

NATIONAL TRUST REGISTER OF SIGNIFICANT PLACES

CITATION

NAME OF PLACE: COTTER PUMPING STATION AND ELECTRICITY SUB-STATION
COTTER PUMP STATION AND PELTON WHEEL

LOCATION OF PLACE: LOCATED ON COTTER ROAD, NEAR ITS CROSSING OF THE MURRUMBIDGEE RIVER, COTTER RESERVE, CANBERRA, AT CONFLUENCE OF MURRUMBIBGEE & COTTER RIVERS

Section and Block Suburb:

Area bounded by: the eastern wall of the buildings, the road side kerb, the southern wall of the sub-station and the northern wall of the pump house.

Area of place: 1/4 hectare, 20k west of Canberra

FEATURES INTRINSIC TO THE HERITAGE SIGNIFICANCE OF THE PLACE:

The features intrinsic to the heritage significance of the place are:

Two of the first buildings for engineering purposes, established to ensure an adequate water supply for the future city of Canberra. The pumps within the building are a record of the development of this type of equipment over a period of 50 years.

Hydro Pump Station

An illustration of the small consumption of water in the early days of Canberra and for a simple solution to the intermittent but costly operation of the electrically driven pumping station originally established.

STATEMENT OF SIGNIFICANCE:

Two of the first buildings for engineering purposes, established to ensure an adequate water supply for the future city of Canberra. The pumps within the building are a record of the development of this type of equipment over a period of 50 years. Their retention in situ on a stand-by basis is expected and favours establishment of a Cotter Pumping Station working museum.

SPECIFIC REQUIREMENTS:

The following requirements are identified as essential to the conservation of the heritage significance of this place. These requirements are prepared to implement the following conservation policy for the place:

1. Requirements Relating to the Building

1.1 Not applicable

1.2

2. Requirements Relating to the Setting

2.1

2.2

MANAGEMENT RECOMMENDATIONS:

In assessing this place for the interim Heritage Places Register, the Trust recommends that the following actions and activities should be undertaken which will enhance the heritage values of the place.

DOCUMENT HISTORY

1. date Draft citation considered by Council at Meeting (number)
2. date Revised citation for Council Meeting (number).....APPROVED/NOT APPROVED
3. date Submitted for inclusion in interim Heritage Places Register

BACKGROUND INFORMATION

1. DESCRIPTION OF PLACE:

1. Two brick buildings with stucco walls and a tiled roof. A modern two-storeyed addition on the northern end of the Pump house. The latter building has large multi-pane windows.

CONDITION: Its condition and integrity is excellent. Built 1912-1915 they were among the first permanent buildings in the ACT. The pump house contains 8 electrically driven pumps, the first two of which were put into use on 15 October 1918. Larger pumps have been added progressively and in 1963 the building was extended to install two pumps on a vertical axis with the electric motors above possible flood level.

The station was built to pump water from the Cotter Dam to a reservoir on Mt Stromlo. Since completion of the Bendora gravity dam, the pumping station is kept maintained by periodic running of the pumps so that it will be available if needed, for example, to allow work to be done on the Bendora Gravity Main.

2. Canberra Pump Station - Pelton Wheel - constructed in Melbourne and installed by Weymouth of Melbourne

A concrete unembellished "blockhouse" type structure containing hydro pumping equipment located on the bank of the Murrumbidgee below road level, opposite the main Cotter Pumping Station. Water was pumped from a gravity main from the Cotter Dam up a rising main to the Mt. Stromlo storage by use of a water driven turbine (ie no electricity or other external power required).

Built in the 1920s and used for 3 years only, due to a series of mechanical failures. This pump was installed to obviate the need for two technicians to travel from Melbourne for operation of the electric pumps in the Pumping Station on the other side of the road, which, due to the small water needs of Canberra, was operated on only one or two days per month. The whole station has been submerged during flooding of the Murrumbidgee.

Reasons for listing

An illustration of the small consumption of water in the early days of Canberra and for a simple solution to the intermittent but costly operation of the electrically driven pumping station originally established. The turbine and pump are in a poor state of preservation due to flooding. However, restoration to a non working museum piece in situ is a reasonable prospect.

ARCHITECT:JS Murdoch, Architect 1912-1915

2. STATUS OF PLACE AT NOMINATION DATE:

Registered. Classification 6/12/83

3. BACKGROUND: Cotter Pumping Station

For half a century this station was the pivot of the water supply to Canberra.

It commenced operation in 1918, pumping water from the Cotter Dam to Mt. Stromlo reservoir. The water flowed under positive head from the dam to the pumping station via 1250m.0f 45bmm cast iron main, passing in tunnel through the ridge between the dam and the Murrumbidgee River. The first 2 pumps were installed in 1912, but did not operate until 1918, six more 1being progressively added in 1935 (Kelly &, Lewis), 1942 (Thompson), 1955 (Thompson), and 1963 (Thompson). By 1968 a large.gravity main was completed from Bendora Dam, able to be kept topped up by the new Corin

Dam. Hence the Cotter Pump Station ceased operations, but has been kept in working order for strategic reasons.

Associated with the Cotter Pumping Station is a Pelton Wheel which was constructed in Melbourne and installed by Weymouth of Melbourne. It was used in the 1920's to pump water continuously, at the rate of 125 gallons/minute, to Stromlo. This was used to obviate the need to bring technicians from Melbourne for 1 or 2 days per month to run the Pumping Station. After 3 years of use beleaguered by breakdowns, its use was discontinued.

Reasons for classification

- from 1918-1968 it was pivotal to Canberra's growth
- the pumping station exhibits in a single building a range of pumps and ancilliary equipment spanning half a century commencing soon after Federation
- the whole complex and the Pelton Wheel and Pump combination in particular is an example of early Federation Australian Engineering
- most of the equipment is in working order and should be preserved.

4. RELEVANT PRINCIPAL NATIONAL HISTORIC THEMES:

5. ANALYSIS AGAINST THE CRITERIA SPECIFIED IN SCHEDULE 2 OF THE LAND (PLANNING AND ENVIRONMENT) ACT 1991

Under Section 56 the criteria for the assessment of the heritage significance of places are:

- (i) a place which demonstrates a high degree of technical and/or creative achievement, by showing qualities of innovation or departure, or representing a new achievement of its time;**
- (ii): a place which exhibits outstanding design or aesthetic qualities valued by the community or a cultural group;**
- (iii) a place which demonstrates a distinctive way of life, taste, tradition, religion, land use, custom, process, design or function which is no longer practised, is in danger of being lost, or is of exceptional interest;**
- (iv): a place which is highly valued by the community or a cultural group for reasons of strong or special religious, spiritual, cultural, educational or social associations;**
- (v) a place which is the only known or only comparatively intact example of its type;**
- (vi) a place which is a notable example of a class of natural or cultural places or landscapes and which demonstrates the principal characteristics of that class;**
- (vii): a place which has strong or special associations with a person, group, event, development or cultural phase which played a significant part in local or national history;**
- (viii) a place which represents the evolution of a natural landscape, including significant geological features, landforms, biota or natural processes;**
- (ix) a place which is a significant habitat or locality for the life cycle of native species; for rare, endangered or uncommon species; for species at the limits of their natural range; or for district occurrences of species;**
- (x) a place which exhibits unusual richness, diversity or significant transitions of flora, fauna or natural landscapes and their elements; or**

BACKGROUND INFORMATION

1. DESCRIPTION OF PLACE:

Pumping Station

The Cotter Pumping Station was built between 1912 and 1915. It consists of two Industrial buildings, the Pump House and Transformer House. The complex is set into a cutting in an embankment and oriented along the Cotter Road immediately above the bridge crossing the Murrumbidgee River.

The original Pumping Station was designed by John Smith Murdoch, Chief Architect of the Department of Works and Railways. J.S. Murdoch designed Old Parliament House, East and West Block Offices, Hotels Canberra and Kurrajong and Mount Stromlo Observatory, all of which are prominent Canberra landmarks. The Pumping Station is one of the first two buildings designed by Murdoch in Canberra, the other being the Kingston Power House (1915). Since construction, the original buildings have been extended to cope with additional pumps needed for Canberra's increasing water demand. The last major work was retiling of the roof in 1996.

The buildings are a combination of cement rendered brick and reinforced concrete with large multi-pane windows and tiled roof. The southernmost building is the Transformer House. It features five bay windows with the three innermost bays extending slightly forward from the façade. Two levels of multi-pane glass windows are centered within squared pilasters. The roof is hipped and clad with red terracotta tiles and exhibits exposed eaves and a centrally located vent. The upper level still retains the original power transmission lines.

The northern of the two buildings is the Pump House. It was constructed to house the earliest pumps, motors and control equipment. It is similar to the Transformer House in design, incorporating the features on a slightly larger scale. The structure features five bays with three bays slightly projected forward. The three centre bays hold large multi-pane windows while the two outer bay windows are smaller. The roof is similar and also features a central vent.

The Pump House has undergone three major extensions on its northern end to house further pumps. The first addition works were requisitioned in 1938 and completed in September 1941 at a cost of £1,196. The northern end of the Pump House was extended by approximately one third its original length to house pump no. 4. The extension included a new large bay window and the replacement of the original smaller bay window on the end of the building (National Archives of Australia A292). The work mimicked the original Murdoch design. The join between the original and extension is discernable on the exterior by a slight edge in the rendering. The second addition was completed in 1954 to house pumps no. 5 & 6. This addition repeated the window pattern of the original and first extension, as well as the rendered wall dressing, raking eaves and tiled roof. The third major addition was done in 1963. It is two stories and higher than the original structures. It was constructed to house two vertical axis pumps with their electric motors housed above to prevent flood damage from the river (Baker 1997). The addition, while dominating the lower structures, largely matches the original with cement rendering and red terracotta tile roof. It differs from past precedents with two tall vertical windows on the upper level and two smaller windows on the lower. Another differentiation is the front facing gabled roof.

The interior of the Pump House, is utilitarian with concrete and metal plate floors, rendered walls and exposed ceiling trusses. The use of natural light, a feature of Murdoch's buildings, is gained by the high roof line, long windows, roof vents, and white painted ceiling. The upper level of the 1963 addition features sound absorbing paneling on the walls and ceiling.

To the rear of the pumping station is a two storey, flat roofed, service addition built in at least two stages. It contains offices, rest and recreation rooms and storage on the lower level and power distribution panels on the upper level.

The grounds of the buildings are restricted by Cotter Road in the front and the cut away cliff face in the rear. They are largely utilitarian in nature, featuring a plane tree in front of the Transformer House and little additional landscaping.

The pumps

A series of eight electrically driven pumps are housed in the Pump House (Appendix A). They were used to elevate water from the Cotter Dam to the 13.5 megalitre reservoir on Mount Stromlo. The water was then gravitated to a further holding reservoir on Red Hill and thence to the urban areas of Canberra.

Pumps 1 and 2, the first two pumps installed in the Pump House, were commissioned in 1918. They were manufactured by Gwynne Ltd in the United Kingdom, and driven by General Electric Motors from the United States. Pumps 3 to 6 are located in a line parallel to Pumps 1 & 2. Pump 3 was manufactured by Kelly & Lewis and installed in 1935; Pump 4 was manufactured by Thompson and installed in 1942; Pumps 5 & 6 were manufactured by Thompson and installed in 1955. Pumps 7 & 8 were installed in 1963 and are housed in the two storey extension, with electric motors on the first floor level with the pumps below. The original starting and control equipment remains with each pump drive.

The pumps were progressively installed to increase the pumping capacity as the population of Canberra and demand for water increased. They are all generically centrifugal pumps, ie their pumping action is by the water being thrown outwards by rapidly moving rotor within the pump casing which contains the water and delivers it to the pipeline at the pump outlet. All electric motors installed since the original two pumps have synchronous induction motors. Unlike the wound rotor induction motors of pumps one and two, which vary slightly in speed depending on the load, the later motors run at constant speed, and have provision for controlling the electrical power factor of the installation.

A further pump is associated with the Pumping Station complex. The Hydro Pump is now housed in the Transformer House, overlooking the concrete blockhouse in which it was originally installed on the bank of the Murrumbidgee River. The pump is a water powered assembly consisting of a turbine coupled by a belt drive to a three cylinder reciprocating pumping mechanism. It was constructed in 1923 by Weymouth of Melbourne, and was in use until 1927 when the blockhouse was submerged by a high flood level of the Murrumbidgee. The pump was removed for restoration in 1986 and relocated in the lower level of the Transformer House.

The Cottages

There are currently eight residential dwellings on the development site, as well as numerous outbuildings. The housing development is owned by ACT Housing and most of the houses are rented. The development site is located on a west facing, steeply sloping side of the valley formed by the Murrumbidgee River. A fairly level nature strip has been formed at the front (western) side of the housing development. Below this is the Cotter Road, which has been cut into the side of the valley, producing a sheer drop of up to three metres from the nature strip in some locations. Ramps have been made parallel to the road to give vehicle access to the nature strip level. There is an open drainage gully at the southern end of the nature strip and beyond this, behind the Pumping Station, is open hillside, covered in pasture. On the north western side of the housing development is a steep incline leading to the River flats.