

University of Manchester
Samuel Alexander Building, Oxford Road,
M13 9PL – Sump pump enclosure

Design and Access Statement Supporting an
application for Planning Consent

Ref: PN8232.01

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1. Introduction

The purpose of this document is to:

- Introduce the Samuel Alexander Quadrangle steam duct maintenance works project
- Identity why the pump enclosure is consistent within the setting and its immediate surroundings
- Justify the scale and design of the proposed pump enclosure.

The Design and Access Statement should be read in conjunction with the Heritage Statement document ref nr PN8232.02.

2. Project Details

The property, known as Samuel Alexander Building, is located on both Lime Grove and Oxford Road. Lime Grove is the statutory address 1 given by Historic England and Oxford Road is the statutory address 2. The building is a grade II listed building and also possesses a group value for its functional relationship with the other listed university buildings on the west side of Oxford Road forming part of the campus.

3. Design Statement

1.1 Introduction

The steam services and pump being replaced in this project are located in a section of underground duct tunnel within the Samuel Alexander building quadrangle. This is a maintenance project to replace the defective pipework and submersible pump within a confined space. The confined space is the steam duct tunnel under a section of the Samuel Alexander quadrangle.

Due to excessive and continuous water levels within the duct tunnel due to a defective pump, the pipework associated with the steam line has corroded and has collapsed. The purpose of this project is to replace this collapsed pipework as well as install new pumps. As the duct tunnel is a confined space (crawling height) it has been determined by the health and safety team due to asbestos implications, confined space conditions and lack of fire escape, the pumps should not be installed within the duct. This project will therefore revert back to housing non-submersible pumps above ground to negate the need for maintenance staff to enter the duct tunnel. Historically there was an above ground pump contained within an enclosure, due to reasons unknown to us, the above ground pump was replaced many years ago with a submersible pump.

The collapsed pipes within the steam duct tunnel are detrimental to the steam services which provide heating to the west side of campus. The steam duct tunnel is reliant on a sump pump to pump water out of the duct tunnel, due to pump failure, this has flooded the duct causing water to build up and trigger corrosion and ongoing degradation to the steam and condensate pipework causing it to collapse. Without this urgent repair work, the university buildings on this side of campus could be at risk of no heating. Therefore, the replacement pumps and condensate pipework are fundamental to the operation of the buildings.

Maintaining the pump has proven difficult due to the duct tunnel being a confined space. This poses health and safety concerns for the operatives who undertake cyclical maintenance work on the pump.

1.2 Proposals and technical note

The proposed works within the Samuel Alexander building quadrangle area are focussed within the duct tunnel situated below ground to one section of the external quadrangle area and the installation of a new pump chamber above ground directly above the sump (sump is contained in the duct tunnel). The works comprise of the following:

- Removal of existing insulation to the steam and condensate pipework contained below ground in the duct tunnel and reinsulate with new (note: asbestos containing materials are present in the duct and as part of this project asbestos abatement works are being undertaken to clean the duct)
- Removal of damaged condensate pipework and replacement with new pipework, including new bracketry
- Provision of 2No. non-submersible sump pumps (Duty/ Standby) located above ground within weatherproof housing with suction pipework removing confined space working for maintenance operatives.
- The weatherproof housing noted above measures 1650 mm wide x 1650 mm deep x 900 mm high which will be housed above the sump in the locality of the previously known pump enclosure.

1.2.1 Alternative options

The project originally looked at replacing the submersible pump with 2 new submersible pumps which would be located within the sump in the duct tunnel. However, through rigorous risk assessments during the Construction Design and Management processes undertaken by a specialist team of advisors, it was determined the risks to operatives influenced the design to locate the pumps above ground. The risk assessments were largely due to risk of crush from collapsed walls, unsuitable confined space working conditions (note: that these are crawling height), asbestos inhalation from legacy asbestos containing materials degrading at a faster rate as they are exposed to a damp environment, stagnant water and associated diseases from rodents etc and inadequate means of escape in the event of a fire or needing to evacuate whilst the operatives are in the duct tunnel carrying out maintenance to the pumps.

The design team also appraised alternative locations to locate the pumps in existing plant areas within the building. Unfortunately, the only two plant areas/back of house areas within the vicinity were unsuitable. The first location (identified as B in Drawing nr: 03_Alternative Locations) was deemed unsuitable due to the distance to the sump making the suction pipework inefficient and ineffective. The second location (identified as C in Drawing nr: 03_Alternative Locations) was in a light well adjacent the duct tunnel. Technical advice from the mechanical engineer reported that it was not possible to provide the necessary connections into the sump below ground via 2 x 50mm diameter pipes due to distance again, unable to route through due to complexities with damaging floor slab reinforcement, undermining existing foundations to the 1970's extension and undermining

existing highly congested services located below the paved area where the pipes would have to route through to reach the sump (between the building and the sump/duct tunnel).

1.3 Siting

The proposed location is dictated by the location of the sump. The sump is located within the duct tunnel located below a section of the quadrangle pavement. The duct tunnel floods and requires water to be pumped out to maintain the integrity of the steam services and prevent them degrading via corrosion. Suction pipework from the pumps will be routed to the sump itself to enable the pumps to pump water out of the duct tunnel. As noted in the technical note in section 1.2, this decision is driven by technical and health and safety reasons.

This project reverts back to housing non-submersible pumps above ground to negate the need for maintenance staff to enter the duct tunnel. Historically there was an above ground pump contained within an enclosure, due to reasons unknown to us, the above ground pump was replaced many years ago with a submersible pump. The siting of the new pump enclosure is in close proximity to the original pump enclosure which is in keeping with what was there before.

The proposed siting has the least impact to the setting and its immediate surroundings as it is surrounded by the modern extensions that are not of special interest according to Historic England. The modern extensions were later added in the 1950's and 1970's. The 1950's west extension is not of special interest. The two c.1970 ranges which run eastwards from the west extension and are linked on the east side by a covered corridor are also not of special interest. The modern extensions are what have formed and surround the quadrangle which is not of special interest. See Figure 1 for an annotated site plan which captures the original Grade II Listed Building shown in green, the 1950's modern extension (not of special interest) shown in orange, the 1970's modern extension wings (not of special interest) shown in purple, the quadrangle shown in blue, and the location of the proposed pump enclosure shown in red.



Figure 1: Site plan showing parts of the building with heritage value and those which are 'not of special interest'.

The original part of the building possessing the heritage value, a major commission for Percy Scott Worthington, was built in 1911-19. There are no views in the backdrop to the Percy Scott Worthington building from the proposed location of the pump enclosure.

The proposal appears to have a neutral effect on the heritage of the premises.

1.4 Scale

The new weatherproof pump housing has been deliberately kept as small as possible in order to keep its presence on the setting as least intrusive as possible. The enclosure will measure 1650 mm wide x 1650 mm deep x 900 mm high which is minimal in nature in comparison to the surrounding buildings which measure at a height of 20 metres and a length of 53 metres on one side only. The impact is therefore neutral.

1.5 External Treatment

Samuel Alexander building is designated at Grade II due to its architectural interest in the quality of its harmonious neo-classical design, its logical and spacious layout, its craftsmanship specifically of the imposing full-height entrance hall with giant Ionic columns and coffered barrel roof, decorative quality via use of high-quality materials and craftsmanship particularly of the main entrance portico and principal interior spaces. It also possesses a group value for its functional relationship with the other listed university buildings on the west side of Oxford Road forming part of the campus.

There is no direct impact to the Worthington section of heritage value.

1.5.1 Building materials

The pump enclosure is a GRP housing. It has a tough weather resistant polyester gel coat outer, reinforced with a laminate incorporating an encapsulated polyurethane foam core to provide insulation. It will be powder coated in off-white RAL colour 9016. The colour shown below is not the colour proposed. The photo below shows the enclosure in grey.



The choice in materials have been carefully selected in order to be neutral in the setting. There are existing off white aluminium windows and doors and off white cladding panels to the aluminium windows to the existing adjacent modern extensions. The enclosure has been matched to these in order to blend in rather than draw ones eye to it. The chosen colour for the pump enclosure is off white RAL 9016 or similar to match the existing concrete planters and infill panels to windows on adjacent elevations in order to match existing finishes in the immediate setting.

The off-white planters can be seen when looking from the link corridor and these are shaped similar to the pump enclosure which will also help to blend in with its surroundings.

Furthermore the portico stone to the original entrance is an off white colour which is another way neutralising the impact to the heritage features of the original Samuel Alexander Building.

1.6 Landscaping

The existing landscaped areas shall not be affected or modified and shall remain in their original condition. Any storage of materials on existing hard and soft landscaping will be adequately protected and made good on completion of the works.

1.7 Noise impact assessment

A noise impact assessment has been undertaken by an acoustician to determine the potential for noise impact associated with the proposed pump enclosure at the Samuel Alexander building quadrangle. See document reference nr 19939-HYD-XX-XX-Y-TN-1001 for full assessment.

Noise impacts have been considered at the nearest sensitive areas at the existing University building with reference to internal ambient noise level criteria in BB93. The assessment shows that noise levels are predicted to be significantly below the recommended criteria in BB93 within nearby teaching rooms and offices. Furthermore, predicted noise levels are below health-based values provided by WHO as indicators for the onset of adverse health impacts. Therefore, noise from the proposed pump enclosure is considered to have a negligible impact, and no additional mitigation is required. Access Statement

Existing access routes will be unaffected by the proposed maintenance works. Access to the pump maintenance chamber/cupboard will be via the existing paved area. Double doors and an openable roof top door will allow maintenance operatives to safely access the non-submersible pumps to undertake cyclical maintenance. During the works, care will be taken to protect all existing structures both on/adjacent to the building.

1.8 Approach Route

The existing approach to the building and existing accessible entrances shall remain unaffected and remain in use throughout the installation and after completion.

2 Summary

The modern extensions are what have formed and surround the quadrangle which is not considered of special interest. The pump enclosure would be located within this quadrangle area.

There is no direct impact to the listed section of the building or the modern extensions. There are no views in the backdrop to the Percy Scott Worthington building from the pump enclosure.

The backdrop is formed by the modern extensions which the enclosure has been matched appropriately to by the choice in material and an off white colour to match in with the existing windows, doors, cladding and planters.

It is therefore considered to have a neutral effect on the heritage values of this historic building and its setting and immediate surroundings.