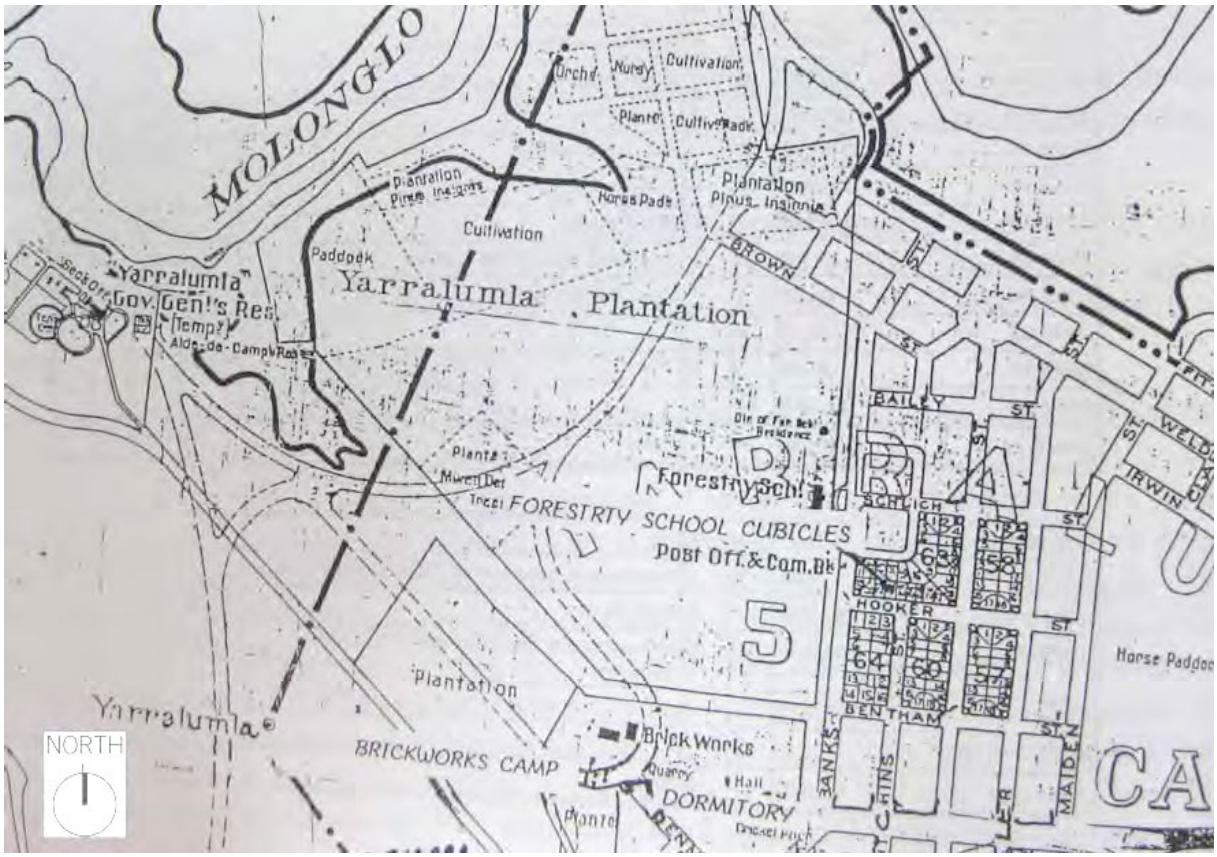


Figure 37 Plan of Yarralumla, 1927. The street layout derives from Griffin's scheme and was not fully realised. (Source: Ann Gugler, *The Builders of Canberra 1909–1929*, Chapter 3)

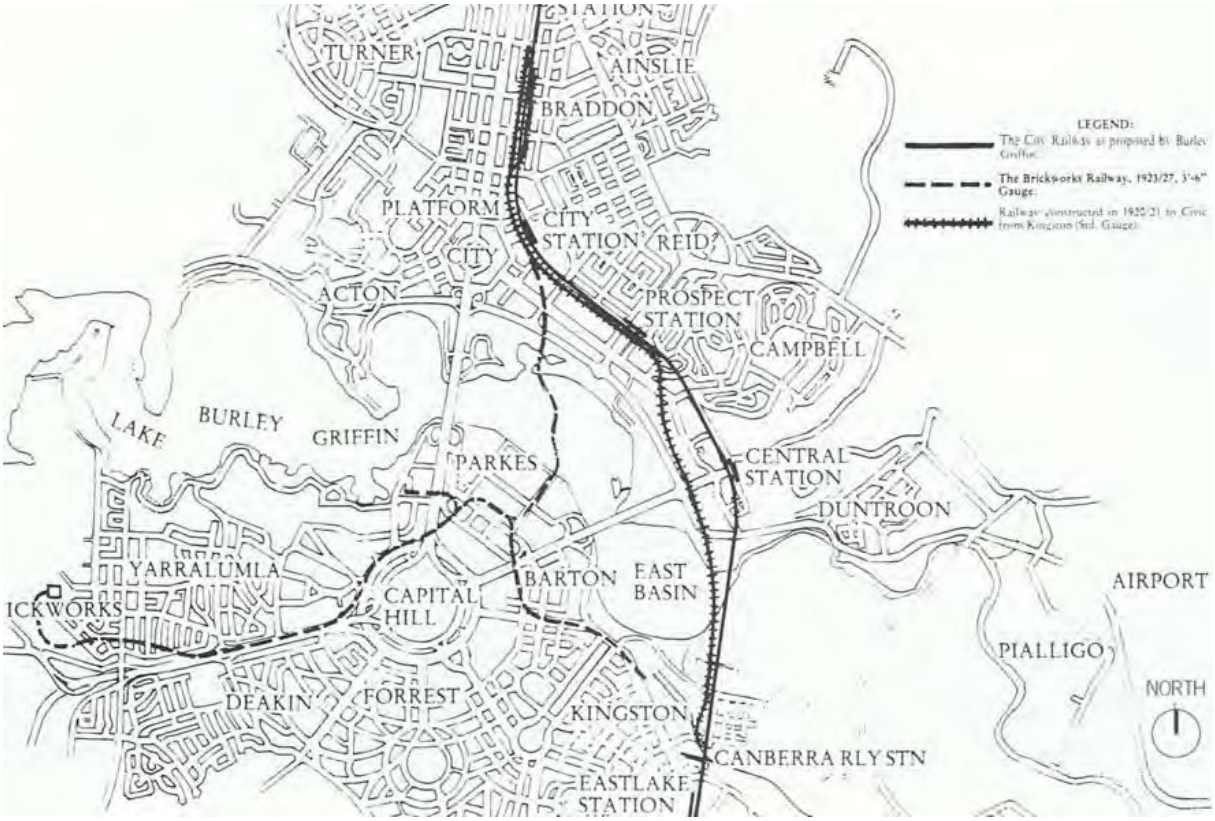


Figure 38 Plan of Canberra with the Brickworks Railway (broken lines) superimposed. (Source: Canberra's Engineering Heritage <www.engineer.org.au>)



Figure 39 Aerial view of Canberra Brickworks, 1961. Note the railway cutting to the west of the site. The route of the railway east towards the city is also evident. (Source: ACT Planning and Land Authority)

Canberra Brickworks Revived

Repairs to machinery at the Canberra Brickworks were made in 1920 and the complex was re-opened in early 1921, with a staff of only 35 and Mr WK Newbold as manager.[64]

A tile making plant was installed in 1922, located to the south of the 'Machine Shed'. In 1925, Dr Wunderlich of the Wunderlich Tile Company, Sydney, reported to the government that £5,000 had been expended on a small tile making plant, and that the tiles were of a poor quality. He recommended a £15,000 upgrade, however the government decided to spend £2,000 on improving the product.[65]

By the end of 1923, five million bricks and 50,000 tiles had been produced at the plant by a workforce of 53.[66] The bricks produced at Yarralumla in this period were generally regarded as being of a high quality. In 1925, Dr Wunderlich reported: 'the Canberra Brickworks has been turning out a brick of remarkably fine quality; in fact a quality unnecessary for ordinary construction work'.[67]

Initially, bricks were transported from the Brickworks to the construction sites in the emerging city centre by traction engine. However, the machines were only able to make two daily round trips. To accelerate the process, a light railway was constructed, leading from the southwest of the brickworks site, before aligning with the present Denman Street and heading east to the construction sites (see Figure 38). A bridge was constructed to carry the trains over the Molonglo River to the Civic Centre (now known as Civic). The 3' 6" (1,067mm) gauge steam powered railway was operational by the end of 1923.[68]

The 'branch lines' of the light railway were removed prior to the opening of the Provisional Parliament Building in May 1927 and the remaining sections of the railway were removed in 1929. From the late 1920s, bricks were transported by truck. The route of the railway is shown on a 1961 aerial view of the site (see Figure 39). Remnants of the three lines of the former Brickworks railway are evident closest to the southwest corner of the Canberra Brickworks, converging to form a single embankment. Close to the Brickworks two of the former lines are evident as earth terraces, which go through a short cutting to become distinctive earth mounds. The third line runs approximately parallel to the western boundary of the Brickworks and is evident as an earth terrace.[69] The remnants of the railway have been recognised for their significance and contribution to the early construction of Canberra and were individually listed on the ACT Heritage Register in 2013.[70]

To cope with increased demand during the 1920s, two 'temporary' Downdraught kilns and an associated stack were constructed in October 1925. These were oriented east–west and located close to the site of the three 1960s Downdraught kilns that remain today (see Figure 40). However, the additional output was insufficient to cope with the demands of the national capital construction program. During this period, at least five million bricks were purchased from outside the Australian Capital Territory. In 1926, the *Canberra Times* reported that by October of that year an additional plant capable of doubling the output of the Brickworks was to be operational.[71]

In 1926 the existing machine shed (see Figure 41) was expanded by two bays for two new New Era 'Whittaker' brick machines and grinding pans. A Hardy patent kiln (a modified Hoffman-type kiln with a detached stack) was built and in use by early 1927, located to the north of and parallel to the Staffordshire kiln (see Figure 42 and Figure 43).[72] This kiln remains today, albeit in extensively modified form. Also during this period, a 'Scotch' kiln was in operation to the north of the Staffordshire kiln (see Figure 42), and the original section of the present office building was constructed (refer to Element Inventory Sheet: Offices—Figure 1, at Appendix C). In January 1927, the *Canberra Times* commented on the expanded capacity of the works, noting that in addition to the new Hardy patent kiln of 18 chambers with a potential annual output of six million bricks, a new down draft tile kiln was

operating with an annual output of 420,000 tiles, and a new Roman tile machine had a daily output of 2,000 tiles. It also noted that three hand presses had been installed (presumably in the machine shed) 'for all classes of special work'.[73]

Despite the scale of the expansion works, the demands on the Brickworks were greatly reduced with the end of major building operations in the ACT. The 1927/28 Federal Capital Commission Annual Report noted that the plant at Westridge, which comprised one 'Hoffman' (the Hardy patent kiln), one Staffordshire and two Downdraught kilns, was capable of producing 12,000,000 bricks and 500,000 tiles a year. The report also noted that extra crushing plant and equipment was installed at the quarry, and large supplies of material for road construction and use in building works had been obtained. The joinery shop, mechanical and electrical workshops had operated during the year although the joiner's shop was to be closed due to lack of demand.[74]

Due to instability, quarrying was reportedly more difficult and costly at Yarralumla as compared to other brickworks. A comparison of prices in 1929 showed that 1,000 common Canberra bricks cost £6.11s while the State Brickworks in Sydney could supply 1,000 commons for £2.18s 6d. But freighting 1,000 bricks to Canberra cost £5.1s, almost as much as it cost to manufacture them at Yarralumla. In addition, the Brickworks was operating at a loss because of Commission policies to sell bricks to private enterprise at little above cost price to make building as cheap as possible. Bricks for public servant homes were sold below cost price to give further incentive for them relocate to Canberra.[75]

In 1929, the Depression saw production severely curtailed. To minimise costs, timber was used for firing kilns instead of coal. Production eventually ceased altogether and the works closed in February 1931. Stockpiled bricks were used for essential construction purposes only. As the economy revived, government funds were again available for office accommodation for public servant transfers to Canberra. Limited production at the Canberra Brickworks began again in 1935. From this period problems with shale quality through limestone intrusion meant that most material for brick production had to be brought to the site from elsewhere. Evidence of this limestone problem is evident in the rock outcrops in the quarry area.[76]

The late 1930s was a boom time for the construction of Canberra, and the Canberra Brickworks was unable to meet demand. On 19 October 1939, the *Canberra Times* reported that daily production at the Brickworks was 45,800 bricks, and the average consumption in building operations was 50,280—a situation that required the purchase of 631,500 bricks from the Bowral works in New South Wales.[77] For the 12 months ending December 1940, the output of 7.25 million bricks was the highest since the boom days of the 1920s.[78]

World War II diverted peace time activity to works associated with the war effort, and saw the closure of the Brickworks once again. In April 1942 staff were laid off and a caretaker manager was retained to issue bricks for essential works. At the time, three million bricks were in stock, some of which were used in the construction of the US Embassy in Canberra.[79]

The range of products for building purposes produced at the Brickworks in the 1930s was enormous. A 1936 Stock Sheet of the Department of Interior lists all products and includes: 3" (76mm) common bricks, 3" face bricks (red), 3" black bricks common, 2" (51mm) paving bricks, 2" face bricks (red), 3" semi-glazed face bricks, 3" chocolate face bricks, 3" pavers, 2" common bricks, squints, ovolo double return bricks, special mould bricks, ovolo type 8, ovolo type 17, splay on end 3", 3" splay on end flat double, angle bricks, Scotia, cornice, 3" bull nose bricks, plinth single return, double return, bull nose stops—single and double, vents, louvres, air bricks, kerbs, tiles—Marseilles, Roman, with apex, ridge, starters and stops, paving tiles, chimney pots, fluted bricks and facing tiles.[80]

C.5.2 Expansion Phase Elements at the Brickworks

Remaining Elements

The following elements at the Brickworks date from the expansion phase of the site. They are listed with their identifying number (refer to Figure 1.4) and date of construction. For a full history of each element refer to the Element Inventory Sheets at Appendix A.

- No. 13: Offices, c1925;
- No. 3: Hardy Patent Kiln 1, c1926–27 (rebuild 1955);
- No. 4: Fan House for Hardy Patent Kiln, c1927 (second phase c1955); and
- No. 8: Chimney Stack for Hardy Patent Kiln, c1926–27.



Figure 40 Detail of 1947 site plan, indicating the location of the two 'temporary' Downdraught kilns, to the south of the Staffordshire Kiln ('No. 1 Kiln'). (Source: National Archives of Australia)



Figure 41 The machine shop (left) pictured mid-1920s. (Source: National Library of Australia)



Figure 42 Hardy Patent Kiln 1 under construction, 1926. The Scotch kiln is to the right of the picture. (Source: National Archives of Australia)



Figure 43 Hardy Patent Kiln 1 under construction, c1926. (Source: National Archives of Australia)

C.6 Post-World War II Phase 1944–1976

C.6.1 Historical Background

Postwar Growth (1944–1963)

With the end of World War II in sight, the Canberra Brickworks reopened in September 1944, with limited production. From the late 1940s and into the 1950s, output was stepped up to provide material to address the postwar housing shortage, resulting in a major expansion and redevelopment of the Brickworks (see Figure 44 and Figure 45).

Among the first postwar construction projects was the replacement of the married quarters of the Brickworks Camp built during the 1920s, which had been removed by the army during World War II. In the immediate postwar period a request for new quarters was made to attract more workers as recruitment of qualified and experienced workers was a problem during this period. The new 'Brickworks Hostel' was ready for occupation in 1945[81] and was located on the site of, or in close proximity to, the former married quarters (see Figure 46). Demolished c1970, sections of the foundations of this structure survive. The Amenities Block (Element 25) also dates to the early postwar period of investment in staff facilities.

In 1952, plans for a new 'Tunnel' kiln were prepared, equipment was purchased and foundations were laid. However, the project was abandoned amid spiralling costs. The aborted Tunnel kiln project resulted in expenditure of £141,014. Department of Works records show that items of equipment purchased for the project and valued at £39,193 were transferred to other sections of the Department, and that redundant equipment valued at £44,000 was still on site in 1956. A further £28,351 was lost due to sales of redundant equipment, expenditure on site and compensation for equipment not received. Department records also note that a large prefabricated Marsden shed, which had been

acquired to cover the kiln, was to be re-erected at Duntroon as a store for the Australian War Memorial.[82]

In July 1952, following the losses related to the Tunnel kiln project, responsibility for the Canberra Brickworks was transferred from the Department of Works to the Administration Branch of the Department of the Interior.[83] Also in 1952, with demand for construction materials increasing, the Department was advised to build a 20-chamber 'Hoffman' kiln with a capacity of 20,000 bricks per chamber, to be located on the foundations of the Tunnel kiln (see Figure 47).[84] On 16 June 1954, the contract for the construction of a second Hardy patent kiln with loft, awning and tall stack was awarded to McDonald Bros & Co, of Lidcombe, Sydney.[85] This new kiln was to be lined with firebricks, equipped with the latest system of hot air flues and wickets and large enough to permit free movement of fork lift trucks.[86] Its price was a relatively modest £43,455.

Unlike both existing continuous kilns at the Brickworks, the new Hardy patent type kiln was constructed utilising natural draught for firing, as opposed to being fan-induced. As a consequence, a tall chimney stack was required (see Figure 47). Ironically, the natural draught process did not work efficiently and a fan was installed within about a year.

The expansion of the Brickworks in the 1950s saw a change in the process of brick making and in the machinery required for production. The early machine shop, adjacent to the Staffordshire kiln, was replaced with a series of brick press buildings and a workshop. The Brickworks was also equipped with a series of new crushers and hoppers, an elevator and a 'Pan Building'; and a sequence of conveyor belts (see Figure 48 and Figure 49).[87] In 1955 the existing Hardy patent kiln (Element 3) was also substantially rebuilt and enlarged by two bays.

By 1956, it was reported that progress had been made in re-organising the layout of the brickworks; that a large new kiln was in operation with other kilns being substantially reconstructed; and that all brick machines were of recent installation.[88]

In 1959, a report was prepared by HH Macey on the operations, management, equipment, and economics of the Canberra Brickworks to address concerns about the low productivity of the plant.[89] Macey found that the works were generally well planned and maintained; that the grinding was 'a little on the coarse side' resulting in bricks of moderate quality; and that a reliable supply of high quality clay at reasonable costs was a notable problem. He also expressed concerns about heat 'leakage' to the Staffordshire kiln, which he suggested could be addressed with minimal difficulty.[90]

Macey's conclusion on the low productivity of the plant was:

> *The works is basically a good one and capable of a much greater output than at present. The essential cause of the low output is an ill-advised bonus payment [scheme] which not only provides no incentive towards greater output, but actually encourage a lack of production … Provided that the men can be made to work steadily and regularly at reasonable rate common elsewhere, the works is capable of making a considerable profit.*[91]

The development of Canberra received renewed attention with the creation of the National Capital Development Commission (NCDC) in 1958. To meet construction needs, the two 'temporary' 1925-built Downdraught kilns were demolished to make way for three new Downdraught kilns, which were reputed to be the longest in Australia.[92] These were constructed on the site of the former 'temporary' kilns in 1960–63 (Element 6), although oriented north–south rather than east–west. Each held 120,000 bricks; the process of loading, firing and unloading took seven days. With the completion of the Downdraught kilns the Brickworks had a capacity of 800,000 bricks per week.[93]

During the 1960s, oil replaced coal as the fuel for firing the kilns, and modifications were made to the entrances of the three continuous kilns (the Staffordshire and two Hardy patents) for the use of forklift trucks to set and remove bricks.[94]

Decline

In 1967, the ACT Health Services Branch inspected the Brickworks Hostel and reported that the buildings were in a state of disrepair. Late in 1970 it was reported that the hostel was to be demolished.[95]

In 1971, a large building to the west of the 1960s Downdraught kilns was constructed to house drying kilns and machinery for making extruded bricks was installed ($500,000.00 plant)[96] (Element 32). This operated until the closure of the works in 1976.

By 1973, the Canberra Brickworks were considered to be in need of extensive modernisation and proposals were prepared by Commonwealth Brickworks Pty Ltd for upgrade works. These proposals were rejected by the NCDC on environmental grounds and a new brickworks site was released at Mitchell, north of Canberra. The *Canberra Times* cited the reasons for moving the brickworks as: the land being required for residential purposes; excessive use of neighbourhood roads by heavy traffic; and levels of air pollution incompatible with the amenity of residential development nearby.[97] The kilns were unloaded for the last time in August 1976. All usable material was moved to the new site and the remainder offered for sale. Bricks were first produced in the Mitchell plant in October 1976.

By the time of its closure it was estimated that some 600 million bricks had been produced at the Canberra Brickworks.[98] The Sixteenth Annual Report (1975–1976) of the Commonwealth Brickworks (Canberra) Limited recorded that the company received $2.25 million from the Department of the Capital Territory as compensation upon having to vacate the Yarralumla site. The report also indicates that between 1972 and the closure of the works in 1976 the workforce had halved, from 106 to 53, and total brick sales reduced from $22.25 million to $12.76 million.

Substantial operational losses made during this period were attributed to the imminent relocation of the plant and the depressed state of the economy.[99]

C.6.2 Post-World War II Phase Elements at the Brickworks

Remaining Elements

The following elements at the Brickworks date from the post-World War II phase of the site. They are listed with their identifying number (refer to Figure 1.4) and date of construction. For a full history of each element refer to the Element Inventory Sheets at Appendix C.

- Element 25: Amenities Block, c1950, c1977;
- Element 5: Hardy Patent Kiln 2, c1953;
- Element 9: Chimney Stack for Hardy Patent Kiln 2 (Element 12), c1953, c2005;
- Element 15: Machine Bay 1 for Staffordshire Kiln (Element 3), c1955;
- Element 16: Machine Bay 2 for Hardy Patent Kiln 1 (Element 8), c1955;
- Element 17: Machine Bay 3 for Hardy Patent Kiln 2 (Element 12), c1955;
- Element 18: Workshop, c1955;

- No. 21: Small Crusher House, c1958;
- No. 19: Large Crusher House, c1955;
- No. 20: Primary Crusher House, c1955;
- No. 22: Elevator/Conveyor, c1955;
- No. 6: Downdraught Kilns, c1960–63;
- No. 26: Downdraught Kiln Control Room, c1963;
- No. 10: Chimney Stack for Downdraught Kilns, c1950s;
- No. 27: Toilet Block, c1960s;
- No. 28: Ancillary Storage Building, c1971;
- No. 29: Substation/Control Room, c1971;
- No. 30: Boiler House, c1971;
- No. 31: Amenities Block 2, c1960s;
- No. 32: Extrusion Plant, c1971;
- No. 33: Ancillary Storage Building 2, c1960s; and
- No. 34: Storage Shed, c1960s.

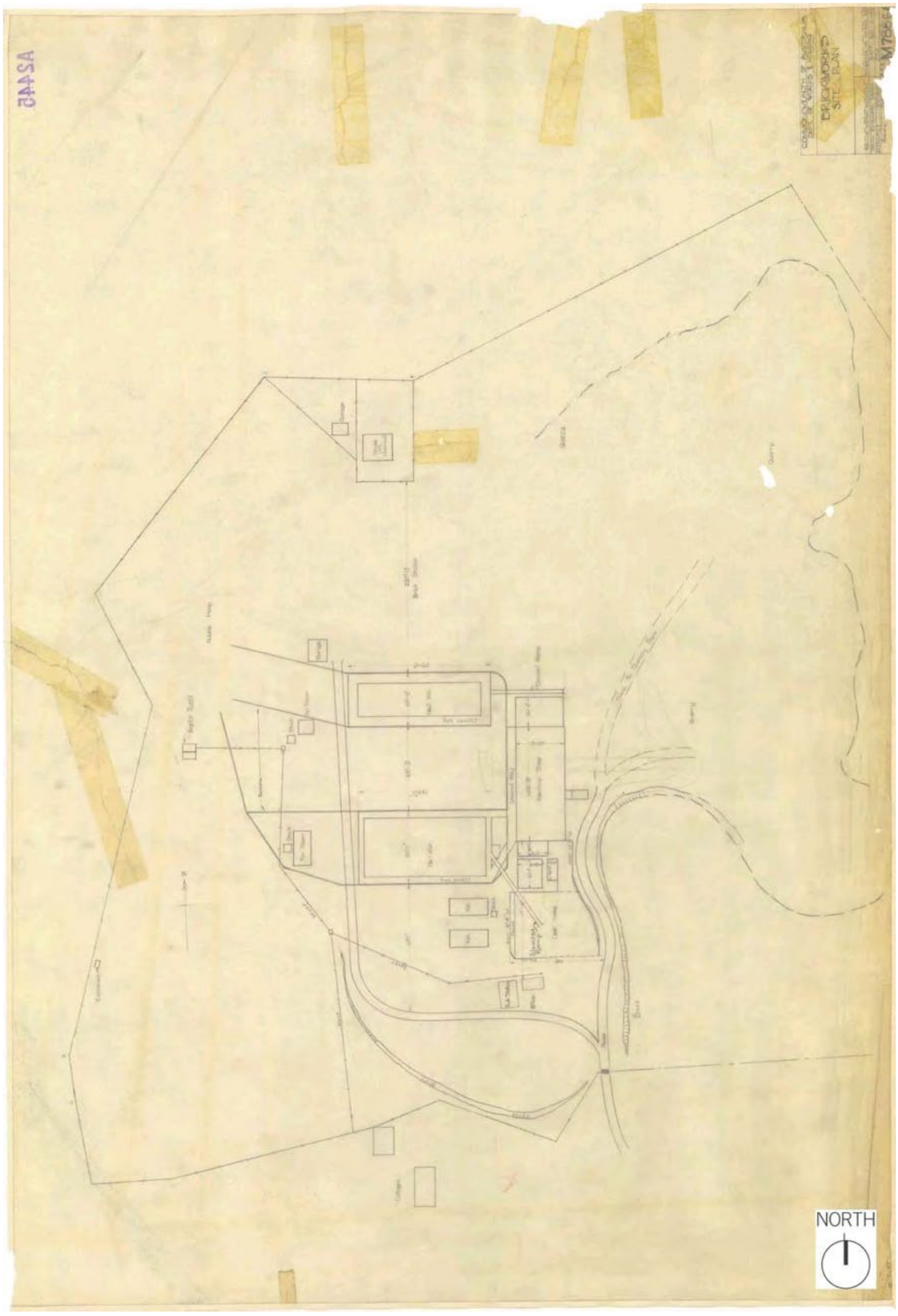


Figure 44 Site plan, 1947. (Source: National Archives of Australia, A2445, M7668A)

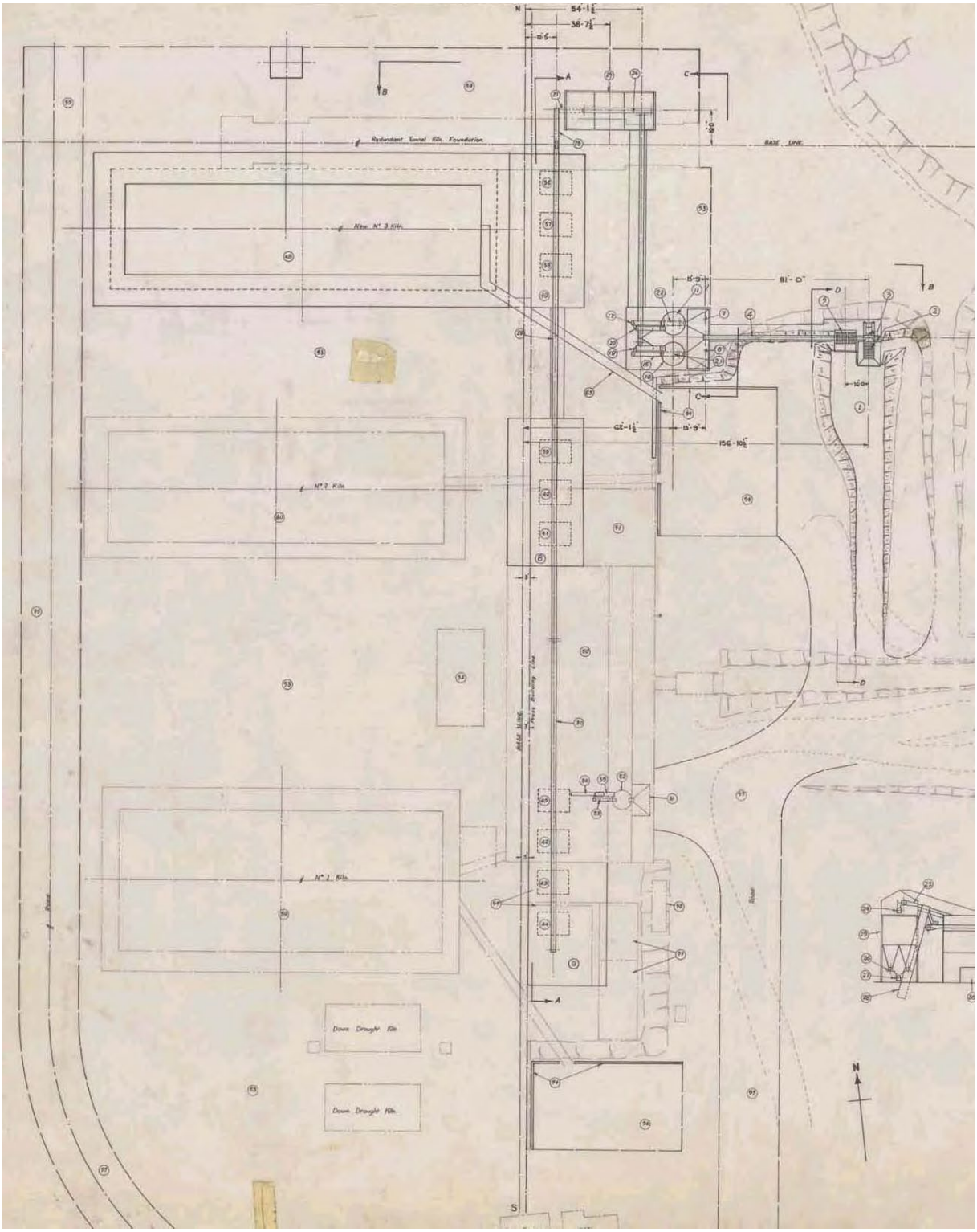


Figure 45 Layout of the site, 1954. (Source: National Archives of Australia)



Figure 46 Aerial view of the Brickworks, 1950. Note the new 'Brickworks Hostel' to the south of the site. (Source: ACT Planning and Land Authority)

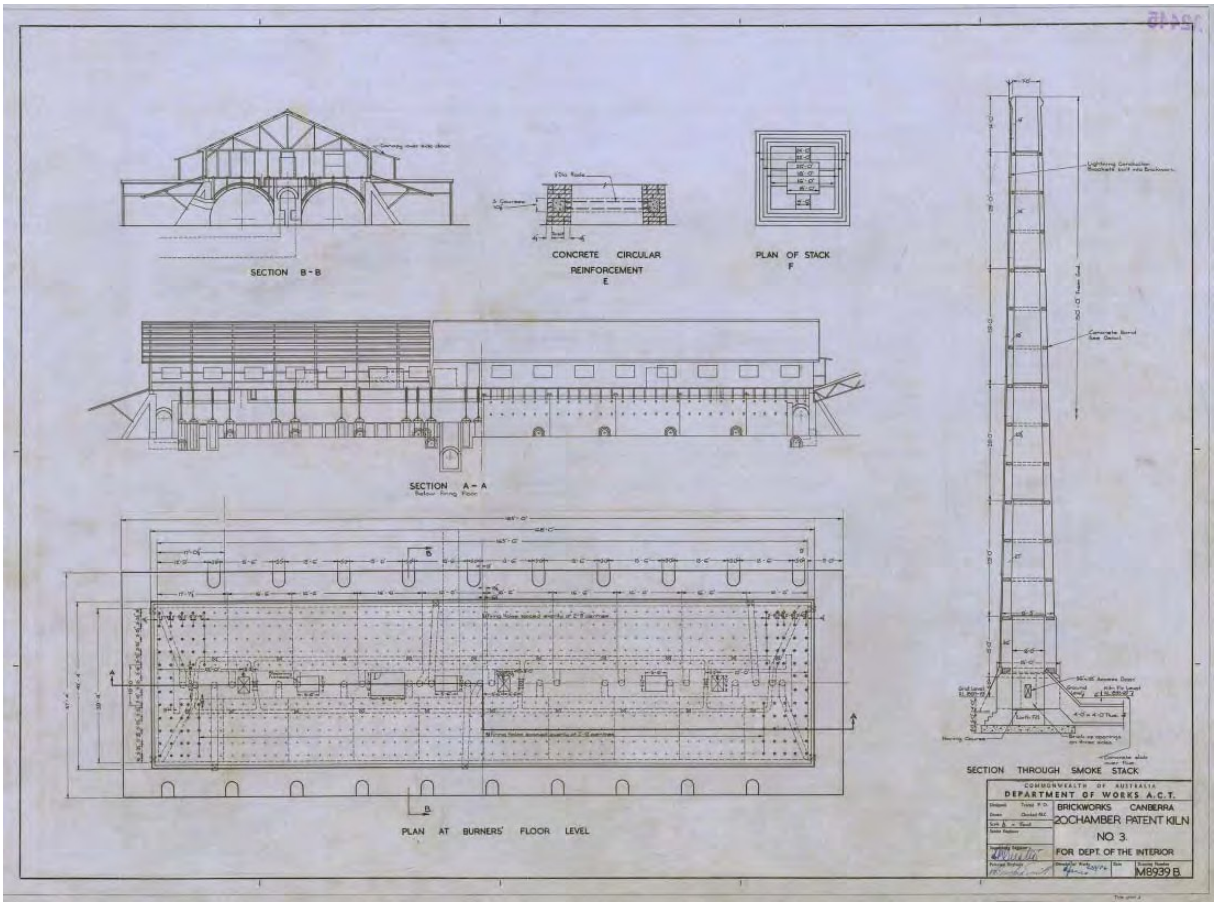


Figure 47 Plans for the Hardy Patent Kiln 2 (Element 5) and stack (Element 9), built 1954/55. (Source: National Archives of Australia)

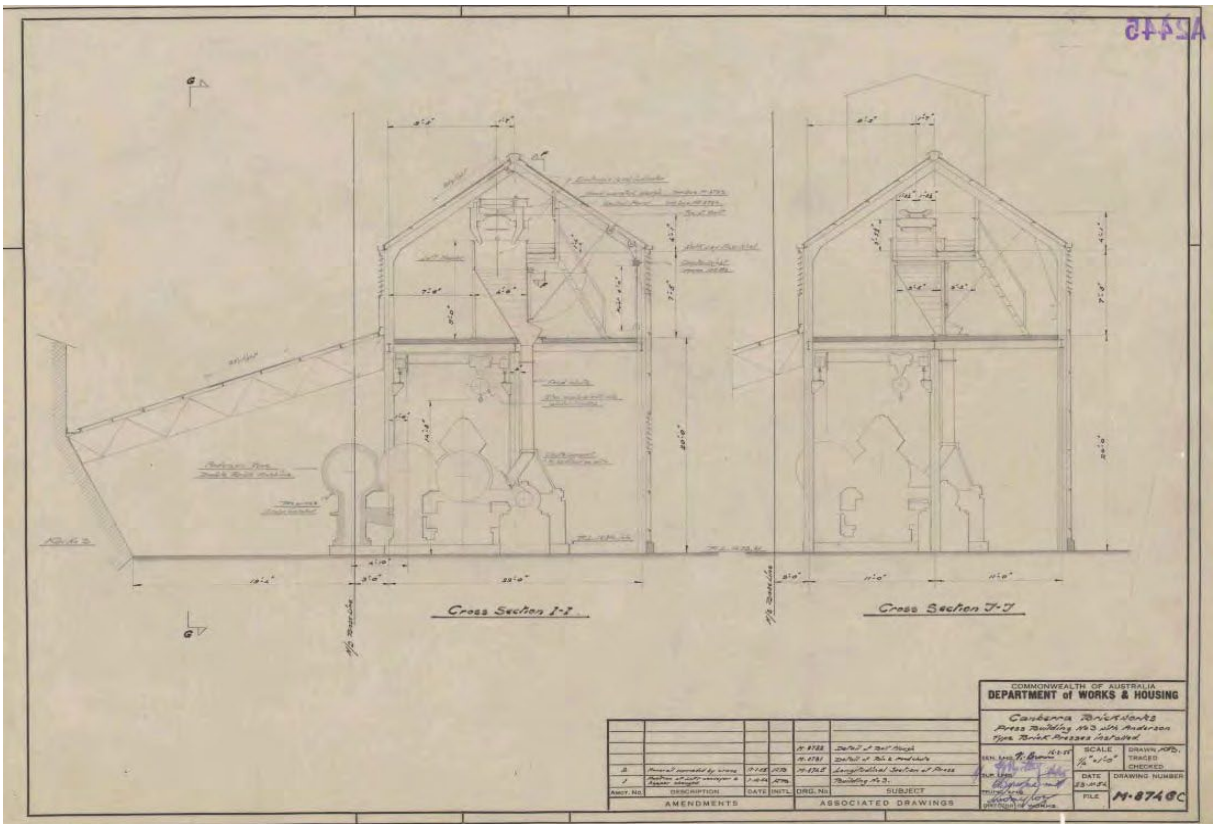


Figure 48 Cross-section through machine bay for Hardy Patent Kiln 2 showing brick press below and conveyor in the gable. (Source: National Archives of Australia)

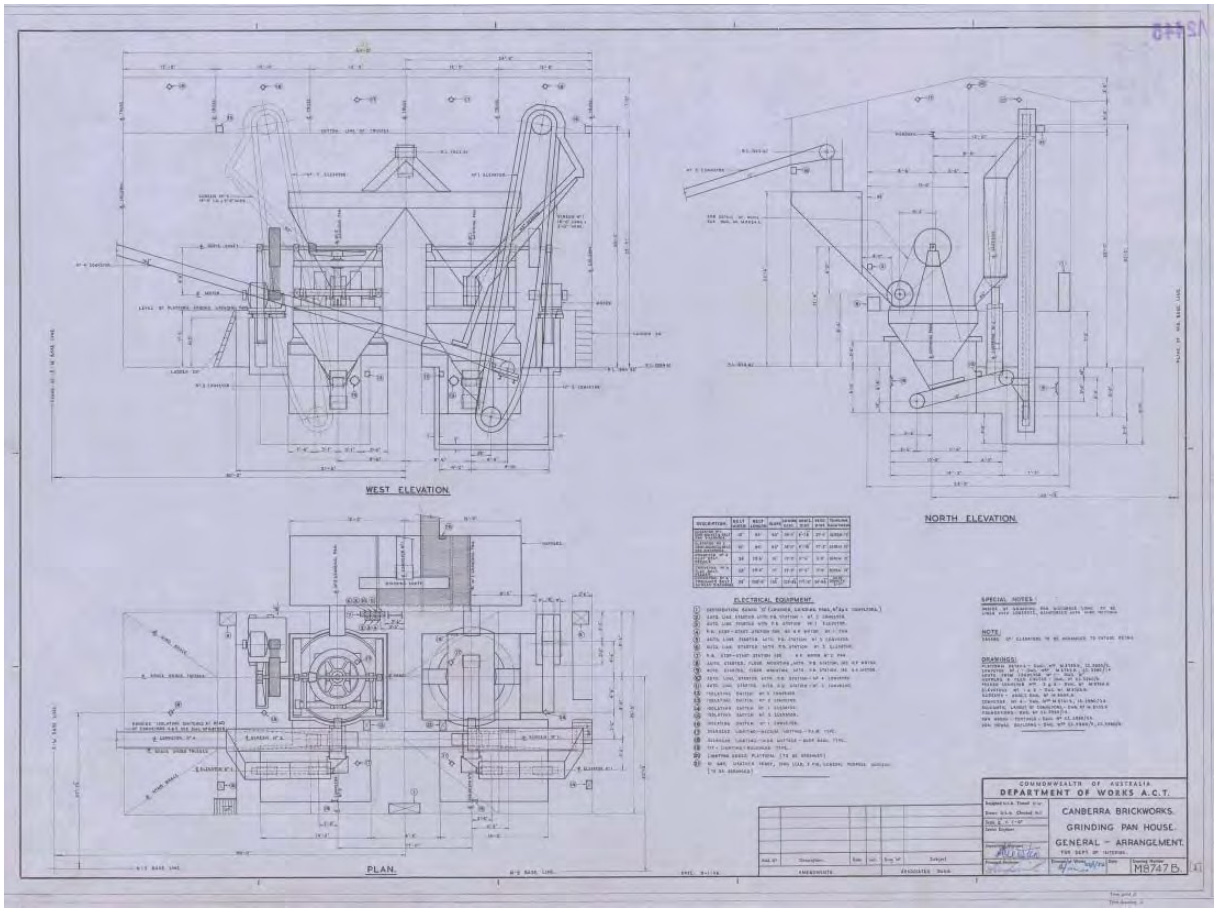


Figure 49 Grinding Pan House General Arrangement, 1956 (Red Pan Room,demolished). (Source: National Archives of Australia)

C.7 Post-Closure Phase 1976–2017

C.7.1 Introduction

The following section summarises the uses, and some of the proposed uses, of the Canberra Brickworks since the site was decommissioned in 1976.

A R Marr Redevelopment Proposals (1976–84)

In September 1976, all removable structures at the Canberra Brickworks were offered 'for sale for removal', and the extrusion plant shed to the southwest of the site was relocated to the Canberra Showgrounds.[100] The NCDC anticipated that costs incurred during the relocation process would be recovered during the subsequent adaptive re-use of the site, which the NCDC initially proposed to achieve by redeveloping the site with medium density housing.[101]

Also in 1976, local developer and businessman Alan Marr (A R Marr Pty Ltd) put forward a proposal to develop the brickworks as an integrated tourist, recreation, and retail centre. Uses envisaged included manufacturing (including a pottery, winery, and crafts), speciality shops, an antiques market, plant nursery, restaurant and tavern, offices, art displays in the upper levels of the three continuous kilns, and museums, including collections of vintage cars and fire engines. Medium density housing was proposed to the east and north of the site. Under Marr's scheme, the quarry was to be landscaped to include picnic areas, walking trails and a miniature railway.[102] Marr succeeded in having the land re-zoned to accommodate his vision for a mixed-use tourism, recreation, and residential development. The present zoning at the site dates from this period.[103]

Works undertaken by Marr on the existing buildings included re-roofing the Staffordshire and Downdraught kilns; re-constructing the external brick walls of the Staffordshire kiln; some internal lining to the Staffordshire kiln; electrical work to the Hardy patent kilns; paving to some areas of the Hardy patent kilns; and re-roofing of ancillary buildings.[104] Work on the quarry commenced towards the end of 1978, including land fill and the creation of the reflection lake (see Figure 50).

The redeveloped Brickworks was opened to the public as a tourist attraction in July 1979. However, limited income opportunities and high capital costs (over $1 million was invested in works to the site)[105], forced A R Marr into provisional liquidation.[106] Auctions of the vintage car collection and site equipment took place in September and November 1980. Two of the items, a 1913 Austral Otis Steam Roller and a 1925 Fowler Road locomotive, both associated with Canberra's early development, were purchased for the National Museum of Australia.[107]

At this time, Marr also held an option to develop up to 212 townhouses on parts of the brickworks site. In 1980 the first stage, comprising 20 houses on the eastern side of the site, was commenced. Work on houses to the north of the brickworks (now Lane Poole Place) began the following year.[108]

In the early 1980s, Marr was seriously injured in a fall at the Brickworks, and later died of complications.[109] On 18 September 1984, the Commonwealth accepted surrender of the AR Marr Pty Ltd lease and paid $1.1 million for the lessee's interest in the site.[110] The surrender included options to acquire adjoining land for the construction of 151 townhouses. The Commonwealth paid the lessee $1.1 million for its interests.[111]

A number of tenants from the Marr lease, including artists, the antiques market and a timber recycling merchant, Thor's Hammer, remained at the site. In the mid-1990s, due to concerns about the safety of some of the buildings[112] and in anticipation that the site was going to be redeveloped (see below), the tenants were required to leave. The role of the caretaker (Bruce McDonald), who had been responsible for the management of the site since the Marr lease, was also abolished. In recognition of the considerable volume of its timber stock, Thor's Hammer was granted an extended period to relocate. The company was still at the site by the time it was clear that the development proposal was not going to proceed.

Hooker Projects Proposal (1988)

In February 1979, the NCDC issued the *Yarralumla Policy Plan: Report on Environmental Issues Incorporating Draft EIS and the Development of Section 100 Yarralumla*. This document was 'intended to provide additional demands for housing, recreation, tourism and national capital uses which were deemed compatible with the existing use and character of Yarralumla.'[113] The recommendations provided in the Plan were poorly received by the local community, with objections over the loss of open space, the scale of the tourism and recreation development and medium density development.[114]

The Plan was followed in 1988 by the *Canberra Brickworks South Canberra Policy Plan*. This document suggested a range of potential uses for the site, including:

- medium density housing in the western and southern areas of the brickworks—c250 dwellings of 30 households per hectare;
- commercial accommodation in some of the site's historic buildings; and
- limited amounts of office and retail space.

In addition, it was noted that a combination of the above uses would be appropriate in the development of the Brickworks as a tourism destination, and that future uses of the site needed to be financially self-sufficient.[115]

Susan Conroy and Munns Sly Architects suggest that the 1988 Policy Plan 'appears to have been instigated by the Commonwealth because of what it considered an innovative plan [the Hooker proposal, described below] for redevelopment and use of the Canberra Brickworks Site [sic]'.[116]

Once again, the Policy Plan was poorly received by the community and led to the establishment of the Yarralumla Residents Association (YRA), in November 1988. The Association took the view that the Plan had been hastily prepared and failed to address key issues.[117]

Regardless of the YRA's views, the Plan was adopted, and formed the basis of calls for Expressions of Interest (EOI) for the development of the site in November 1988. The preferred EOI was submitted by Hooker Projects, which proposed a sports precinct in the south and the southwest of the site, with the kilns adapted to multiple uses, including a museum, restaurant, hotel and visitor attractions. Sections of the machine bays were proposed for adaptive re-use, including the conveyor belt in the roof space as a 'museum walkway' (see Figure 51).

By 1990, Hookers had been placed in provisional liquidation due to the depressed economy. Susan Conroy and Munns Sly Architects noted that 'negotiations continued with the liquidator, Halwood Corporation Ltd, who transferred development rights to a subsidiary Hooker Projects (Castlereagh Management), to allow progress on the project… [However] by August 1992, the Hookers proposal was defunct'.[118]

Local Area Planning Committee Proposal (1998)

In 1998, following a failed development proposal by the Canberra Theatre,[119] the Burley Griffin Local Area Planning Committee (LAPAC) was invited by the government to submit its recommendations on the future development of the brickworks. The committee that developed the proposal comprised representatives of the LAPAC and Yarralumla Residents Association,[120] with assistance from local architect Ric Butt.[121]

The LAPAC scheme recommended that, following stabilisation, the Brickworks should be retained as a ruin and that the site should be developed as an industrial archaeology park with a heritage centre and public gardens. Other uses included low intensity commercial uses such as markets and performance venues between kilns, and 'landscape buffers linking to surrounding recreation and open space'.[122] Mixed residential and commercial areas, including limited manufacturing, were proposed for sites adjacent to the brickworks. In these areas, housing density was proposed at c15 dwellings per hectare. On this basis, the LAPAC anticipated a total of c100 dwellings.

The ACT's planning body subsequently worked with the local community on the development of the site based on the LAPAC recommendations.[123] The LAPAC proposal also formed the basis of the Brief for a Development Control Plan (DCP)[124] for the Canberra Brickworks and surrounding un-leased land which was initiated in 2000 by the Office of Infrastructure and Asset Management. Connell Wagner was commissioned to prepare the DCP.[125]

Options identified by the DCP included the development of the site for housing; the creation of fenced gardens in the former quarry; adaptive re-use of the Brickworks, dependent on remediation; the potential for adaptive re-use for aged care accommodation; and leaving the site substantially undeveloped.[126]

The YRA responded to the DCP with a recommendation that a maximum of 25 units be developed, to the south of the Brickworks. As noted by Susan Conroy and Munns Sly Architects, the YRA also proposed that the Defence Housing Authority develop and manage the site. The ACT Government entertained the proposal, but concluded that any development should be based on a competitive process for land sales.[127]

In May 2002, the ACT Land and Property Group engaged a firm of civil consultants to evaluate the YRA's 25-unit dwelling proposal, including costings and consideration of an access road from Dudley Street to the south.[128]

Continued Use Post Closure

Since its closure in 1976, the Brickworks site has been tenanted to small, creative businesses, some of which remain today. As one of the site's longest standing tenants, recycled timber designers and furniture makers, Thor's Hammer released a short history of the site's residents and their businesses since the late 1980s on its website. Parts of this have been reproduced with minor edits below.

Antiques and Furniture Restoration (1986 to 1996)

There were up to six businesses operating in the kilns and office spaces at the southern entrance of the Brickworks and included Virgo's Old Wares (architect Theo Bischoff), Lightning Rod Antiques (Clark Mueller), Harlequin Antiques (Andrew Whitehead), Nicky's Antiques, Seaward Antiques, Rose Cottage Antiques and Lasseter's Gallery.[129]

Brickworks Design Studio (1988–1998)

Established by ANU Art School graduates Tom Harrington and Mark Spain, the Brickworks Design Studio was focused on working in timber. The first projects were undertaken for the interior design and fit out of the New Parliament House. The workshop continued producing works for commercial and domestic clients in fine woodwork with artisans including Paul O'Donnell, Kate Cooke, Bruce Egan and Johnno Everett.[130]

Splinters Theatre Company

Splinters used the Brickworks space for set construction, rehearsals, and the development of over 60 productions performed in Canberra and around Australia. Splinters also mounted *Whirled on a Fatal Floor* at the Brickworks site as part of the 1989 Canberra Fringe Festival.[131]

Thor's Hammer (1994–current)

Thor's Hammer predominantly operates out of the Downdraught kilns to the southeast portion of the site designing and making furniture and architectural products from recycled timbers sourced from demolition sites.

Artillion Studio—Geoff Farquhar-Still (2011–current)

Artillion Studio employs a team of artisans and industrial designers including Dan Lorrimer, and Mitchell Brookes, gold and silver smith Sean Booth and ex UAP pattern maker Matt Smith. It has produced significant work for both Canberra and Sydney. The studio collaborates with architects, engineers, landscape architects and a range of local industry to develop bespoke responses to urban design, architectural and public art briefs.[132]

In addition to the individuals and businesses mentioned above, several other artists, designers and sculptors have worked at the Canberra Brickworks over the last three decades.

Doma Group Proposal (2017)

In September 2013, the ACT Government's Land Development Agency (LDA), (now the Suburban Land Agency) released the *Canberra Brickworks and Environs Planning and Development Strategy*, which sought to promote the adaptive re-use of the site and its surrounds with respect to its heritage significance. Following revision of the strategy in 2015, it was announced that the LDA would sell a 16-hectare development area within the Canberra Brickworks site. The sale objective was that interested developers were to submit proposals for the redevelopment of the site. In August 2016, the LDA confirmed that two proposals were shortlisted for the redevelopment of the Canberra Brickworks and, in April 2017, it was announced that the preferred tenderer was local Canberra developer Doma Group with its submission for a mixed-use residential, commercial, and retail development that utilises much of the historic Brickworks infrastructure.

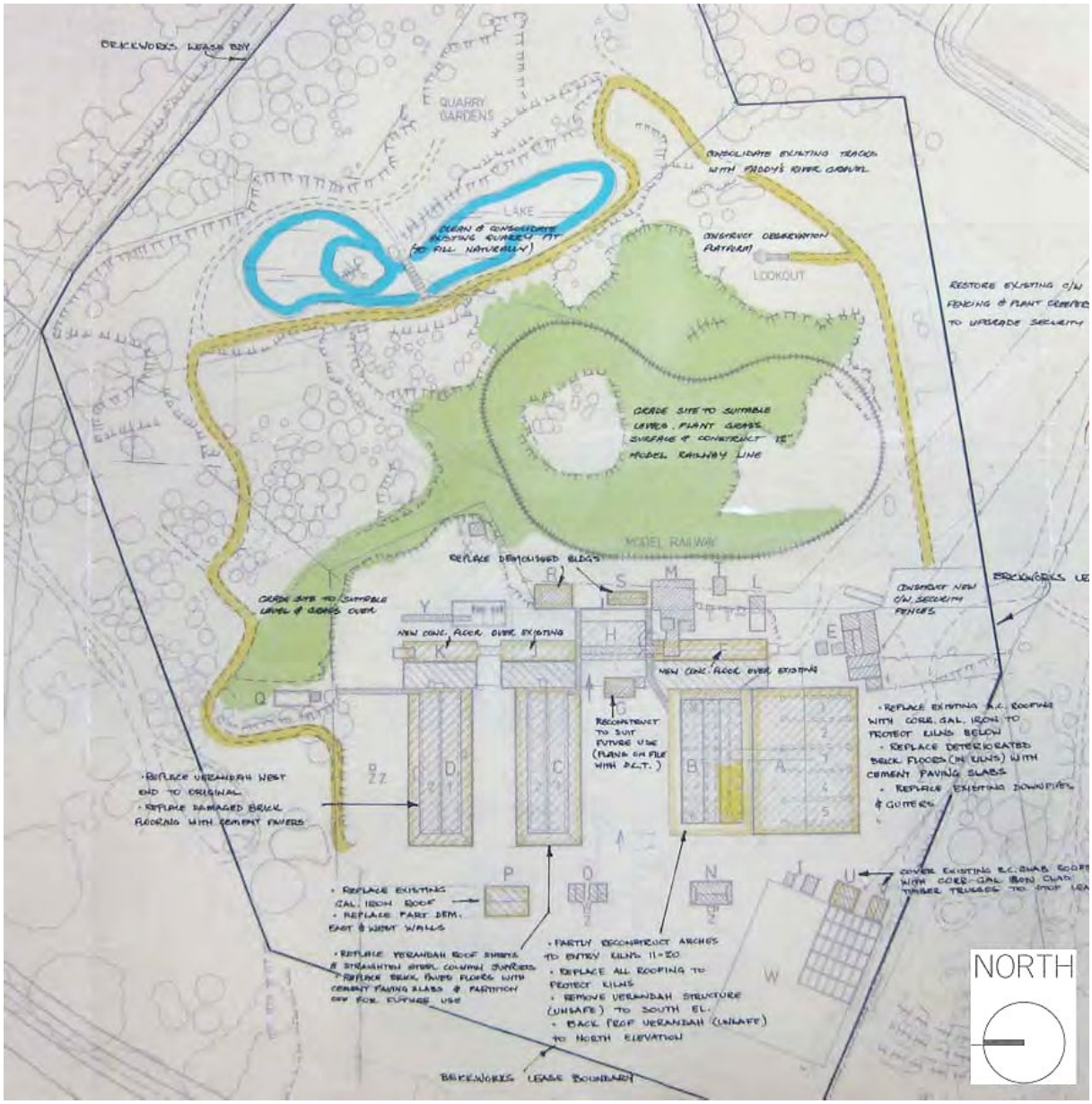


Figure 50 The A R Marr proposal for the Brickworks, c1977. (Source: ACT Heritage Library)

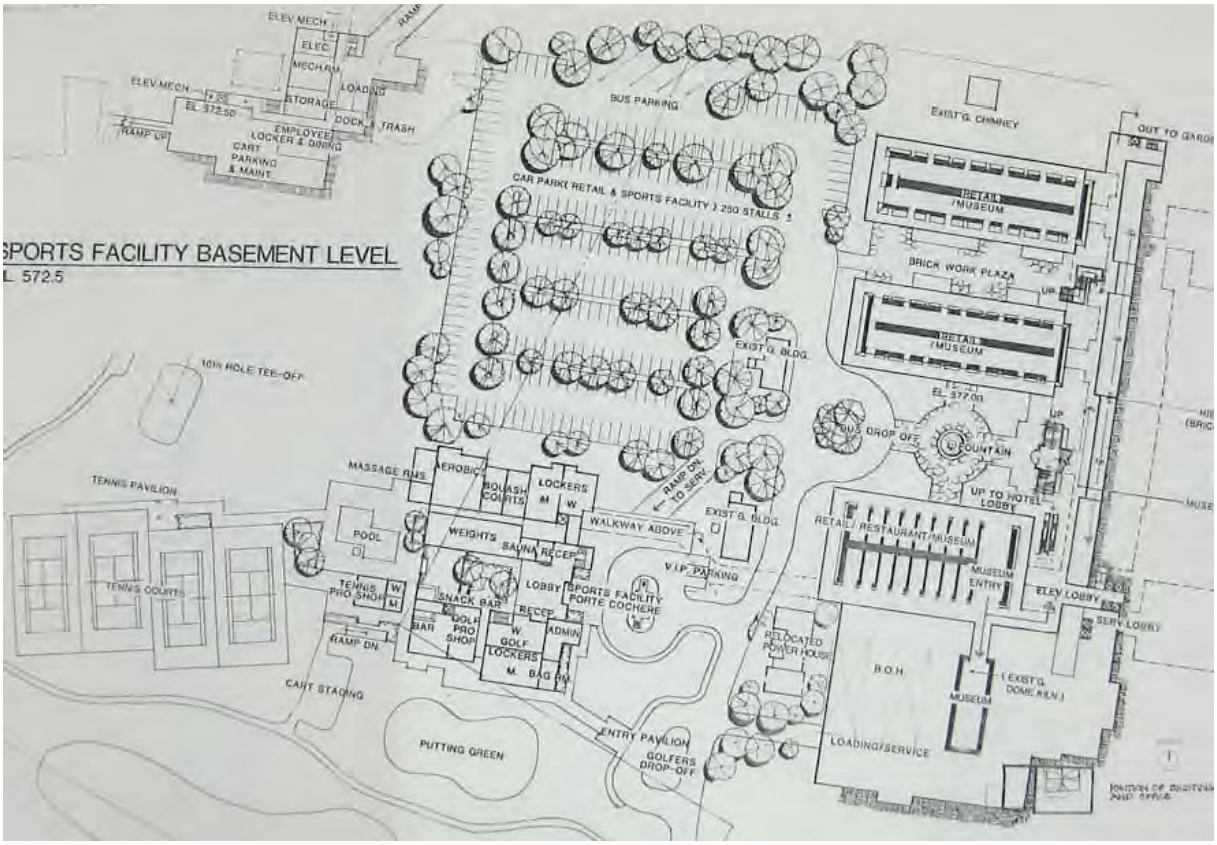


Figure 51 Ground level plan of Hooker Project's proposal for the Brickworks, 25 November 1988. (Source: ACT Heritage Library)

C.7.2 Post-Closure Phase Elements at the Brickworks

Remaining Elements

The following elements at the Brickworks date from the post-closure phase of the site. They are listed with their identifying number (refer to Figure 1.4) and date of construction. For a full history of each element refer to the Element Inventory Sheets at Appendix C.

- No. 35: Model Railway Workshop, c1979; and
- No. 36: Model Railway Storage Shed, c1979.

C.8 Demolished Structures

C.8.1 Establishment Phase

Structures from the establishment phase of site that have been demolished include temporary kilns, early housing for workers, explosive store, and carpenter's shed. They are described briefly below.

Temporary Kilns

The precise location of the temporary kilns (possibly clamps), delineated as four structures on the 1916 Survey Plan (see Figure 27), is unclear. It appeared that little discernible evidence of the structures was visible at the date of the compilation of the 1986 Conservation Plan.

Brickworks Hostel/Accommodation Village

Initially workers were housed in tents along the ridge to the east of the works. Permanent dwellings for workers at the Yarralumla works were constructed in the 1920s, at the top of Denman Street (single men's camp), and to the southwest of the Brickworks (married quarters). The single men's camp was disused by 1928 (see also Section B.4). The buildings that comprised the married quarters are shown in a detail of a 1929 photograph of the Brickworks, as well as in an image of the kiln 'road', running north–south between the kilns and fan houses, also of 1929 (see Figure 52, Figure 53). The married quarters were removed during World War II, and replaced by a new Brickworks Hostel in 1945. It was demolished in the early 1970s. Little evidence of the former residential accommodation is visible, with revegetation returning to much of the area (Figure 54).

Cottage Complex

This complex of buildings, according to the 1986 Conservation Plan, comprised a cottage with outbuildings located to the north of the second Hardy patent kiln and stack (Elements 3 and 8). Set above the complex, the site today has been redeveloped as part of Lane Poole Place and is outside the study area.

Explosives Store

The explosives store was relocated from a site approximately 180 metres south of the Power House to the opposite side of the Brickworks, behind the brick extrusion plant.

Cottage and Stable

A cottage and stable building are delineated on the 1916 Survey Plan (see Figure 27), sited to the northeast of the quarry with its approximate site within the present-day bounds of the quarry.

Carpenter's Shed

This structure was located approximately 50 metres southeast of the Power House. Its date of construction is not known and it was removed during the 1960s with the site later used as a carparking area—refer to detail of the 1976 aerial photograph at Figure 55.



Figure 52 Detail of a 1929 photograph of the Brickworks looking southwest showing the accommodation village buildings (indicated). (Source: National Archives of Australia)



Figure 53 Looking south along the kiln 'road', the Staffordshire Kiln at left, 1929. The mess hall building and the roofs of several of the sleeping quarters are visible in the background. (Source: National Archives of Australia, A3560, 5837)



Figure 54 The remains of the accommodation village today, looking northeast. (Source: Lovell Chen, 2010, Canberra Brickworks CMP, p 72)



Figure 55 Detail of a 1976 aerial photograph with the then carpark, thought to be the site of the former carpenter's shed, indicated. (Source: ACT Heritage Library)

C.8.2 Postwar Phase

As well as the structures relating to the establishment phase of site, it is noted that there were also structures relating to the postwar phase of development that have since been demolished. These include a clay storage shed, carpenter's workshop, oil and coal bunkers, weighbridge and a forklift shed. They are described briefly below.

Clay Storage Shed

The storage shed was located within the quarry area to the immediate east of the Brickworks. It stored clay, brought to the site by trucks prior to crushing. It is visible in a 1976 aerial photograph of the site (see Figure 56).

Coal Storage Bunker

The coal storage bunker was located on an elevated site to the north of the Hardy Patent Kiln 2 chimney stack (Element 9), as indicated at Figure 56. The site today forms part of the Lane Poole Place housing complex and is outside the study area.

Former Forklift Shed

The forklift shed was extant at the time of the compilation of the 1986 Conservation Plan. The building was constructed in c1965 to house forklifts and replaced an earlier shed structure. The forklift shed was a brick structure with a corrugated galvanised steel roof. The structure contained a petrol bowser linked to a large underground tank sited between the shed and the fan house associated with the Hardy Patent Kiln 1 (Element 4). The description of the building provided in the 1986 Conservation Plan noted that it was in poor condition. The site of the building today is overgrown with little evidence of its form, apart from some remnant brickwork and rubble (Figure 57). As noted, the structure replaced an earlier shed building, the date or purpose of which is not known.

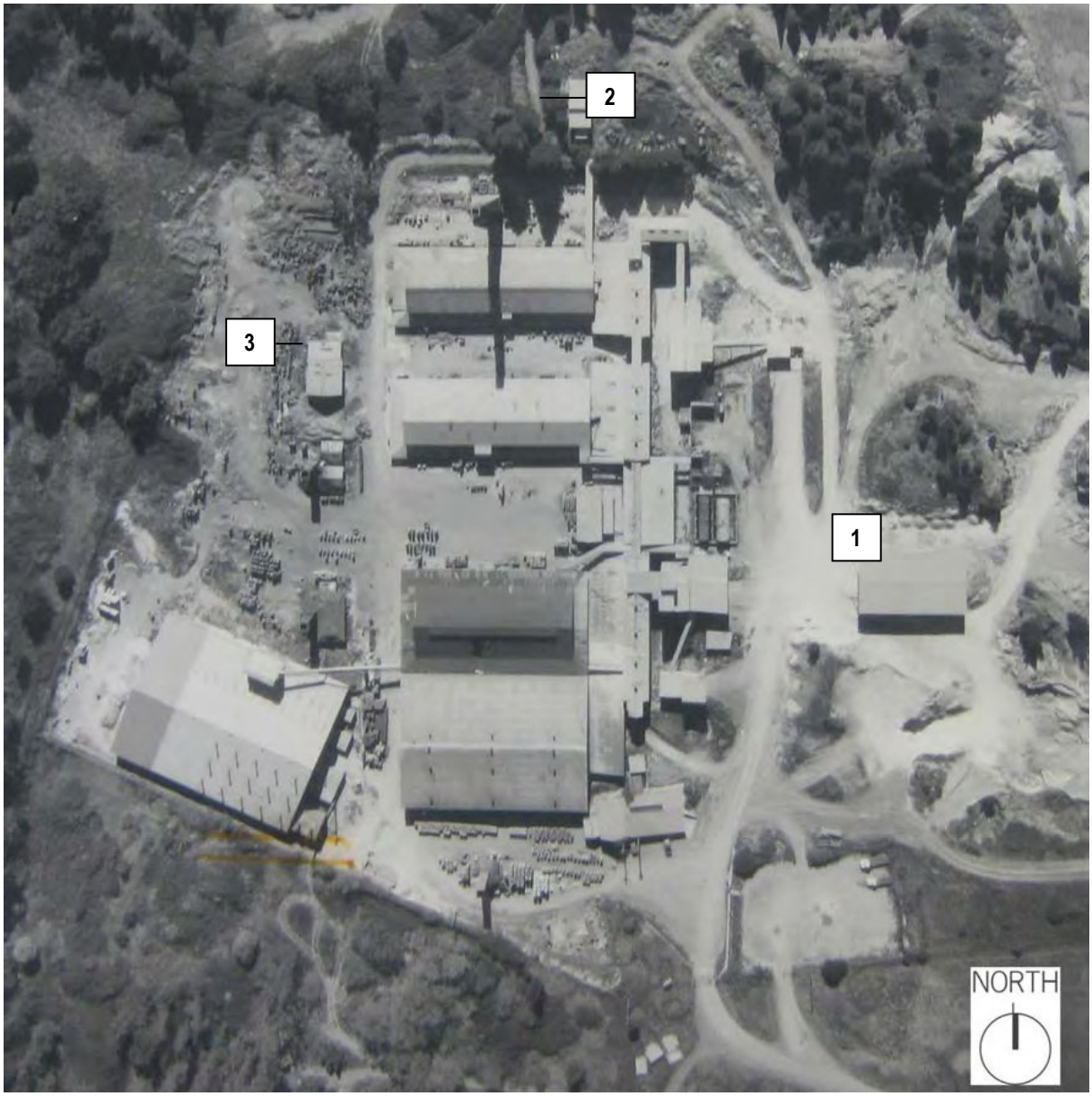


Figure 56 Aerial photograph, 1976, with the following postwar site elements indicated: clay storage shed (1); coal storage bunker (2) and former forklift shed (3). (Source: ACT Heritage Library)



Figure 57 The approximate site of the former forklift shed indicated by the arrow. (Source: Lovell Chen, 2010, Canberra Brickworks CMP, p 169)

C.9 Endnotes

1 Unlike their nineteenth-century counterparts, the scale and investment required in twentieth-century brickworks meant that they were able to survive the expiration of available raw materials on site. This occurred at Canberra, which imported raw materials from c1935 to 1976.

2 Gugler, A, Hidden Canberra: History of Canberra – Brickyards Westridge, https://hiddencanberra.webs.com/historyofcanberra.htm, accessed on 10 December 2020.

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4 'Busy Days Returning for the Brickworks: New Light Bricks Favoured by Architects', *Canberra Times,* Thursday 12 March 1936, p6.

5 'Busy Days Returning for the Brickworks: New Light Bricks Favoured by Architects', *Canberra Times,* Thursday 12 March 1936, p6.

6 Land Development Agency & Lovell Chan 2010, Canberra Brickworks, Denman Street, Yarralumla, Canberra : conservation management plan, Land Development Agency, Canberra, p 100.

7 As quoted in Land Development Agency & Lovell Chan 2010, Canberra Brickworks, Denman Street, Yarralumla, Canberra : conservation management plan, Land Development Agency, Canberra, p 100.

8 Cited as 'Ref. I.E. Aust. October 1938', in Lester Firth Associates, 1986, Section 2.2.1.

9 Lester Firth Associates Pty Ltd, at Section 2.1.4 (Post War Growth) of the *Old Canberra Brickworks, Conservation Plan*, June 1986, notes that following the closure of the Brickworks 'all useable material was moved to the new site [Mitchell] and the remainder offered for sale'. It has not been established whether the 'useable material' included the brick presses.

10 Lester Firth Associates Pty Ltd, *Old Canberra Brickworks, Conservation Plan*, June 1986, Section 2.1.1 (Brick Firing Kilns).

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14 Miles Lewis, Australian Building: A Cultural Investigation, Section 6.02.12 <http://mileslewis.net/australian-building/>.

15 Refer to correspondence with applicant Samuel Kirk, Thomas Kirk and John Richardson Hardy concerning invention entitled 'Improvements in the construction of kilns for burning bricks, tiles, pottery or other analogous materials', 1889, Series A4617/2, barcode 5150233, and 'New South Wales Letters Patent. Improvement in the construction of kilns for burning bricks, tiles, pottery or other analogous materials', Specification by Samuel Kirk and Thomas Kirk, item listing in series A4617/2, Barcode 4195049, National Archives of Australia. Samuel and Thomas Kirk, both of Croydon, in Sydney, were brick burners, while Hardy himself was listed as a contractor. See *Supplement to the Victorian Government Gazette*, 27 November 1891, p 4658.

16 The patent was granted by Thomas Prout Webb, the Commissioner of Patents. See *Victorian Government Gazette*, 4 December 1891, p 4683.

17 Application for Letters Patent by Samuel Kirk, Thomas Kirk and John Richardson Hardy titled 'Improvements in the construction of kilns for burning bricks tiles pottery or other analogous materials', in Applications for Registration of Queensland Patents — Second system, Series A12572, barcode 7666027, National Archives ofAustralia.

18 As noted in Chapter 3, the Hardy patent kiln (Element 3) failed and was substantially re-built in 1955.

19 Hammond, M 1981, *Bricks and Brickmaking*, Shire Publications Ltd, Buckinghamshire, England, p 24.

20 Hammond, M 1981, *Bricks and Brickmaking*, Shire Publications Ltd, Buckinghamshire, England, pp 25–26.

21 Hammond, M 1981, *Bricks and Brickmaking*, Shire Publications Ltd, Buckinghamshire, England, pp 25–26.

22 Department of Works, 'Canberra Brickworks No. Kiln, 20 Chamber Hardy Kiln Layout Plan', drawing M8713c, National Archives of Australia.

23 Lovell Chen, *Nomination of Canberra to the National Heritage List: An examination of the merits*, prepared for the National Capital Authority, April 2008, pp 42–43.

24 The National Capital Development Commission, *Tomorrow's Canberra: Planning for Growth and Change*, Australian National University Press, Canberra, 1970, pp 3–7; and Lovell Chen, *Nomination of Canberra to the National Heritage List: An examination of the merits*, prepared for the National Capital Authority, April 2008, pp 42–43.

25 Commonwealth of Australia Constitution Act, Chapter VII.

26 The National Capital Development Commission, *Tomorrow's Canberra*, p 3.

27 Quoted in Headon, D 2003, *The Symbolic Role of the National Capital: From colonial argument to 21st century ideals*, Commonwealth of Australia (National Capital Authority), ACT, p 36.

28 *Preparation of Competitive Designs for the Federal Capital City,* National Archives of Australia, A1818/12, quoted in McGregor, A 2009, *Grand Obsessions: The Life and work of Walter Burley Griffin and Marion Mahony Griffin*, Lantern (Penguin), Australia, p 121.

29 The National Capital Development Commission, *Tomorrow's Canberra*, p 6.

30 The National Capital Development Commission, *Tomorrow's Canberra*, p 6.

31 The National Capital Development Commission, *Tomorrow's Canberra*, p 6; and McGregor, A 2009, *Grand Obsessions: The Life and work of Walter Burley Griffin and Marion Mahony Griffin*, Lantern (Penguin), Australia, pp 197–204 and 321–41.

32 Lester Firth Associates Pty Ltd, *Old Canberra Brickworks, Conservation Plan*, June 1986, Section 2.1.1, citing the *Queanbeyan Age*, 23 February 1910.

33 Lester Firth Associates (Section 2.1.1) state that 1,000 test bricks were fired at the Hoffman Brick Co., Melbourne.

34 National Archives of Australia, Series A110/FC 1913/1055, in Ian Carnell, 'Canberra's Cornerstone', *Canberra Historical Journal*, No. 5, March 1990, cited by Lester Firth Associates, 1986, Section 2.2.1.

35 Gugler, A 1994, *The builders of Canberra, 1909–1929. Part one, Temporary camps & settlements*, CPN Publications, Canberra, p 77.

36 National Archives of Australia, Series A110/FC 1913/1985, cited in Lester Firth and Associates, 1986, Section 2.1.1.

37 Lester Firth and Associates, 1986, Section 2.1.1, source uncited. It has not been confirmed if Staffordshire kilns were constructed at the State Brick Works at Homebush, which was developed from 1911 (see Chapter 6). However, the Royal Commission on Federal Capital Administration (RC No. 378), which ran from June 1916 to 14 June 1917, found that the Staffordshire kiln at the Canberra brickworks was the first constructed in Australia.

38 National Archives of Australia, Series A119 Item 1914/723, cited in Lester Firth and Associates, 1986, Section 2.1.1. See also: Gugler, A 1994, *The builders of Canberra, 1909–1929. Part one, Temporary camps & settlements*, CPN Publications, Canberra, Chapter 2. Copy viewed at ACT Heritage Library, Woden, ACT, Woden.

39 Four open kilns are indicated on the survey plan of 1916, but newspapers reports refer to only three open kilns. *Queanbeyan Observer,* 18 February 1913, cited in Lester Firth and Associates, 1986, Section 2.1.1.

40 National Archives of Australia, Series A119 Item 1914/723, cited in Lester Firth and Associates, 1986, Section 2.1.1.

41 By September 1913, some 250,000 bricks had been produced for construction of the main kilns. *Queanbeyan Observer,* 9 September 1913, cited in Lester Firth and Associates, 1986, Section 2.1.1.

42 The Kingston Power House is a steel framed structure with roughcast concrete walls. It was designed by John Smith Murdoch, Chief Architect of the Department of Works and Railways, and completed in 1915. As originally envisaged, the building was to be portable. As such the steel frame was to be clad in galvanized steel. When a permanent site was found for the power house it was decided to change the cladding to brick. A total of 1.5 million bricks were manufactured at the Canberra Brickworks for the task. However, the bricks produced at the temporary works disintegrated before they could be used on the Power House. As a cost-effective solution, the steel frame was clad in unreinforced in situ concrete made with river gravel. The Power House was adapted to the Canberra Glassworks visitor centre in 2005–07 by Tanner Architects. Pers comm, Jocelyn Jackson, Project Director/Architect for the adaptive re-use of the Kingston Power House, Tanner Architects, and Adam Mornement, Lovell Chen, 3 February 2010. See also: Peter Freeman Pty Ltd, *Kingston Power House Precinct, Kingston, ACT*, Conservation Management Plan Review, 2001, Volume 1 of 2, pp 18–20.

43 National Archives of Australia, Series A119 Item 1914/723, cited in Lester Firth and Associates, 1986, Section 2.1.1.

44 National Archives of Australia, Series A110 FC 1913/1055, 24 July 1911, cited in Lester Firth and Associates, 1986, Section 2.1.1.
45 Lester Firth Associates 1986, Section 2.1.1. Sources uncited.
46 *Queanbeyan Age,* 14 September 1915, cited in Lester Firth and Associates, 1986, Section 2.1.1.
47 Lester Firth Associates 1986, Section 2.1.1. Sources uncited.
48 Walter M Shellshear, author of Chapter 2 (Railways) in Andrews, WC, Fitzgerald, A et al, *Canberra's Engineering Heritage*, Institution of Engineers, Australia, Canberra Division, 1983, viewed online (unpaginated) 29 January 2010 <www.engineer.org.au>. The side-tipping trucks used at the brickworks were manufactured by Francis Theakston Ltd., Light Railway Engineers, Crewe Works, 66 Tufton Street, London.
49 Lester Firth Associates 1986, Section 2.1.1. Sources uncited.
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52 Register of the National Estate, Westbourne Woods Area, Place ID 13337.
53 Gugler, A 1994, *The builders of Canberra, 1909–1929. Part one, Temporary camps & settlements*, CPN Publications, Canberra, Chapters 2 and 3.
54 Gugler, A 1994, *The builders of Canberra, 1909–1929. Part one, Temporary camps & settlements*, CPN Publications, Canberra, p 77.
55 The single men's camp had been abandoned by 1928. Gugler, A 1994, *The builders of Canberra, 1909–1929. Part one, Temporary camps & settlements*, CPN Publications, Canberra, Chapter 2.
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57 Reid, P 2002, *Canberra Following Griffin: A Design History of Australia's National Capital*, National Archives of Australia, Canberra, p 193.
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59 Dates and details in this paragraph are from Gugler, A 1994, *The builders of Canberra, 1909–1929. Part one, Temporary camps & settlements*, CPN Publications, Canberra, Chapters 2 and 3.
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63 Gugler, A 1994, *The builders of Canberra, 1909–1929. Part one, Temporary camps & settlements*, CPN Publications, Canberra, p 77.
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66 Dates and figures in this paragraph are taken from Lester Firth and Associates, 1986, Section 2.1.2. Sources are not cited.
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78 *Canberra Times,* 17 January 1941, cited in Lester Firth and Associates, 1986, Section 2.1.2.

79 Department of the Interior memo, No. C480, 16 April 1942, cited in Lester Firth and Associates, 1986, Section 2.1.2.
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84 National Archives of Australia, Series A431, cited in Lester Firth and Associates, 1986, Section 2.1.4.
85 National Archives of Australia, Series A431, cited in Lester Firth and Associates, 1986, Section 2.1.4.
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89 H H Macey, *Report on Canberra Brickworks*, April 1959. Copy supplied by the LDA.
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93 Lester Firth and Associates, 1986, Section 2.1.4. Source uncited.
94 Lester Firth and Associates, 1986, Section 2.1.4. Dates and precise details relating to these modifications are not included, and sources are not cited.
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96 Lester Firth and Associates, 1986, Section 2.1.4. Source uncited.
97 *Canberra Times*, 18 June 1974, cited in Lester Firth and Associates, 1986, Section 2.1.4.
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105 Lester Firth and Associates, 1986, Section 2.1.5, uncited reference.
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125 Connell Wagner Pty Ltd, *The Old Canberra Brickworks and Environs Development Control Plan*, February 2001.
126 Connell Wagner Pty Ltd, 2001, Chapters 6 and 7.
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Appendix D

The Australia ICOMOS Charter for Places of Cultural Significance, The Burra Charter, 2013 (Burra Charter)

THE BURRA CHARTER

The Australia ICOMOS Charter for Places of Cultural Significance 2013



AUSTRALIA ICOMOS
International Council on Monuments and Sites

Australia ICOMOS Incorporated
International Council on Monuments and Sites

ICOMOS

ICOMOS (International Council on Monuments and Sites) is a non-governmental professional organisation formed in 1965, with headquarters in Paris. ICOMOS is primarily concerned with the philosophy, terminology, methodology and techniques of cultural heritage conservation. It is closely linked to UNESCO, particularly in its role under the World Heritage Convention 1972 as UNESCO's principal adviser on cultural matters related to World Heritage. The 11,000 members of ICOMOS include architects, town planners, demographers, archaeologists, geographers, historians, conservators, anthropologists, scientists, engineers and heritage administrators. Members in the 103 countries belonging to ICOMOS are formed into National Committees and participate in a range of conservation projects, research work, intercultural exchanges and cooperative activities. ICOMOS also has 27 International Scientific Committees that focus on particular aspects of the conservation field. ICOMOS members meet triennially in a General Assembly.

Australia ICOMOS

The Australian National Committee of ICOMOS (Australia ICOMOS) was formed in 1976. It elects an Executive Committee of 15 members, which is responsible for carrying out national programs and participating in decisions of ICOMOS as an international organisation. It provides expert advice as required by ICOMOS, especially in its relationship with the World Heritage Committee. Australia ICOMOS acts as a national and international link between public authorities, institutions and individuals involved in the study and conservation of all places of cultural significance. Australia ICOMOS members participate in a range of conservation activities including site visits, training, conferences and meetings.

Revision of the Burra Charter

The Burra Charter was first adopted in 1979 at the historic South Australian mining town of Burra. Minor revisions were made in 1981 and 1988, with more substantial changes in 1999.

Following a review this version was adopted by Australia ICOMOS in October 2013.

The review process included replacement of the 1988 Guidelines to the Burra Charter with Practice Notes which are available at: australia.icomos.org

Australia ICOMOS documents are periodically reviewed and we welcome any comments.

Citing the Burra Charter

The full reference is *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance, 2013*. Initial textual references should be in the form of the *Australia ICOMOS Burra Charter, 2013* and later references in the short form (*Burra Charter*).

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The Burra Charter consists of the Preamble, Articles, Explanatory Notes and the flow chart.

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The Burra Charter

(The Australia ICOMOS Charter for Places of Cultural Significance, 2013)

Preamble

Considering the International Charter for the Conservation and Restoration of Monuments and Sites (Venice 1964), and the Resolutions of the 5th General Assembly of the International Council on Monuments and Sites (ICOMOS) (Moscow 1978), the Burra Charter was adopted by Australia ICOMOS (the Australian National Committee of ICOMOS) on 19 August 1979 at Burra, South Australia. Revisions were adopted on 23 February 1981, 23 April 1988, 26 November 1999 and 31 October 2013.

The Burra Charter provides guidance for the conservation and management of places of cultural significance (cultural heritage places), and is based on the knowledge and experience of Australia ICOMOS members.

Conservation is an integral part of the management of places of cultural significance and is an ongoing responsibility.

Who is the Charter for?

The Charter sets a standard of practice for those who provide advice, make decisions about, or undertake works to places of cultural significance, including owners, managers and custodians.

Using the Charter

The Charter should be read as a whole. Many articles are interdependent.

The Charter consists of:

- Definitions Article 1
- Conservation Principles Articles 2–13
- Conservation Processes Articles 14–25
- Conservation Practices Articles 26–34
- The Burra Charter Process flow chart.

The key concepts are included in the Conservation Principles section and these are further developed in the Conservation Processes and Conservation Practice sections. The flow chart explains the Burra Charter Process (Article 6) and is an integral part of the Charter. Explanatory Notes also form part of the Charter.

The Charter is self-contained, but aspects of its use and application are further explained, in a series of Australia ICOMOS Practice Notes, in *The Illustrated Burra Charter*, and in other guiding documents available from the Australia ICOMOS web site: australia.icomos.org.

What places does the Charter apply to?

The Charter can be applied to all types of places of cultural significance including natural, Indigenous and historic places with cultural values.

The standards of other organisations may also be relevant. These include the *Australian Natural Heritage Charter*, *Ask First: a guide to respecting Indigenous heritage places and values* and *Significance 2.0: a guide to assessing the significance of collections*.

National and international charters and other doctrine may be relevant. See australia.icomos.org.

Why conserve?

Places of cultural significance enrich people's lives, often providing a deep and inspirational sense of connection to community and landscape, to the past and to lived experiences. They are historical records, that are important expressions of Australian identity and experience. Places of cultural significance reflect the diversity of our communities, telling us about who we are and the past that has formed us and the Australian landscape. They are irreplaceable and precious.

These places of cultural significance must be conserved for present and future generations in accordance with the principle of inter-generational equity.

The Burra Charter advocates a cautious approach to change: do as much as necessary to care for the place and to make it useable, but otherwise change it as little as possible so that its cultural significance is retained.

Articles

Explanatory Notes

Article 1. Definitions

For the purposes of this Charter:

1.1 *Place* means a geographically defined area. It may include elements, objects, spaces and views. Place may have tangible and intangible dimensions.

Place has a broad scope and includes natural and cultural features. Place can be large or small: for example, a memorial, a tree, an individual building or group of buildings, the location of an historical event, an urban area or town, a cultural landscape, a garden, an industrial plant, a shipwreck, a site with in situ remains, a stone arrangement, a road or travel route, a community meeting place, a site with spiritual or religious connections.

1.2 *Cultural significance* means aesthetic, historic, scientific, social or spiritual value for past, present or future generations.

Cultural significance is embodied in the *place* itself, its *fabric*, *setting*, *use*, *associations*, *meanings*, records, *related places* and *related objects*.

Places may have a range of values for different individuals or groups.

The term cultural significance is synonymous with cultural heritage significance and cultural heritage value.

Cultural significance may change over time and with use.

Understanding of cultural significance may change as a result of new information.

1.3 *Fabric* means all the physical material of the *place* including elements, fixtures, contents and objects.

Fabric includes building interiors and sub-surface remains, as well as excavated material.

Natural elements of a place may also constitute fabric. For example the rocks that signify a Dreaming place.

Fabric may define spaces and views and these may be part of the significance of the place.

1.4 *Conservation* means all the processes of looking after a *place* so as to retain its *cultural significance*.

See also Article 14.

1.5 *Maintenance* means the continuous protective care of a *place*, and its *setting*.

Maintenance is to be distinguished from repair which involves *restoration* or *reconstruction*.

Examples of protective care include:

- maintenance — regular inspection and cleaning of a place, e.g. mowing and pruning in a garden;
- repair involving restoration — returning dislodged or relocated fabric to its original location e.g. loose roof gutters on a building or displaced rocks in a stone bora ring;
- repair involving reconstruction — replacing decayed fabric with new fabric

1.6 *Preservation* means maintaining a *place* in its existing state and retarding deterioration.

It is recognised that all places and their elements change over time at varying rates.

1.7 *Restoration* means returning a *place* to a known earlier state by removing accretions or by reassembling existing elements without the introduction of new material.

1.8 *Reconstruction* means returning a *place* to a known earlier state and is distinguished from *restoration* by the introduction of new material.

New material may include recycled material salvaged from other places. This should not be to the detriment of any place of cultural significance.

1.9 *Adaptation* means changing a *place* to suit the existing *use* or a proposed use.

1.10 *Use* means the functions of a *place*, including the activities and traditional and customary practices that may occur at the place or are dependent on the place.

Use includes for example cultural practices commonly associated with Indigenous peoples such as ceremonies, hunting and fishing, and fulfillment of traditional obligations. Exercising a right of access may be a use.

Articles	Explanatory Notes
1.11 *Compatible use* means a *use* which respects the *cultural significance* of a *place*. Such a use involves no, or minimal, impact on cultural significance.	
1.12 *Setting* means the immediate and extended environment of a *place* that is part of or contributes to its *cultural significance* and distinctive character.	Setting may include: structures, spaces, land, water and sky; the visual setting including views to and from the place, and along a cultural route; and other sensory aspects of the setting such as smells and sounds. Setting may also include historical and contemporary relationships, such as use and activities, social and spiritual practices, and relationships with other places, both tangible and intangible.
1.13 *Related place* means a *place* that contributes to the *cultural significance* of another place.	
1.14 *Related object* means an object that contributes to the *cultural significance* of a *place* but is not at the place.	Objects at a place are encompassed by the definition of place, and may or may not contribute to its cultural significance.
1.15 *Associations* mean the connections that exist between people and a *place*.	Associations may include social or spiritual values and cultural responsibilities for a place.
1.16 *Meanings* denote what a *place* signifies, indicates, evokes or expresses to people.	Meanings generally relate to intangible dimensions such as symbolic qualities and memories.
1.17 *Interpretation* means all the ways of presenting the *cultural significance* of a *place*.	Interpretation may be a combination of the treatment of the fabric (e.g. maintenance, restoration, reconstruction); the use of and activities at the place; and the use of introduced explanatory material.

Conservation Principles

Article 2. Conservation and management

2.1 *Places* of *cultural significance* should be conserved.

2.2 The aim of *conservation* is to retain the *cultural significance* of a *place*.

2.3 *Conservation* is an integral part of good management of *places* of *cultural significance*.

2.4 *Places* of *cultural significance* should be safeguarded and not put at risk or left in a vulnerable state.

Article 3. Cautious approach

3.1 *Conservation* is based on a respect for the existing *fabric*, *use*, *associations* and *meanings*. It requires a cautious approach of changing as much as necessary but as little as possible.

The traces of additions, alterations and earlier treatments to the fabric of a place are evidence of its history and uses which may be part of its significance. Conservation action should assist and not impede their understanding.

3.2 Changes to a *place* should not distort the physical or other evidence it provides, nor be based on conjecture.

Article 4. Knowledge, skills and techniques

4.1 *Conservation* should make use of all the knowledge, skills and disciplines which can contribute to the study and care of the *place*.

Articles

4.2 Traditional techniques and materials are preferred for the *conservation* of significant *fabric*. In some circumstances modern techniques and materials which offer substantial conservation benefits may be appropriate.

Explanatory Notes

The use of modern materials and techniques must be supported by firm scientific evidence or by a body of experience.

Article 5. Values

5.1 *Conservation* of a *place* should identify and take into consideration all aspects of cultural and natural significance without unwarranted emphasis on any one value at the expense of others.

Conservation of places with natural significance is explained in the Australian Natural Heritage Charter. This Charter defines natural significance to mean the importance of ecosystems, biodiversity and geodiversity for their existence value or for present or future generations, in terms of their scientific, social, aesthetic and life-support value.

In some cultures, natural and cultural values are indivisible.

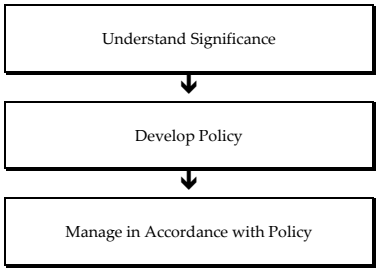
5.2 Relative degrees of *cultural significance* may lead to different *conservation* actions at a place.

A cautious approach is needed, as understanding of cultural significance may change. This article should not be used to justify actions which do not retain cultural significance.

Article 6. Burra Charter Process

6.1 The *cultural significance* of a *place* and other issues affecting its future are best understood by a sequence of collecting and analysing information before making decisions. Understanding cultural significance comes first, then development of policy and finally management of the place in accordance with the policy. This is the Burra Charter Process.

The Burra Charter Process, or sequence of investigations, decisions and actions, is illustrated below and in more detail in the accompanying flow chart which forms part of the Charter.



6.2 Policy for managing a *place* must be based on an understanding of its *cultural significance*.

6.3 Policy development should also include consideration of other factors affecting the future of a *place* such as the owner's needs, resources, external constraints and its physical condition.

6.4 In developing an effective policy, different ways to retain *cultural significance* and address other factors may need to be explored.

Options considered may include a range of uses and changes (e.g. adaptation) to a place.

6.5 Changes in circumstances, or new information or perspectives, may require reiteration of part or all of the Burra Charter Process.

Article 7. Use

7.1 Where the *use* of a *place* is of *cultural significance* it should be retained.

7.2 A *place* should have a *compatible use*.

The policy should identify a use or combination of uses or constraints on uses that retain the cultural significance of the place. New use of a place should involve minimal change to significant fabric and use; should respect associations and meanings; and where appropriate should provide for continuation of activities and practices which contribute to the cultural significance of the place.

Article 8. Setting

Conservation requires the retention of an appropriate *setting*. This includes retention of the visual and sensory setting, as well as the retention of spiritual and other cultural relationships that contribute to the *cultural significance* of the *place*.

New construction, demolition, intrusions or other changes which would adversely affect the setting or relationships are not appropriate.

Setting is explained in Article 1.12.

Article 9. Location

9.1 The physical location of a *place* is part of its *cultural significance*. A building, work or other element of a place should remain in its historical location. Relocation is generally unacceptable unless this is the sole practical means of ensuring its survival.

9.2 Some buildings, works or other elements of *places* were designed to be readily removable or already have a history of relocation. Provided such buildings, works or other elements do not have significant links with their present location, removal may be appropriate.

9.3 If any building, work or other element is moved, it should be moved to an appropriate location and given an appropriate *use*. Such action should not be to the detriment of any *place* of *cultural significance*.

Article 10. Contents

Contents, fixtures and objects which contribute to the *cultural significance* of a *place* should be retained at that place. Their removal is unacceptable unless it is: the sole means of ensuring their security and *preservation*; on a temporary basis for treatment or exhibition; for cultural reasons; for health and safety; or to protect the place. Such contents, fixtures and objects should be returned where circumstances permit and it is culturally appropriate.

For example, the repatriation (returning) of an object or element to a place may be important to Indigenous cultures, and may be essential to the retention of its cultural significance.

Article 28 covers the circumstances where significant fabric might be disturbed, for example, during archaeological excavation.

Article 33 deals with significant fabric that has been removed from a place.

Article 11. Related places and objects

The contribution which *related places* and *related objects* make to the *cultural significance* of the *place* should be retained.

Article 12. Participation

Conservation, interpretation and management of a *place* should provide for the participation of people for whom the place has significant *associations* and *meanings*, or who have social, spiritual or other cultural responsibilities for the place.

Article 13. Co-existence of cultural values

Co-existence of cultural values should always be recognised, respected and encouraged. This is especially important in cases where they conflict.

For some places, conflicting cultural values may affect policy development and management decisions. In Article 13, the term cultural values refers to those beliefs which are important to a cultural group, including but not limited to political, religious, spiritual and moral beliefs. This is broader than values associated with cultural significance.

Conservation Processes

Article 14. Conservation processes

Conservation may, according to circumstance, include the processes of: retention or reintroduction of a *use*; retention of *associations* and *meanings*; *maintenance, preservation*, *restoration*, *reconstruction, adaptation* and *interpretation*; and will commonly include a combination of more than one of these. Conservation may also include retention of the contribution that *related places* and *related objects* make to the *cultural significance* of a *place*.

Conservation normally seeks to slow deterioration unless the significance of the place dictates otherwise. There may be circumstances where no action is required to achieve conservation.

Article 15. Change

15.1 Change may be necessary to retain *cultural significance*, but is undesirable where it reduces cultural significance. The amount of change to a *place* and its *use* should be guided by the *cultural significance* of the place and its appropriate *interpretation*.

When change is being considered, including for a temporary use, a range of options should be explored to seek the option which minimises any reduction to its cultural significance.

It may be appropriate to change a place where this reflects a change in cultural meanings or practices at the place, but the significance of the place should always be respected.

15.2 Changes which reduce *cultural significance* should be reversible, and be reversed when circumstances permit.

Reversible changes should be considered temporary. Non-reversible change should only be used as a last resort and should not prevent future conservation action.

15.3 Demolition of significant *fabric* of a *place* is generally not acceptable. However, in some cases minor demolition may be appropriate as part of *conservation*. Removed significant fabric should be reinstated when circumstances permit.

15.4 The contributions of all aspects of *cultural significance* of a *place* should be respected. If a place includes *fabric*, *uses*, *associations* or *meanings* of different periods, or different aspects of cultural significance, emphasising or interpreting one period or aspect at the expense of another can only be justified when what is left out, removed or diminished is of slight cultural significance and that which is emphasised or interpreted is of much greater cultural significance.

Article 16. Maintenance

Maintenance is fundamental to *conservation.* Maintenance should be undertaken where *fabric* is of *cultural significance* and its maintenance is necessary to retain that *cultural significance*.

Maintaining a place may be important to the fulfilment of traditional laws and customs in some Indigenous communities and other cultural groups.

Article 17. Preservation

Preservation is appropriate where the existing *fabric* or its condition constitutes evidence of *cultural significance,* or where insufficient evidence is available to allow other *conservation* processes to be carried out.

Preservation protects fabric without obscuring evidence of its construction and use. The process should always be applied:

- where the evidence of the fabric is of such significance that it should not be altered; or
- where insufficient investigation has been carried out to permit policy decisions to be taken in accord with Articles 26 to 28.

New work (e.g. stabilisation) may be carried out in association with preservation when its purpose is the physical protection of the fabric and when it is consistent with Article 22.

Articles

Explanatory Notes

Article 18. Restoration and reconstruction

Restoration and *reconstruction* should reveal culturally significant aspects of the *place*.

Article 19. Restoration

Restoration is appropriate only if there is sufficient evidence of an earlier state of the *fabric*.

Article 20. Reconstruction

20.1 *Reconstruction* is appropriate only where a *place* is incomplete through damage or alteration, and only where there is sufficient evidence to reproduce an earlier state of the *fabric*. In some cases, reconstruction may also be appropriate as part of a *use* or practice that retains the *cultural significance* of the place.

Places with social or spiritual value may warrant reconstruction, even though very little may remain (e.g. only building footings or tree stumps following fire, flood or storm). The requirement for sufficient evidence to reproduce an earlier state still applies.

20.2 *Reconstruction* should be identifiable on close inspection or through additional *interpretation*.

Article 21. Adaptation

21.1 *Adaptation* is acceptable only where the adaptation has minimal impact on the *cultural significance* of the *place*.

Adaptation may involve additions to the place, the introduction of new services, or a new use, or changes to safeguard the place. Adaptation of a place for a new use is often referred to as 'adaptive re-use' and should be consistent with Article 7.2.

21.2 *Adaptation* should involve minimal change to significant *fabric*, achieved only after considering alternatives.

Article 22. New work

22.1 New work such as additions or other changes to the *place* may be acceptable where it respects and does not distort or obscure the *cultural significance* of the place, or detract from its *interpretation* and appreciation.

New work should respect the significance of a place through consideration of its siting, bulk, form, scale, character, colour, texture and material. Imitation should generally be avoided.

22.2 New work should be readily identifiable as such, but must respect and have minimal impact on the *cultural significance* of the *place*.

New work should be consistent with Articles 3, 5, 8, 15, 21 and 22.1.

Article 23. Retaining or reintroducing use

Retaining, modifying or reintroducing a significant *use* may be appropriate and preferred forms of *conservation*.

These may require changes to significant fabric but they should be minimised. In some cases, continuing a significant use, activity or practice may involve substantial new work.

Article 24. Retaining associations and meanings

24.1 Significant *associations* between people and a *place* should be respected, retained and not obscured. Opportunities for the *interpretation*, commemoration and celebration of these associations should be investigated and implemented.

For many places associations will be linked to aspects of use, including activities and practices.

Some associations and meanings may not be apparent and will require research.

24.2 Significant *meanings*, including spiritual values, of a *place* should be respected. Opportunities for the continuation or revival of these meanings should be investigated and implemented.

Article 25. Interpretation

The *cultural significance* of many *places* is not readily apparent, and should be explained by *interpretation*. Interpretation should enhance understanding and engagement, and be culturally appropriate.

In some circumstances any form of interpretation may be culturally inappropriate.

Conservation Practice

Article 26. Applying the Burra Charter Process

26.1 Work on a *place* should be preceded by studies to understand the place which should include analysis of physical, documentary, oral and other evidence, drawing on appropriate knowledge, skills and disciplines.

The results of studies should be kept up to date, regularly reviewed and revised as necessary.

26.2 Written statements of *cultural significance* and policy for the *place* should be prepared, justified and accompanied by supporting evidence. The statements of significance and policy should be incorporated into a management plan for the place.

Policy should address all relevant issues, e.g. use, interpretation, management and change.

A management plan is a useful document for recording the Burra Charter Process, i.e. the steps in planning for and managing a place of cultural significance (Article 6.1 and flow chart). Such plans are often called conservation management plans and sometimes have other names.

The management plan may deal with other matters related to the management of the place.

26.3 Groups and individuals with *associations* with the *place* as well as those involved in its management should be provided with opportunities to contribute to and participate in identifying and understanding the *cultural significance* of the place. Where appropriate they should also have opportunities to participate in its *conservation* and management.

26.4 Statements of *cultural significance* and policy for the *place* should be periodically reviewed, and actions and their consequences monitored to ensure continuing appropriateness and effectiveness.

Monitor actions taken in case there are also unintended consequences.

Article 27. Managing change

27.1 The impact of proposed changes, including incremental changes, on the *cultural significance* of a *place* should be assessed with reference to the statement of significance and the policy for managing the place. It may be necessary to modify proposed changes to better retain cultural significance.

27.2 Existing *fabric, use, associations* and *meanings* should be adequately recorded before and after any changes are made to the *place*.

Article 28. Disturbance of fabric

28.1 Disturbance of significant *fabric* for study, or to obtain evidence, should be minimised. Study of a *place* by any disturbance of the fabric, including archaeological excavation, should only be undertaken to provide data essential for decisions on the *conservation* of the place, or to obtain important evidence about to be lost or made inaccessible.

Articles

28.2 Investigation of a *place* which requires disturbance of the *fabric*, apart from that necessary to make decisions, may be appropriate provided that it is consistent with the policy for the place. Such investigation should be based on important research questions which have potential to substantially add to knowledge, which cannot be answered in other ways and which minimises disturbance of significant fabric.

Article 29. Responsibility

The organisations and individuals responsible for management and decisions should be named and specific responsibility taken for each decision.

Article 30. Direction, supervision and implementation

Competent direction and supervision should be maintained at all stages, and any changes should be implemented by people with appropriate knowledge and skills.

Article 31. Keeping a log

New evidence may come to light while implementing policy or a plan for a *place*. Other factors may arise and require new decisions. A log of new evidence and additional decisions should be kept.

Article 32. Records

32.1 The records associated with the *conservation* of a *place* should be placed in a permanent archive and made publicly available, subject to requirements of security and privacy, and where this is culturally appropriate.

32.2 Records about the history of a *place* should be protected and made publicly available, subject to requirements of security and privacy, and where this is culturally appropriate.

Article 33. Removed fabric

Significant *fabric* which has been removed from a *place* including contents, fixtures and objects, should be catalogued, and protected in accordance with its *cultural significance*.

Where possible and culturally appropriate, removed significant fabric including contents, fixtures and objects, should be kept at the place.

Article 34. Resources

Adequate resources should be provided for *conservation*.

Words in italics are defined in Article 1.

Explanatory Notes

New decisions should respect and have minimal impact on the cultural significance of the place.

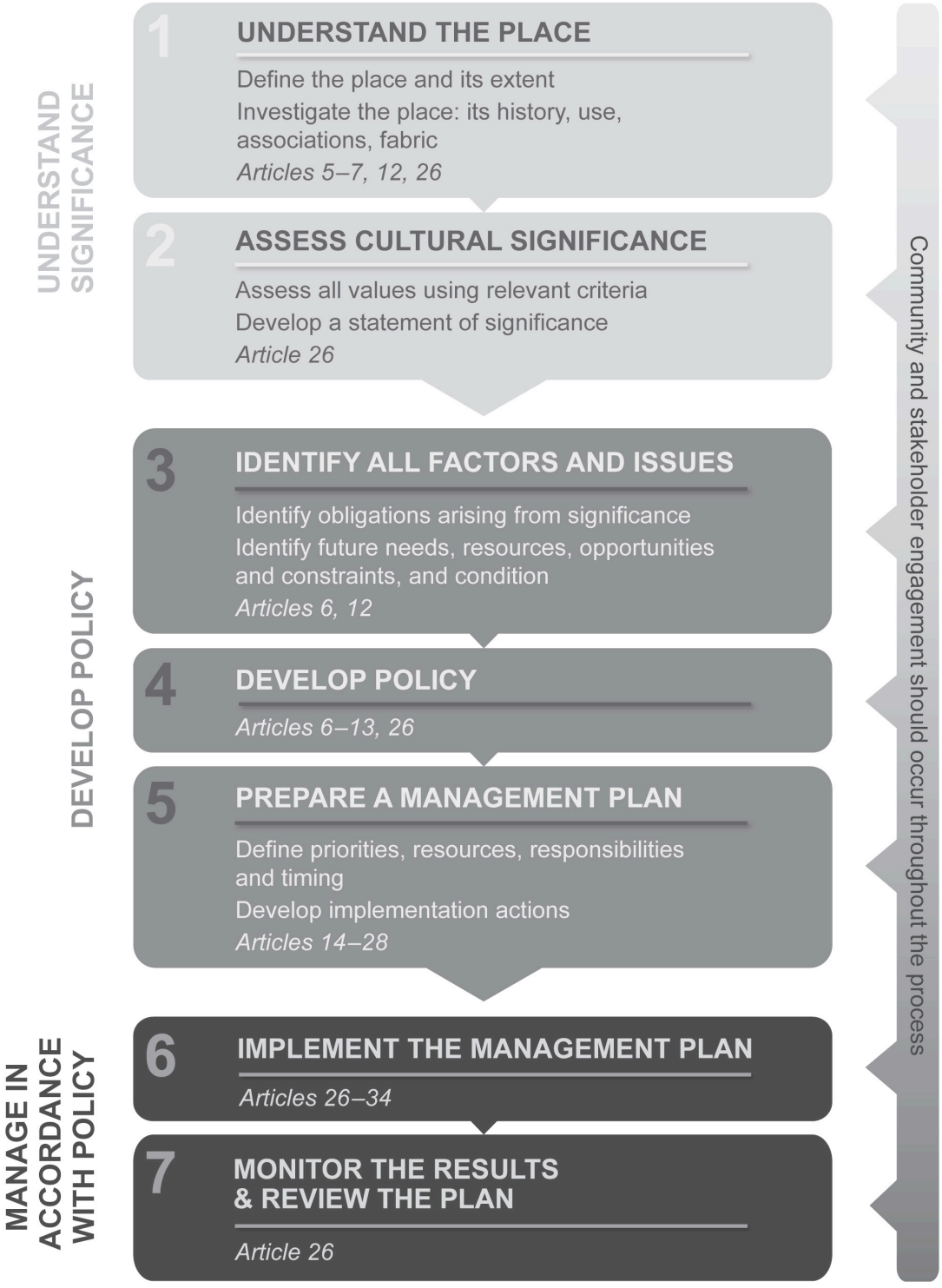
The best conservation often involves the least work and can be inexpensive.

The Burra Charter Process

Steps in planning for and managing a place of cultural significance

The Burra Charter should be read as a whole.

Key articles relevant to each step are shown in the boxes. Article 6 summarises the Burra Charter Process.



Appendix E

Unanticipated Finds Protocol, GML, January 2021

Appendix E—Unanticipated Finds Protocol

Protocol to be followed in the event that previously unrecorded or unanticipated archaeological material (objects, artefacts, deposits or relics) are encountered.

1. All ground surface disturbance in the area of the finds should cease immediately when unanticipated archaeological material is uncovered. The discoverer of the find(s) will notify machinery operators in the immediate vicinity of the find(s) so that work can be halted.

2. All work in the vicinity of the discovery will cease.

3. Contact the project archaeologist to assess the nature of the finds.

4. The project archaeologist will record the finds. This will include a significance assessment and the lodgement of site information for all new recordings with ACT Heritage.

5. If the finds are historical artefacts not in-situ, the finds will be recorded and collected and stored with the project proponent or project archaeologist and incorporated into the assemblage of other historical artefactual material at the conclusion of subsequent archaeological investigation phases.

6. If the finds are in-situ structural features or in-situ archaeological deposits of assessed significance a determination will be made between the project archaeologist and the onsite operators regarding the following:

    a) If sufficient information has been gained by the test location, then the sampling process will not re-commence and the find will be reburied using the excavated soil;

    b) If the test location can be moved to a location not directly impacting surface features, then the sampling process will re-commence at that new location and the finds will be reburied using the excavated soil;

    c) If there are no suitable location alternatives and further sampling is required, the following will be undertaken:

        i. All work in the location will remain on hold as the following steps are completed:

        ii. ACT Heritage will be informed of the findings and a further course of action will be discussed.

        iii. Based on discussions with ACT Heritage further assessment processes and formal permission under the ACT Heritage ACT may be required to facilitate the removal of the features.

        iv. At the completion of the additional assessment phases the agreed mitigation measures will be carried out prior to the removal of the features based on the conditions of approval.

7. If the finds are Aboriginal artefacts, the project archaeologist will contact ACT Heritage and the four ACT Representative Aboriginal Organisations (RAOs) to discuss ongoing management measures.

8. Work will not commence at the find location until ACT Heritage, the RAOs and the Project archaeologist have agreed an approach to managing the artefacts, and the finds location.

Protocol to be followed in the event that suspected human remains are encountered.

1. All ground surface disturbance in the area of the finds, should cease immediately the finds are uncovered.

    a. The discoverer of the find(s) will notify machinery operators in the immediate vicinity of the find(s) so that work can be temporarily halted; and

    b. The site supervisor and the development proponent will be informed of the find(s). If there is substantial doubt regarding a human origin for the remains, then consider if it is possible to gain a qualified opinion within a short period of time. If feasible, gain a qualified opinion (this can circumvent proceeding further along the protocol for remains which turn out to be non-human). If conducted, this opinion must be gained without further disturbance to any remaining skeletal material and its context as possible (Be aware that the site may be considered a crime scene containing forensic). If a quick opinion cannot be gained, or the identification is positive, then proceed to the next step.

2. Immediately notify the following people of the discovery:

    a. The local Police (this is required by law);

    b. ACT Heritage;

    c. Representatives from the Representative Aboriginal Organisations (RAOs) (where appropriate); and

    d. The project archaeologist (if not already present).

3. Facilitate the evaluation of the find(s) by the statutory authorities and comply with any stated requirements. Depending on the evaluation of the find(s), the management of the find(s) and their location may become a matter for the Police and/or Coroner.

4. Construction related works in the area of the find(s) may not resume until the development proponent receives written approval from the relevant statutory authority: from the Police or Coroner in the event of an investigation; and from the ACT Heritage Council in the case of human remains outside of the jurisdiction of the Police or Coroner.

5. In the event that the proponent continues an active role in the evaluation and/or management of the find(s), via a direction or advice from the Police, Coroner and/or Heritage Council, then all or some of the following steps may be conducted:

6. Facilitate, in co-operation with the appropriate authorities, the definitive identification of the skeletal material by a specialist (if not already completed). This must be done with as little further disturbance to any remaining skeletal material and its context as possible.

7. If the specialist identifies the bone as non-human then, where appropriate, the protocol for the discovery of historical or Aboriginal artefacts (above) should be followed.

8. If the specialist determines that the bone material is human, then the proceeding course of action may be of three types:

    a. The bone(s) are of an Aboriginal and non-Aboriginal person who died less than 100 years ago and where traumatic death is suspected. Such remains come under the jurisdiction of

the *ACT Coroner's Act* 1997. All further decisions and responsibilities regarding the remains and find location rest with the ACT Police, and/or the ACT Coroner.

b. The bone(s) are of a non-Aboriginal person who died more than 100 years ago. In this case, and where the Police have indicated that they have no interest in the find(s), the following steps may be followed:

    i. Ascertain the requirements of the ACT Heritage Council, the development proponent, the project archaeologist, and the views of any relevant community stakeholders;

    ii. Based on the above, determine and conduct an appropriate course of action. Possible strategies could include one or more of the following:

        1. Avoiding further disturbance to the find and conserving the remains *in situ* (this option may require relocating the development and this may not be possible in some contexts);

        2. Conducting (or continuing) archaeological salvage of the finds following receipt of any required statutory approvals;

        3. Scientific description (including excavation where necessary), and possibly also analysis of the remains prior to reburial;

        4. Recovering samples for dating and other analyses; and/or

        5. Subsequent reburial at another place and in an appropriate manner determined by the Heritage Council and in consultation with other relevant stakeholders.

c. The bone(s) are of an Aboriginal person who died more than 100 years ago. In this case the following steps may be followed:

    i. Ascertain the requirements of the local RAOs, the ACT Heritage Council, the development proponent, and the project archaeologist;

    ii. Based on the above, determine and conduct an appropriate course of action. Possible strategies could include one or more of the following:

        1. Avoiding further disturbance to the find and conserving the remains *in situ*, (this option may require relocating the development and this may not be possible in some contexts);

        2. Conducting (or continuing) archaeological salvage of the finds following receipt of any required statutory approvals;

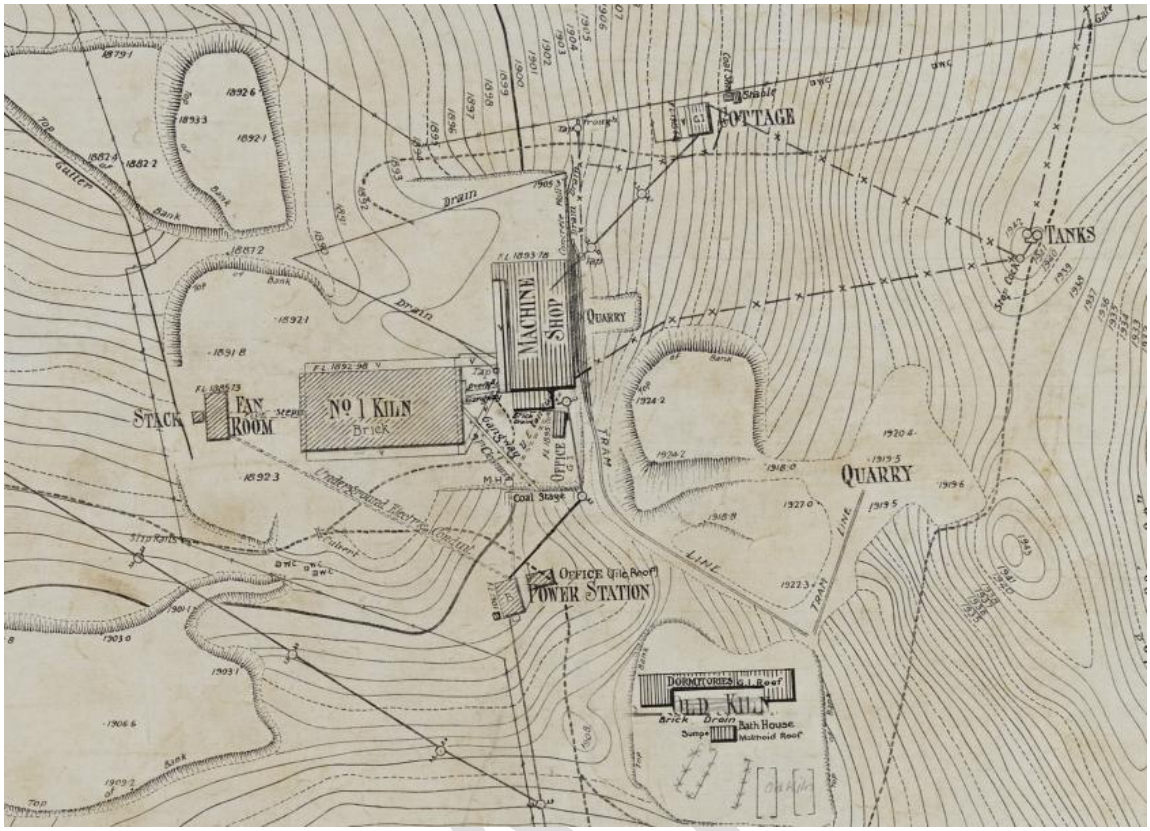
        3. Scientific description (including excavation where necessary), and possibly also analysis of the remains prior to reburial;

        4. Recovering samples for dating and other analyses; and/or

        5. Subsequent reburial at another place and in an appropriate manner determined by the RAOs and the Heritage Council.

Appendix F

Archaeological Assessment, Navin Officer, Draft Report, September 2016



ARCHAEOLOGICAL ASSESSMENT

CANBERRA BRICKWORKS & ENVIRONS

Denman Street, Yarralumla,

South Canberra

Prepared for

Land Development Agency

September 2016

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TABLE OF CONTENTS

1.0	**EXECUTIVE SUMMARY**	**1**
2.0	**Introduction**	**3**
2.1	Study area	3
3.0	**Project description**	**5**
4.0	**Statutory context**	**5**
4.1	*Heritage Act* 2004	5
4.2	Elements of significance	6
5.0	**Environmental context**	**8**
6.0	**Social context**	**8**
7.0	**Archaeological context**	**8**
8.0	**Research design and methodology**	**9**
8.1	Limitations	10
9.0	**Related reports**	**10**
10.0	**Historical background and analysis**	**10**
10.1	Pre-brickworks	10
	10.1.1 Analysis and conclusion	11
10.2	Establishment (1913-1920)	11
	10.2.1 Analysis and conclusion	12
10.3	Reactivation (1920s – 1930s)	14
	10.3.1 Analysis and conclusion	15
10.4	Expansion (1940s – 1960s)	18
	10.4.1 Analysis and conclusion	18
10.5	Closure and redevelopment (1970s – current)	22
	10.5.1 Analysis	22
11.0	**Physical investigations**	**24**
11.1	Predictive archaeological model	24
11.2	Survey coverage and visibility variables	25
11.3	Surface features	25
	11.3.1 BRW1: Possible building platform and concrete features	25
	11.3.2 BRW2: Married quarters and Brickworks Hostel	27
	11.3.3 BRW3: Area of postholes and other remains	31
	11.3.4 BRW4: Single men's quarters	33
	11.3.5 BRW5: Clay feature and rubble	34
	11.3.6 BRW6: Rubble heap/refuse dump	37
	11.3.7 BRW7: Quarry	37
	11.3.8 BRW8: Old kiln and dormitories	41
	11.3.9 BRW9: Cottage, stables, coal store	41

DRAFT

11.3.10 BRW10: Railway remnants 42
11.3.11 BRW11: Railway siding (extension to the north) 43
11.3.12 BRW12: Flues/subsurface workings 43
12.0 Findings 44
13.0 Next steps 48
Appendix A Assessment of signficance and potential impacts

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1.0 EXECUTIVE SUMMARY

This archaeological assessment for the former Canberra Brickworks (Block 1, Section 102) and its environs (Blocks 7 and 20, Section 102) has been prepared for the Land Development Agency (LDA) to inform any future works within the three blocks in Yarralumla. The Canberra Brickworks site is not designated land (areas specified in the National Capital Plan as having 'special characteristics of the National Capital') and is subject to the provisions of the Territory Plan. The Canberra Brickworks and associated Railway Remnants are also included in the ACT Heritage Register and are protected under the *Heritage Act* 2004.

The Commonwealth Government established the Canberra Brickworks in order to support the development of Canberra as the new Federal Capital. The project was announced in 1910 and work began on the development of the complex in 1913. The brickworks supplied materials for the construction of buildings in Canberra in the early period of the capital's development. Bricks and other specialty lines were produced at the site from this time until the closure of the complex in 1976. Production capacity at the site varied in response to fluctuations in demand for bricks and the brickworks was expanded in a number of key phases, notably in the 1920s and the 1950s.

Following closure of the plant, the site was adapted for a range of uses (of varying duration) but other than for the subdivision of land and associated residential development on the perimeter of the site, relatively little physical change has occurred since this time. The surviving complex includes brick manufacturing infrastructure including kilns, stacks and ancillary buildings, with a quarry to the east. Part of the complex is occupied by a timber recycling company.

This Archaeological Assessment has been prepared in response to Policy 15 of the Canberra Brickworks Conservation Management Plan by Lovell Chen, dated April 2010, which states that:

> A predictive archaeological assessment should be undertaken for the study area and abutting sites. This study should identify the relative potential for sub-surface remains on the site and their likely nature and significance. Depending on the outcome of such a study, an Archaeological Management Plan should be prepared prior to any development or disturbance of the site.

As such, the purpose of this document has been to:

- Identify areas of historical archaeological sensitivity at the study area with potential sub-surface features
- consider the likely nature and potential of the sub-surface remains
- provide guidance on the management of any archaeological remains

Areas of potential archaeological sensitivity

Twelve sites of potential archaeological significance were identified during the preparation of this report, with varying levels of potential (low, moderate, high).

The principal areas of archaeological potential include:

BRW1: Building platform and concrete features

BRW2: Married quarters and Brickworks Hostel

BRW3: Area of postholes and other remains

BRW4: Single men's quarters

BRW5: Clay feature and rubble

BRW6: Rubble heap/refuse dump

BRW7: Quarry

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BRW8: Old kiln and dormitories

BRW9: Cottage, stables, coal store

BRW10: Railway remnants

BRW11: Railway siding extension (to north)

BRW12: Flues/subsurface workings

Other works

Prior to the completion of this report, a Statement of Heritage Effects (SHE) was granted by ACT Heritage for Phase 2 contamination and geotechnical testing. The LDA undertook sub-surface testing, which was overseen by NOHC. This work took place within the identified areas of high, medium and low archaeological potential. A summary of results is included at Appendix B.

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2.0 Introduction

This Archaeological Assessment for the former Canberra Brickworks (Block 1, Section 102) and its environs (Blocks 7 and 20, Section 102) has been prepared for the Land Development Agency (LDA). The purpose of the document is to:

- Identify areas of historical archaeological sensitivity at the study area with potential sub-surface features
- consider the likely nature and potential of the sub-surface remains
- provide guidance on the management of any archaeological remains

The Cultural Heritage Reporting Policy prepared by the ACT Heritage Council (dated 1 July 2015) has been referenced in the preparation of this document.[1] An assessment of significance and assessment of potential impacts are included as an appendix to this report (Appendix A).

This report does not address Aboriginal archaeology. The Aboriginal archaeological potential of the study area was considered as part of an Aboriginal Cultural Heritage Assessment (Stage 1) in August 2014. The assessment, prepared by Navin Officer Heritage Consultants Pty Ltd (NOHC), concludes that the brickworks and its environs contain no known Aboriginal places or objects and is of low Aboriginal archaeological potential. Further, any archaeological deposits would have been disturbed as a consequence of past land use practices.[2] As an outcome of the Cultural Heritage Assessment, no statutory implications regarding cultural heritage apply to the study area. The Cultural Heritage Assessment was approved by the ACT Heritage Council on 11 September 2014.[3]

Canberra Brickworks CMP

This Assessment has been prepared in response to Policy 15 of the Canberra Brickworks Conservation Management Plan by Lovell Chen, dated April 2010. The policy is as follows:

> A predictive archaeological assessment should be undertaken for the study area and abutting sites. This study should identify the relative potential for sub-surface remains on the site and their likely nature and significance. Depending on the outcome of such a study, an Archaeological Management Plan should be prepared prior to any development or disturbance of the site.

The CMP provides an assessment of the site's heritage values, and sets out policies to guide the conservation and management of those values. It was endorsed by the ACT Heritage Council on 20 May 2010. The CMP notes that archaeological remnants are likely to survive at the site and comments that, '[these artefacts are unlikely] to be of a level of significance that … would warrant retention in situ, or … preclude development on the site'.[4] Subsurface artefacts located at the site would however have the potential to enhance an understanding of the history and operation of the site.

Canberra Brickworks Railway Remnants

While the Canberra Brickworks CMP has regard for issues of setting and curtilage, it does not provide a detailed analysis of land adjacent to the former brickworks, including the Canberra Brickworks Railway Remnants, which is the subject of a separate entry in the ACT Heritage Register. The registered area for the railway remnants extends south from the brickworks and forms part of Block 7, Section 102, Yarralumla (Figure 1).

2.1 Study area

The study area for this archaeological assessment includes Blocks 1, 7 and 20 Section 102 in Yarralumla. The total area is approximately 16ha. There is an elevated ridge to the south and east of the study area, and lower ground to the north and west. A water course originally ran to the north-west of the site. The study site is located approximately 5km west of the Parliamentary Triangle. It is bounded to the north and east by low density residential development (Woolls, Schomburgk and Bentham streets, and

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Lane-Poole Place). To the west, the site is bordered by Territory land (Block 1, Section 127), and to the south by Block 3 Section 94 (Figure 1). Access to the study area is from Denman Street only.

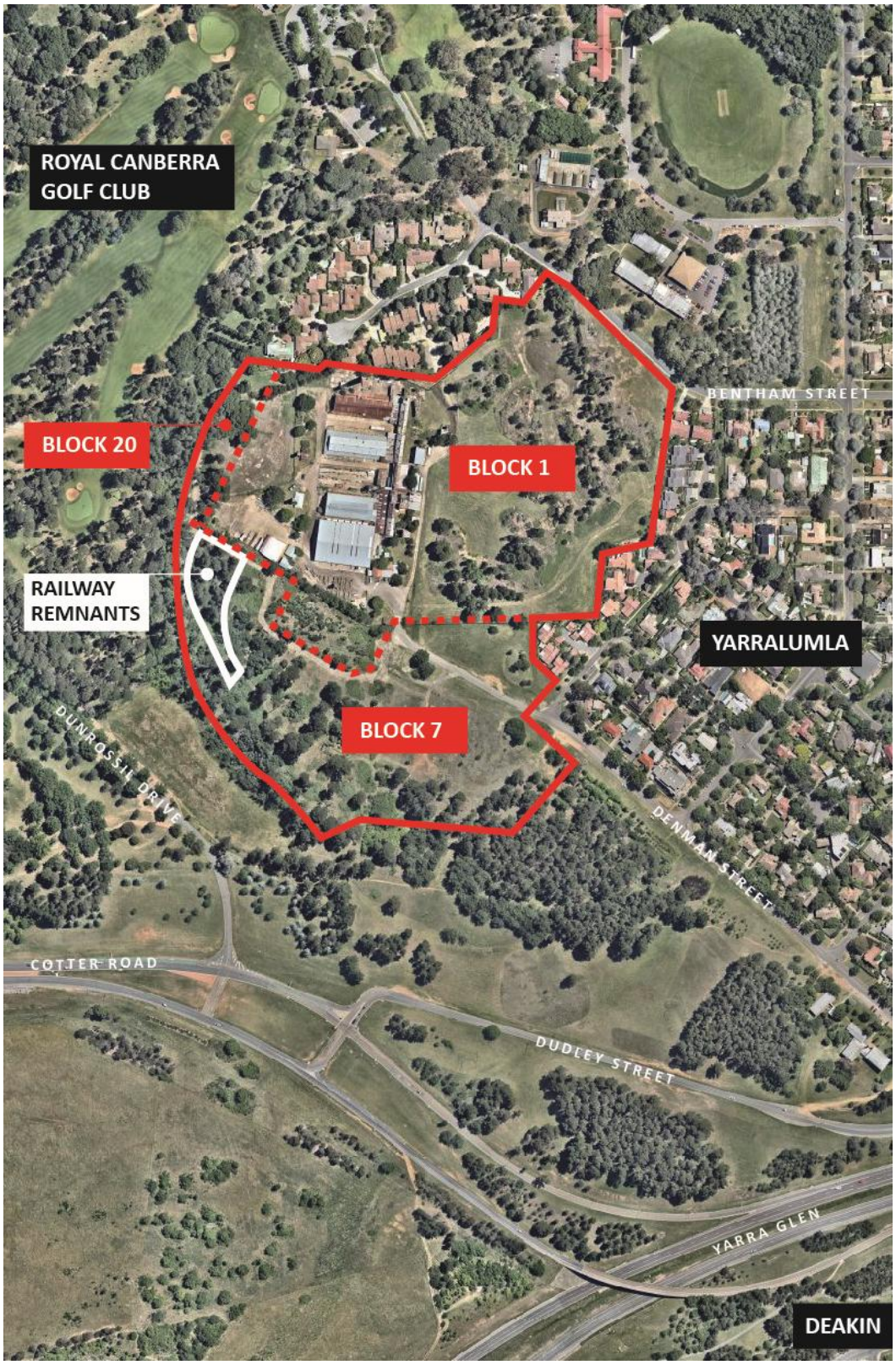


Figure 1 Aerial photograph of the study area (solid red line) and environs, 20 November 2015: Block 1 is the registered extent of the Canberra Brickworks
Source: www.nearmap.com (base photograph), accessed 16 December 2015

3.0 Project description

The nature of future works within the study area is yet to be determined. Based on criteria and land uses defined in the current Territorry Plan and Yarralumla Precinct Map and Code, the study area could be subject to future commercial and/or residential development..

4.0 Statutory context

The *Australian Capital Territory (Planning and Land Management) Act* 1988 established the National Capital Planning Authority, which was required to prepare a National Capital Plan (NCP). The Act also required the preparation of a Territory Plan, which was not to be inconsistent with the NCP. The Territory Plan is the document that informs and guides planning and development in the ACT, with the exception of 'Designated Areas' (an area specified in the NCP as having 'the special characteristics of the National Capital'). The study area is not designated land and as such is subject to the provisions of the Territory Plan. However, land to the south, north and west (Sections 103, 113, 119 and 123) is designated, and forms part of the National Capital Open Space system.

Development approval processes within the ACT can be summarised as follows:

- Work carried out on National Land in Designated Areas is subject to the approval of the National Capital Authority (NCA);
- Work carried out on Territory Land in Designated Areas is generally subject to approval by the NCA but Territory requirements may also apply to development where the Territory is the approving Authority;
- Work carried out on National Land outside of Designated Areas must be in accordance with a Development Control Plan (if applicable) agreed by the NCA that reflects the requirements of the Territory Plan; and
- Work carried out on Territory Land outside Designated Areas is subject to the Territory Plan and Territory Approval processes.

4.1 *Heritage Act 2004* (ACT)

The Canberra Brickworks (Section 102, Block 1) and the Brickworks Railway Remnants (Section 102, Block 7 – part) are included in the ACT Heritage Register and are protected under the *Heritage Act* 2004. This Act provides for the protection, management and conservation of heritage places and objects in the ACT. Under the Act, the ACT Heritage Council is to be responsible for the Heritage Register and the heritage registration process.

Under s.74 of the *Heritage Act*, it is an offence to engage in conduct that diminishes the heritage significance of a place or object. An object is defined as 'a natural or manufactured object, but does not include a building or any other man-made structure' and a place is defined as 'a site, precinct or parcel of land; a building or structure; or part of a building or structure; the curtilage, or setting, of a building or structure, or part of a building or structure; an object or feature historically associated with, and located at, the place'.[5]

Under the Act, penalties apply where other works diminish the heritage significance of a registered or nominated place or object or damages an Aboriginal place or object. The reporting and offence provisions of the Act apply irrespective of land status, or whether the site is listed in the Heritage Register or not.

The only provisions for legally sanctioned disturbance to a place or object, or the diminution of the heritage value of a Heritage Place or Object is to conform to one of the exceptions listed in s76 of the Act (see also Section 13.0).[6] According to this section, the offence provisions of the Act (s74 and s75) do not apply if conduct is engaged in accordance with the following:

(i) a heritage guideline;

(ii) a heritage direction;

(iii) a heritage agreement;

(iv) a conservation management plan approved by the council;

(v) development approval under the Planning and Development Act 2007, chapter 7;

(vi) an excavation permit;

(vii) a statement of heritage effect approved by the council.

4.2 Elements of significance

The features associated with the brickworks are divided between two schedules – elements of exceptional significance, and elements of moderate significance (ACT Heritage Register Item 20068, Figure 2).

Schedule 1 Elements of Exceptional Significance

1) Kiln - Staffordshire (1915)
2) Fan House for Staffordshire Kiln (1915)
3) Kiln - Hardy-Patent (1927)
4) Fan House for Hardy Patent Kiln (1953)
5) Kiln - Hardy-Patent (1953)
6) Kilns - Downdraft a, b, c (1963)
7) Chimney Stacks for Staffordshire Kiln (1915)
8) Chimney Stack for Hardy Patent Kiln (1927)
9) Chimney Stack for Hardy Patent Kiln (1953)
10) Chimney Stack for Downdraft Kiln (1963)
11) Quarry
12) Geological features A, B, C, D

Schedule 2 Elements of Moderate Significance

13) Office (1916)
14) Power House (1915)
15) Machine Bay for Staffordshire and Downdraft Kilns (1955)
16) Machine Bay for Hardy-Patent (1955)
17) Machine Bay for Hardy-Patent (1955)
18) Workshop (1955)
19) Large Crusher House (1955)
20) Primary Crusher House (1955)
21) Small Crusher House

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22) Elevator Conveyor (1955)

23) Remains of the Brickworks Accommodation Village

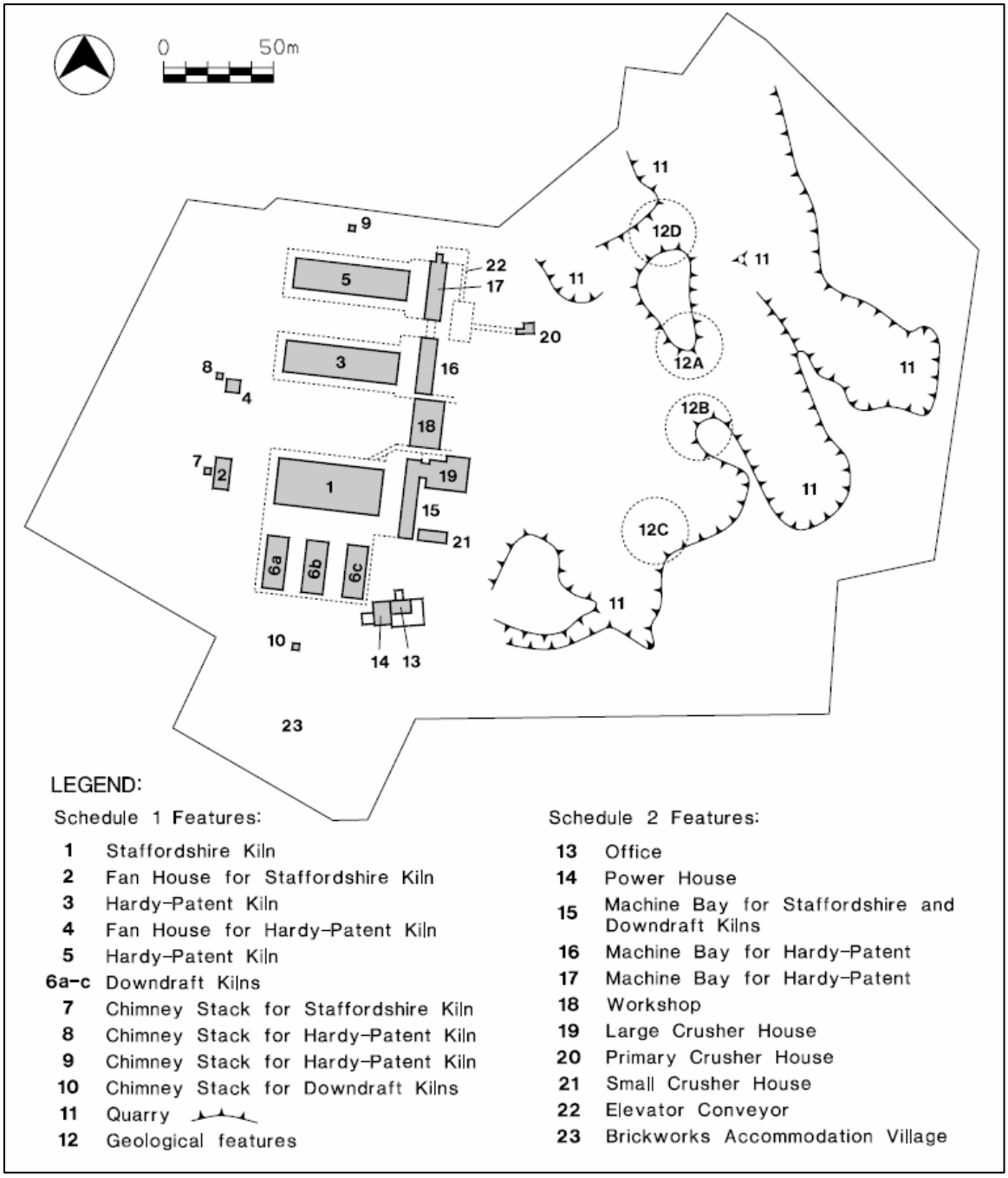


Figure 2 Canberra Brickworks significant features
Source: ACT Heritage Register

5.0 Environmental context

The Canberra brickworks is located within two distinct geological regions: the Deakin Volcanics, which consists of Rhyodacitic ignimbrite and minor volcaniclastic and argillacrous sediments; and the Yarralumla Formation, which consists of calcareous and tuffaceous mudstone and siltstone with minor limestone, calc-silicate hornfels and quartz sandstone.[7]

The area is situated on the Williamsdale soil landscape, characterised by undulating rises with elevation between the highest and lowest points locally being below 10% in natural terrain. The soil landscape consists of moderately deep, moderately well-drained Yellow Chromosols, Red Kandosols and Brown Kandosols. There are elevated ridges to the south and east of the study area, and lower ground to the north and west. A former watercourse ran through the brickworks site in the north-west, at which point alluvial soils are present. The brickworks is located on a minor local topographic high, with a sloping ground surface outside the study area to the south and south-west heading towards Yarralumla Creek, a tributary of the Molonglo River. Topography and drainage in some areas of the study area have been significantly modified due to the brickworks itself, the associated quarry and road infrastructure.[8]

The study area is largely dominated by exotic vegetation. The areas of tree plantings contain an exotic understorey. The areas of exotic pasture surrounding the entrance road to the study area are dominated by Chilean needlegrass, a noxious weed. The predominant tree species within the study area is *Pinus radiata* (weed species), *Pinus ponderosa*, *Pinus sylvestris* and *Ulmus procera* and various tree and shrub weed species. A number of planted trees are located along the eastern boundary and a copse of oak trees is located on the south-east corner of Block 7. Generally the landscape is unmanaged, and weed species (trees, blackberry shrubs and grasses) are prevalent.[9]

6.0 Social context

Investigation of the social context of the brickworks site has not been undertaken for this current assessment. However, a study was undertaken in late 2010 with past employees or their family members to explore their memories and experience of the Brickworks. This study revealed an attachment for people who have worked at the site during its operational life as a brickworks.

Unsurprisingly, given its scale, heritage values and location, the brickworks is a place which has been the focus of major interest for the local community concentrating largely on the issue of potential future development. Significant community sentiment and interest and consultation workshops have taken place with the LDA to provide an opportunity for residents to express opinions regarding the future use and development of the site.

7.0 Archaeological context

The Aboriginal archaeological potential of the study area was considered as part of a Cultural Heritage Assessment undertaken by Navin Officer Heritage Consultants (NOHC) in August 2014. As noted, this report concluded that the brickworks and its environs contained no known Aboriginal places or objects, and any potential deposits would have been disturbed as a consequence of the extensive land use.

No previous historical archaeological assessments of the study area came to light during the preparation of this report.

Site visits undertaken for this Archaeological Assessment, and previously, suggest that there is some above-ground evidence of archaeological features within the study area. This is described in detail in Section 11.3. Some evidence for potential archaeological features is also visible in the form of the landscape. The quarry itself is a highly intact feature and the brickworks railway, which operated between 1923 and 1927, remains partly evident in the form of cuttings in the landscape that follow the original alignment of the siding. Self-seeded vegetation has reclaimed much of this area in recent years. Evidence of man-made intervention is also apparent in the refuse dump to the west of the brickworks.

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8.0 Research design and methodology

Historical research

Historical research using primary and secondary sources formed a significant component of this assessment of archaeological potential. The principal objective of this research was to establish and document the historic development of built form at the study area.

The 2010 CMP prepared by Lovell Chen was a key reference. It is based upon a range of sources, including survey and site plans and historic photography. This report is also informed by the following primary sources:

- Photographic collection, National Library of Australia
- Photographic collection, ACT Heritage Library
- Aerial photography, ACT Planning and Land Authority

Additional research was also undertaken using secondary sources and online databases including published histories, the Canberra Heritage Register, and Nearmap aerial photography.

The historical development of the Canberra Brickworks is presented in this report in four key phases:

- Establishment (1913-1920)
- Reactivation (1920s-1930s)
- Expansion (1940-1970s)
- Closure and Redevelopment (1970s – current)

Archaeological fieldwork

Archaeological fieldwork was conducted to examine the presence and extent of physical features at the site, including their location and potential purpose; confirm the location and archaeological potential of any previously identified features; identify any areas of archaeological potential not recognised through historical research; and where possible, use the results of the above examinations and analyses to identify the potential for these areas to yield further information.

Research questions which were posed included:

- Are there identifiable remains and features that would provide information on the course of the development and use of the study area; and
- Are there areas of archaeological potential, with no surface remains, within the study area that may be able to provide information on its development and use?

A predictive archaeological model was also developed to indicate the types of potential archaeological features, and likely areas of subsurface remains. This model is outlined in Section 11.1.

Site visit

Three site visits were undertaken throughout the duration of this study.

Lovell Chen undertook an inspection on 24 November 2015, to 'ground truth' the outcomes of the historical research and identify any archaeological evidence relating to historic land use. The site visit was undertaken by Adam Mornement, Senior Associate, and he was accompanied by a staff member from the Land Development Agency. The survey covered the quarry, and land to the west and south of the kilns including remnants of the railway siding extending into Block 7.

The focus of this visit was on six locations which had been identified as being of archaeological potential during the review of historical documentary material. Lovell Chen established that one of the locations had been developed, and confirmed that archaeological evidence of previous land use remained

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possible at the other five locations. Underground flues linking the kilns to their respective fan houses and chimney stacks were not inspected during this visit. However, documentary and above-ground evidence (in the form of the kilns, stacks and fan houses) suggests that these flues survive.

A second investigation was undertaken by Travis Gottschutzke and Dr Rebecca Parkes of NOHC in the afternoon of 20 May 2016. This involved a walk over of the area to the south of the brickworks itself, and the quarry. Staff were accompanied by three officers from the Land Development Agency (LDA). The inspection was an opportunity to familiarise NOHC staff with the nature of the brickworks site.

Following this investigation, a detailed survey of sites within the brickworks area was undertaken by Travis Gottschutzke and Julia Maskell (NOHC) on 9 June 2016. Over the course of the survey, contributions were sought from other NOHC staff (Dr. Rebecca Parkes and Dr. Antony Barham).

8.1 Limitations

Access to the entire study area was limited due to a number of factors. The centre of the precinct, the brickworks, is a partially active environment, licensed by the Territory to a joinery business involving processing and recycling of reclaimed timber. Access to this zone was therefore restricted to short windows of time during staff breaks. Fortunately, the built environment of this part of the precinct has been sufficiently analysed in the 2010 CMP, and visible archaeological remains were predicted to be minimal in these areas.

Historical research has largely relied on material in the 2010 CMP, which in turn relied in part on material from the 1986 Lester Firth Associates' *Conservation Management Plan*, with additional research undertaken by Lovell Chen where required. While there is clearly scope to undertake further historical research in relation to the study area, it was considered that sufficient research had been undertaken to inform the analysis and assessment of this report.

9.0 Related reports

The Canberra brickworks site, as well as the surrounding environs, has been the subject of a number of previous studies. These include:

- Lester Firth Associates Pty Ltd, *Old Canberra Brickworks Conservation Plan,* 1986
- National Capital Development Commission, *Canberra Brickworks, South Canberra, Policy Plan*, October 1988
- Connell Wagner Pty Ltd, *The Old Canberra Brickworks and Environs Development Control Plan*, February 2001
- Susan Conroy & Munns Sly Architects, *The Yarralumla Brickworks & Environs Planning Review*, March 2005
- Lovell Chen, *Canberra Brickworks Conservation Management Plan*, April 2010
- Navin Officer Heritage Consultants, *Canberra Brickworks, Yarralumla ACT Aboriginal Cultural Heritage Assessment (Stage 1)*, August 2014

10.0 Historical background and analysis

The following historical overview of the former Canberra Brickworks is derived largely from the CMP prepared by Lovell Chen in 2010. Full reference details are contained in the CMP. The results of any additional research are referenced below.

10.1 Pre-brickworks

In 1910, King O'Malley announced Government plans for the construction of a brickworks to serve the Federal Capital. Various experiments on shale in the region were carried out in early 1911. One potential site was Frederick Campbell's Yarralumla property. Samples from the site were sent for testing and reports concluded that samples from Yarralumla produced bricks of excellent quality. Yarralumla was thus chosen and Frederick Campbell agreed to the acquisition of approximately 38 acres (15ha) of his land holding. The area was gazetted on 27 July 1912, and development of the site began in 1913.

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The map at Figure 3 shows the location of the study area prior to the development of the Federal Capital.

10.1.1 Analysis and conclusion

There is unlikely to be any archaeological features or deposits relating to this period.

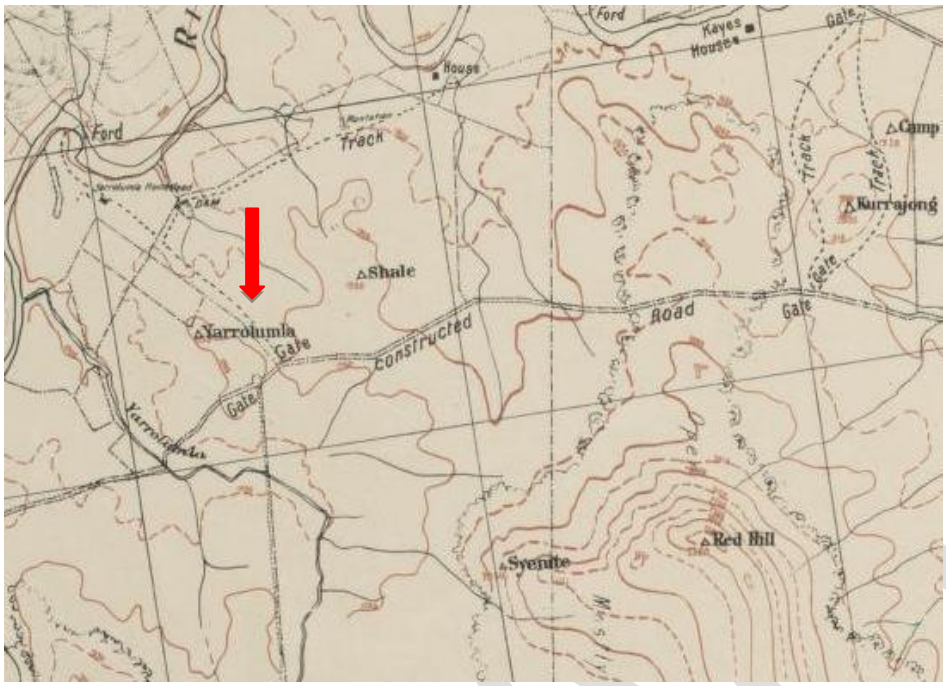


Figure 3 Map of Federal Capital, 1912: the approximate location of the former Canberra Brickworks is indicated
Source: National Library of Australia

10.2 Establishment (1913-1920)

A temporary brick making plant was operational by 19 June 1913. This comprised a grinding pan, brick making machine and elevator made by Geo. Foster and Sons, Sydney, and a portable steam engine. By August 1913, four open kilns were in use at the temporary plant, with plans for a fifth. During this period, workers were accommodated in two camps of tents – one for married couples, the other for single men. The camps were located on Banks Street, near the present Forestry School. This area has been developed for housing.

The first stage of the permanent brickworks, which included a Staffordshire kiln, was approved on 1 December 1913 by P T Owen, the Director-General of Works. It was proposed to use this kiln to produce bricks for the construction of two further kilns. In September 1915, the brickwork for a 20-chamber Staffordshire kiln was nearing completion. This kiln, together with crushing, processing equipment and brick presses was ready for production by early 1916.

A Survey Plan of the site (Figure 4), dated 20 December 1916, shows the layout of the permanent brickworks. A small galvanised iron office building is located close to the 'Machine Shop', and a galvanised iron 'Cottage' with associated coal store and stable is located to the north-east of the site. Other features include a coal stage, a concrete retaining wall separating the quarry pit and the working areas, water storage tanks on a high knoll, a remote powder depot, three detached WCs south of the kiln, an elevated gangway connecting the coal stage to the kiln and overhead electrical connections linking the power station to the fan room, machine shop and the cottage. The Staffordshire kiln was connected to the fan house and stack by means of flues and underground workings. A tram line is indicated linking the quarry to the machine shop – these tram lines could be relocated as the quarry face advanced.

The plan also provides details about the temporary brickworks. The temporary 'Old Kiln' area, shown in outline on the plan, comprises four kilns located to the south-east of the permanent brickworks. There is also a 'Dormitories' building located to the immediate north.

The plan indicates that the land to the immediate north of the Staffordshire kiln and associated fan room was on a rise, and a gutter was developed to the west of this to allow water to flow from the nearby creek to the site. This land later became a rubble heap and refuse dump.

The land to the north-west, west and south of the brickworks was established in 1914 as a designed landscape 'Westbourne Woods' (Figure 5). This land, together with Weston Park and the Yarralumla Nursery, was nursery and arboretum to test the suitability of plantings throughout Canberra.

The commitments of World War I, and consequent restrictions on the works program for Canberra, together with a coal strike, saw the brickworks close in December 1916.

10.2.1 Analysis and conclusion

All structures relating to the temporary brickworks have been demolished.

Elements of the permanent brickworks, as indicated on the 1916 survey plan, that survive include the power station, Staffordshire kiln, the fan room, stack and the concrete retaining wall. It is assumed that the underground workings connecting the kiln to the fan house and stack also survive as intact subsurface remains. Other elements from this period have been demolished. As was the case for the cottage, associated coal store and the office building close to the machine shop, the majority of the demolished buildings are likely to have been constructed of sheet metal.

Archaeological deposits pertaining to built form from this era are expected to comprise footings and machinery remnants. The material discard is expected to be items of an industrial nature. As can be seen from the survey plan (1916), most of the development in this period was located on the flat land to the west of the quarry pit. This area has been heavily disturbed as a result of the expansion of the brickworks, and it is unlikely that archaeological remains will be uncovered here.

The site of the temporary kilns to the south-east of the power station is the most likely location for archaeological deposits dating to this era. This area has not subsequently been developed, although part of it was covered with a concrete slab (see Section 10.4).

The cottage to the north-east may also yield some archaeological remains, although this site is likely to have been disturbed by quarrying activities. The location of the cottage and outbuildings has been heavily trafficked over time, being located on a key route between the quarry pit and kilns and in close proximity to the primary crusher house and the elevator/conveyor. Archaeological deposits or features relating to this area may include timber post holes and/or domestic discard.

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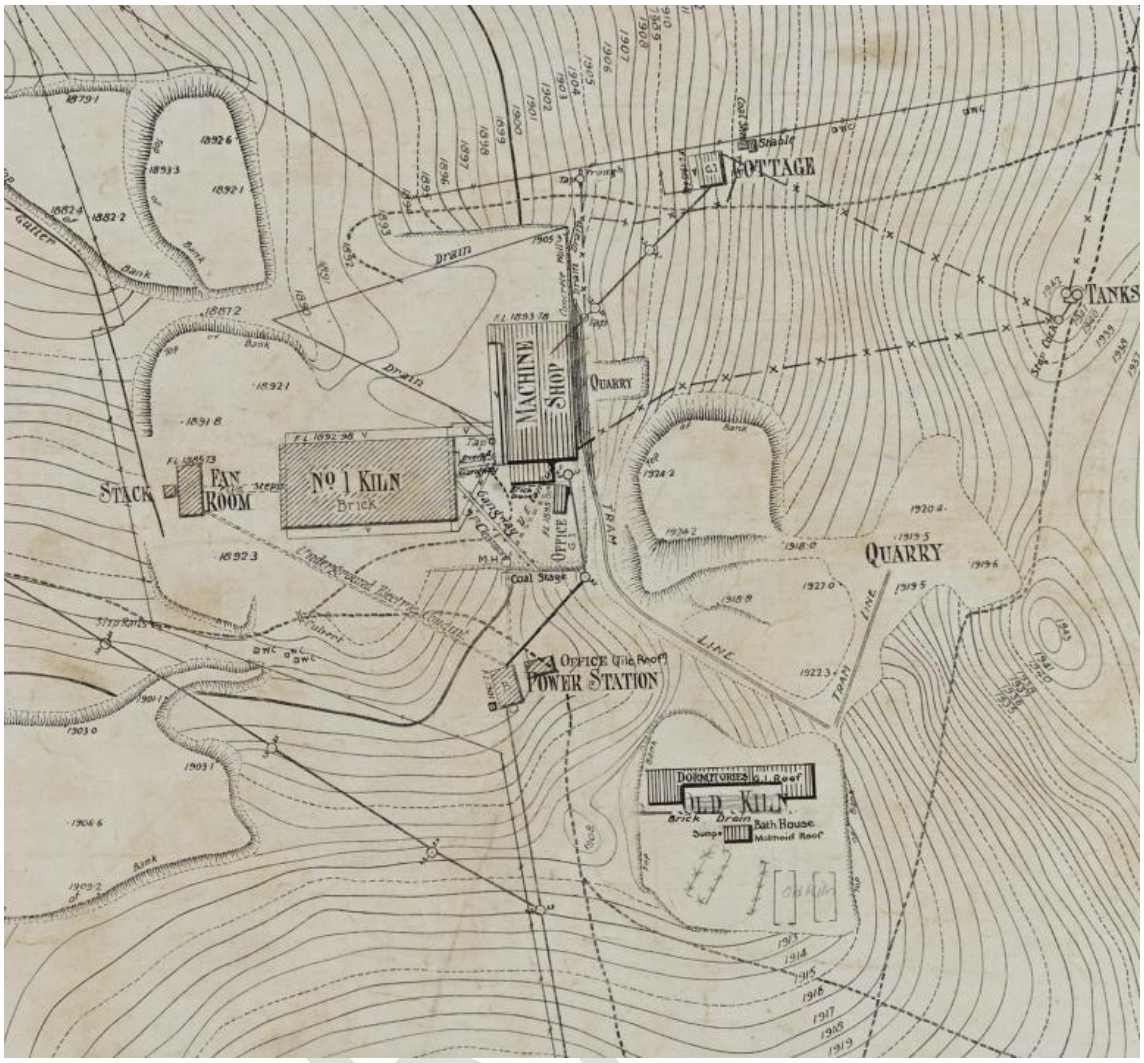


Figure 4 Contour and detail survey of Brick Yards, Canberra, 1916. North is at top
Source: National Archives of Canberra

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Figure 5 Detail of Plan of City and Environs, 1918 showing the Brickworks (indicated) in relation to Westbourne Woods
Source: National Library of Australia

10.3 Reactivation (1920s – 1930s)

The Canberra Brickworks re-opened in 1921 to meet the demands of a developing city. By the end of 1923, 5,000,000 bricks and 50,000 tiles had been produced at the plant.

Bricks were initially transported from the brickworks to construction sites in the emerging city centre by traction engine. However, the machines were able to make only two daily round trips. To speed the process a light railway was constructed. This led from the south-west of the brickworks site, before aligning with the present Denman Street and heading east to the construction sites. The 'branch lines' of the light railway were removed prior to the opening of the Provisional Parliament Building in May 1927 and the remaining sections of the railway were removed in 1929. From the late 1920s, bricks were transported by truck. The only remaining evidence of the light rail network is the formation between Denman Street and the west side of the brickworks (the Canberra Brickworks Railway Remnants).

To cope with increased demand during the 1920s, two 'temporary' downdraught kilns and an associated stack were constructed at the brickworks in October 1925. These were oriented east-west and located to the south of the Staffordshire kiln. They were replaced in the 1960s by three kilns that survive today. In 1926 the existing machine shed was also expanded by two bays.

A 1926 site plan of the brickworks (Figure 6) indicates the changes that occurred following the re-opening of the site after World War I. The old dormitory block and iron cottage with associated stable are still present, but the temporary kilns have been demolished by this stage. The machine shop has

been expanded to the north and a new kiln constructed to the north of the Staffordshire kiln. The location of the two downdraught kilns is also outlined. There was an amusement hall, possibly associated with the Brickworks Camp, to the east of the quarry pit. The quarry itself has altered in shape significantly from the earlier 1916 plan and the tramways follow a different alignment. The plan also provides an indication of the arrangement of the railway siding, just prior to its closure the following year.

Further development took place in 1927. A Hardy patent kiln was built, located to the north of and parallel to the Staffordshire kiln. Today, this kiln has its own fan house and stack, presumably with underground flues, but a 1927 site plan showing the proposed location of this kiln, suggests that it may originally have been supported by the fan house and stack of the Staffordshire kiln. This kiln remains today, albeit in extensively modified form. A 'Scotch' kiln was also in operation to the north of the Staffordshire kiln, and the original section of the present office building was constructed. Single men's quarters were constructed on the south side of Denman Street, close to the entrance to the study area – the location of these quarters is not recorded in historic plans or photographs – and new married quarters were located to the south of the brickworks in the same year. These married quarters can be seen in Figure 7 and Figure 8. They comprised a large two storey building (mess hall) and a number of simple single storey sleeping quarters. The photographs suggest that they were of timber construction.

By the end of the 1920s, the brickworks comprised:

- Staffordshire kiln, fan house and stack
- Hardy patent kiln, fan house and stack
- Two downdraught kilns
- Machine shed
- Amusement hall
- Cottage and associated stables/coal store
- Power house (brick)
- Office (brick)
- Accommodation units to south west and south
- Railway siding remnants

The works closed in February 1931 as a result of the 1929 Depression before reopening again in 1935. However, World War II diverted peace time activity to works associated with the war effort, and the brickworks closed once again. In April 1942 staff were laid off and a caretaker retained to issue bricks for essential works.

10.3.1 Analysis and conclusion

The reactivation phase saw the expansion of the brickworks to something close to its present dimensions. The industrial buildings built during this period were generally constructed of brick with corrugated sheet metal roofs. It is anticipated that accommodation buildings of this era were constructed of timber.

The only buildings that survive from this period were those associated with the industrial workings of the brickworks itself. All accommodation, including the sheet metal cottage, the original dormitories, the single men's camp and the married quarters have been demolished, as has the amusement hall.

The form and location of the single men's quarters constructed to the south of Denman Street, close to the site entrance, is not known. As noted, it is probable that the building (or buildings) were of timber construction. The land to the south of Denman Street, close to the entrance, has not subsequently been

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developed. Archaeological deposits relating to these quarters may include post holes and underfloor refuse deposits. Any material discard is expected to be of a domestic nature.

The married quarters, south of the brickworks, were replaced with a hostel in 1945. As a result, there is limited potential for archaeological deposits relating to the 1920s married quarters. Any deposits are likely to be of a domestic nature.

There are unlikely to be any remains of the quarry pit tramways. These were of an ephemeral nature, being readily relocatable. The floor of the quarry pit has also been modified through quarrying operations, and (in the 1970s) through the adaptation of the pit to a landscaped park and model railway.

Evidence of the railway siding remains in the form of cuttings in the landscape that follow the original alignment of the siding. The potential for subsurface remains relating to the railway, including drainage channels, is low, but cannot be discounted. The railway siding extended right to the brickworks and, although part of this area was later covered with the slab of the extrusion plant, there is potential for the evidence of tracks extending to the north and south of the Staffordshire kiln. Potential archaeological features related to the railway may include timber sleepers, iron bolts and metal rails.

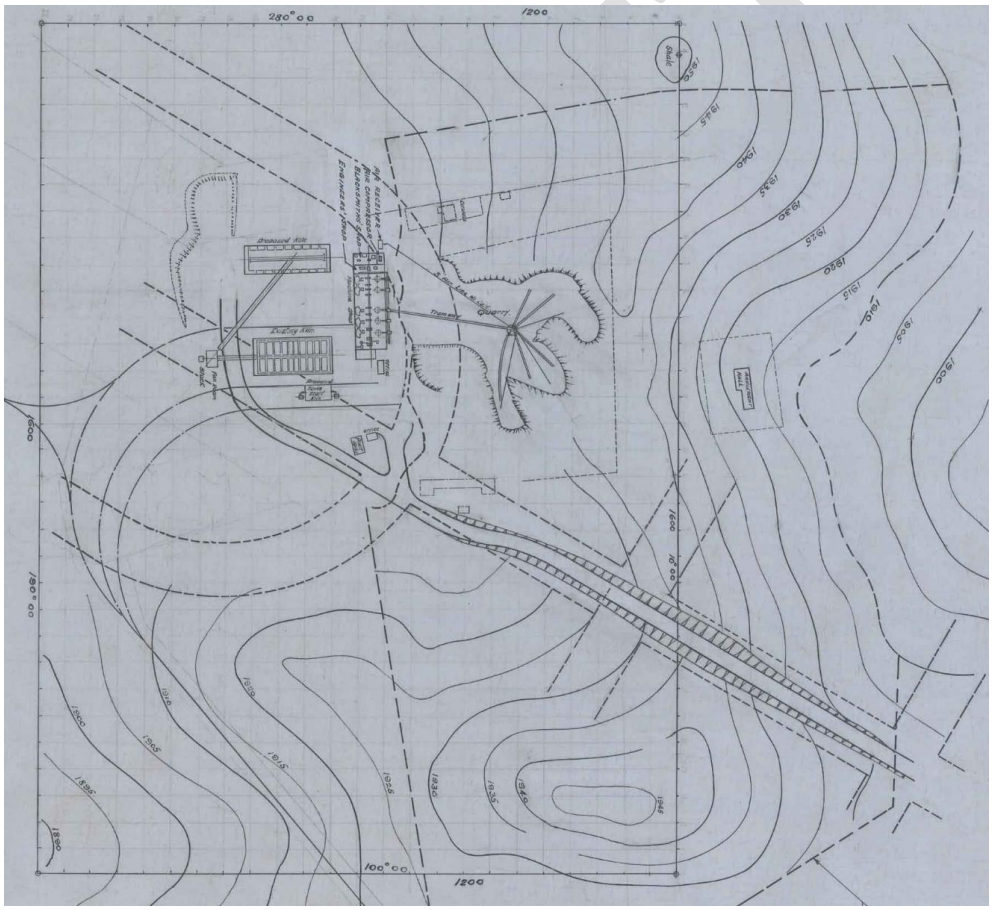


Figure 6 Canberra Brickworks site plan, 1926. North is at top
Source: National Archives of Australia



Figure 7 View of Brickworks, 1929 with married quarters to the left of the image
Source: National Archives of Australia



Figure 8 Brickworks looking south to married quarters buildings, 1929
Source: National Archives of Australia

10.4 Expansion (1940s – 1960s)

With the end of World War II in sight, the Canberra Brickworks reopened in September 1944, with production on a limited scale. From the late-1940s and into the 1950s output was stepped up to provide material to address the post-war housing shortage, resulting in a major expansion and redevelopment of the brickworks.

Among the first post-war construction projects was the replacement of the married quarters at the south-west of the site, built during the 1920s. The new 'Brickworks Hostel' was ready for occupation in 1945 and was located on the site of, and in close proximity, to the former married quarters. The hostel was demolished c.1970.

The expansion of the brickworks in the 1950s saw a change in the process of brick making and in the machinery required for production. While the major brick kilns on the site were retained, other early plant and buildings were replaced. The early machine shop, adjacent to the Staffordshire kiln, was replaced with a series of brick press buildings and a workshop. The brickworks was also equipped with a series of new crushers and hoppers, an elevator and a 'Pan Building'; and a sequence of conveyor belts. The two 'temporary' downdraught kilns that had been built c. 1925 were demolished to make way for three new downdraught kilns. These were constructed on the site of the former 'temporary' kilns in 1960-63.

Westbourne Woods, which surrounded the Brickworks also witnessed change during this period. To solve problems of tree damage as a result of drought, a golf course within the Woods was proposed in 1945. From 1949-1954, fairways were cleared and grassed and in 1962 the Royal Canberra Golf Club was granted a lease that included most of Westbourne Woods.[10] The land to the north-west and west of the brickworks has thus retained a designed landscape character since 1914, with no evidence of development.

This phase of development of the brickworks is reasonably well documented. A site plan dated 1947 (Figure 9) shows the layout of the site at the time, which is substantiated by a 1950 aerial photograph (Figure 10). A 1961 aerial shows further development that took place during this period (Figure 12).

The cottage to the north-west of the quarry pit had been demolished by 1947, with the introduction of roadways to the east side of the machinery shops and kilns likely to have disturbed any material related to the building. A new house had been constructed directly to the north of the brickworks, with an associated garage. As noted above, the Brickworks Hostel replaced the former married quarters in 1945. This new accommodation comprised two buildings with rectangular footprints to the south-west of this area, and a number of smaller buildings to the north and north-east (Figure 11). The amusement hall was extant in 1950 and an explosives store had been erected to the west of the railway siding.

The 1961 aerial shows development to the east and south-east of the brickworks. Residential development to the north-east was also progressing at this stage.

The 1961 aerial also demonstrates the extensive remodelling of the brickworks during the 1950s. A new kiln, constructed c.1953, is located to the north of the older kilns and in close proximity to the residence, presumably with its own sub-surface flue connections; a clay storage shed had been erected to the east of the brickworks; and the machine shop had been remodelled into a series of smaller buildings. The Brickworks Hostel was extant, although it appears to have been modified by this time. A large square expanse is also evident to the south of Denman Street. It is possible this was used as a brick stacking or storage area for the brickworks.

10.4.1 Analysis and conclusion

This period saw the major expansion and redevelopment of the Brickworks, with a mix of residential and industrial buildings being constructed, which generally replaced earlier structures.

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The residence to the north of the brickworks was demolished by the 1970s, with the area later incorporated into the Lane Poole Place development (see Section 10.5). This site now lies outside the study area.

The principal site of archaeological potential relating to this era is the former Brickworks Hostel (built 1945, demolished c. 1970). Footings and concrete slabs were not visible during the first study area visit (due to the extent of vegetation). However, above-ground evidence of built form in this location was visible during the survey conducted by NOHC in June 2016 (Figure 13). Any material discard in proximity to the former hostel is likely to be of a domestic nature.

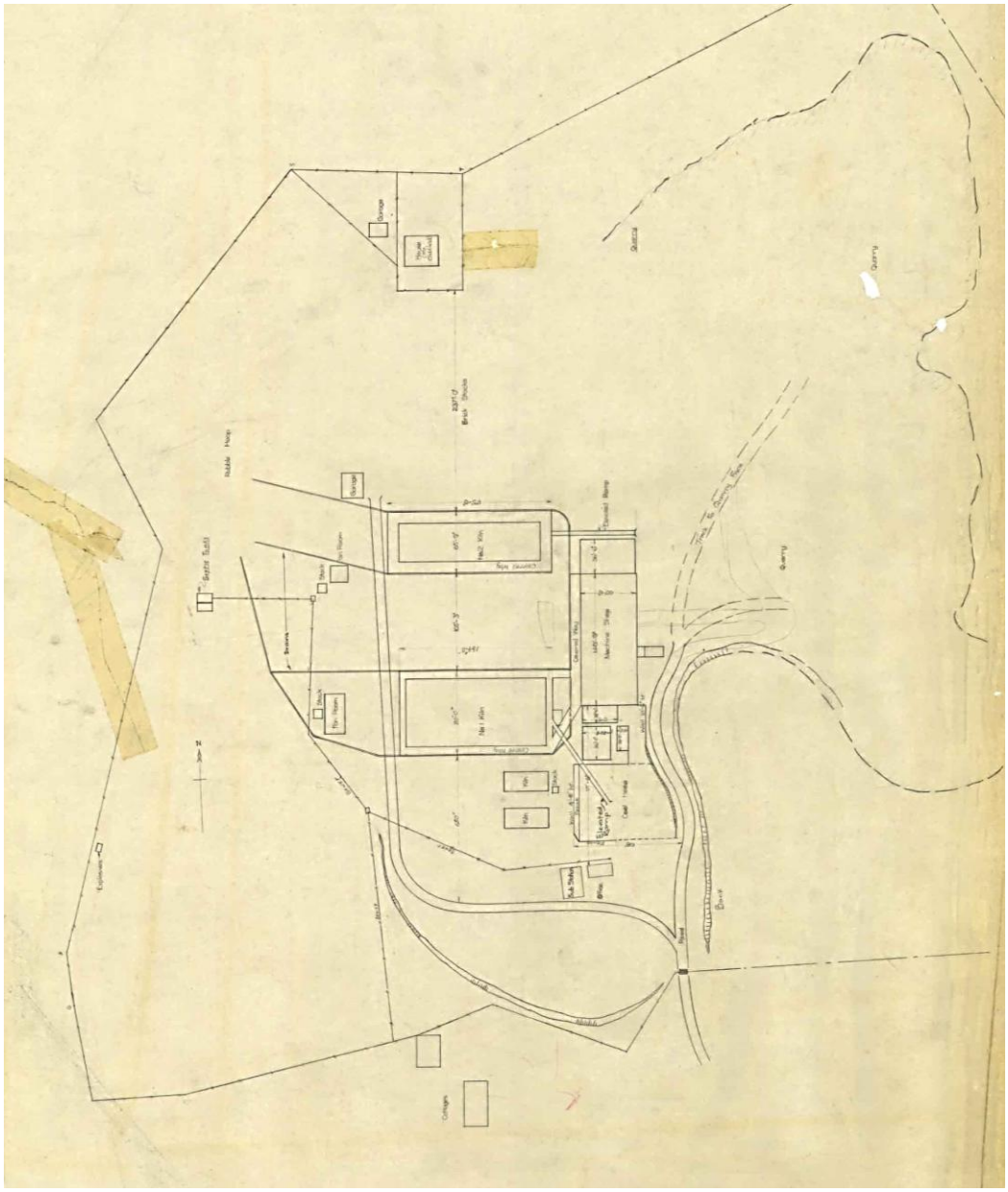


Figure 9 Brickworks site plan, 1947. North is at top
Source: National Archives of Australia



Figure 10 Aerial view of the Brickworks site, 1950
Source: ACTPLA



Figure 11 Aerial view of Yarralumla looking east, with the Brickworks at the lower left showing the Brickworks Hostel (indicated), 1952
Source: ACT Library

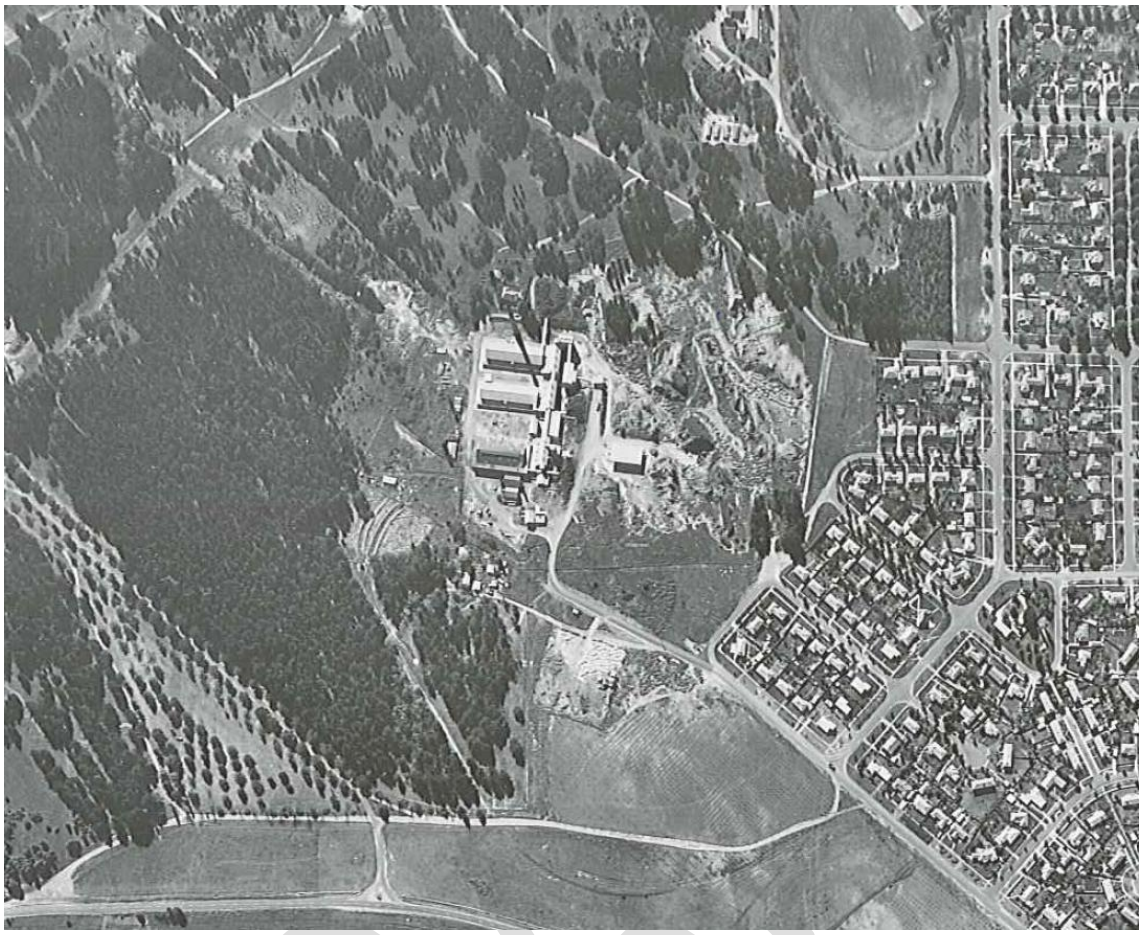


Figure 12 Aerial view of the brickworks site, 1961: note the square fenced area to the south of Denman Street
Source: ACTPLA



Figure 13 Walls/footings of the former Brickworks Hostel, 2010

10.5 Closure and redevelopment (1970s – current)

In 1967, the ACT Health Services Branch inspected the Brickworks Hostel and reported that the buildings were in a state of disrepair. Late in 1970 it was reported that the hostel was to be demolished. The 1972 aerial photograph (Figure 14) shows the site of the hostel as cleared land. The amusement hall had also been demolished by this time, although the associated landscaping (trees) survived. Further residential development had occurred to the north-east and east of the study area and to the north, the Royal Canberra Golf Course had been established.

The three downdraught kilns built in the 1960s can be seen to the south of the Staffordshire kiln, with a large square extrusion plant to its west – part of this large concrete slab was located on top of the rail sidings that extended to the north and south of the Staffordshire kiln. A comparison of the 1960s and 1970s aerial shows that new structures were constructed to the immediate east of the kilns, the latest iteration of development in this location. The c. 1940s residence to the north of the brickworks had been demolished by this time. This area has since been developed as part of the Lane Poole Place housing complex. The area of the old kilns and dormitories had been partly covered by a concrete slab for a car park by the 1970s.

By 1973, the Canberra Brickworks was considered to be in need of extensive modernisation and proposals were prepared by Commonwealth Brickworks Pty Ltd for upgrading. These proposals were rejected on environmental grounds and a new site for a brickworks was released at Mitchell, north of Canberra. The kilns at the Canberra Brickworks were unloaded for the last time in August 1976.

Also in 1976, local developer and businessman Alan Marr (A R Marr Pty Ltd) made a proposal to the NCDC to develop the brickworks and adjacent land as a tourist, recreation and retail destination, with associated housing to the east and north of the study area. Under Marr's scheme, the quarry was to be landscaped to include picnic areas, walking trails and a miniature railway (Figure 15). Marr succeeded in having the land re-zoned, and redevelopment works on the quarry commenced towards the end of 1978. This involved land fill and the creation of a reflection lake. The redeveloped brickworks was opened to the public as a tourist attraction in July 1979. A 1980 aerial photograph shows the study area at this time (Figure 16).

Marr also held an option to develop up to 212 townhouses on parts of the brickworks site. In 1980 the first stage, comprising 20 houses on the eastern side of the study area (along Woolls and Schomburgk Street), was commenced. Work on 45 houses to the north-west of the study area (now Lane Poole Place) began the following year. At this time, the railway remnants were not recognised or registered as a heritage site.

A R Marr Pty Ltd was placed in provisional liquidation in January 1980, and in 1984 the Commonwealth Government accepted the surrender of the lease for the brickworks from the lessee, A R Marr Pty, and paid $1.1 million for its interests.[11]

10.5.1 Analysis

This phase relates to the use of the study area after it ceased operations as a brickworks. The post-operational phase of the Canberra Brickworks makes a limited contribution to the identified values of the place. There are no sites of archaeological potential related to this phase.

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Figure 14 Aerial view of the Brickworks site, 1972: note the demolition of the Brickworks Hostel (indicated)
Source: ACTPLA

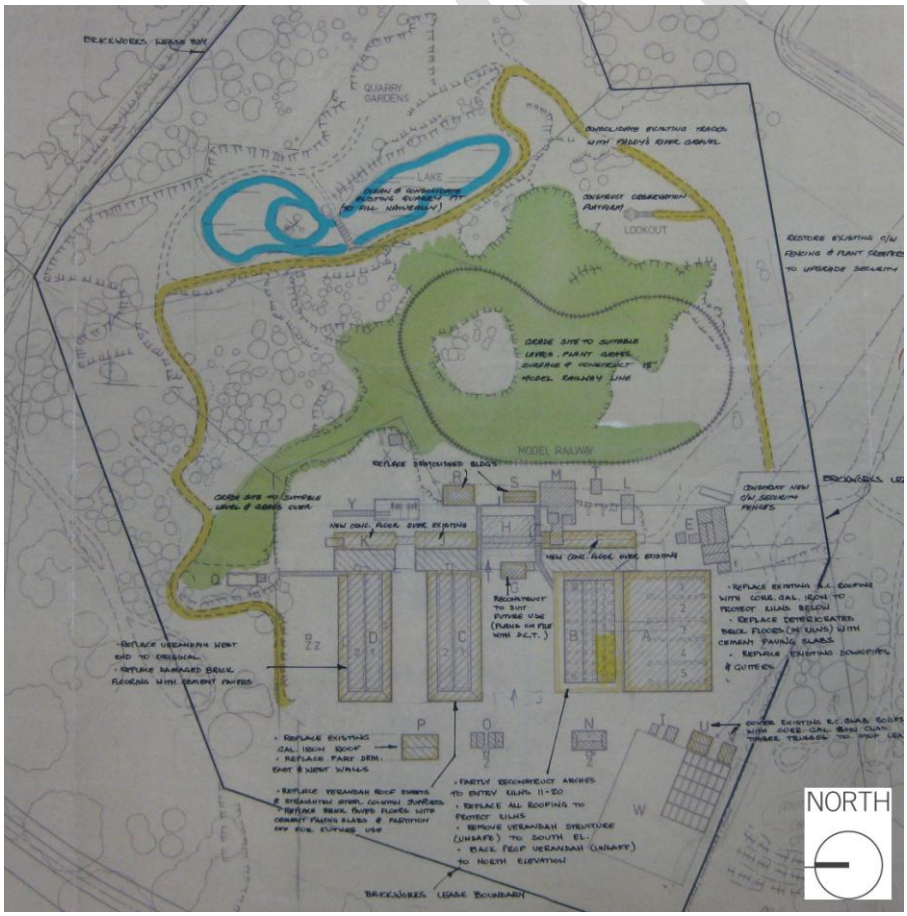


Figure 15 The A R Marr proposal for the Canberra Brickworks, c. 1977
Source: ACT Heritage Library



Figure 16 Aerial view of the brickworks site, 1980

11.0 Physical investigations

The historical analysis identified five areas of potential archaeological sensitivity within the study area. Physical investigations undertaken by NOHC confirmed these areas and also identified a further seven archaeological sites. All twelve sites are discussed below.

11.1 Predictive archaeological model

The core function of brick making in an industrial complex such as the Canberra Brickworks requires a network of interrelated sites and features that include domestic as well as industrial elements. Working from the core to the periphery, archaeological sites and features of heritage significance that may occur within the study area were predicted to include:

- Remains of the brickwork making process including kilns, flues, chimney stacks, conveyors, fan houses and raw material stockpiles;
- Remains of former dwellings including worker's camps, dormitories, houses and huts and associated infrastructure such as drainage;
- Remains of other buildings and structures such as stores, tanks for liquid storage (both above and underground), offices and workshops;
- Old fence lines, such as post and rail fencing; these may occur along inter- and outer-site boundaries;
- Transport infrastructure such as road and railway sites and features;

- Vegetation defining location of sites and features either as introduced plantings or clearings with vegetated borders

Structures of historical interest and heritage significance may be standing, ruined, buried, abandoned or still in use.

11.2 Survey coverage and visibility variables

The effectiveness of archaeological field survey is, to a large degree, related to the obtrusiveness of the sites being looked for and the quality of ground surface visibility. Ground surface visibility is a measure of the bare ground visible to the archaeologist during the survey. There are two main variables used to assess ground surface visibility - the frequency of exposure encountered by the surveyor, and the quality of visibility within those exposures. The predominant factors affecting the quality of ground surface visibility within an exposure are the extent of vegetation and ground litter, the depth and origin of exposure, the extent of recent sedimentary deposition, and the level of visual interference from surface gravels.

Visibility variables were estimated for all areas of survey within the study area. These estimates provide a measure with which to gauge the effectiveness of the survey and level of sampling conducted. They can also be used to gauge the number and type of sites that may not have been detected by the survey.

Visibility across the Canberra Brickworks site was of mixed quality. Vegetation growth and leaf litter across sites was the single largest contributing factor to poor visibility. Growth was either in the form of high growing grasses and weeds, or clusters of bushes and young trees, which at times impeded access as well as visibility. Visibility was low at those sites which have not been maintained (e.g. BRW6 and BRW2), and high at those which have been manicured (e.g. quarry and BRW1).

The built environment which forms the core of the complex was also a key contributor to poor visibility. It is assumed that any archaeology that may have survived the later construction of kilns and other structures in the precinct has been disturbed.

Overall, visibility was moderate, and the survey was able to obtain a comprehensive recording of archaeological sites and features. The individual sites have been described below.

11.3 Surface features

Twelve archaeological sites were identified within the brickworks site during the archaeological investigations. These sites comprised surface features and are described in detail below.

11.3.1 BRW1: Possible building platform and concrete features

A platform and a number of features including concrete and spoil are located on the south side of Denman Street, approximately 25m from the entrance to the brickworks. A vehicular track runs north-east to south-west on the western extremity of the site, and a fence line consisting of star pickets/pine posts and wire netting combined with barbed wire delineates the southern extremity. A small grove of trees are situated at the eastern end of the site. The site measures approximately 20m x 15m.

At the western end of the site there is a square concrete feature, approximately 1m x 1m, with an exposed top (Figure 17). This feature suggests a function associated with water, either for storage or drainage. Approximately 5m to the east of this square concrete feature is a visible line of grass die back, which suggests the presence of subsurface features. This line extends from north to south across the building platform that comprises the bulk of this site (Figure 18).

Site conditions are poor to fair. Two depressions identified within the platform suggest erosion or disturbance has occurred, while the in situ concrete features suggest a level of intactness. Visibility of this area was good, with only some low grass.

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Figure 17 View of BRW1 concrete feature, looking north
Source: NOHC



Figure 18 View looking north across BRW1, showing line of grass die off (centre left)
Source: NOHC

11.3.2 BRW2: Married quarters and Brickworks Hostel

This site is within an area that has been designated through historical records as the brickworks accommodation village.

A complex of structural features is located south of the brickworks fence line, and approximately 40m west of BRW1. The area is approximately 80m x 35m and extends southwards up a gentle slope to a road cutting that transects the southern portion of the site on an east-west alignment. A less formal vehicular track is situated along the same alignment as the more formal road, immediately to the south.

Site visibility was generally poor in this area with thick groves of blackberry bushes to the east, which also spread intermittently towards the west. This was interspersed with moderately dense patches of small saplings/trees, with dense grass throughout. A limited area had enhanced visibility due to a cleared path which ran through parts of the site and around a number of features. Occasional sawn off medium sized tree stumps were visible throughout the site.

The site is defined by a number of highly visible mounds of spoil and a platform. These mounds of spoil, if related to former structures on the site, suggest heavy disturbance and a poor to fair condition across the site generally. Various items of artefactual material are scattered throughout the area, such as sheets of tin, brick and tile fragments, concrete and bottle fragments. Some of the material is relatively modern, including old car parts and even a bicycle frame, suggesting dumping of rubbish not necessarily associated with the site.

Descriptions of identified individual features are provided below:

BRW2-A: Brick Feature and Mound

Situated at the western end of BRW2 and approximately 15m north of the road cutting, is a large mound of brick and concrete rubble covered in grassed topsoil atop a large rectangular brick feature. It measures approximately 6m x 2m, and up to 1 metre in height.

This brick feature is a substantial structural element of a former building and remains in situ unlike many of the other elements at this site. At the northern end of this structural feature is a large concrete lined drain or water trap, with remains of an iron grate (Figure 19). Brickwork around this feature, particularly the southern portion, shows signs of having been covered in tar or bitumen. Along the western side of the feature is a rectangular stall that is reminiscent of a fireplace or hearth recess (Figure 19). A piece of iron flue or furnace was identified as part of the spoil on this site, along with what appears to be a crumpled washtub (Figure 21). The bricks show a combination of different stamps and frog marks on their surface, including the early “CANBERRA C’WEALTH” stamp.

Slabs of brick and concrete are located around the feature, which are suggestive of walls or flooring remains, sheets of tin, iron girders and rods. A linear mound of rubble extends easterly from this main structural feature and is made up of cemented brick segments and other structural detritus.

This feature appears to correspond with the brickworks mess hall which was depicted in images from at least 1929.

BRW2-B: Metal spoil heap

A spoil made up largely of metal remains including tin, iron girders and rods, galvanized and non-galvanized pipes is situated approximately 15m east of BRW2-A (Figure 22). There is some brick material within this spoil, including what appears to be an in situ brick footing. There is also the occasional plank of milled timber. The northern side of this mound is bordered by a blackberry bush cluster.

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Figure 19 Detail of drain at northern end of BRW2-A
Source: NOHC



Figure 20 Detail of brick stall at BRW2-A
Source: NOHC



Figure 21 View looking wast across BRW2; note the washtub and brick stall to the west and rubble to the north
Source: NOHC



Figure 22 View looking east across BRW2-B
Source: NOHC

BRW2-C: Concrete slab

A concrete slab approximately 4m x 6m is located just south of the southern fence line of the brickworks at the western end of the site (Figure 23). The rendering is coloured red and has the remains of four toilet fittings running down the centre of the slab. The toilet bowls have been removed from the platform, although fragments of broken bowl and earthenware plumbing pipe exist around the slab (Figure 24). The alignment of the toilets suggest that the stalls were accessible from the northern side of the slab. A possible step or entrance way extends from the northern part of the slab in the centre. A stamped feature is evident in the north east corner of the slab suggesting a small closet, room or feature for what appears to be an ablutions block. The slab appears to be on the same alignment as BRW2-A, which is just further south. This structural feature appears to correspond with the brickworks ablution block which is depicted in images of this area from at least 1929. The ablution block suggests that it was more to do with the brickworks than it was to do with the accommodation of employees.

BRW2-D: Brick mound

Positioned just east of BRW2-C is a small mound made up largely of brick and brick fragments, along with rendered red brick (Figure 25). There are also segments or clusters of concrete blocks with broken red tile as aggregate. There is also the occasional piece of tin sheeting. It is possible, due to the red rendered brick, that this mound is a spoil heap for structural remains from BRW2-C.

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Figure 23 The concrete slab at
Source: NOHC



Figure 24 Remnant of one of the toilet fitting
Source: NOHC



Figure 25 Looking south-west towards BRW2-D
Source: NOHC

11.3.3 BRW3: Area of postholes and other remains

A complex of features that relate to various structures and infrastructure are located to the south of BRW2. This site covers approximately 100m x 50m. Visibility was fair to good due to patchiness of vegetation ranging from dense to light.

At the western extremity of the site is evidence of a modern "fringe dwellers" camp, with a hearth constructed of brick and concrete remains from structural features such as those encountered at BRW2. The hearth had been in recent use as evidenced by the condition of the fire remains within and the rubbish surrounding this feature. Evidence for a camp or rough shelter was also observed, with various planks nailed to trees and pallets repurposed for flooring or other means amongst a grove of young trees. Sheets of tin were also present and nylon rope tied around trunks in strategic places possibly for the use of attaching a tarpaulin or other such item for shelter purposes. Within the grove of saplings a circular feature with a diameter of approximately 10m was defined by postholes surrounding a large pallet like item in the centre (Figure 26). It is unclear whether the postholes predate the modern fringe camp. Early maps and plans suggest that this area to the west was originally a more ephemeral brickworks camp and then later into the twentieth century the location for dormitories or hostel like accommodation.

In proximity to the hearth and camp are mounds of structural spoil, consisting of brick and concrete, iron rods and metal sheeting, bottles and tin cans. To the east of the modern camp, and almost directly south from BRW2, a rectangular clearing was encountered. At the top of the slope to the south of the clearing a drainage line has been excavated, which runs approximately on an east-west alignment (Figure 27). No other structural features or remains were identified within this clearing between the drainage line and the northern border of the site. However, a slab timber fence or yard post is located at the northern end. The post itself appears to be early in origin, but has had modifications made to it by the addition of another slab bolted to the upright, and use of galvanized wire and nails, as opposed to non-galvanized iron nuts and bolts for other modifications (Figure 28). No other posts or holes were

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identified in the immediate vicinity. This clearing could have been the location of one of the hostels or dormitories.



Figure 26 Circle of post holes (indicated by pink flags), looking north
Source: NOHC



Figure 27 Drainage line at BRW3, looking west
Source: NOHC



Figure 28 Detail of slab post at BRW3
Source: NOHC

11.3.4 BRW4: Single men's quarters

A fenced yard area measuring approximately 80m x 80m is located to the south of BRW1. Defined by a star picket fence line with wire netting along the bottom portion and barbed wire on the upper portion, the yard is accessed by gates at the northern end from Denman Street and a gate in the south-west corner. Visibility was very good as the area is relatively clear of vegetation, with the exception of a light covering of low growing grass across parts, and the occasional low growing shrub and small tree. The yard rises up a gentle slope to the south. A layer of bitumen such as that used for road surfaces covers a good portion of the site (Figure 29) and this sits directly above a layer of bedrock, with only a thin layer of topsoil present in patches throughout the yard. No structural features were identified, although fragments of window glass were found near the northern entrance to the site (Figure 30). The condition of this area is good.

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Figure 29 Asphalted area at BRW4, looking east
Source: NOHC



Figure 30 Window glass at BRW4
Source: NOHC

11.3.5 BRW5: Clay feature and rubble

To the immediate west of the brickworks kilns is a silty clay feature up to 50m in diameter and 1 to 2m high, which appears to be a flat topped mound or stockpile of this resource (Figure 31). It is possible that it is a feature that has been created from earthworks in this area, however it does not sit on the same horizon as other surrounding features, such as the brickworks kilns. The location of this site is close to the former creek that fed into the precinct from its north-west corner. The silty clay material is different to any of the top soils and sediments around the rest of the precinct. Visibility of this area was good and the condition of this feature is good.

To the west of the mound is a series of depressions scattered throughout with brick and concrete rubble (Figure 32). These depressions are located between the mound to the east, and the railway remnants to the west. They could be associated with a former structure in the vicinity or rubble that has been

dumped from another location. An aerial image from 1950 (Figure 33) shows that a rectangular structure was once located in this vicinity. The overall condition of this element is generally fair and visibility is good.



Figure 31 Clay mound feature at BRW5, looking west
Source: NOHC

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Figure 32 Rubble and depressions at BRW5
Source: NOHC

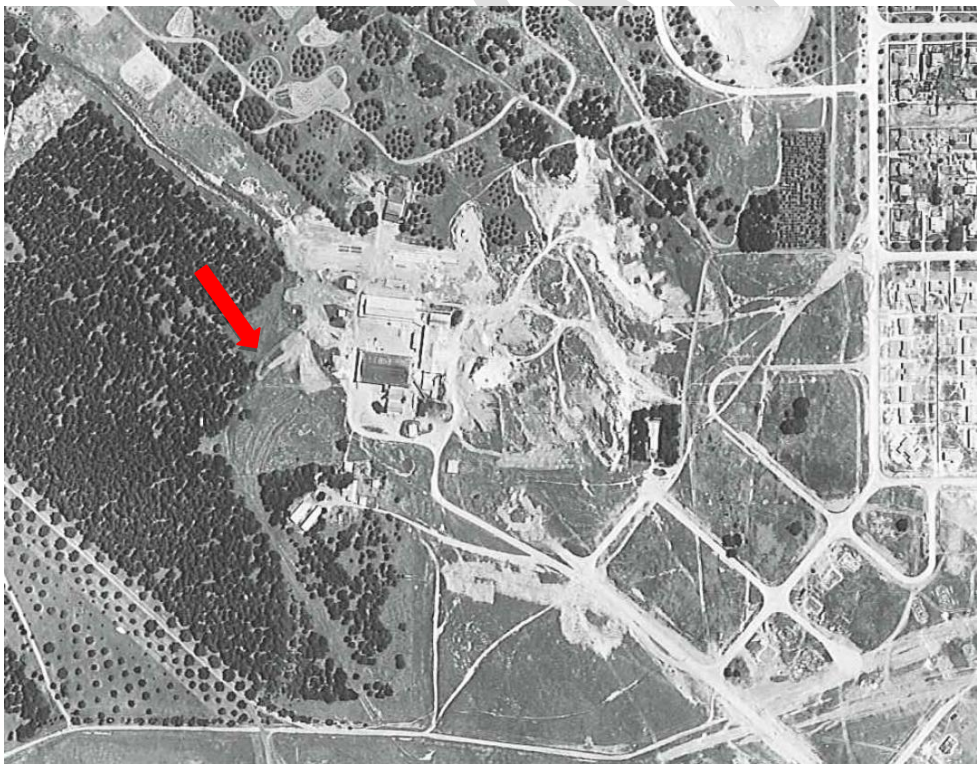


Figure 33 Aerial photograph of the Brickworks, 1950; the rectangular feature is indicated
Source: ACTPLA

11.3.6 BRW6: Rubble heap/refuse dump

This site is located at the north-west section of the precinct and consists of a mix of brick and concrete rubble located within a depression at the base of trees (Figure 34). The remains could be associated with a former structure in the vicinity or rubble that has been dumped from another location. An aerial photograph from the 1960s shows that a rectangular structure was once located in this vicinity. Visibility was poor in this area due to high growing vegetation in the form of grasses and weeds. Condition is fair.



Figure 34 Brick and concrete rubble surrounding trees at BRW6, looking north
Source: NOHC

11.3.7 BRW7: Quarry

The brickworks quarry is a large site located to the east of the brickworks buildings. Visibility is generally good across the quarry zone with features and elements able to be clearly identified through the low growing and manicured grass coverage.

Further east and up an incline, there are a number of depressions amongst a grove of pines along the edge of the quarry cliff (Figure 35). These depressions are uniform in size, approximately 1m in diameter and appear to be in a sequence. The historic aerial dating to 1950 (Figure 33) shows a series of circular features similar to these depressions extending west to east up the slope in a double row. The function or purpose of these depressions is unknown. On the eastern side of the quarry zone to the north is an example of an in ground circular tank that has been back filled with brick rubble, approximately 3 metres in diameter (Figure 36). This tank does not resemble the depressions in the south of the quarry in scale and known purpose.

At various locations along the quarry wall, particularly the eastern side, brick rubble has been back-filled against the face (Figure 37). This is either an example of disposing of seconds and damaged bricks, or to provide something of a retaining wall for the cliff face. The exactness of the placement suggests the latter.

A number of features and elements exist within the quarry floor itself. Starting at the south end of the quarry floor, a raised embankment of earth runs along the eastern contour of the quarry wall. This

feature belongs to a much later use of the brickworks as a tourist destination in the form of a model railway.

In the middle of the quarry floor are two mounds that have been covered with topsoil and grassy vegetation. Aerial imagery from the 1960s (Figure 38) shows a structure in the form of a large shelter or shed in the same location. These mounds could be evidence of this structure and its contents. This also confirms that there is likely to be intact subsurface material beneath these mounds dating to the original quarrying.

Along the north eastern edge of the quarry, the floor has been further excavated to create a pond or lake. This excavation dates to the time the brickworks precinct was a tourism facility. The quarry face to the west of this pond or lake in the north, shows stratigraphy that depicts a disposal event that has subsequently been capped by spoil from either the excavation of the pond/lake or from other areas. A layer of brick, concrete, glass, and iron exists along with a line of charcoal and burnt material approximately a metre below the surface (Figure 39).

The condition of the quarry is very good and its level of intactness is the highest standard when compared with other archaeological sites within the precinct.



Figure 35 Depression on south side of quarry edge
Source: NOHC



Figure 36 Tank at north-eastern edge of quarry, looking south
Source: NOHC



Figure 37 Rubble backfill along north-eastern edge of quarry face, looking east
Source: NOHC

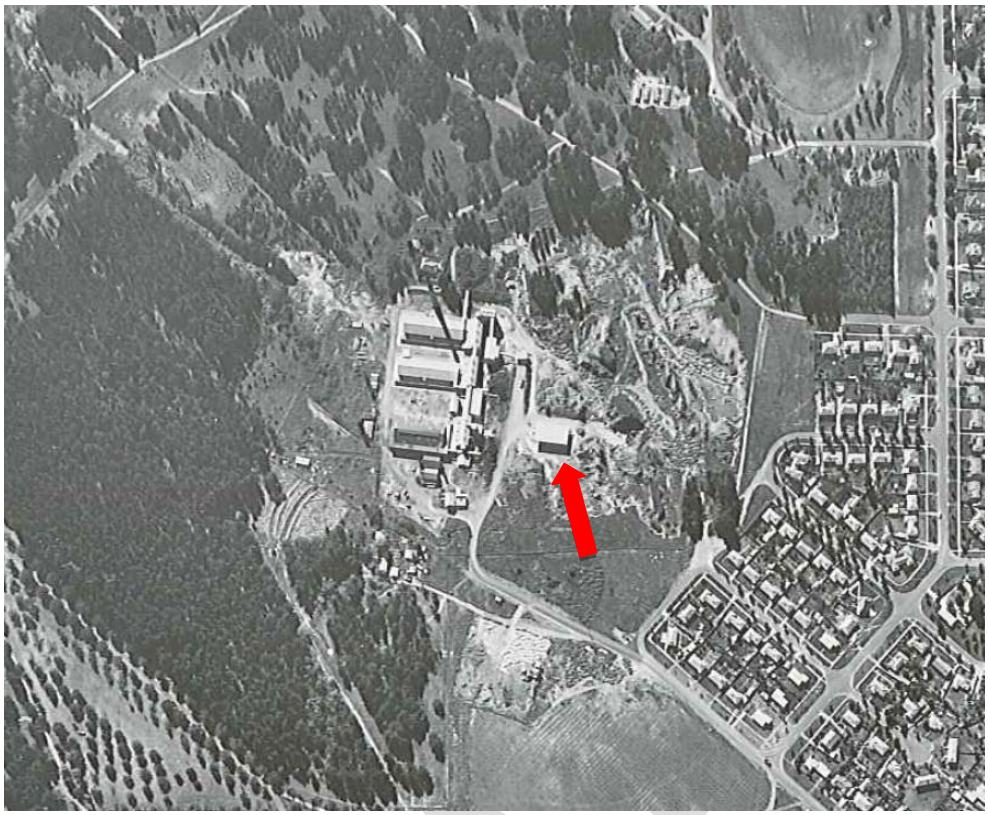


Figure 38 Aerial photograph of the Brickworks, 1961; the shelter is indicated
Source: ACTPLA



Figure 39 Quarry face showing layer of rubble and charcoal at northern end of quarry
Source: NOHC

11.3.8 BRW8: Old kiln and dormitories

The temporary brickworks was established in 1913. By August of that year, four open kilns were in use. This 'Old Kiln' area was located to the south-east of the permanent brickworks and a dormitories building was also located to the immediate north of the temporary kilns. These structures are likely to have been demolished by the mid-1920s.

Analysis of site plans and aerial photography demonstrates that this area has undergone some disturbance since the demolition of the temporary kilns and dormitory. Buildings can be seen in aerial images from the 1950s and car parking was introduced in the vicinity in the 1960s-70s, which involved the laying of concrete. This was removed by 1980. Along with the vehicular track that exists now, there are also occasional fragments of in situ concrete slab that are possibly associated with structures postdating the early kilns. The condition is assessed as poor to fair and likelihood of subsurface features for early kilns is low.

Archaeological deposits pertaining to built form from this era would be expected to comprise footings and machinery remnants. Material discard would be expected to be items of an industrial nature with the potential for some domestic material related to the dormitories (Figure 40).

11.3.9 BRW9: Cottage, stables, coal store

A cottage, with associated stable and coal store, was built c. 1913 to the north-east of the brickworks as part of the first stage of construction of the permanent brickworks. This cottage was demolished by 1947. The location of the cottage and outbuildings has been heavily trafficked over time, being located on a key route between the quarry pit and kilns and in close proximity to the primary crusher house and the elevator/conveyor. The site of the cottage and its outbuildings is therefore likely to have been disturbed by the introduction of roadways to the east of the kiln and machinery shops as a result of successive remodelling of the brickworks.

Material discard would generally be expected to be of a domestic nature, though there may be some industrial materials related to the stables and coal store. There may also be evidence of timber post holes or footings.



Figure 40 Location of the old kiln and dormitories looking east
Source: Lovell Chen

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11.3.10 BRW10: Railway remnants

The brickworks railway operated between 1923 and 1927, and all tracks had been removed by 1929. Evidence of the railway siding, in the form of cuttings in the landscape located to the south-west of the brickworks, could be seen in aerial views of the site well into the 1970s and are still evident (Figure 41 and Figure 42). Self-seeded vegetation has since reclaimed much of the area. Although all remnants of the track were removed in the 1920s, and a period of 90 years has elapsed since then, there is some limited potential for archaeological evidence that would enhance an understanding of the railway and its operation.

The potential for subsurface remains relating to the railway, including drainage channels, is low, but cannot be discounted. Potential archaeological features related to the railway may include the railway cutting, timber sleepers, iron bolts and metal rails.



Figure 41 Cutting in landscape showing the original alignment of the brickworks railway
Source: Lovell Chen



Figure 42 Cutting in landscape showing the original alignment of the brickworks railway
Source: Lovell Chen

11.3.11 BRW11: Railway siding (extension to the north)

The railway siding extended into the brickworks site and terminated to the north and south of the original Staffordshire kiln. Aerials indicate that part of this land was later covered by the concrete slab for the extrusion plant, however there is some potential for archaeological evidence.

There is some potential for the evidence of tracks extending to the north and south of the Staffordshire kiln. Potential archaeological features related to the railway may include the railway cutting, timber sleepers, iron bolts and metal rails.

11.3.12 BRW12: Flues/subsurface workings

Underground flues and workings connected the kilns to their associated fan stacks. These are understood to still remain in situ and are unlikely to have been disturbed.



Figure 43 View looking east over the extrusion plant, part of the northern extension to the railway reserve
Source: Lovell Chen

12.0 Findings

Based on the research and archaeological investigations conducted for this report, 12 areas of archaeological potential have been identified (Figure 44):

BRW1: Building platform and concrete features

BRW2: Married quarters and Brickworks Hostel

BRW3: Area of postholes and other remains

BRW4: Single men's quarters

BRW5: Clay feature and rubble

BRW6: Rubble heap/refuse dump

BRW7: Quarry

BRW8: Old kiln and dormitories

BRW9: Cottage, stables, coal store

BRW10: Railway remnants

BRW11: Railway siding extension (to north)

BRW12: Flues/subsurface workings

The archaeological potential of each area is discussed below.

Area	Comment	Archaeological potential
BRW1 Building platform and concrete features	This feature suggests a function associated with water, either for storage or drainage. The bulk of the feature remains below ground. Site condition is poor to fair, with two depressions within the platform suggesting a level of erosion or disturbance. Even so, the in situ features of concrete, including the square feature and the platform remnants, suggest a level of intactness.	Moderate archaeological potential
BRW2 Married quarters and Brickworks Hostel	The married quarters, comprising a mess hall and a number of smaller sleeping quarters, was built to the south-west of the brickworks in the 1920s. This was replaced in the 1940s by the Brickworks Hostel, at least part of which appears to have been built on the site of the married quarters. The hostel was demolished in the 1970s. This area has remained undisturbed since the demolition of the hostel, and above-ground footings/physical evidence were located at the site in 2010 and 2016. Finds have the potential to inform an understanding of the daily lives and living conditions of the workers who were employed at the brickworks.	High archaeological potential.
BRW3 Area of postholes and other remains	Early maps and plans suggest that this area to the west was originally a more ephemeral brickworks camp and then later into the twentieth century the location for dormitories or hostel like accommodation. Condition of site is good.	High archaeological potential

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Area	Comment	Archaeological potential
BRW4 Single men's quarters	The single men's quarters was located on the south side of Denman Street in close proximity to the entrance of the brickworks site. While the exact location has not been determined, it is possible that it was in the same location as the square expanse identified in the 1961 - 1980 aerials. If so, there is limited potential for archaeological remains as the site has been relatively disturbed.	Low archaeological potential
BRW5 Clay feature and rubble	Clay feature: It is possible that it has been a feature created from earthworks in this area, however, it does not sit on the same horizon as other features surrounding, such as the Brickworks kilns themselves. The condition of this feature is good. Rubble: The remains could be associated with a former structure in the vicinity or rubble that has been dumped from another location. An aerial image from 1950 shows that a rectangular structure stood in this vicinity. The overall condition of this element is generally fair	Low archaeological potential
BRW6 Rubble heap/refuse dump (including clay feature)	The land to the west of the kilns was quarried before being converted into a rubble heap/refuse dump by the 1940s. The man-made modification of this area is discernible in the aerial photography of the site. The use of this area as a rubble heap/rubbish dump means that there is potential for some refuse of an industrial nature to remain sub-surface. This area was overlaid with concrete by the 1970s, which has since been removed. It is possible that these works disturbed any sub-surface remains.	Low archaeological potential
BRW7 Quarry	In 1910, King O'Malley announced Government plans for the construction of a brickworks to serve the Federal Capital. In July 1912, the area at Yarralumla was gazetted and development of the site began in 1913. A detail survey plan of 1916 shows the early configuration of the quarry to the east of the brickworks buildings. Unsurprisingly, this area developed and changed throughout the operation of the site. The condition of the quarry site today ranges from poor to fair and comprises fragments of in situ concrete slab and a number of depressions along the edge of the quarry cliff.	High archaeological potential
BRW8 Old kiln and	The temporary brickworks was established in 1913. By August of that year, four open kilns were in use. This 'Old Kiln' area was located to the south-east of	Low archaeological potential.

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Area	Comment	Archaeological potential
dormitories	the permanent brickworks and a dormitories building was also located to the immediate north of the temporary kilns. These structures are likely to have been demolished by the mid-1920s. Analysis of site plans and aerial photography demonstrates that this area has remained relatively undisturbed since the demolition of the temporary kilns and dormitory. Some car parking was introduced in the vicinity in the 1960s-70s, which involved the laying of concrete. This was removed by 1980. The area is located in close proximity to the main access road leading to the brickworks, and as a result, there may have been some disturbance through vehicle movement. No other land disturbance appears to have occurred here.	
BRW9 Cottage, stables, coal store	A cottage, with associated stable and coal store, was built c. 1913 to the north-east of the brickworks as part of the first stage of construction of the permanent brickworks. This cottage was demolished by 1947. The site of the cottage and its outbuildings is likely to have been disturbed by the introduction of roadways to the east of the kiln and machinery shops as a result of successive remodelling of the brickworks.	Low archaeological potential
BRW10 Railway remnants	The brickworks railway operated between 1923 and 1927, and all tracks had been removed by 1929. Evidence of the railway siding, in the form of cuttings in the landscape located to the south-west of the brickworks, could be seen in aerial views of the site well into the 1970s. Self-seeded vegetation has since reclaimed much of the area. Although all remnants of the track were removed in the 1920s, and a period of 90 years has elapsed since then, there is some limited potential for archaeological evidence that would enhance an understanding of the railway and its operation.	Moderate archaeological potential
BRW11 Railway siding extension (to north)	The railway siding extended into the brickworks site and terminated to the north and south of the original Staffordshire kiln. Aerials indicate that part of this land was later covered by the concrete slab for the extrusion plant, however there is some potential for archaeological evidence.	Moderate archaeological potential
BRW12 Flues/subsurface workings	Underground flues and workings connected the kilns to their associated fan stacks. These are understood to still remain in situ and are unlikely to have been disturbed.	High archaeological potential

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AREAS OF ARCHAEOLOGICAL POTENTIAL

SITE	NAME
BRW1	Building platform and concrete features
BRW2	Married quarters and Brickworks Hostel
BRW3	Area of postholes and other remains
BRW4	Single men's quarters
BRW5	Clay feature and rubble
BRW6	Rubble heap/refuse dump
BRW7	Quarry
BRW8	Old kiln and dormitories
BRW9	Cottage, stables, coal store
BRW10	Railway remnants
BRW11	Railway siding extension (to north)
BRW12	Flues/subsurface workings

LEVELS OF ARCHAEOLOGICAL POTENTIAL

- high
- moderate
- low
- study area

Figure 44 Areas of archaeological potential at the study area: the Canberra Brickworks and environs is indicated by the solid red line

13.0 Next steps

This report has identified areas where historical archaeological remains may be present at the study area and satisfies the conditions of Policy 15, as outlined in the Canberra Brickworks Conservation Management Plan (2010).

In order to manage the potential archaeological sensitivity of the site, and the consequent possibility of archaeological remains being disturbed during future sub-surface works within the study area, archaeological management protocols are recommended. This is in accordance with the *Heritage Act 2004,* which states that, under Section 74 it is an offence to engage in conduct that diminishes the heritage significance of a place or object. Section 76 provides exceptions to Section 74 where the person engages in conduct in accordance with a number of listed processes. This includes obtaining an Excavation Permit, which must be approved by ACT Heritage. While different methods of archaeological management are proposed according to their level of archaeological potential, one Excavation Permit will be required which will cover all archaeological works, including monitoring. This Excavation Permit will set out the proposed archaeological methods (outlined below) for when the archaeological material is encountered and these methods are to be agreed by ACT Heritage.

Areas of moderate-high potential

Areas of moderate to high archaeological potential comprise those parts of the study area which have not been subject to extensive and intensive demolition, site preparation and construction works which have occurred elsewhere within the site during the development of the Brickworks. It is recommended that, prior to any works or development in these areas, a programme of subsurface archaeological testing be implemented for the purposes of determining the actual archaeological values of these areas. As well as identifying the actual level of archaeological sensitivity, testing will also assist in defining the extent of areas which may require further investigation after the completion of the testing programme. As mentioned above, an Excavation Permit will be required for these works.

There are two potential outcomes of the testing programme:

- Areas of moderate to high archaeological significance are identified which will require further investigation through controlled open area excavation
- The actual values of the zone or parts thereof of the area are determined to be of low archaeological significance

In the case of the first outcome consultation and negotiation with ACT Heritage will determine the extent of the area to be subject to detailed manual excavation.

In the second case, areas determined to be of low archaeological significance may either not be subject to further investigation or may be incorporated within the area subject to monitoring (see below).

Areas of low archaeological potential

Areas of low archaeological potential within the site have been subject to significant disturbance through the extensive development and remodelling of the Brickworks site during its operation. No archaeological testing programme is recommended for these areas. Rather a programme of monitoring is recommended for the purposes of providing an assessment of the actual archaeological values of these areas. As mentioned above, an Excavation Permit will be required for these works.

Where the monitoring programme reveals that no or a low potential for historical archaeological remains exists it is recommended that the monitoring programme be replaced by a watching brief, whereby a suitably qualified archaeologist will attend the site as and when archaeological materials are encountered for the purposes of documentation and assessment. This, or a similar, protocol will be agreed upon in consultation with ACT Heritage during the application and approval of the Excavation Permit.

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In the event that the monitoring programme identifies that the archaeological potential of these areas is greater than first predicted or where isolated pockets of relatively intact archaeological materials area present these occurrences will be dealt with as per the requirements outlined above for areas of moderate to high potential.

It is recommended that any works to the railway siding area, whether archaeological or future development, are minimal and do not alter the legibility of the modified landscape as it remains evident today. It is noted however that this area falls with a bushfire prone area, and for bushfire management reasons, removal of some vegetation may be necessary to allow for land management.

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1 ACT Heritage Council, Cultural Heritage Reporting Policy, 1 July 2015, accessed via www.environment.act.gov.au, 6 January 2016.

2 Navin Officer Heritage Consultants Pty Ltd, Canberra Brickworks, Yarralumla, ACT, Stage 1: Aboriginal Cultural Heritage Assessment, 14 August 2014, Executive Summary.

3 ACT Heritage Council, Heritage Advice to Navin Officer Heritage Consultants, 10 September 2014.

4 Lovell Chen, Canberra Brickworks Conservation Management Plan, April 2010, p. 240.

5 ACT Heritage Council, *Heritage Act 2004*, p.6.

6 ACT Heritage Council, *Cultural Heritage Reporting Policy*, July 2015, p.8.

7 SMEC, *Preliminary Geotechnical Site Investigation for the Canberra Brickworks,* prepared for Land Development Agency, 2013.

8 SMEC, *Preliminary Geotechnical Site Investigation for the Canberra Brickworks,* prepared for Land Development Agency, 2013.

9 AECOM, *Stage 1 Ste Investigation Report for Canberra Brickworks Precinct,* prepared for Land Development Agency, 2016.

10 ACT Heritage Council, *Heritage (Decision about Registration for Westbourne Woods, Yarralumla) Notice 2011*, p.5.

11 Lester Firth Associates Pty Ltd, Old Canberra Brickworks Conservation Plan, June 1986, Section 2.1.5.

Appendix G

Yarralumla Brickworks Inspection Report, Sellick Consultants, December 2019









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SELLICK CONSULTANTS PTY LTD
INSPECTION REPORT





Job Title: **Condition Assessment Report**

Job Location: **Yarralumla Brickworks**

Client: **Doma Group**

Reference #: **191148**

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Revision	Issue	Prepared By	Approved By	Date
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B	Final	William Kendall	Don McInnes	06.12.2019
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D	Final	Don McInnes	Darren Sault	20.07.2021
E	Final	Don McInnes	Darren Sault	06.08.2021
F	Final	Don McInnes	Darren Sault	11.08.2021

EXECUTIVE SUMMARY

Sellick Consultants has undertaken a dilapidation survey and report of the existing Old Canberra Brickworks as instructed by David Carey of The Doma Group, as a function of the redevelopment.

The buildings were generally found to be in a reasonable condition given the age and lack of regular maintenance, with isolated areas requiring immediate action to secure, namely loose roof and wall sheets

Given the ongoing deterioration of the structure, early works for repairs of the building fabric and structure will need to be considered as detailed in the report.

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TABLE OF CONTENTS

1.0 INTRODUCTION 4

2.0 OBJECTIVE/SCOPE 5

3.0 CONDITION ASSESSMENT 6

3.1 Building 26: Downdraft Kilns Control Room 7

3.2 Building 6: Downdraft Kilns 8

3.3 Building 1: Staffordshire Kiln 12

3.4 Building 3: Hardy Patent Kiln 1 17

3.5 Building 5: Hardy Patent Kiln 2 21

3.6 Building 9 – Tall Brickwork Chimney 26

3.7 Building 16 & 17 : Machine Bays 27

3.8 Building 18 – Workshop 32

3.9 Building 35 & 36 : Model Railway Workshop & Storage Shed (Buildings to be demolished) 34

3.10 Building 15: Machine Bay 37

3.11 Building 19: White Pan Room 41

3.12 Building 28 & 31: Storage building & Amenities Block 2 42

3.13 Building 2: Fan House 44

3.14 Building 4: Fan House 47

3.15 Building 25: Amenities Block (Update: Building has since been burnt down, save for brickwork) 49

3.16 Building 10: Southern Chimney 51

3.17 Building 20: Primary Crusher House, Small Steel Structure to North-East of Site 52

3.18 Building 22: Elevator/ Conveyor 53

3.19 Building 14: Power House 55

4.0 RECOMMENDATIONS 57

1.0 INTRODUCTION

At the request of David Carey of Doma Group, a dilapidation assessment of the existing brickworks was carried out on the 14th November 2019.

The brickworks, known as the Old Canberra Brickworks was originally built in 1914 and served as the main brick manufacturing facility for the Nation's Capital until its closure in 1976.

The brickworks has since been placed on the heritage register of significant value to the heritage of Canberra.

The Doma Group have entered into contract with the Suburban Land Agency (SLA) to redevelop the site into a mixed-use precinct incorporating the heritage value of the existing buildings.

As a function of the redevelopment, a dilapidation report was prepared for the ACT Government by Northrop Consultants and is attached in Appendix A, from which Sellick Consultants have been engaged by The Doma Group to review and update as part of the Conservation Management Plan.

2.0 OBJECTIVE/SCOPE

The objective of this report is to review Northrop's initial report and prepare an updated dilapidation report incorporating any new findings.

The report is to comment not only on the structural condition but recommend areas requiring further investigation, immediate work to prevent further deterioration, and safety concerns.

It should be noted that areas of various buildings were not accessible, therefore did not form part of this report.

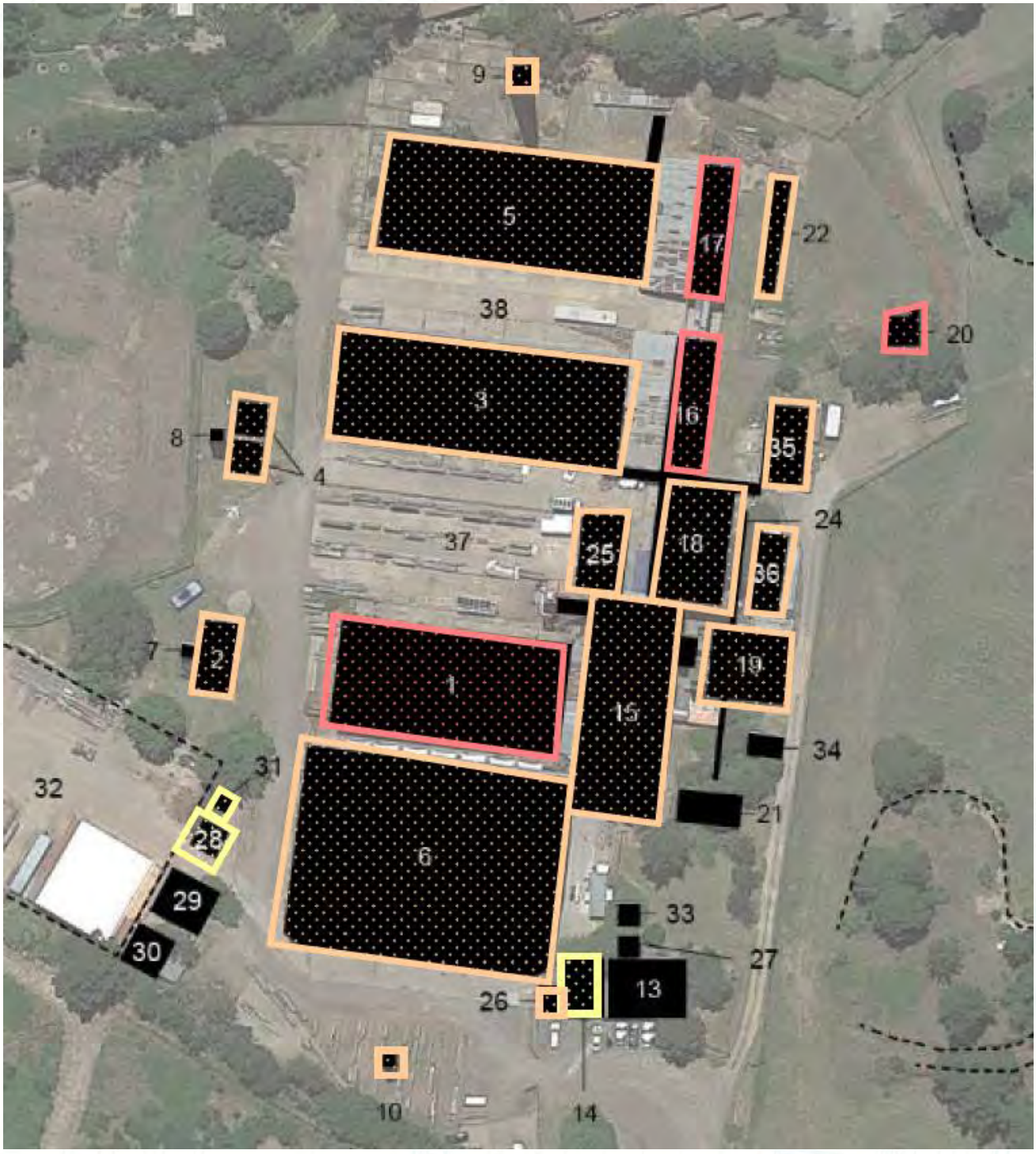
The table below summarises the access limitations for each building and provides a brief comment on the urgency and severity of rectification works required. A full description of recommended rectification works for each building can be found in the body of the report.

Heritage ID	Structure Description	Access	Comment
14	Power house	No internal access	Inspect internal prior to opening to public
6	Downdraft kilns	Full access	Kilns require rebuilding to the entry
1	Staffordshire Kiln	Full access	Moderate rectification works Access to some floor areas to be restricted
3	Hardy Patent Kiln 1	Full access	Moderate rectification works
5	Hardy Patent Kiln 2	Full access	Moderate rectification works
9	Tall chimney stack	Inspected from ground level only	Closer inspection of upper chimney recommended
16 & 17	Machine bays	No access to upper floor areas	Immediate rectification works Loose roof sheets are a hazard Foot traffic not recommended on roof
18	Workshop	No access to upper floor areas	Upper areas require inspection
35	Workshop, Brickwork building	Full access	Minor rectification works
15	Machine bay	No access to upper floor areas	Moderate rectification works
19	White pan room, Steel framed building	Fenced off - no internal access	Moderate rectification works Internal areas require inspection
28 & 31	Storage building & Amenities Block, Brickwork buildings	Roof framing not visually assessed	Inspect roof if required
2	Fan house	Roof framing not visually assessed	Inspect roof if required
4	Fan house	No access to tunnel	Inspect tunnel if required
25	Amenities Block	No internal access	Inspect internal if required
10	Southern Chimney	Inspected from ground level only	Upper area may require rectification, closer inspection recommended
20	Primary Crusher House, Steel framed building	No internal access	Access to floor areas to be restricted
22	Elevator/ Conveyor	Full access	Minor rectification works
26	Downdraught Kilns Control Room	Full access	Minor rectification works

The scope being limited to a visual assessment only and did not extend to any detailed method or repair, invasive work, analytical assessment or review of historical records.

3.0 CONDITION ASSESSMENT

The below site plan will be used as reference:



Remediation Importance Key

Remediation Importance 1	No structural concern, reinstate as required.
Remediation Importance 2	Reinstatement required as part of the construction works
Remediation Importance 3	Immediate rectification recommended.

3.1 Building 26: Downdraft Kilns Control Room

Building description:

- Single storey, brickwork construction
- Timber framed tiled roof

Access was limited to the external of the building only.

Element	Condition	Remediation Requirement
Brickwork	• Brickwork was generally in reasonable condition.	Ensure brickwork weatherproof.
Windows	• Windows and doors were boarded up.	Ensure doors and windows are weatherproof.
Roof Roof access was limited	• Timber fascia weathered in areas. • Roof tiles in sound condition. • Roof sheets appeared to be in reasonable condition.	Timber fascia may require replacement in areas. Ensure roof is weatherproof.
Internal	*No access to internal structure.*	Internal structure to be inspected prior to opening to public.
External	Retaining walls have been compromised, requiring rebuilding/ replacement	Area will need to be cordoned off.



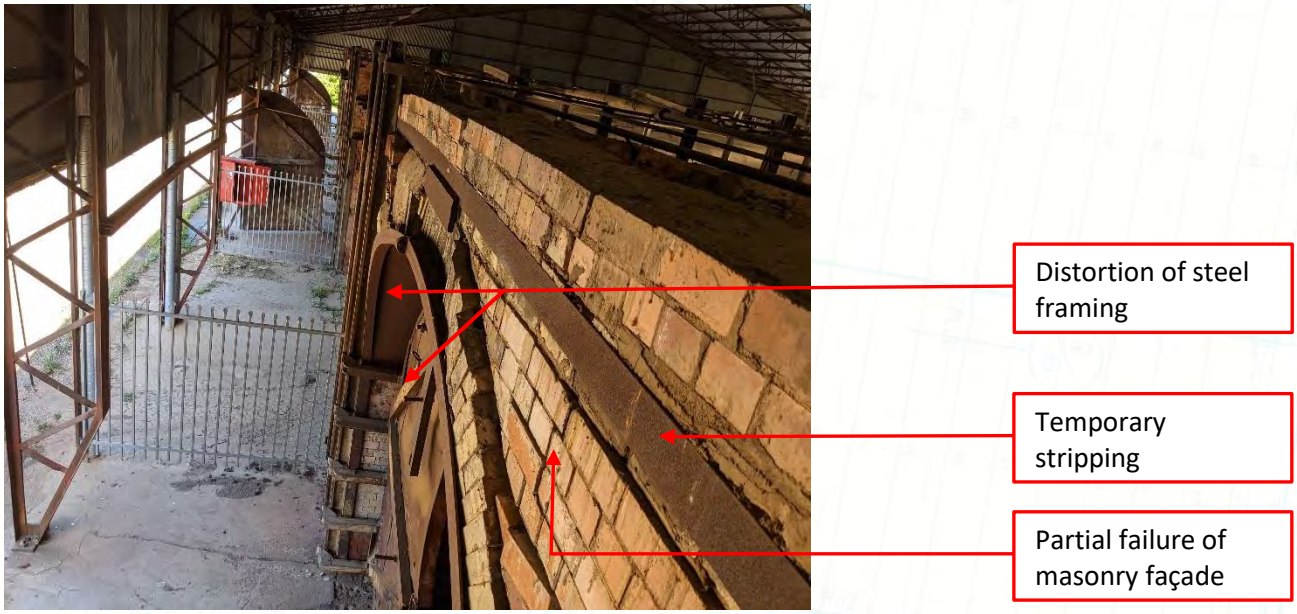


3.2 Building 6: Downdraft Kilns

Building description:

- Roof framing is of open web trusses, with the same as columns acting as a portal frame. Roofing purlins are of timber supporting metal clad roof. *Note: The roof and associated framing is to be removed and does not form part of this report.*
- Kilns are of full masonry, with structural steel rail girder wall ties and rod tension ties over.

Element	Condition	Remediation Requirement
Structural steel	• Steelwork in reasonable condition. • Areas of localised impact damage present. • Bracing angles missing in some locations.	To be demolished
Cladding	• The roof and wall sheeting has been replaced more recently. • Wall sheeting is damaged in some areas. • Sarking has deteriorated in areas.	To be demolished
Masonry entry Façade to Kiln's	• Lateral movement has occurred resulting in failure of the façade which has been retro fitted with steel strapping.	The masonry to the entry will require rebuilding.
Door Frame and Doors	• Door framed and doors showed signs of significant distortion	The frame requires full replacement as with the doors, or fixed in place.
Wall ties	• The steel framing was in fair condition	Repainting of steelwork is required
Main arch masonry of Kiln	• Fair conditions with isolated units dislodged	Rectification of loose masonry units required, with method to be developed



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Entry

Development of severe crack to roof of kiln



Wall ties in fair condition


Damaged wall sheeting


Steel trusses
Kilns


Deteriorated sarking

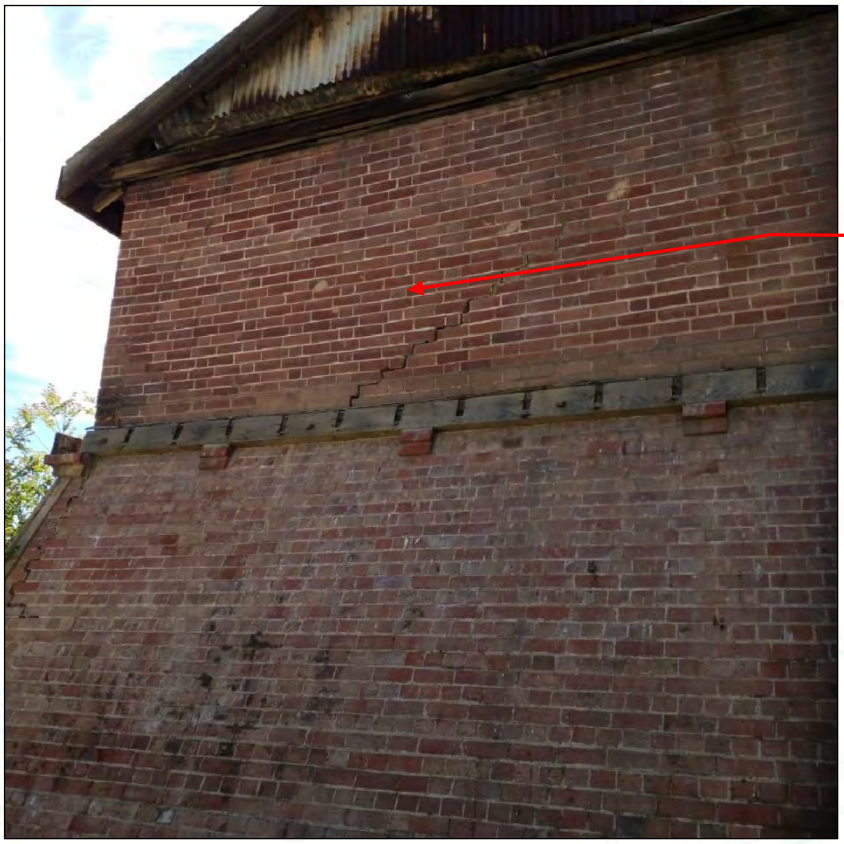
3.3 Building 1: Staffordshire Kiln

Building description:

- Two storey building
- Lower level is full masonry brickwork construction housing 20 kilns
- Upper floor is an open plan with firing holes throughout and brick veneer walls to perimeter.
- Steel framed truss sheet roof
- Lean-to timber framed sheet roof and timber framed floor to eastern side of building

Element	Condition	Remediation Requirement
Cladding	• Wall sheeting to areas of structure had severe deterioration. Sheet fixings noted to be loose in some areas. • Cladding is not weather-proof.	Replace deteriorated wall sheeting, provide new screw fixings. Seal up windows.
Brick veneer	• Reasonable condition for age of structure. • Areas of cracking to brickwork noted.	Ensure brickwork veneer is weatherproof.
Roof	• Roof sheeting appears to have been replaced more recently.	Ensure roof is weatherproof.
Brickwork kilns	• The majority of the entry archways had loose bricks and voids in the brickwork bedding – resulting in displacement of the arch. • The entry arches have displaced laterally in areas which is likely due to swelling of the bricks. • The internal areas of the kilns were generally in sound structural condition, some loose bricks were noted.	**Option 1 -** Bricks locally loose, no overall displacement evident: Reinstate locally displaced bricks to match existing. **Option 2 –** Areas of brickwork loose with significant displacement: Reinstate areas of loose brickwork if practical. If reinstatement not possible, provide structural steelwork support.
Upper floor	• Firing holes throughout floor create a trip hazard. • Steelwork bracing has buckles in some areas, areas of bracing missing and connections loose.	Firing holes to be covered and floor made free of trip hazards. Bracing of structure to be reinstated. Steel roof structure should be assessed further by structural engineer and upgraded where required.
Upper floor roof (eastern side)	• Lean to roof sheets have deteriorated and sheet fixings are loose. • Timber roof framing has weathered in some areas. • Louvre windows broken and not weatherproof.	Replace roof sheet fixings, replace roof sheets as required. Replace badly weather damaged roof framing Rectify louvre windows.
Timber framed floor (eastern side)	• Timber floor structure significantly weathered, timber connections not adequate in some locations.	Areas of floor structure not safe for access. Access of severely weather flooring should be restricted until rectified.


Deteriorated wall sheeting


Stepped cracking to brick veneer wall


Displacement of arch
Voids in brickwork bedding


Arch generally in sound condition
Loose bricks in areas


Buckled roof brace
Firing holes


Newer roof sheeting
Deteriorated roof sheeting (lean-to roof)


Weathered flooring


Joist and floorboards to be demolished

3.4 Building 3: Hardy Patent Kiln 1

Building description:

- Two storey building.
- Lower level is a full masonry brickwork construction housing kilns.
- Timber lean-to awning around perimeter of building.
- Upper floor is an open plan with firing holes throughout.
- Steel framed truss roof with timber purlins. Light weight sheet roof and walls.

Element	Condition	Remediation Requirement
Cladding	• Wall sheeting to exterior of structure in reasonable condition. • Majority of windows are broken.	Replace any loose sheet fixings. Seal up windows.
Roof (Exterior)	• Roof sheeting appears to have been replaced more recently and is in reasonable condition.	Ensure roof is weatherproof. Replace any loose sheet fixings.
Brickwork kilns	• Most of the entry archways had loose bricks and voids in the brickwork bedding – resulting in displacement of the arch. • Several of the entry archways (mainly eastern and western ends) have severe cracking and displacement. • Loose bricks were noted throughout the internal kiln areas.	**Option 1 -** Bricks locally loose, no overall displacement evident: Reinstate locally displaced bricks to match existing. **Option 2 –** Areas of brickwork loose with significant displacement: Reinstate areas of loose brickwork if practical. If reinstatement not possible, provide structural steelwork support.
Upper floor	• Steel trusses are in reasonable condition. Connections are generally welded and are in sound condition. • Firing holes throughout floor create a trip hazard. • Timber battens have been installed to underside of purlins which may have been used to support a ceiling lining. Several battens were loose.	Firing holes to be covered and floor made free of trip hazards. Remove timber battens if not required. If ceiling lining is to be installed, battens shall be secured appropriately. Steel roof structure should be assessed further by structural engineer and upgraded where required.
Awnings	• Roof sheeting is generally in reasonable condition. • Timber rafters are in average condition, some rafters have weather damage. • Steel fascia beam has corroded in areas. Connections between steel fascia and posts has failed in some areas. • Posts connections loose in areas.	Timber rafters shall be replaced as required. Rafter-fascia connection to be upgraded. Steel posts connections to be rectified as required.


Hole in roof
Broken windows


Demolition of this section should be considered
Additional brickwork supporting wall has been provided. Supporting wall is cracking
Severe displacement of arch.



Loose bricks throughout

Cracking to brick wall



Internal structural generally sound overall, loose bricks noted

Displacing entry arch


Steel framed trusses
Firing holes


Timber rafters
Rafter to fascia connection weather damaged
Timber struts and under purlin

3.5 Building 5: Hardy Patent Kiln 2

Building description:

- Two storey building.
- Lower level is a full masonry brickwork construction housing kilns.
- Timber lean-to awning around perimeter of building.
- Upper floor is an open plan with firing holes throughout.
- Timber framed truss roof with timber purlins. Light weight sheet roof and walls.
- Fire damage has occurred to an area upstairs.
- There is a steel framed walkway located to the North side of the building.

Element	Condition	Remediation Requirement
Cladding	• Wall sheeting is in poor condition. Sheets are loose in areas. • Windows and doors are poor condition.	Wall sheeting to be replaced (or at least secured). Nailed fixings to be replaced with screw fixings. Replace/seal up windows as required.
Roof (Exterior)	• Roof sheeting has deteriorated. Sheets are loose in areas.	Roof sheets will need to be replaced (or at least secured). Nailed fixings to be replaced with screw fixings.
Brickwork kilns	• Most of the entry archways had loose bricks and voids in the brickwork bedding – resulting in displacement of the arch. • Loose bricks were noted throughout the internal kiln areas. However, displacement of the internal arches was much less common.	**Option 1 -** Bricks locally loose, no overall displacement evident: Reinstate locally displaced bricks to match existing. **Option 2 –** Areas of brickwork loose with significant displacement: Reinstate areas of loose brickwork if practical. If reinstatement not possible, provide structural steelwork support.
Upper floor	• Roof trusses are in reasonable condition for the age. However, lateral bracing of the roof structure may require upgrading. • Firing holes throughout floor create a trip hazard.	Firing holes to be covered and floor made free of trip hazards. Timber roof structure should be assessed further by structural engineer and upgraded where required.
Awnings	• Areas of awning missing. • Roof sheeting is in poor condition. Sheets are loose in areas. • Timber rafters are weathered in areas. • Steel fascia beam has weathered significantly in areas. • Connections between timber fascia and posts has failed in some areas. • Posts connections loose in areas.	Reinstate missing awning to match existing Roof sheets will need to be replaced (or at least secured). Nailed fixings to be replaced with screw fixings. Replace timber rafters required. Rafter-fascia connection to be upgraded. Steel posts shall be rectified and reconnected to fascia.
Steel framed bridge	• The steelwork has surface oxidation, but in reasonable condition for age. • The timber framed flooring is severely weathered and not suitable for use. • The steel roof framing is weathered.	Replace timber flooring. Structural steelwork can be re-purposed Replace roof sheeting as required.


Weathered roof sheeting
Steel framed bridge
Awning


Deteriorated fascia
Sheet fixings loose


Displaced arch


Loose bricks to arch


Timber framed trusses
Firing holes


Fire damage



Surface rust to steelwork
Steelwork may be reused

Welded connections

Weathered timber boards



Deteriorated sheeting

Rafters not connected to steel fascia beam

3.6 Building 9: Tall Brickwork Chimney

Building description:

- Tall brickwork chimney.
- Full masonry construction.

Note - the chimney was inspected from ground level only. The condition of the upper levels is based on limited visual observations.

Element	Condition	Remediation Requirement
Base of chimney	• Base of chimney was in good condition for the age of the structure. No notable cracking was observed.	Base of structure to be monitored and any loose bricks reinstated as required.
Upper areas of chimney	• Note - Access limited to ground floor. • Brickwork appears to be in reasonable condition for age of structure.	Closer inspection of upper chimney areas recommended due to limited access. **Option 1:** Local areas of loose bricks, but not displacement of chimney – Reinstate loose bricks. **Option 2:** large areas of loose bricks and chimney displaced in areas – Additional structural support may be required.



3.7 Building 16 & 17 : Machine Bays

Building description:
Building 16 and 17 consists of two matching buildings, linked by a steel framed bridge. The construction type of each is as follows:

- Two-storey construction with a steel framed lean-to roof.
- Primary structure is slab on grade, steel columns supporting suspended upper slab and a steel framed sheet roof.
- Lean-to roof is steel framed trusses, timber purlins and sheet roof.
- There is a steel framed bridge on the on the southern side of building 7.
- There is a steel framed tower to the north of the northern building.

The northern building was generally in worse condition compared to the southern building.

Access was limited to the ground floor only. The upper floor of the structure has not been included within this report.

Element	Condition	Remediation Requirement
Cladding	• Steel roof and wall sheeting was highly weathered, loose and missing in areas across both buildings. The northern building was in worse condition. • The third level of the northern building was missing most of the cladding.	The loose roof/wall sheeting presents a high safety risk, sheets may be become airborne in high winds. Loose sheets to be secured prior to public access. Roof areas not recommended for roof traffic in current condition.
Windows	• Windows to both buildings were weathered and broken.	Windows to be replaced as required.
Slab on grade	• The slab on grade is considered to be non-structural and was in reasonable condition. • There were several open trench drains which present a trip hazard.	Provide covers to trench drains to remove trip hazard.
Steel columns	• Steel columns were generally in sound condition. Surface rust was present but is not a structural concern.	Treat surface corrosion if required.
Suspended slab	• Note - Access was limited to underside of slab only • Overall, slab appeared to be in reasonable condition. • Localised areas of slab had minor spalling present which do not present an overall structural concern.	Break away any areas of spalling concrete to remove hazard. Reinstate concrete with cementitious repair mortar. Structural assessment of upper floor recommended prior to opening to public.
Lean-to roof (framing)	• Steel trusses were in reasonable condition. Impact damage noted to bottom truss chord. • Timber purlins weathered in areas. • Box gutter timber framing has deteriorated.	Reinstate damaged steel truss to match existing. Replace weathered timber purlins as required. Replace box gutter and framing or remove altogether.
Lean-to roof (sheeting)	• Roof sheets were significantly weathered and missing in areas. • Fixings had failed across majority of roof. Sheets were loose and not secured.	Roof sheets should be secured (or removed) as they present a hazard. Foot traffic access to roof be prevented
Steel framed walkway (South side)	• Steel structure was in reasonable condition. • Timber flooring was significantly weathered in areas. • Roof sheets were significantly weathered and had loose fixings.	Replace deteriorated timber flooring as required. Replace/secure roof sheeting.



Loose and missing roof sheets

Bridge between north and south buildings



Steel framed third level of northern building

Loose and missing sheeting


Loose and missing sheeting
Weathered and broken windows
Loose sheets


Level 1 slab
Lean-to roof steel trusses



Damaged bottom chords



Deteriorated box gutter timber framing



Weathered and loose sheeting



Loose and missing sheeting

3.8 Building 18: Workshop

Building description:

- Steel framed braced structure constructed on slab on grade.
- Steel truss roof with timber purlins and light cladding.
- There is a timber framed walkway located on top of the building.

Access to the timber framed walkway was restricted.

Element	Condition	Remediation Requirement
Lower floor	• Structural steel was generally in reasonable condition. • Wall sheeting was damaged in areas. • Windows throughout the window were broken. • Roof sheeting was in reasonable condition.	Replace damaged wall sheeting as required. Reinstate/replace windows as required.
Timber framed walkway	***Note - No access to upper level of structure*** • Northrop report indicated that the timber structure had weathered significantly.	Public access to upper level should be restricted. Structural assessment recommended.

Photos included on following page.



Upper level
(No access)

Damaged sheeting

Trench grate is a
trip hazard



Timber framed walkway

Steel trusses

3.9 Building 35 & 36 : Model Railway Workshop & Storage Shed (Buildings to be demolished)

Building description:

- Single storey construction
- Building is founded on edge of unstable embankment. Slab on grade is sitting on concrete retaining wall to edge of embankment.
- Mixed wall construction - double skin brickwork (most likely) and timber framing with light weight sheeting

Element	Condition	Remediation Requirement
Foundations	• Slab on grade was in reasonable condition. • Concrete retaining wall was in reasonable condition. • Embankment on side of structure is unstable and has eroded.	Stabilise embankment on side of structure.
Structure	• Double skin brickwork was in reasonable condition. • Localised areas of brickwork were loose but appears stable overall. • Timber wall framing, roof framing and sheeting appears to be in sound condition.	Reinstate areas of loose brickwork Seal windows and holes to weatherproof building.
Brickwork retaining wall	• Brickwork retaining wall appears to be sliding off concrete retaining wall. • The end of the wall has partially collapsed, bricks have come loose.	Reinstate brickwork retaining wall. Engaged pier or reinforced concrete retaining wall may be required.

Photographs included on following pages.



Timber framed sheet wall



Double skin brickwork

Unstable embankment

Concrete retaining wall



Brickwork retaining wall
Partially collapsed

Concrete retaining wall



Timber wall framing

Timber roof trusses

3.10 Building 15: Machine Bay

Building description:

- Construction type is very similar to building 16 & 17.
- Two-storey construction with a steel framed lean-to roof.
- Primary structure is slab on grade, steel columns supporting suspended upper slab and a steel framed sheet roof.
- Lean-to roof is steel framed trusses, timber purlins and sheet roof.
- There is a steel framed bridge on the on the north-western side of the building.
- There is a smaller building also labelled “building 10” which is positioned to the east of the main building. Construction type is braced steel framed building with timber purlins and light weight cladding.

Access was limited to the ground floor only. The upper floor of the structure has not been included within this report.

Element	Condition	Remediation Requirement
Cladding	• Steel roof and wall sheeting was weathered. Some sheets are loose and missing.	The loose roof/wall sheeting presents a safety risk in high winds. Loose sheets to be secured or removed and stored for re-fitting
Slab on grade	• The slab on grade is considered to be non-structural and was in reasonable condition.	Any trip hazards across the slab should be rectified.
Steel columns	• Steel columns were generally in sound condition.	Treat surface corrosion if required.
Suspended slab	• Note - Access was limited to underside of slab only. • Overall, slab appeared to be in reasonable condition. • Some local areas of spalling were noted, which do not present an overall structural concern.	Break away any areas of spalling concrete to remove hazard. Reinstate concrete with cementitious repair mortar. Structural assessment of upper floor recommended prior to opening to public.
Lean-to roof	• Steel trusses were in reasonable condition. • Timber purlins weathered in areas. • Box gutter timber framing has deteriorated. • Roof sheets were weathered and fixings loose.	Replace weathered timber purlins as required. Replace box gutter and framing. Remove and store all sheets for re-fitting
Steel framed walkway (north-western side)	• Steel structure was in reasonable condition. • Timber flooring was significantly weathered in areas, particularly the western side of the bridge. • Roof sheets were weathered and missing in areas.	Western side of bridge not suitable for access. Replace deteriorated timber flooring. Replace/secure roof sheeting. Measures to be put in place to prevent access.
Small building (East of main building)	• Steelwork was in reasonable condition. • Timber floor structure has deteriorated. • Section of roof has been removed. • Note – access was from ground level only.	Reinstate roof framing if required. Reinstate floor structure, restrict public access. Secure roof/wall sheeting.



Weathered roof sheeting



Steel framed trusses

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Wall sheets loose and missing


Roof framing has been removed
Loose sheets



Braced steel structure



Roof sheets missing

Timber flooring severely weathered and missing

3.11 Building 19: White Pan Room

Building description:

- Braced steel framed structure, steel roof trusses, timber purlins and light weight sheeting.
- Concrete slab on grade

Access was limited to the ground floor only. Upper floor not accessible.

Element	Condition	Remediation Requirement
Steel structure	• Some bracing members appear to be missing • Some steelwork connections may require rectification.	Reinstate bracing members to match existing. Detailed structural assessment required prior to opening to public.
Cladding	• Sheeting is weathered but in serviceable condition. Some loose sheets were noted.	Secure any loose sheeting prior to providing public access.
Ground floor slab	• Areas of suspended slab on grade have collapsed. • Debris is scattered throughout ground floor.	Restrict public access. Reinstate slab if required. Clean up debris.



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3.12 Building 28 & 31: Storage building & Amenities Block 2

Building 28 & 31 are deemed outside the scope of this report. Building 28 & 31 are two small buildings positioned to the south of Building 2 and appears to have been constructed more recently.

Building description:

- Slab on grade.
- Single skin brickwork (most likely).
- Timber framed truss roof (most likely) with light weight sheeting.
- Timber framed lean-to awning on eastern side of buildings.

Roof structure could not be visually inspected due to a ceiling present.

Element	Condition	Remediation Requirement
External	• Brickwork was generally in good condition. • Roof sheeting was in good condition. • Windows and doors broken.	Ensure structure is weatherproof. Rectify doors and windows.
Lean-to roof	• Lean-to roof was in reasonable condition. • Roof sheeting was sagging in areas but is not a structural concern.	Rectify awning structure if required.





Taller of two structures



Ceiling
Could not inspect roof

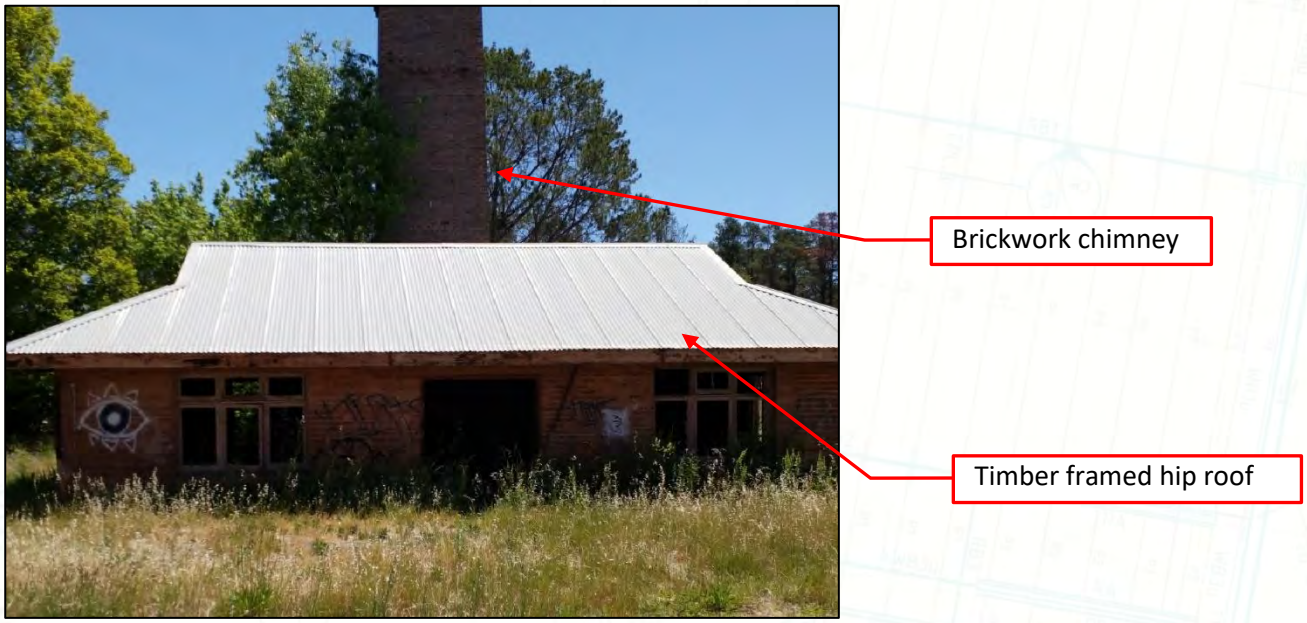
3.13 Building 2: Fan House

Building description:

- Single storey construction.
- Single skin brickwork with engaged piers.
- Timber framed roof with light weight sheeting.
- Basement level is concrete slab on grade.
- A brickwork chimney is located to western side of structure.
- There is a tunnel that runs beneath the road to the east of the building, it appears to be an exhaust tunnel for building 1 kilns.

Roof structure could not be visually inspected due to a ceiling present.

Element	Condition	Remediation Requirement
Main structure	• Brickwork walls in reasonable condition, some cracking to lintels noted. • Ceiling boards were in poor condition and partially collapsed. • Basement was full of debris and murky water. • Handrails loose and not suitable for public access. • Door and windows were broken and deteriorated.	Remove and reinstate deteriorated ceiling boards if public access required. Provide secure handrails to allow safe access. Replace doors and windows to seal structure from the elements.
Kiln exhaust tunnel	• Entrance to tunnel inspected only. • The tunnel was in reasonable condition, no loose bricks were noted.	Tunnel is a confined space, secure access.
Chimney	• Note - observations were made from ground level. • Cracking to the base of the chimney was observed, but overall appears to be stable. • The top of the chimney had more severe cracking and loose bricks.	Secure/reinstate loose bricks at top of chimney. Closer inspection of upper areas of chimney recommended, additional structural support may be required.




Base of chimney in reasonable condition
Weathered fascia beams
Broken windows


Brickwork retaining wall for basement
Debris and murky water



Deteriorated ceiling boards
Partially collapsed



Tunnel under road
Brickwork in sound condition

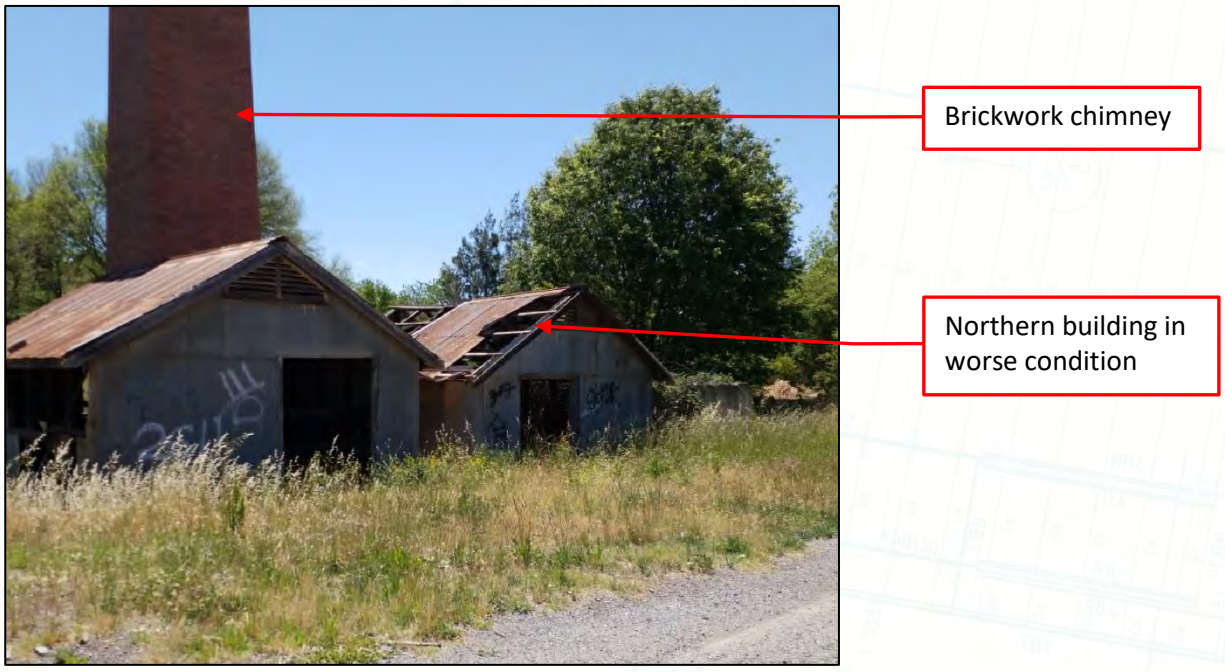
3.14 Building 4: Fan House

Building description:

- Two similar structures located side-by-side, northern structure in worse condition.
- Single storey construction.
- Timber framing with corrugated wall and roof sheeting.
- Concrete basement level.
- A brickwork chimney is located to western side of structure.
- There is a tunnel that runs beneath the road to the east of the buildings which appears to be an exhaust for building 3 kilns.

Access to the tunnel was restricted, condition is not included within report

Element	Condition	Remediation Requirement
Main structure	• Roof sheeting was highly weathered. Buildings have loose and missing roof sheets. • Wall sheeting loose and missing in areas. • Timber framing has deteriorated in areas, particularly to the northern building due to exposure to the weather. Timber framing was falling down in areas. • Concrete basement was full of debris and murky water. • Handrails loose and not suitable for public access.	Secure roof sheeting prior to providing public access. Seal cladding, doors and windows to protect structure from the elements. Replace deteriorated / damaged timber members. Remove debris from basement Provide secure handrails to allow safe access.
Chimney	• Note - observations were made from ground level. • Cracking to the base of the chimney was observed, but overall appears to be stable. • The top of the chimney had more severe cracking and loose bricks.	Secure/reinstate loose bricks at top of chimney. Closer inspection of upper areas of chimney recommended, additional structural support may be required.







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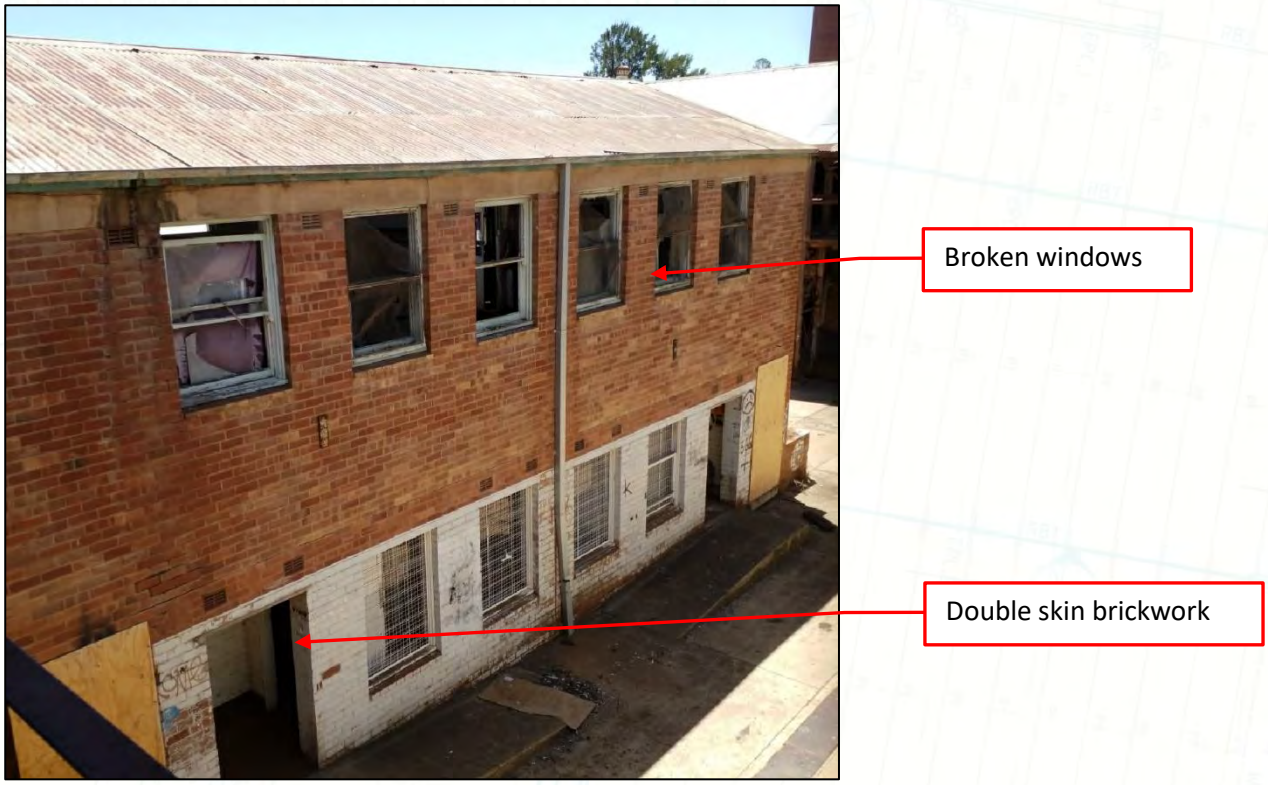
3.15 **Building 25: Amenities Block** (Update: Building has since been burnt down, save for brickwork)

Building description:

- Two storey construction, appears to have been constructed more recently.
- Appears to be double skin brickwork with timber framed sheet roof

Access to the inside of the building was restricted.

Element	Condition	Remediation Requirement
Main structure	• External brickwork was in reasonable condition. • Roof sheets were weathers and had loose fixings. • Fascia boards were weathered. • Window frames weathered and glass broken. • Roof framing could not be inspected due to limited access.	Seal windows to protect structure from the elements. Replace sheet fixings to secure sheeting. Replace fascia boards if required.
Internal structure	• Access to the internal area was restricted. • From external inspection, internal structure appears to be in sound condition.	Inspection of internal structure recommended prior to providing public access.




Broken windows


Weathered sheeting
Loose nailed fixings
Weathered fascia boards

3.16 Building 10: Southern Chimney

The chimney stack is located at the entrance to Brickworks, positioned south of building 6.

Building description:

- Double skin brickwork chimney
- Full masonry construction
- Opening on one side with steel lintel

Element	Condition	Remediation Requirement
Base of chimney	• Base of chimney was in reasonable condition for the age of the structure. • No significant cracking was observed.	Base of structure to be monitored and any loose bricks reinstated as required.
Upper areas of chimney	• Upper section in worse condition compared to base of structure. • Loose and deteriorated bricks were observed. • Some bricks have come loose from the structure; however, the overall structure appears to be stable.	The loose bricks are a hazard and should be rectified prior to providing public access. The upper area should be reinstated to prevent further deterioration. **Option 1:** Local areas of loose bricks, but not displacement of chimney – Reinstate loose bricks. **Option 2:** large areas of loose bricks and chimney displaced in areas – Additional structural support may be required.



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3.17 Building 20: Primary Crusher House, Small Steel Structure to North-East of Site

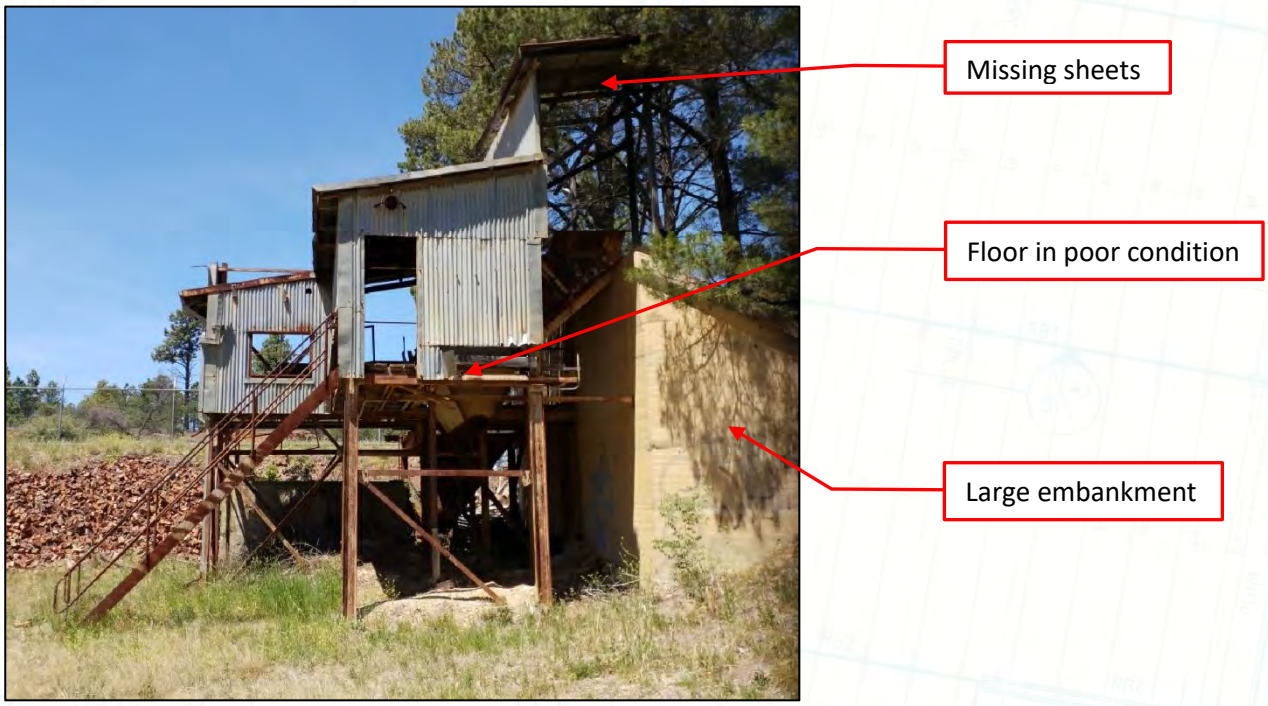
Building 20 is a small steel framed structure positioned north-east of Building 35.

Building description:

- Braced steel framed structure with light weight wall and roof sheeting.
- Timber floor framing.

The structure was inspected from ground level as the floor framing of the structure was in poor condition, access should be restricted.

Element	Condition	Remediation Requirement
Cladding	• Steel roof and wall sheeting was highly weathered, loose and missing in areas.	The loose roof/wall sheeting presents a safety risk, sheets may be become airborne in high winds. Loose sheets to be secured prior to public access. Roof areas not recommended for roof traffic in current condition.
Windows and Doors	• Windows and doors missing/broken.	Replace windows/doors if required.
Steel framing	• Steel framing was generally in reasonable condition. Surface rust was present but is not a structural concern.	Treat surface corrosion if required. Further inspection required prior to providing public access.
Timber framing	• Floor and roof framing were in poor condition.	Areas of floor structure not safe for access. Access should be restricted until rectified.



3.18 Building 22: Elevator/ Conveyor

Building description:

- Steel frame, partially clad, supported of pad footings

Element	Condition	Remediation Requirement
Steel framing	• Fair condition with no evidence of concerning damage	Abrasive blast steelwork and paint.
Roof and Wall sheeting	• Fair condition with isolated loose fixings	Refixing of all connections.
Walkway	• Fair condition and hazardous for use	Replacement required.



View of Conveyor



Typical base fixing



Walkway hazardous

Internal View

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3.19 Building 14: Power House

Building description:

- Single level, high set building of full masonry construction.
- Roof is of cut timber frame.
- Slab on grade.

Element	Condition	Remediation Requirement
Brickwork	• Good to fair condition	Ensure weatherproofing
Roof	• Fair condition with weathering to eaves and facia boards	Replacement of eave boarding and facia boards required.
Slab	• Good condition	Minor clean up and application of a sealer or covering.
External	• Downpipes and gutters in poor condition	Replacement and connection will be required.
	• Doors and louvers in fair condition	Replacement required.
	• Windows broken and flyscreens damaged	Replacement required to western windows.



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Eastern windows in place

Doors require replacement



Weathered facia boards and eave linings

Doors requiring replacement

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4.0 RECOMMENDATIONS

It is a recommendation of Sellick Consultants that the site remains secured with restricted access to authorised personnel with the appropriate PPE (personnel protective equipment).

All roof and wall sheeting noted in section 3 as remediation importance level 3 should be addressed as a matter of priority.

Items noted as remediation importance level 2 should be rectified within 12 months to mitigate ongoing deterioration.

As part of any repair works, a full risk assessment will be required by the responsible contractor before accessing any part of the non-readily accessible areas of the building. Repair work methodologies should be investigated further as these were not within the scope of this report.

I trust this satisfies your enquiries and if I can be of further assistance, please advise.

Yours faithfully,



Darren Sault
Director – Canberra Structural Commercial
for **Sellick Consultants Pty Ltd**

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Appendix H

Inventory of Moveable Relics, GML, January 2021

Appendix H—Inventory of Moveable Relics

H.1 Introduction

Doma engaged GML Heritage Pty Ltd (GML) to prepare an inventory of the moveable relics located at the Canberra Brickworks Precinct (the Brickworks), Yarralumla, Australian Capital Territory (ACT).

This report provides an itemised inventory of **moveable relics**—historic industrial equipment and machinery—associated with the Brickworks. The site has not functioned since 1976, and much of the industrial works of the site has been incrementally removed.

The inventory is a record of the redundant relics and an initial step in the identification of items that should be considered for further investigation, conservation and interpretation. Further assessment should include further identification, provenance, function, significance and historic association with the development phases of the Brickworks.

Historic research regarding the origin, manufacture date, or purpose of each identified item was not undertaken during the compilation of this inventory. Items were included in the inventory if they could be shown to have an integral association with the industrial function of the Brickworks (ie brickmaking). A formal assessment of each item's individual significance against the HERCON criteria was not part of the scope of this inventory and should be developed as part of a future salvage strategy/schedule (see 'Recommendations').

H.2 Methodology

H.2.1 Inventory Content

The inventory is organised with the location, name, general condition of each identified item and a recommendation for the next step to be taken. The function, purpose, provenance, age of some items may not be known – as this is an initial record of what is on site – or may not have been included in the inventory due to:

- dangerous conditions or inability to physically access certain buildings or portions of certain buildings; or
- purposeful concealment of items by other individuals (detailed below).

H.2.2 Site Recording

GML Consultants Kaylie Beasley and Elise Jakeman attended the site on 15 December 2020 to record moveable relics for the inventory.

Moveable relics—the items—have been defined as historic industrial equipment and ephemera associated with the heritage significance and historic function of the Brickworks (ie as a brick manufacturing plant). Other relics—items considered to have been introduced to the Brickworks following its closure in 1976, or not associated with the primary function of the Brickworks—were not recorded in the inventory. However, some exceptions have been made regarding items of artwork/sculpture that repurposes industrial ephemera and introduced materials (post 1976).

The inventory contains information from the time of the site survey and data collection (15 December 2020). It is important to note that the Brickworks is often visited by vandals and 'urban explorers'; such individuals may damage, relocate, or remove items during their visits, altering the information contained

in the inventory. Moreover, the remaining items likely represent only a small portion of the original scale and quantity of industrial equipment – much of this original material has probably been gradually removed from the site since the closure of the Brickworks.

H.2.3 Recording process

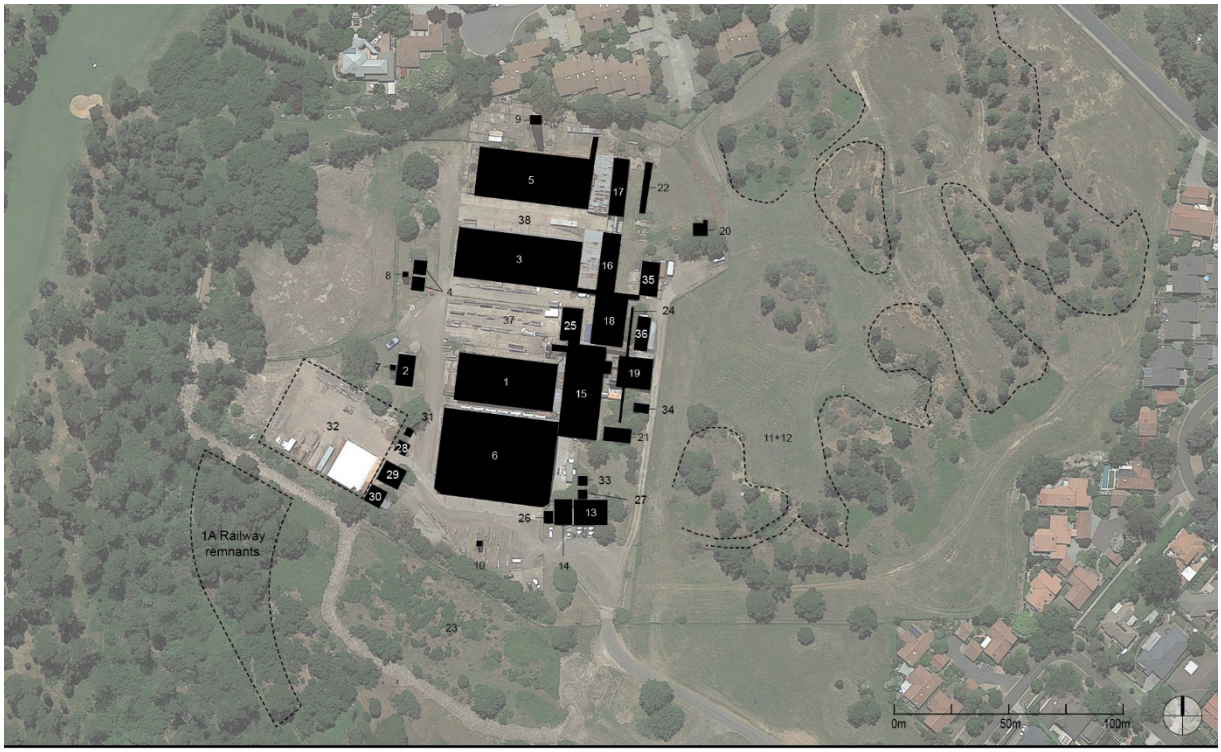
Identified items were recorded using the following process:

1. Each item or 'lot' was assigned an ID.
2. The location coordinate of the item was taken using a Garmin GPSMAP 64sx.
3. The name, description, and condition of the item was recorded.
4. A photograph of the item taken in situ.
5. A recommendation was provided to guide initial advice about salvage, storage, restoration, reuse, or 'to be determined' following further historical investigation. Recommendations have been based on the directives outlined in Section iii) of the ACT Heritage Register citation for 'Yarralumla Brickworks' (Appendix B1):
    a. Major equipment and machinery associated with the historical industrial use of the place shall be retained and conserved in situ. Minor equipment should be retained and conserved but may be relocated to a new location within the site for interpretative purposes and/or its own protection.
    b. The Primary Crusher House (Element 20), including the integral equipment and machinery, and the Elevator/Conveyor (Element 22) shall be conserved for their ability to demonstrate and interpret industrial processes and secondary aesthetic values.

The inventory is organised according to the named Elements (building and areas) of the Brickworks site, and as used in the CMP (Figure 1). The items in the inventory are located inside and around the Elements and have been assigned a locating 'code' (Table 1) as a prefix ID for each item.

The following spaces were not examined for moveable relics due to dangerous conditions or inability to physically access the buildings:

- the upper levels of the Staffordshire Kiln (Element 1), Hardy Patent Kiln 1 (Element 3), and Hardy Patent Kiln 2 (Element 5);
- the rear rooms of the office building (Element 13); and
- the toilet block (Element 27) at the rear of the office building.



Legend:

1	Staffordshire Kiln	9	Chimney Stack for Hardy Patent Kiln 2	17	Machine Bay 3 for Hardy Patent Kiln 2	24	Concrete retaining wall	33	Ancillary Storage Building 2
2	Fan House for Staffordshire Kiln	10	Chimney Stack for Downdraught Kilns	18	Workshop	25	Amenities Block	34	Storage Shed
3	Hardy Patent Kiln 1	11	Quarry	19	White Pan Room (Large Crusher House/Crusher House II)	26	Downdraught Kilns Control Room	35	Model Railway Workshop
4	Fan house for Hardy Patent Kiln 1	12	Geological features	20	Primary Crusher House (Crusher House III)	27	Toilet Block	36	Model Railway Storage Shed
5	Hardy Patent Kiln 2	13	Offices	21	Small Crusher House (Crusher House I)	28	Ancillary Storage Building	37	Original Brickyard
6	Downdraught Kilns	14	Power House	22	Elevator/Conveyor	29	Substation/Control Room	38	Brickyard 2
7	Chimney Stack for Staffordshire Kiln	15	Machine Bay 1 for Staffordshire Kiln and Downdraught Kilns	23	Brickworks Accommodation Village	30	Boiler House	1A	Railway remnants registration area
8	Chimney stack for Hardy Patent Kiln 1	16	Machine Bay 2 for Hardy Patent Kiln 1			31	Amenities Block 2	Refer also to figure 3.38 Areas of Archaeological Potential	
						32	Extrusion Plant (Remnants)		

Figure 1 Numbering and Location of Elements of the Canberra Brickworks Precinct.

H.3 Identified Moveable Relics

Table 1 provides an ID for moveable relics, description and photograph of each item. A map showing the locations of the relics is provided in Figure 2.

Table 1 Moveable Relics Identified at the Canberra Brickworks Precinct, listed in chronological order after Entrance Area.

ID	Description	Photograph
Entrance Area		
EA-01	*Description:* Stack of misfired red bricks, approximately 11 courses *Location:* Adjacent to main entry gate outside Brickworks fencing *Condition:* Good *Comments:* Little apparent fabric damage, some minor lichen attachments *Recommendation:* Retain for interpretation on site	
EA-02	*Description:* Stack of misfired red bricks, approximately 12 courses *Location:* Adjacent to main entry gate inside the site *Condition:* Good *Comments:* Little apparent fabric damage, some minor lichen attachments *Recommendation:* Retain for interpretation on site	
Element 11+12: Quarry and Geological features		
11+12-01	*Description:* Timber steps and ferrous handrails *Location:* Central southern extent of Quarry (Element 11) *Condition:* Poor *Comments:* Affected by soil erosion and slip, rust activity on handrails *Recommendation:* Further research required to determine provenance	

ID	Description	Photograph
Element 24: Concrete Retaining Wall		
No moveable relics associated with the primary function of the Brickworks were identified		
Element 14: Power House		
14-01	*Description:* 'English Electric' ammeter and wattmeter control panel and associated framing, insulators, and other ephemera *Location:* Centre of Power House (Element 14) *Condition:* Poor *Comments:* Non-operational, considerable fabric damage to control panel and components, pigeon activity damage, some graffiti *Recommendation:* Retain and conserve the 'English Electric' ammeter and wattmeter control panel in situ. Implement interpretation opportunities Seek the advice of a conservator for conservation and interpretation on site Seek the advice of a conservator regarding the provenance and usefulness of associated ephemera. Some items may be suitable for conservation of the ammeter and wattmeter control panel	  

ID	Description	Photograph
		 
Element 1: Staffordshire Kiln		
1-01	*Description:* Stacks of 'Wunderlich Limited' terracotta roof tiles *Location:* In north-facing kiln of Staffordshire Kiln (Element 1) *Condition:* Fair *Comments:* Little apparent fabric damage *Recommendation:* Undertake additional research to determine provenance. Establish if they are from buildings on site and can be used for restoration of buildings on site	

ID	Description	Photograph
		
1-02	*Description:* Timber ladder with metal fixtures *Location:* In north-facing kiln of Staffordshire Kiln (Element 1) *Condition:* Fair *Comments:* Little apparent fabric or structural damage *Recommendation:* Salvage and store on site. Appropriately label with a catalogue number and provenance Possible conservation and reuse for on site interpretation	
1-03	*Description:* Extractor fan *Location:* Landing of upper level of Staffordshire Kiln (Element 1) *Condition:* Poor *Comments:* Not in situ, some fabric damage, advanced rust activity *Recommendation:* Retain for interpretation on site Seek the advice of a conservator for conservation and interpretation on site	
1-04	*Description:* Boiler *Location:* Landing of upper level of Staffordshire Kiln (Element 1) *Condition:* Poor *Comments:* Advanced rust activity, exposed asbestos insultation *Recommendation:* Retain and conserve in situ Seek the advice of a conservator for conservation and interpretation on site	

ID	Description	Photograph
Element 2: Fan House for Staffordshire Kiln		
2-01	*Description:* Fan equipment *Location:* Centre of Fan House (Element 2) *Condition:* Very poor *Comments:* Considerable fabric damage, graffiti damage, pigeon activity damage, flooding, and advanced rust activity *Recommendation:* Retain and conserve fan equipment in situ. Implement interpretation opportunities Seek the advice of a conservator for conservation and interpretation on site	  

ID	Description	Photograph
		 
Element 7: Chimney Stack for Staffordshire Kiln		
No moveable relics associated with the primary function of the Brickworks were identified		
Element 13: Offices		
13-01	*Description:* Dray horse cart collar *Location:* Western-most south-facing room of Offices (Element 13) *Condition:* Good *Comments:* Little apparent fabric damage. *Recommendation:* Undertake additional research to determine provenance. If determined to be appropriate, salvage and store on site. Appropriately label with a catalogue number and provenance	
Element 3: Hardy Patent Kiln 1		

ID	Description	Photograph
3-01	*Description:* Kiln doors *Location:* Adjacent to southern external wall of Hardy Patent Kiln 1 (Element 3) *Condition:* Fair *Comments:* Little apparent fabric damage, some rust activity *Recommendations:* Salvage and store on site. Label with an inventory catalogue number and provenance Seek the advice of a conservator for conservation and on site interpretation	
3-02	*Description:* 'Kent' oxygen analyser *Location:* Southern external wall of Hardy Patent Kiln 1 (Element 3) *Condition:* Poor *Comments:* Fabric damage, some rust activity *Recommendations:* Retain and conserve in situ Seek the advice of a conservator for conservation and interpretation on site	 
Element 4: Fan House for Hardy Patent Kiln 1		

ID	Description	Photograph
4-01	*Description:* Fan equipment *Location:* Centre of each Fan House (Element 4) *Condition:* Very poor *Comments:* Considerable fabric damage, graffiti damage, pigeon activity damage, flooding, and advanced rust activity *Recommendation:* Retain and conserve fan equipment in situ. Implement interpretation opportunities Seek the advice of a conservator for conservation and interpretation on site	   

ID	Description	Photograph
		 
Element 8: Chimney Stack for Hardy Patent Kiln 1		
No moveable relics associated with the primary function of the Brickworks were identified		
Element 25: Amenities Block 1		
No moveable relics associated with the primary function of the Brickworks were identified		
Element 5: Hardy Patent Kiln 2		
No moveable relics associated with the primary function of the Brickworks were identified		
Hardy Patent Kiln 2 Area		

ID	Description	Photograph
5A-01	*Description:* Brick press machine base *Location:* West of Hardy Patent Kiln 2 (Element 5) *Condition:* Fair *Comments:* Not in situ, little apparent fabric damage, advanced rust activity *Recommendations:* Salvage and store on site. Label with an inventory catalogue number and provenance Seek the advice of a conservator for conservation and on site interpretation	 
Element 9: Chimney Stack for Hardy Patent Kiln 2		
No moveable relics associated with the primary function of the Brickworks were identified		
Element 15: Machine Bay 1 for Staffordshire Kiln and Downdraught Kilns		
15-01	*Description:* Two bridge cranes *Location:* Centre of Machine Bay 1 (Element 15) *Condition:* Fair *Comments:* Appears to be little fabric or structural damage, some rust activity *Recommendations:* Conserve and retain representative example/s in situ. Implement interpretation opportunities Seek the advice of a conservator for conservation and on site interpretation Salvage and store other examples on or off site (see also 16A-03, 16701, 18-01)	

ID	Description	Photograph
		 
15-02	*Description:* Five chutes *Location:* Across first floor of Machine Bay 1 (Element 15) *Condition:* Fair *Comments:* Little apparent structural damage, graffiti damage, some rust activity *Recommendations:* Retain and conserve in situ. Implement interpretation opportunities Seek the advice of a conservator for conservation and on site interpretation	 

ID	Description	Photograph
		
15-03	*Description:* Conveyer tracks, rollers, and associated mechanisms *Location:* Second floor of Machine Bay 1 (Element 15) and extends across upper levels of all Machine Bays (Elements 16, 17) *Condition:* Fair–good *Comments:* Appears to be largely complete, most rollers functioning, advanced rust activity *Recommendations:* Retain and conserve in situ. Implement interpretation opportunities Seek the advice of a conservator for conservation and on site interpretation	 
15-04	*Description:* Electrical control panel *Location:* Second floor of Machine Bay 1 (Element 15) adjacent to conveyor tracks *Condition:* Fair *Comments:* Non-operational, some fabric damage *Recommendations:* Retain and conserve in situ. Implement interpretation opportunities Seek the advice of a conservator for conservation and interpretation on site	

ID	Description	Photograph
		
15-05	*Description:* Chute *Location:* Second floor of Machine Bay 1 (Element 15) at northern end *Condition:* Poor–fair *Comments:* Could not inspect closely *Recommendations:* Retain and conserve in situ. Implement interpretation opportunities Seek the advice of a conservator for conservation and interpretation on site	
Element 16: Machine Bay 2 for Hardy Patent Kiln 1		
16-01	*Description:* Conveyor piece *Location:* Floor of Machine Bay 2 (Element 16) at northern end *Condition:* Poor *Comments:* Not in situ, advanced rust activity *Recommendations:* Salvage and restore to 15-03	
Machine Bay 2 for Hardy Patent Kiln 1 Area		

ID	Description	Photograph
16A-01	*Description:* Stack of 'Canberra' terracotta tiles *Location:* Adjacent to external rear wall of Machine Bay 2 (Element 16) and external northern wall of Workshop (Element 18) *Condition:* Poor–fair *Comments:* Some fabric damage *Recommendations:* Undertake additional research to determine provenance. Establish if they are from buildings on site and can be used for restoration of buildings on site (see also 18-02)	
16A-02	*Description:* Dismantled brick barrow *Location:* Space between Machine Bay 2 (Element 16) and Machine Bay 3 (Element 17) *Condition:* Poor *Comments:* Advanced rust, missing timber lining and wheels *Recommendations:* Salvage and store on site. Label with an inventory catalogue number and provenance, likely as part of 27-01 'job lot' Seek the advice of a conservator for conservation and on site interpretation	
16A-03 .	*Description:* Bridge crane *Location:* Space between Machine Bay 2 (Element 16) and Machine Bay 3 (Element 17) *Condition:* Poor *Comments:* Appears to be little fabric or structural damage, advanced rust activity *Recommendations:* Conserve and retain representative example/s in situ. Implement interpretation opportunities Seek the advice of a conservator for conservation and interpretation on site Salvage and store other examples on or off site (see also 15-01, 17-01, 18-01)	

ID	Description	Photograph
		
Element 17: Machine Bay 3 for Hardy Patent Kiln 3		
17-01	*Description:* Bridge crane *Location:* Northern end of Machine Bay 3 (Element 17) *Condition:* Fair *Comments:* No apparent fabric damage, some rust activity *Recommendations:* Conserve and retain representative example/s in situ. Implement interpretation opportunities Seek the advice of a conservator for conservation and interpretation on site Salvage and store other examples on or off site (see also 15-01, 16A-03, 18-01).	
17-02	*Description:* Crusher and puddler machines *Location:* Northern end of Machine Bay 3 (Element 17) *Condition:* Poor *Comments:* Not in situ, fabric damage, advanced rust activity *Recommendations:* Salvage and store on site. Label with an inventory catalogue number and provenance. Seek the advice of a conservator for conservation and interpretation on site	

ID	Description	Photograph
		
17-03	*Description:* 'Foster & Sons Pty Ltd' pugmill *Location:* Northern end of Machine Bay 3 (Element 17) *Condition:* *Comments:* Not in situ, some fabric damage, advanced rust activity *Recommendations:* Salvage and store on site. Label with an inventory catalogue number and provenance. Seek the advice of a conservator for conservation and interpretation on site	 
Machine Bay 3 for Hardy Patent Kiln 2 Area		

ID	Description	Photograph
17A-01	*Description:* Boiler or exhaust vent *Location:* North of Machine Bay 3 (Element 17) *Condition:* Poor *Comments:* Not in situ, some fabric damage, advanced rust activity *Recommendations:* Salvage and store on site. Label with an inventory catalogue number and provenance Undertake further investigation to determine provenance and whether it can be restored to its original location Seek the advice of a conservator for conservation and interpretation on site	
Element 18: Workshop		
18-01	*Description:* 'Industrial Handling Co' bridge crane *Location:* Centre of Workshop (Element 18) *Condition:* Fair *Comments:* Appears to be little fabric or structural damage, some rust activity *Recommendations:* Conserve and retain representative example/s in situ. Implement interpretation opportunities Seek the advice of a conservator for conservation and interpretation on site Salvage and store other examples on site (see also 15-01, 16A-03, 17-01)	 

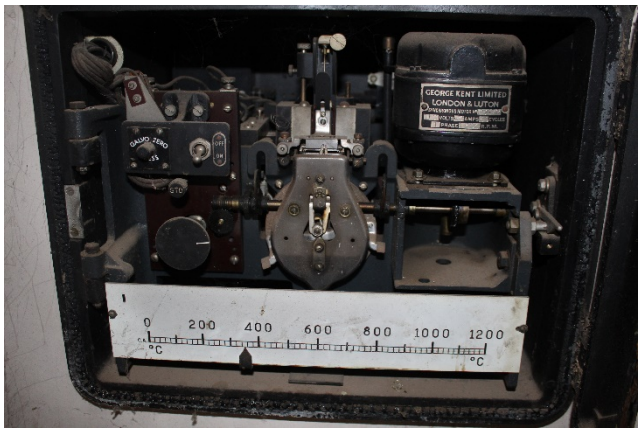
ID	Description	Photograph
18-02	*Description:* Stack of 'Canberra' terracotta tiles *Location:* Behind partition wall at northern end of Workshop (Element 18) *Condition:* Fair *Comments:* Little apparent fabric damage *Recommendations:* Undertake additional research to determine provenance. Establish if they are from buildings on site and can be used for restoration of buildings on site (see also 16A-01)	 
Element 21: Small Crusher House (Crusher House 1)		
21-01	*Description:* Chute *Location:* Centre of Small Crusher House (Element 21) *Condition:* Poor *Comments:* Fabric damage, graffiti damage, advanced rust activity *Recommendations:* Conserve and reuse in situ. Implement interpretation opportunities Seek the advice of a conservator for conservation and interpretation on site.	

ID	Description	Photograph
		
Element 19: White Pan Room (Large Crusher House/Crusher House II)		
19-01	*Description:* Miscellaneous chutes *Location:* Lower level of White Pan Room (Element 19) at rear of Machine Bay 1 (Element 15) *Condition:* Fair *Comments:* Little apparent fabric damage, advanced rust activity *Recommendations:* Retain and conserve in situ. Implement interpretation opportunities Seek the advice of a conservator for conservation and interpretation on site	 

ID	Description	Photograph
		
Element 20: Primary Crusher House (Crusher House III)		
20-01	*Description:* Crush machinery *Location:* Centre of Primary Crusher House (Element 20) *Condition:* Poor *Comments:* Extensive fabric damage, extensive structural damage, advanced rust activity *Recommendations:* Retain and conserve in situ. Implement interpretation opportunities Seek the advice of a conservator for conservation and interpretation on site	
Element 22: Elevator/Conveyor		
No moveable relics associated with the primary function of the Brickworks were identified		
Element 6: Downdraught Kilns		
6-01	*Description:* Kiln fixings, including furnace doors and ladders *Location:* Affixed to external walls of each kiln of Downdraught Kilns (Element 6) *Condition:* Poor *Comments:* Fabric damage, advanced rust damage, missing fixings *Recommendations:* Retain and conserve in situ. Implement interpretation opportunities Seek the advice of a conservator for conservation and on site interpretation	

ID	Description	Photograph
		 
6-02	*Description:* Kiln doors *Location:* At northern and southern ends of each kiln of Downdraught Kilns (Element 6) *Condition:* Poor–fair *Comments:* Fabric and structural damage, advanced rust activity, graffiti damage *Recommendations:* Retain and conserve in situ. Implement interpretation opportunities Seek the advice of a conservator for conservation and on site interpretation	

ID	Description	Photograph
		 
6-03	*Description:* Fire grate *Location:* Central kiln of Downdraught Kilns (Element 6) *Condition:* Fair *Comments:* Little apparent fabric damage, some rust activity *Recommendations:* Retain and conserve in situ. Implement interpretation opportunities Seek the advice of a conservator for conservation and interpretation on site	 

ID	Description	Photograph
Element 26: Downdraught Kilns Control Room		
26-01	*Description:* 'George Kent Limited London & Luton' temperature control panel *Location:* Adjacent to doorway of Downdraught Kilns—Control Room (Element 26) *Condition:* Good *Comments:* Non-operational, some external fabric damage, no damage to internal mechanism *Recommendations:* Retain and conserve in situ. Implement interpretation opportunities Seek the advice of a conservator for conservation and interpretation on site	 
Element 10: Chimney Stack for Downdraught Kilns		
No moveable relics associated with the primary function of the Brickworks were identified		
Element 27: Toilet Block		
The space could not be accessed.		
Element 28: Ancillary Storage Building		

ID	Description	Photograph
28-01	*Description:* Approximately 11 dismantled brick barrows *Location:* Rear of Ancillary Storage Building 1 (Element 28) *Condition:* Poor *Comments:* Advanced rust activity, missing timber lining and wheels *Recommendations:* Salvage and store on site. Appropriately label as a 'job lot', with a catalogue number and provenance, likely will include 16A-02 Seek the advice of a conservator for conservation and interpretation on site	 
Element 29: Substation/Control Room		
No moveable relics associated with the primary function of the Brickworks were identified		
Element 30: Boiler House		
No moveable relics associated with the primary function of the Brickworks were identified		
Element 31: Amenities Block 2		
No moveable relics associated with the primary function of the Brickworks were identified		
Element 32: Extrusion Plant (Remnants)		
32-01	*Description:* Stack of misfired red bricks, approximately 12 courses *Location:* Northeastern end of concrete slab, adjacent to external rear wall of Ancillary Storage Building 1 (Element 28) *Condition:* Good *Comments:* Little apparent fabric damage, some minor lichen attachments *Recommendations:* Retain for interpretation on site	

ID	Description	Photograph
32-02	*Description:* Approximately nine extrusion chutes *Location:* Along southwestern edge of Extrusion Plant (Element 32) *Condition:* Poor–fair *Comments:* Some fabric damage, advanced rust activity on several examples, may be damage from encroaching foliage *Recommendations:* Salvage and store on site. Appropriately label as a 'job lot', with a catalogue number and provenance, likely will include 34A-01 Seek the advice of a conservator for conservation and interpretation on site	 
Element 33: Ancillary Storage Building 2		
No moveable relics associated with the primary function of the Brickworks were identified		
Element 34: Storage Shed		
No moveable relics associated with the primary function of the Brickworks were identified		
Element 35: Model Railway Workshop		
No moveable relics associated with the primary function of the Brickworks were identified		
Model Railway Workshop Area		
35A-01	*Description:* Extrusion chute *Location:* Adjacent to northern external wall of Model Railway Workshop Area (Element 35) *Condition:* Fair *Comments:* No apparent fabric damage, some rust activity *Recommendations:* Salvage and store on site. Label with an inventory catalogue number and provenance, likely as part of 31-02 'job lot' Seek the advice of a conservator conservation and on site interpretation	
Element 36: Model Railway Storage Shed		
No moveable relics associated with the primary function of the Brickworks were identified		

ID	Description	Photograph
Element 1A: Railway Remnants (Narrow-gauge Railway)		
No moveable relics were able to be checked in detail here.		
Element 37: Original Brickyard		
37-01	*Description:* 'DR Patent und Auslandspatente' brick press *Location:* Eastern end of yard, adjacent to rear of Amenities Block 1 (Element 25) *Condition:* Fair *Comments:* Some fabric damage, graffiti damage, some rust activity *Recommendations:* Salvage and store on site. Label with an inventory catalogue number and provenance Seek the advice of a conservator for conservation and interpretation on site	  
Element 38: Brickyard 2		
No moveable relics associated with the primary function of the Brickworks were identified		



Figure 2 Map of moveable relics identified at the Canberra Brickworks Precinct during this assessment. (Source: SIX Maps with GML overlay)

H.4 Recommendations

This inventory provides the initial step in the identification of items that should be considered for further investigation, conservation, and interpretation.

The following recommendations provide general initial information, to inform the next stages of investigation, for the conservation, management and reuse of the items of industrial equipment and machinery in this inventory.

Recommendations include:

1. undertaking further historical research to identify provenance, function and association with the historic function of the Brickworks. This information would allow for a better understanding of potential historic association with the industrial function and heritage significance of the site;
2. retaining fixed industrial equipment and moveable relics for in situ conservation, reuse in the redevelopment and interpretation of the heritage significance of the site (eg the equipment in the Fan Houses [05, 09] and Primary Crusher House [20]);
3. seeking the advice of a conservator, with expertise in large industrial objects, metal and timber conservation. A conservator can assist in undertaking Recommendation 1 (above) and the cataloguing of identified items for restoration, salvage, transport and storage, etc. Storage should be on site if possible (in situ being preferable), or in a weather-proof location for assessment, cleaning and physical conservation (if required);
4. recording where items are proposed to be stored if removed from site and any conservation works taken to items; and
5. undertaking salvage and/or conservation works prior to demolition/construction works commencing on site.

For industrial ephemera not included in this inventory, it is recommended that:

- a salvage schedule should be developed for historical industrial ephemera, including items that are not directly integral with the historic industrial function of the site, its heritage significance or easily identified to be associated with brickmaking function of the site;
- are of historical interest and potentially to collectors of historical industrial equipment;
- obvious rubbish and post-1976 items can be removed without inclusion in the schedule; and
- if any further remnants, relics, historic equipment and ephemera are uncovered during demolition, the Unanticipated Finds Protocol should be followed (Appendix E) and a heritage expert/conservator should be consulted to determine salvage value.

Appendix I

ACAT Orders regarding the Railway Remnants and Dunrossil Estate

File Number

AT 13/17

ACT CIVIL AND ADMINISTRATIVE TRIBUNAL

ACAT
AUSTRALIAN CAPITAL TERRITORY
CIVIL & ADMINISTRATIVE TRIBUNAL

APPLICATION FOR INTERIM OR OTHER ORDERS – GENERAL*

**see attachment for when this application may be used*

APPLICANT	
Name	**Land Development Agency**
RESPONDENT	
Name	**ACT Heritage Council**
THIS APPLICATION is made by the: (strike out what does not apply)	
~~**Applicant**~~ ~~**Respondent**~~	**All Parties**
Orders sought – interim or other orders *(use an attachment if insufficient space and number each order separately)*	
The parties hereby consent to the Tribunal making a decision pursuant to section 55 of the ACT *Civil and Administrative Tribunal Act 2008* (the **Act**) in the terms set out in Attachment A (which refers to and includes Attachments B, C and D).	
Legislation under which orders are sought:	
Section 55 of the Act	

Approved Form AF2009-42 approved by L Crebbin (General President) and B Stefaniak (Appeal President) on 30 January 2009 under section 117 of the *ACT Civil and Administrative Tribunal Act 2008*.

Unauthorised version prepared by ACT Parliamentary Counsel's Office

Grounds relied on *(use an attachment if insufficient space)*

The parties have reached an agreement about the terms of a Tribunal decision in relation to the application. The terms of the agreement have been reduced to writing, signed by the parties and lodged with Tribunal.

Clayton Utz
Solicitor for the Applicant

Date 7 September 2013

ACT Government Solicitor
per: Pamela Mathie
Solicitor for the Respondent

Date 7 September 2013

Applications for Interim or Other Orders

This form may be used when an application has already commenced before the tribunal and a party or someone else wishes to apply for an interim or other order in relation to that application. It should be used only when no other specific form exists for the application. It may only be used when the ACT Civil and Administrative Act 2008 (the Act) or some other law authorises the application.

Examples of applications that may be made include:

1. for an interim order under section 53 of the Act or to vary, revoke or extend such an order
2. to join a person as a new party to an application
3. for an order under section 35 of the Act referring a matter for mediation and requiring the parties to attend a mediation
4. for an order under section 39(3) of the Act relating to hearings in private or partly in private
5. to set aside a subpoena completely or partly under section 41(6) of the Act
6. for a direction to permit a person to take part or give evidence other than in person under section 45 of the Act
7. to amend a document under section 47 of the Act
8. for the tribunal to make an order in accordance with agreed terms under section 55 of the Act
9. for an order to hear an application jointly with another application under section 56 (a) of the Act
10. for orders to be made by consent under section 56(b) of the Act
11. to amend or set aside a tribunal order under section 56(c)
12. to extend the period for compliance stated in a direction made under section 67 of the Act
13. to remove an application to the Supreme Court under section 83 of the Act or for the referral of a question of law to the Supreme Court under section 84 of the Act

NOTE: This is not an exhaustive list of the applications for interim or other orders that may be made using this form.

Unless it is inconsistent with a provision in the Act or in an authorising law or rule, a person may apply to the tribunal for an interim or other order in an application by:

(a) lodging an application in writing using this form or
(b) by writing a letter to the tribunal or
(c) by making an oral application to the tribunal.

A person who wishes to apply for an interim or other order in an application should ensure that every party to the application is aware of what orders are sought and when the application is going to be made.

In making a decision about how an application for an interim or other order should be made in a matter the tribunal will consider:

Approved Form AF2009-42 approved by L Crebbin (General President) and B Stefaniak (Appeal President) on 30 January 2009 under section 117 of the *ACT Civil and Administrative Tribunal Act 2008*.
Unauthorised version prepared by ACT Parliamentary Counsel's Office

(a) the need to observe natural justice and procedural fairness, and;
(b) the requirement for procedures to be as simple, quick, inexpensive and informal as is consistent with achieving justice and
(c) the needs of the particular matter

ATTACHMENT A

AUSTRALIAN CAPITAL TERRITORY)
CIVIL AND ADMINISTRATIVE TRIBUNAL)

NO: AT 13/17

RE: **LAND DEVELOPMENT AGENCY**
Applicant

AND: **ACT HERITAGE COUNCIL**
Respondent

1. WHEREAS the parties have agreed that the document at Attachment B will, subject to necessary approvals, be the basis of any future Estate Development Plan prepared to address heritage issues related to the area registered on the ACT Heritage Register as defined in Notifiable Instrument NI 2013-38 "Heritage (Decision about Registration of Yarralumla Brickworks Railway Remnants) Notice 2013" (the **Railway Remnants**).

2. WHEREAS the parties have agreed that the "Heritage Zone" as shown on Attachment B and depicted in Attachment D (as being the registered area for rail remnant preservation) has heritage significance in accordance with the Heritage Act 2004 (**Heritage Act**) and, in relation to the area in Attachment B marked "Removed Registered Land" (including "Dunrossil Estate"), on the basis of the current information, the Heritage Council will not, in the future, seek to register that area or exercise any other legislative function in relation to that area including making a direction requiring preparation of a Conservation Management Plan.

3. WHEREAS the parties have agreed that in respect of the "Heritage Zone" shown on Attachment B and depicted in Attachment D (as being the registered area for rail remnant preservation) that the matters stated at Attachment C in respect of the "Heritage Zone" will apply, subject to the respondent's functions under the Heritage Act.

4. WHEREAS the parties have agreed that in respect of the "Dunrossil Estate" shown on Attachment B that the matters stated at Attachment C in respect of the "Dunrossil Estate" will apply subject to, in the 3rd bullet point under the heading Dunrossil Estate:
   (a) the words "2 storeys from and including ground level (where storey has the same meaning as the definition of that term in the Territory Plan) or lower subject to consultation" being substituted for the words " level 1"; and
   (b) the words "Dunrossil Estate" being substituted for the words "registered area".

5. WHEREAS the parties have agreed to closely consult and seek agreement with each other in relation to development within the "Heritage Zone" shown on Attachment B

and depicted in Attachment D (as being the registered area for rail remnant preservation), subject to the respondent's functions under the Act.

6. WHEREAS the respondent acknowledges that development within the "Dunrossil Estate" shown on Attachment B is a matter for the applicant, nevertheless, the parties have agreed to closely consult with each other in relation to development within the "Dunrossil Estate".

7. WHEREAS the respondent acknowledges that the interface between the "Heritage Zone" shown on Attachment B and depicted in Attachment D (as being the registered area for rail remnant preservation) and the adjacent area shown as "Development Block (up to 8 storeys)" on Attachment B is a matter for the applicant, nevertheless, the parties have agreed to closely consult with each other in relation to development of the interface.

8. WHEREAS the respondent acknowledges that the possible interpretation (for example, through signage and/or surface treatment) of the linear alignment of the Railway Remnants, as depicted by the survey of Jason Steger in his Surveyor's Report dated 5 July 2013 and filed in these proceedings, in other areas outside of the "Heritage Zone" and the "Dunrossil Estate" shown on Attachment B is a matter for the applicant, nevertheless, the parties have agreed to consult with each other in relation to this possible interpretation.

THE PARTIES HEREBY CONSENT to the decision under review being varied to register the Yarralumla Brickworks Railway Remnants only on part Block 7 Section 102 Yarralumla as depicted on Attachment D (instead of the area marked on figure 1 on page 10 of the registration details at Tribunal Documents page 26).

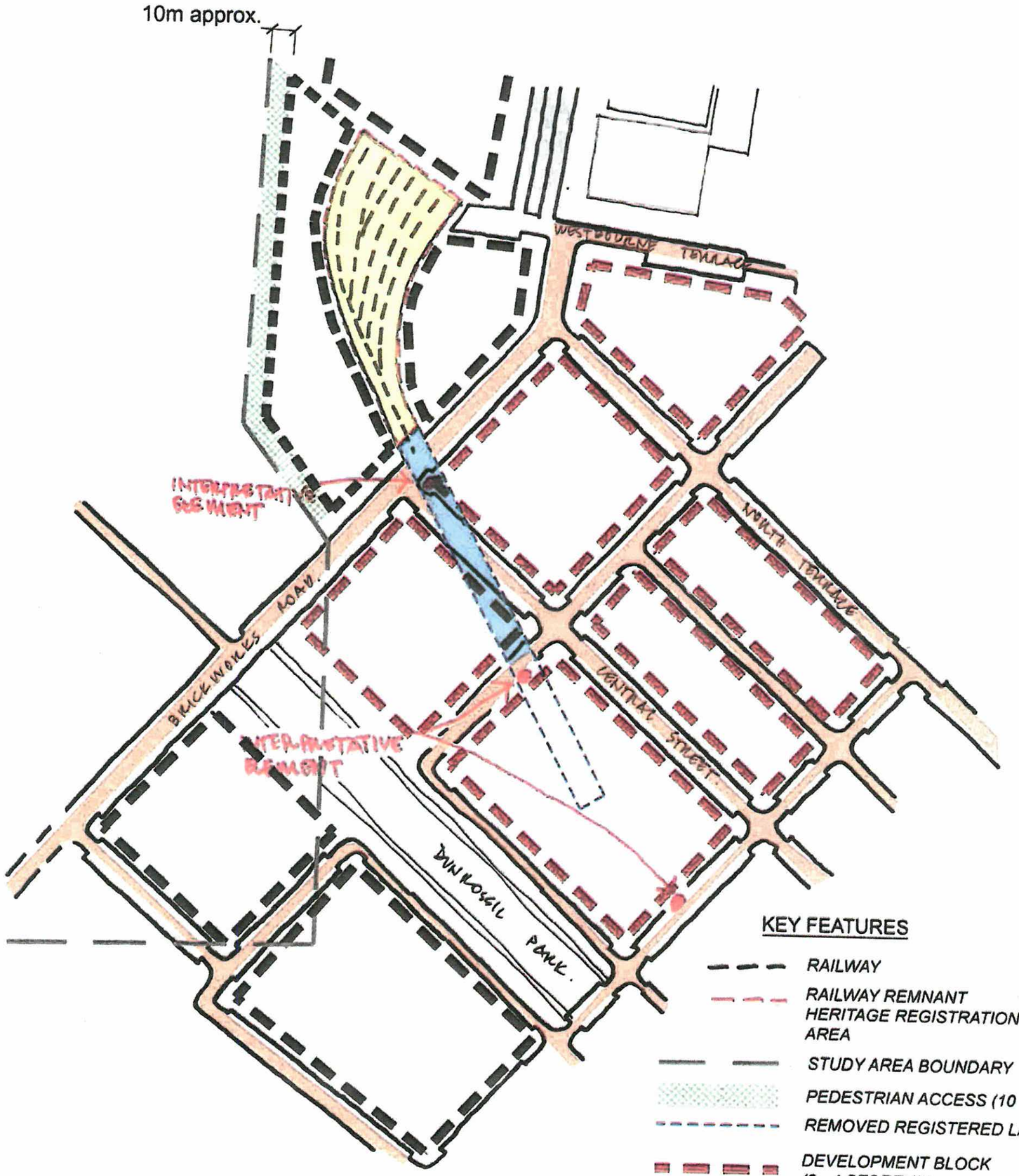
Clayton Utz
Solicitor for the Applicant

Date: 7 September 2013

ACT Government Solicitor
Per:
Pamela Mathie
Solicitor for the Respondent

Date: 7 September 2013

"B"



Note: This proposal, subject to LDA & ACT Heritage Council support, would be the basis of any future Estate Development Plan prepared to address heritage issues related to the Railway remnants

SCALE 0 10 20 50m

CANBERRA BRICKWORKS

LDA PROPOSAL

P00240-04

ACT Government
Economic Development

Land Development Agency
CANBERRA FIRST

ABN 204 199 255 79

TransACT House
470 Northbourne Avenue
Dickson ACT 2602

GPO Box 158 Canberra ACT 2601

Phone: (02) 6205 0600
Fax: (02) 6207 5101
Email: lda@act.gov.au
Web: lda.act.gov.au

Railway Remnants – Explanation of Heritage treatments

Heritage Zone

The Heritage Zone will be treated as landscaped open space, celebrating the history of the railway remnants. Allowable uses within the Heritage Zone may include:

- Pathways
- Playground equipment
- Park benches and seating, picnic tables and barbeque equipment
- Restoration of the railway remnants, where appropriate
- Interpretative elements such as signage and sculpture to enhance understanding of the railway remnants
- Infrastructure to support the landscaped park such as irrigation and Water Sensitive Urban Design elements.

Dunrossil Estate

Allowable uses within the Dunrossil Estate may include:

- Roadways, including in-ground servicing and infrastructure
- Associated landscaping and streetscape works
- Built form elements allowable from level 1, preserving a visual axis for the length of the registered area (refer attached *Highline* images).

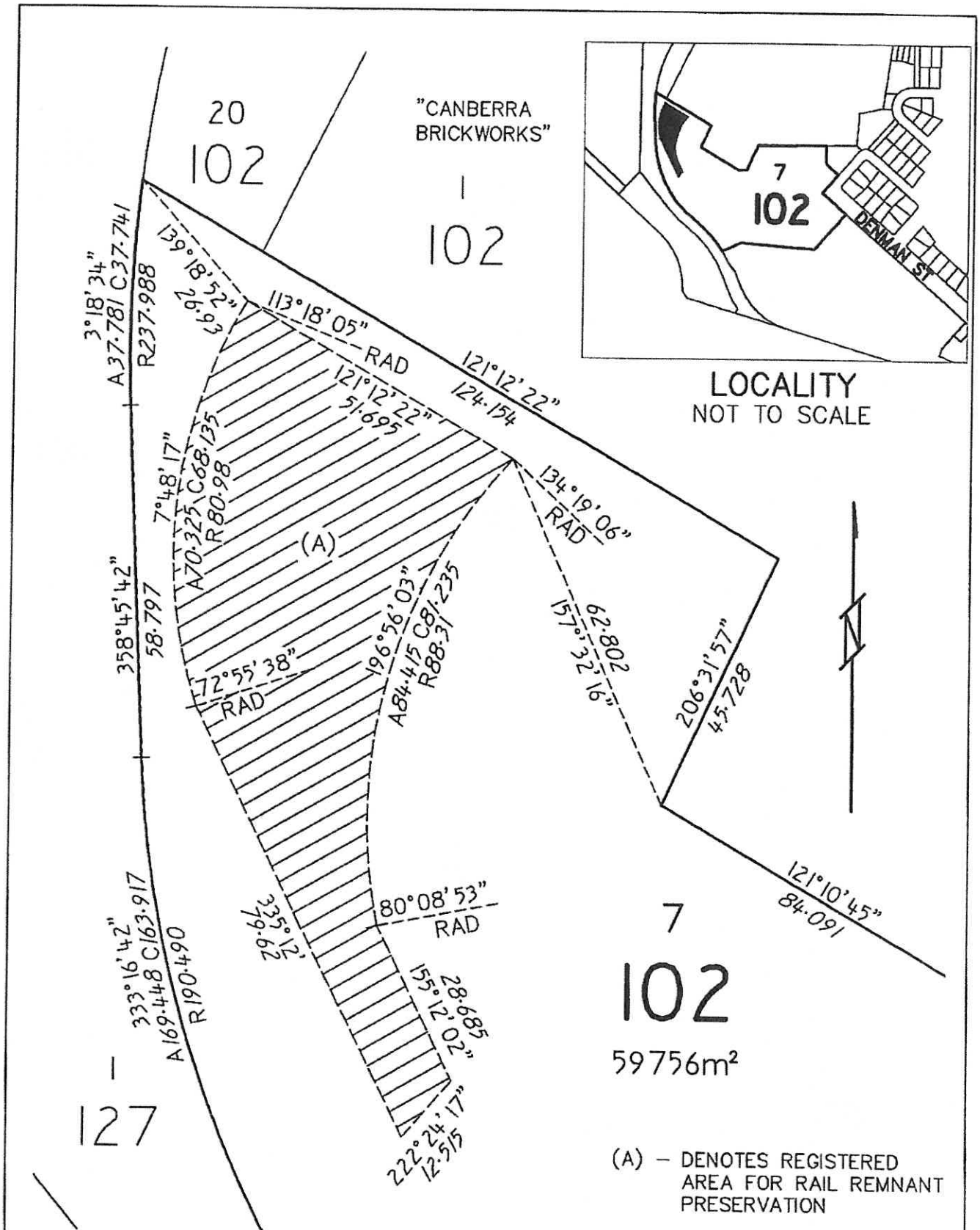
The alignment of the railway remnants will visually be interpreted through the following elements:

- Differentiated paving and ground treatments
- Illustrative and/or educational signage.


thecaledonia.com
LUXURY RENTALS



"D"



I JASON P STEGER CERTIFY THAT THIS PLAN IS AN ACCURATE AND ADEQUATE REPRESENTATION OF THE LOCATION OF THE REGISTERED AREA FOR RAIL REMNANT PRESERVATION OVER BLOCK 7 SECTION 102 DIVISION OF YARRALUMLA

SIGNED _____ DATE 2/09/13

REGISTERED SURVEYOR

SURVEYORS REF: 11005_001

PLAN OF REGISTERED AREA

BLOCK 7
SECTON 102
DIVISION YARRALUMLA
DISTRICT CANBERRA CENTRAL

SCALE 1:5000

PLAN OF REGISTERED AREA