

**WILTON HOUSE, WILTON,
SALISBURY, WILTSHIRE SP2 0BJ**

REPLACEMENT OF HEATING PIPEWORK

Design & Access Statement

1. Introduction

Following investigation into the repair/improvement of the heating system at Wilton House, it is proposed to replace the existing pipework for the following reasons:

- Underground steel pipes installed in the 1960s are showing signs of corrosion and the system has suffered several leaks in recent years.
- There is very poor control and no zoning on the system. Consequently, to provide sufficient heat in the occupied areas, the heating must also run in the unoccupied “conservation” areas, and these are over-heated.
- The boilers have reached the end of their economic life and will be replaced.
- High running costs.

2. Description of Existing System & Design of the Proposed System

The heating system is provided with heat by two Hoval ST natural gas boilers dating from 1989 and 1981. The boilers and balance of plant are located in a basement boiler room on the north west corner of the house. These boilers are being replaced as they are at the end of their serviceable life (not forming part of this application).

Two principal variable temperature single pipe pumped heating circuits leave the boiler room. Both form “ring” circuits consisting of 4” steel pipes running under the floors of the basement level with short legs off to supply radiators at this level. These pipes have suffered several underground leaks in recent years. Supply to radiators on the upper floors is by upper local risers off the ring.

With only a few exceptions, mostly in the flat, the radiators are of traditional cast iron pattern in a wide variety of styles. There are no zones on the circuits and very few of the radiators are fitted with thermostatic radiator valves (TRVs) or local thermostats. Consequently, there is poor control of the heating system. A single programmable room stat in the Pantry provides the only control.

Domestic hot water is circulated around the house in a secondary loop, also enabled 24/7.

A detailed report has highlighted the state of repair of the current pipework and the need for improved heating performance and temperature control.

The underground distribution pipe requires replacement. The possibility of replacing it with an above ground pipe has been considered, but the pipe routes necessary to

connect all the radiators would be visually intrusive and require many wall penetrations. The most feasible route is to run a ring main circuit in the cloister roof space, but many pipe drops down through the cloisters would be needed and even once at the ground or basement floor levels pipes would be needed to each radiator.

Introducing standalone regulating valves such as TRVs to the existing (or a new) one pipe system is unlikely to work satisfactorily as they introduce hydraulic resistance that interrupts the flow in a one pipe circuit, effectively starving the radiators of heat.

The alternative to replacement of the one pipe system is to convert to a two-pipe arrangement. With this arrangement every radiator should be able to achieve the full circuit temperature and there will be sufficient pressure available to allow TRVs and other standalone valves to operate successfully.

A scheme to convert to a two-pipe system is proposed in preference to a simple replacement of the existing underground single pipe. About half the radiators are connected directly to the main underground circuits by short legs of underground pipe. Even with simple replacement of the single pipe it would be desirable to replace these legs as the steel pipe is the same age as the main pipe which is known to be failing.

Where there are single radiators on one floor above the other, such as the lower and upper cloisters, it is proposed to use the existing pipes as pipe sleeves for a two-pipe circuit to the radiator above, thus no additional holes in the fabric are needed. Many of the remaining radiators are in groups which will make alteration of the pipe work relatively easier and confine the bulk of the work to limited areas.

An important factor that requires further investigation regarding a two-pipe system is the available space in underground trenches or ducts. At present these carry only a single 4" steel pipe with an unknown thickness of lagging. To reduce the space required within the trench for the two pipes, the loop is being split into two independent circuits (i.e. the link at the end of the existing loop is being removed). This splits the required flow rate in each circuit by half and reduces the required size of pipes needing to be put back into the trench. This is to be assessed against the size of the existing underground trench, one the old pipes have been removed.

3. Proposed Works

Phase 1 – replacement of the existing two gas fired boilers – to be undertaken in autumn 2025 but not involving any building works.

Phase 2 – to start spring 2026. Work to involve lifting up of slabs and floorboards within the lower cloisters and floorboards on the upper floors. Opening up of pipe risers where embedded in walls and replacing.

Pipework will follow existing routes and reuse existing holes and notches (see attached plans of existing pipework network).

Any building work required for new routes will be kept to a minimum.

It is proposed to undertake early opening up of the pipe routes to investigate and identify any building works and required asbestos treatment.

Existing fittings and finishes are to be retained. It is proposed to retain any existing radiators of historical significance and to have these refurbished and control valves installed. A survey of individual radiators and their merit has been undertaken and suitable control valves identified. Any existing radiators that fail refurbishment will be replaced with a new cast iron radiator of similar appearance.

4. Access

Following completion of the works there will be no access considerations.