

**ARCHAEOLOGICAL RECORDING IN THE
TOWER OF THE CHURCH OF
ST MARGARET, NORTHAM, DEVON**

**Prepared for
Jonathan Rhind Architects**

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1. INTRODUCTION

This report has been commissioned by Jonathan Rhind Architects and presents the results of archaeological recording undertaken by Exeter Archaeology on 14 November 2008 during alterations to the heating system at St Margaret's Church, Northam, Devon (SS 44872909; Fig. 1). The investigation was undertaken as part of phase 1 works to the church involving the provision of a toilet and kitchenette in the base of the tower, in response to a brief provided by the Devon County Historic Environment Service (Dick 2008).

2. THE CHURCH

The church is first documented in the mid 13th century, and contains a font of the same date. The main fabric of the church – the nave and chancel – is believed to be of 15th-century date, although the base of the tower may contain earlier fabric. A north aisle and lady chapel were added in 1593 (Cherry and Pevsner 1989, 598). The church was extensively restored between 1849-65 by the Exeter-based architect D. Mackintosh. Mackintosh died in 1859 and work continued under the direction of his assistant W.F. Cross (Gale 1991, 21). The two porches and St George's Chapel on the south side of the church were probably added during the early years of this restoration. The faculty for the reordering of the church in 1864 (DRO Petition 2 for reseating and restoration 1864) included a proposal that 'suitable apparatus be provided for warming the said church'. The accompanying plan depicts the position of two Gurney stoves. This type of heating system was patented in 1856 (www.hevac-heritage.org/victorian_engineers/sir_goldsworthy_gurney/sir_goldsworthy_gurney) and the stoves almost certainly date to the 1864 reordering.

A vestry was attached to the north side of the tower in 1906-7 (DRO Petition 5 for a new vestry to the Parish Church of Northam, Devon). The accompanying plans show little detail of the tower, but do show proposed new panelling extending from the vestry into the doorway from the tower.

The heating system in the church is a modified early 20th-century Perkins High Pressure Hot Water (HPHW) system. A patent for 'apparatus for heating air in buildings' was granted in 1831, and the system was used extensively in churches across Britain, as well as country houses, factories, warehouses, and greenhouses in horticultural gardens such as at Kew. Only 11 examples are known to survive in churches in England including four in Devon and five in Wales (www.hevac-heritage.org/victorian_engineers/perkins/perkins.htm).

3. AIM AND METHOD

The aim of the investigation was to prepare a record of the heating system within the tower prior to alterations including the relocation of a coil heater from the ground floor to the first floor.

The brief (Dick 2008) required a descriptive record to be made of the extant heating system. The recording comprised:

- A written description;
- A photographic record in black and white film and digital format;
- Annotation of the architect's floor plan, and preparation of new drawings of the coil heater.

4. RESULTS (Figs 2-3; Pls 1-2)

The pipework was originally heated by a boiler (or furnace) located in a cellar adjacent to the north aisle of the church. The furnace has been removed and replaced by a modern gas boiler situated in the north aisle adjacent to the old boiler room. Within the boiler room part of the original pipework has been retained in use to the current boiler. This must indicate the original boiler was gas-fired rather than solid-fuel-fired (compare other examples listed on www.hevac-heritage.org/victorian_engineers/perkins/perkins.htm).

The pipework is long 1½ inch diameter iron or steel pipes with shorter lengths used where required, particularly for the coiler heaters. The diameter of the bore was not observed. These pipes are joined with patented screw sockets distinguished by the marks left by the assembly tool on their surfaces. The pipes on the first floor of the tower are unpainted, whereas those on the ground floor are painted silver, and those in the main body of the church itself are painted black. The pipes are fitted to the walls with circular brackets and to the pews with semi-circular clips.

From the boiler the pipework appears to run in a series of three circuits around the church providing direct heat to the pews as well as other open areas of the church. Most of this pipework is above ground, although between the pews the pipes pass beneath the floor in small chambers with grille covers. (It should be noted that a full investigation of the pipework was beyond the brief of the current investigation.) The three circuits heat (1) pews on the north side of the north aisle, the lady chapel and the chancel, (2) the pews in the central part of the nave and the north aisle, and St George's Chapel, and (3) the pews in the western end of the nave and north aisle and the tower.

The pipe enters the tower at floor level and rises through a sinuous coil heater to the first floor. The heater has 10 coils and stands 1.08m high by 1.10m long, which is a different design to the coil heaters elsewhere in the church. The other heaters are lower, comprising only three or four coils, but are longer, often being the width of the pews. At first floor level the pipe would originally have been attached to one or more expansion tubes, evidence for which takes the form of scars in the plaster of the north elevation. A modern water/expansion tank was formerly attached to the wall in this position and it is unclear to what extent the scars relate to this tank or the earlier expansion pipe. The modern tank has recently been moved and now rests in the window opening in the west elevation. From this point the pipe continues at first floor level around the tower before passing into the nave and dropping down to ground floor level before returning to the boiler.

5. DISCUSSION

The church of St Margaret at Northam contains a working early 20th-century Perkins HPHW system, albeit served by a modern boiler. Unusually, the boiler was (and still is) fuelled by gas. The system replaced two earlier Gurney Stoves located in the north aisle (as depicted on a plan accompanying a faculty of 1864; DRO Petition 2 for reseating and restoration 1864). No firm date for its installation has been identified although 1906-1907 is proposed as the most likely date. A faculty for the erection of the vestry was issued in 1906, and the room was completed the following year. The pipes in the tower are attached to wooden panelling that extends throughout the ground floor of the tower and into the vestry. This panelling is depicted on 1906 plans for the construction of the vestry (DRO Petition 5 for vestry 1906). Adjacent to the coil heater is a gas light fitting, contemporary with the panelling.

The investigation has concentrated on the recording of the heating system within the tower, with only limited observations of the system elsewhere in the church. It is understood that proposed phase 2 works to the church will involve the removal of pews within the western section of the church (i.e. to the west of the present entrance). To facilitate this, a significant proportion of the surviving Perkins HPHW system – which is attached to the pews and includes a number of long sinuous coil heaters – will need to be removed.

ACKNOWLEDGEMENTS

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SOURCES CONSULTED

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 Heritage Group Website for the Chartered Institution of Building Service Engineers, www.hevac-heritage.org.
 Cherry, B. and Pevsner, N. 1989 *The Buildings of England: Devon* (London: Penguin books).

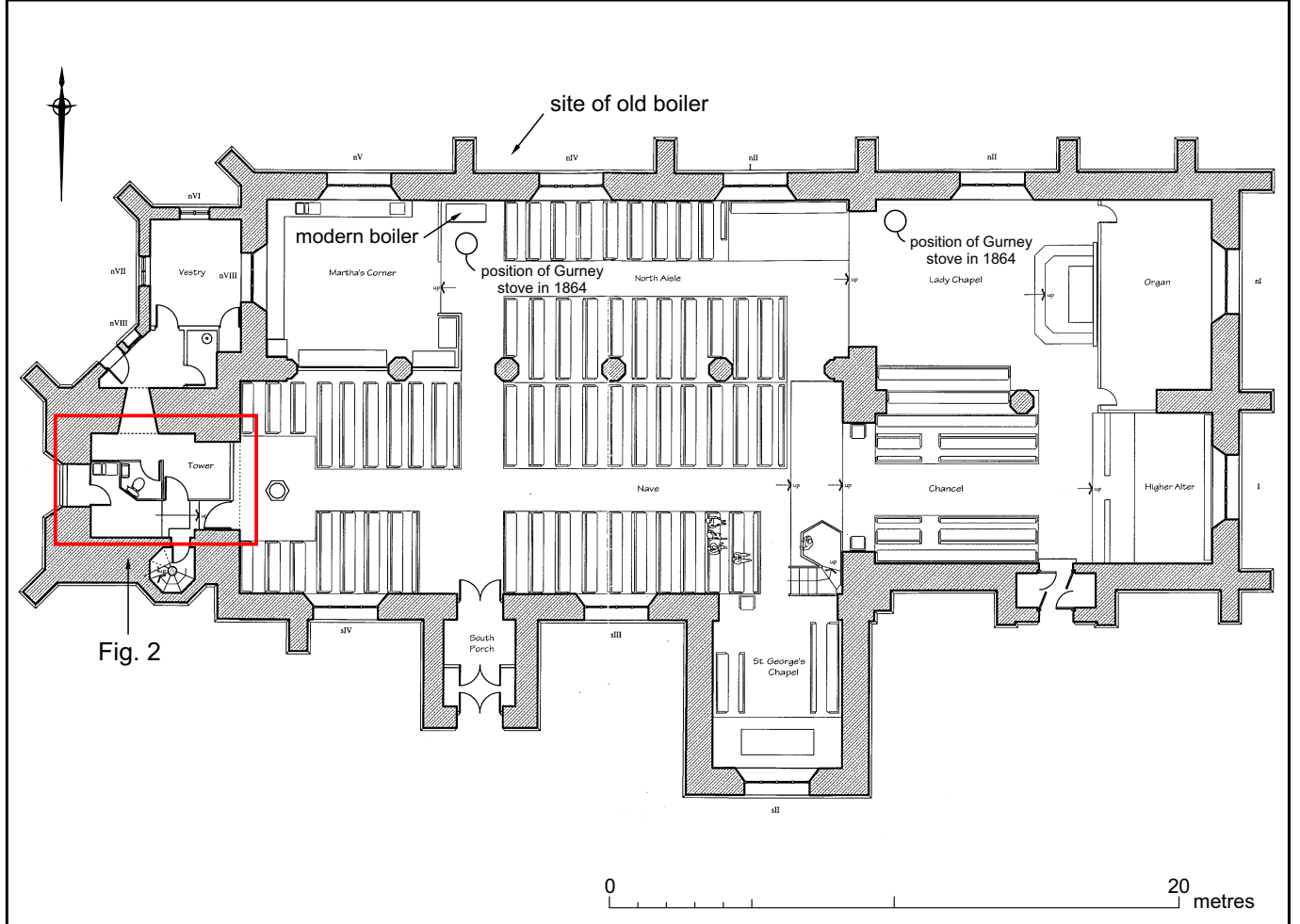


Fig. 1 Location of site and plan of church (based on plan supplied by Jonathan Rhind Architects).

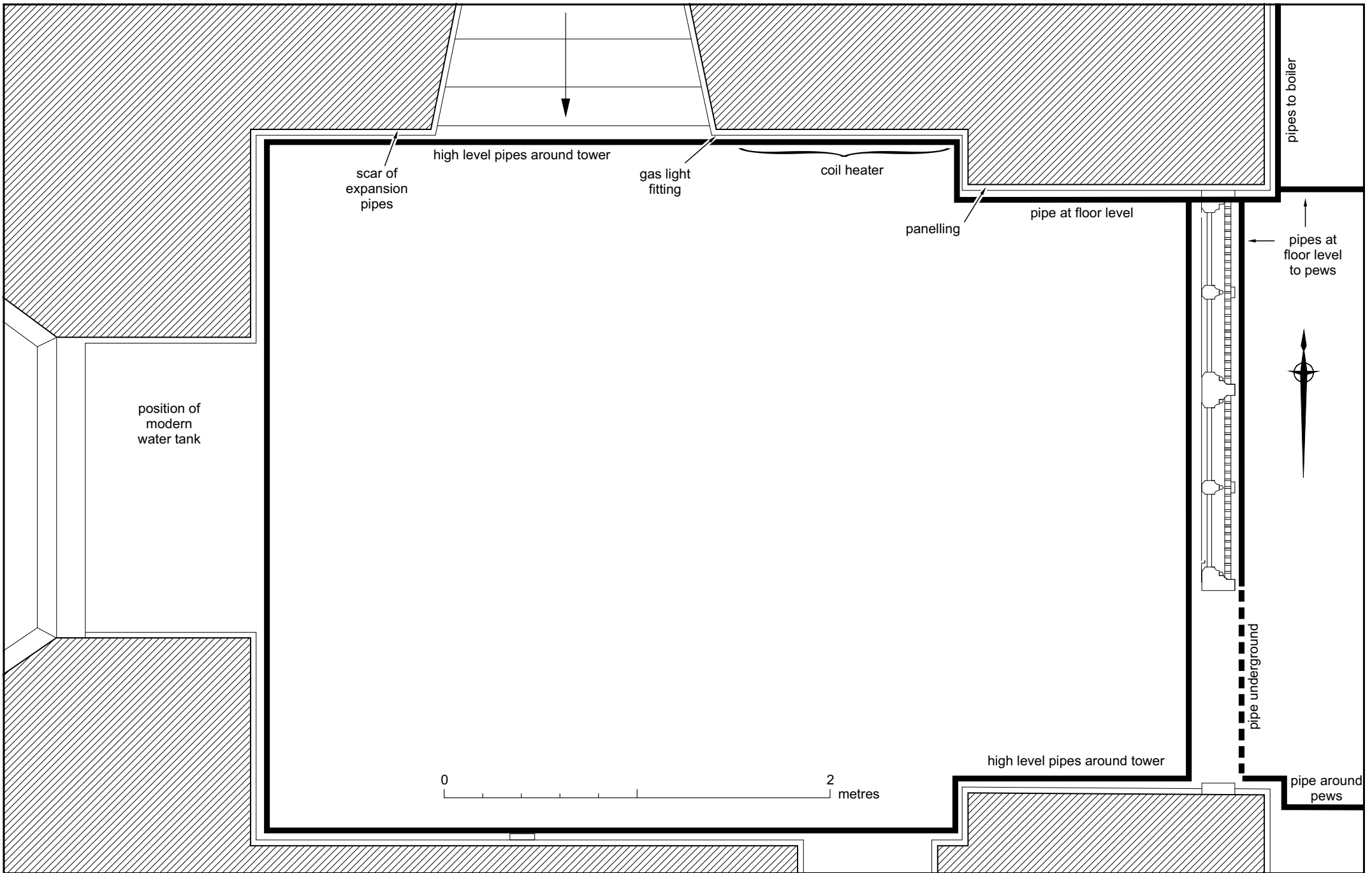


Fig. 2 Plan of the tower showing location of heating pipes (based on a plan of the arrangement as proposed, supplied by Jonathan Rhind Architects).

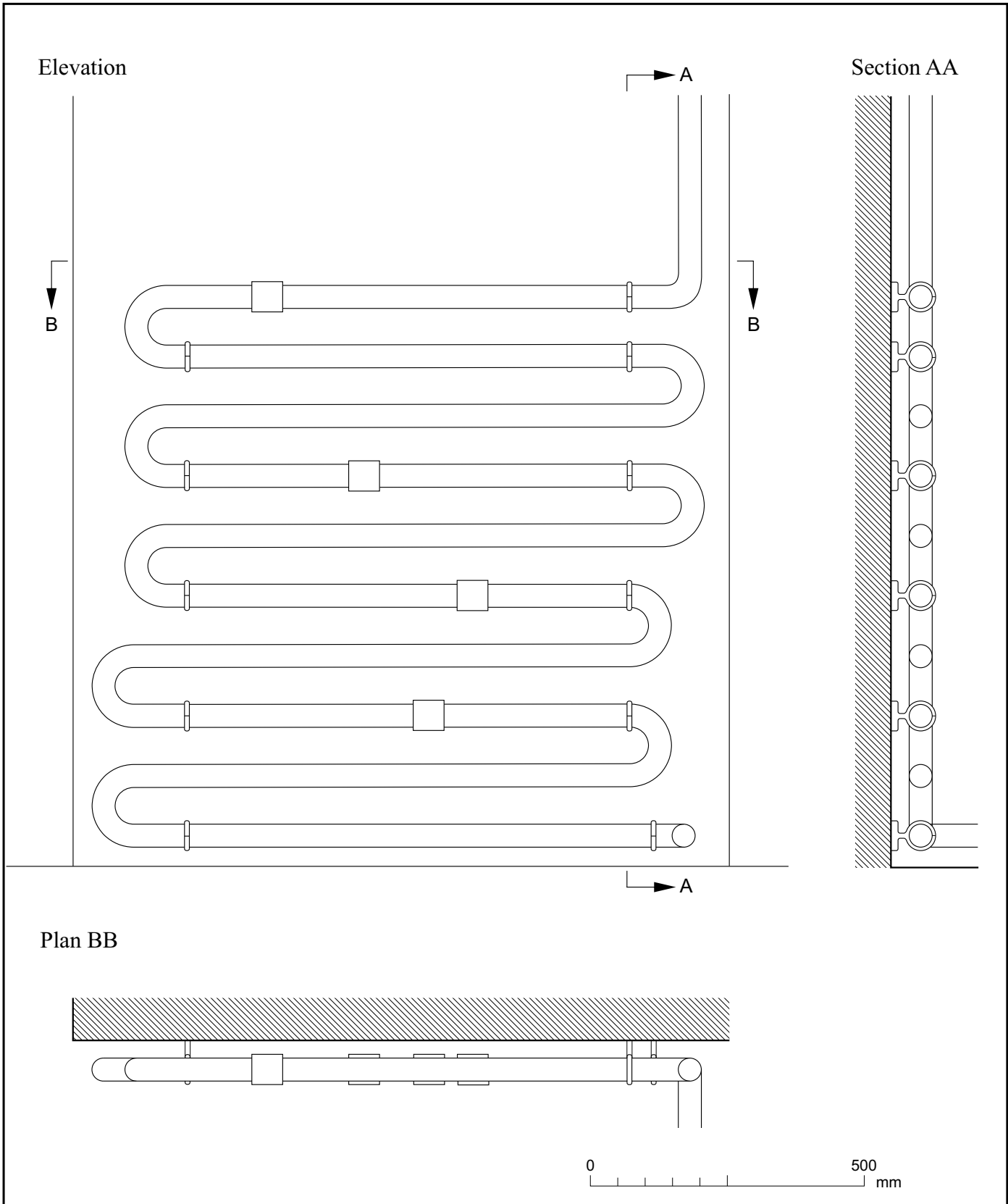


Fig. 3 Plan, section and elevation of the coil heater in the tower.

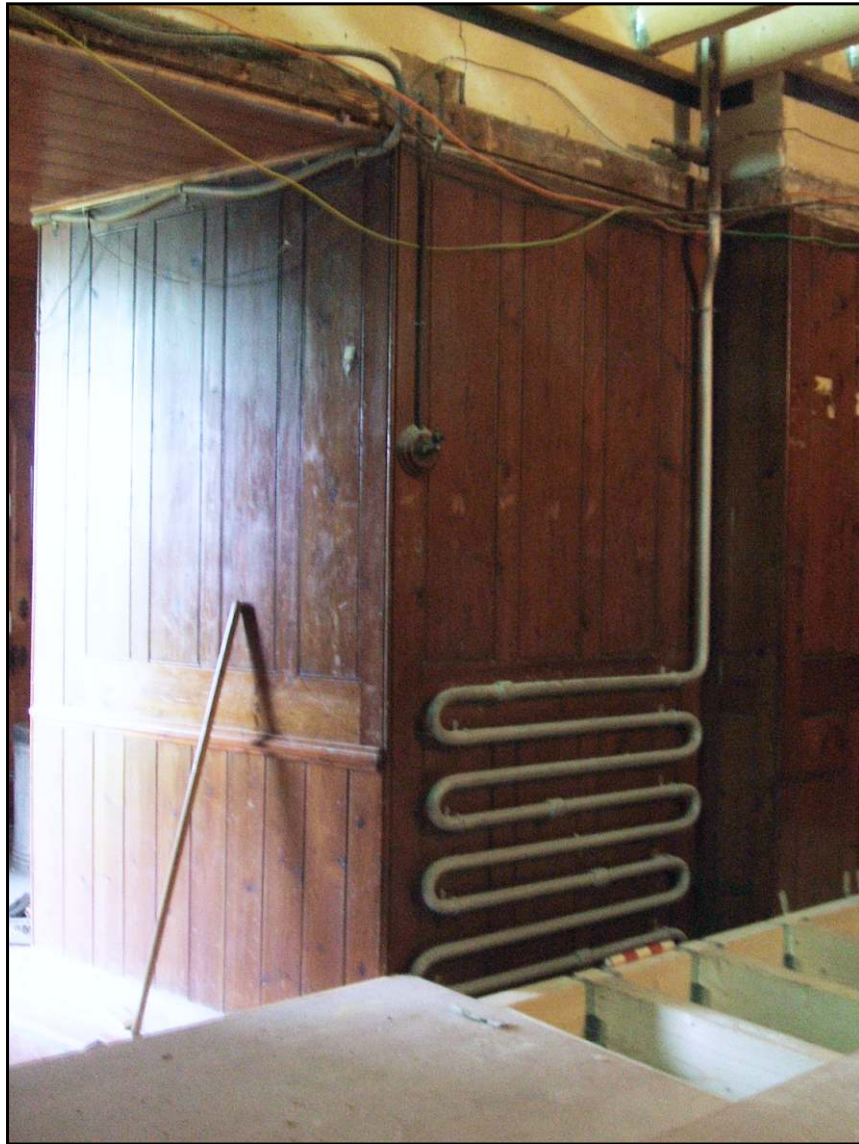


Plate 1 The coil heater in the tower, looking north-east. 0.25m scale.



Plate 2 The coil heater in the tower: close-up view of a pipe joint socket, looking north-east.