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Dotan Carmel

request-481152-ac40898b@whatdotheyknow.com

15 June 2018

Dear Mr Carmel,

Re: Your request for information: 921685

Thank you for your request for information that was received on 28 April 2018. I apologise for the delay in responding.

I can confirm that this request has been dealt with under the Freedom of Information Act 2000.

Your Questions:

1. Please provide a copy of all documents you have in relation to the design of the boiler house & the new water distribution systems. Any consultation papers, drawings, recommendations you may have received from a third -party, water-hardness testing if taken etc.

In short, please may I have a copy of all supporting documents you have that have led you to choose this specific design of boiler & distributions of hot and cold water through.

2. Could you please highlight the benefits of such system over the one it replaced. If you have any financial projections that were taken at the time, or as such, it would be most helpful.

Our Response:

1. Please see the attached documents.

Personal data relating to junior officers and other third party individuals has been withheld pursuant to section 40 of the Freedom of Information Act. Section 40 is an absolute exemption and doesn't require consideration of the public interest test.

2. The Council held no recorded data relating to this question at the time of your request.

Please note that since your request our consultants have advised us on these benefits, please see below.

- Original system had only one hot water generator with no standby facility.
- We have installed two units, one acting as a back-up should the other fail.
- Original system was gas fired and directly fired.
- We have installed an indirectly fired hot water system that is supplied by the gas boiler, thus during the winter months, the gas consumption will be significantly reduced as the hot water is indirectly fired by the heating gas boilers, negating the requirement of separate systems being on at once. This also provides back up.
- The existing hot water generator stored a large quantity of hot water, it would have been severely scaled up around the perimeter and hence uses significantly more energy to generate each litre of hot water.
- Systems with stored water has a significant amount of standing heat loss
- Part L of the building regulations require that new installation are designed and installed to minimise heat losses.

This letter acts as a refusal notice pursuant to section 17 of the Freedom of Information Act for the information which we are saying is exempt.

If you are unhappy with the service you have received in relation to your request and wish to make an appeal for a review of our decision, you should write to the Corporate Freedom of Information Officer at accessinfo@southwark.gov.uk

If you are not content with the outcome your appeal, you may apply directly to the Information Commissioner for a decision. Generally, the Information Commissioner cannot make a decision unless you have first exhausted our internal appeal procedure and you should contact him within 2 months of the outcome of your internal appeal.

Information Commissioner at www.ico.org.uk

Yours sincerely,

Elizabeth Murray
Information Officer (Housing and Modernisation)

**Feasibility Report For Borough wide
Boiler House refurbishments 2014/2015:**

Connant House
Heron House
Helen Gladstone House
Albert Wescott House
Stanwood Gardens
King Charles Court
Lew Evans House

For and on behalf of:

**Southwark Council, 160 Tooley Street,
SE1 2QH**

| | |
|-------------|-------------------------------------|
| Date | 24th January 2014 |
| Ref | K140023/001/KA/G06 Rev A |

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1. INTRODUCTION

Calfordseaden LLP were appointed by Southwark Council to carry out a feasibility study to assess the state of the existing heating and infrastructure services provision within selected boiler houses serving blocks of flats and sheltered housing accommodation within the Council's catchment area. This is to form part of the Councils Borough Wide Boiler House Refurbishment 2014/2015 scheme under the "Warm dry, Safe", programme.

It is intended to provide a general overview of the existing boiler house provisions which are mainly heating, hot & cold water together with their controls, to establish its present operational status, estimate its projected life expectancy, make proposals and recommendations, outline a programme for the implementation of the programme, together with budget cost for the entire work.

A survey of the existing boiler house installations was carried out over two days on the 16th & 17th of January 2014 with Southwark's [REDACTED], to establish the nature of the existing boiler house services, and availability of space and infrastructure to accommodate whatever solution is deemed necessary to satisfy the client's requirements.

The sites comprised of:

- (1) Connant House
- (2) Heron House
- (3) Helen Gladstone House
- (4) Albert Wescott House
- (5) Stanwood Gardens
- (6) King Charles Court
- (7) Lew Evans House

Please note the following in relation to our report:

1. Unless otherwise noted above, we have not included for any testing of the installations or dismantling of equipment to assess the condition of enclosed parts.
2. We have based our assessments on information provided to us by the council and the installations that are present and accessible to us at the time of survey. Where access to plant rooms, risers etc are not available then this will be noted within our report.
3. Calculations for the capacity or rating of installations and systems are completed on a "rule of thumb" basis.
4. Any budget costing information provided will be based on current day costs utilising the information available at the time of survey.

SECTION 2.1

Description of Building and Services- CONANT HOUSE



2.1 DESCRIPTION OF BUILDINGS AND SERVICES – CONANT HOUSE

2.1.1 General

Conant House is a complex of two blocks of flats on St Agnes Place in the Kennington area of Southwark, London. The complex consists of a 7 storey tower block with 56 deck access flats and a 5 storey block with 28 deck access flats. The blocks were constructed in the late 1940s as one of the first social housing projects to be built in the area following World War II.

The 2 blocks are currently heated by a centralised heating system configured with 3 number forced draught gas fired boiler/burner arrangement all connected in line. The boiler house is located at the basement of the 5 storey block with the feed+expansion & cold water storage tank located at the top of the 7 storey.

The gas supply comes into the boiler house from a stand-alone gas meter housing which is at ground level about 7metres away from the boundaries of the 5 storey.

Hot water is provided centrally by a shell and tube bulk storage water heater fed directly by 2 number forced draught gas fired burners

The cold water storage tank supplies cold water down service to the water heater and all the dwellings within the 2 blocks.

2.1.2 Incoming Services

The heating boilers and the water heater are fed by a single line gas main supplied into the boiler house from the gas intake housing at ground level approximately 7 metres away from the boundaries of the 5 storey. The same supply is also distributed to supply gas to the entire dwellings within the two blocks.

2.1.3 Heating

Heating system is comprised of 3No. strebel E300 boilers each with a nominal heating output of 290.1kW, and each coupled onto an Ecoflam burner with 70kw min & 350kw maximum heating output. These are configured in series to supply compensated LTHW to all the dwellings for the purpose of space heating only. The boilers and the gas burners are in a good working condition and seem to have been installed not long ago. This will not require replacing within the scheme.



Boilers

2.1.4 Hot & Cold Water Services

Hot water is supplied by a bulk storage water heater (as supplied by Beaumont (UK) water heaters, 1,000,000BTU's output and 1,278, 000 input BTU's, Model No.: 4-100-MK11, Serial no. 8410542) coupled onto 2No. Nu-way direct gas fired burners. The arrangement provides hot water to the entire dwellings within the 2 blocks and is fed by the cold water storage tank (CWST) situated at the top of the 7 storey block which also provides cold water down service to all dwellings. It is assumed that, the hot water distribution also uses the CWST for venting. Access could not be provided to the housing of the CWST at the time of the survey.



Beaumont bulk storage water heater

The unit is estimated to have been in operation for over 20 years and is in a very bad state. The lagging to the unit are loosened up and coming off, the controls for the unit seem obsolete so as the other ancillary parts/units aiding the operation of the water heater. The steel housing/shell based on local evidence is expected to be rusty and corroded. The water heater can be classed as an inefficient, end of life unit which will require urgent replacement

2.1.5 Distribution Pipework & Pumps

The heating distribution is configured such that LTHW from the individual boilers is circulated / supplied with the aid of dedicated shunt pumps into a common header. From the common header, the LTHW is distributed into two zones (one zone per block) by the use of belt driven pumps (2 on each circuit – duty & standby). The supply on each zone is compensated by the use of self-actuated mixing valves with input from the LTHW return leg.

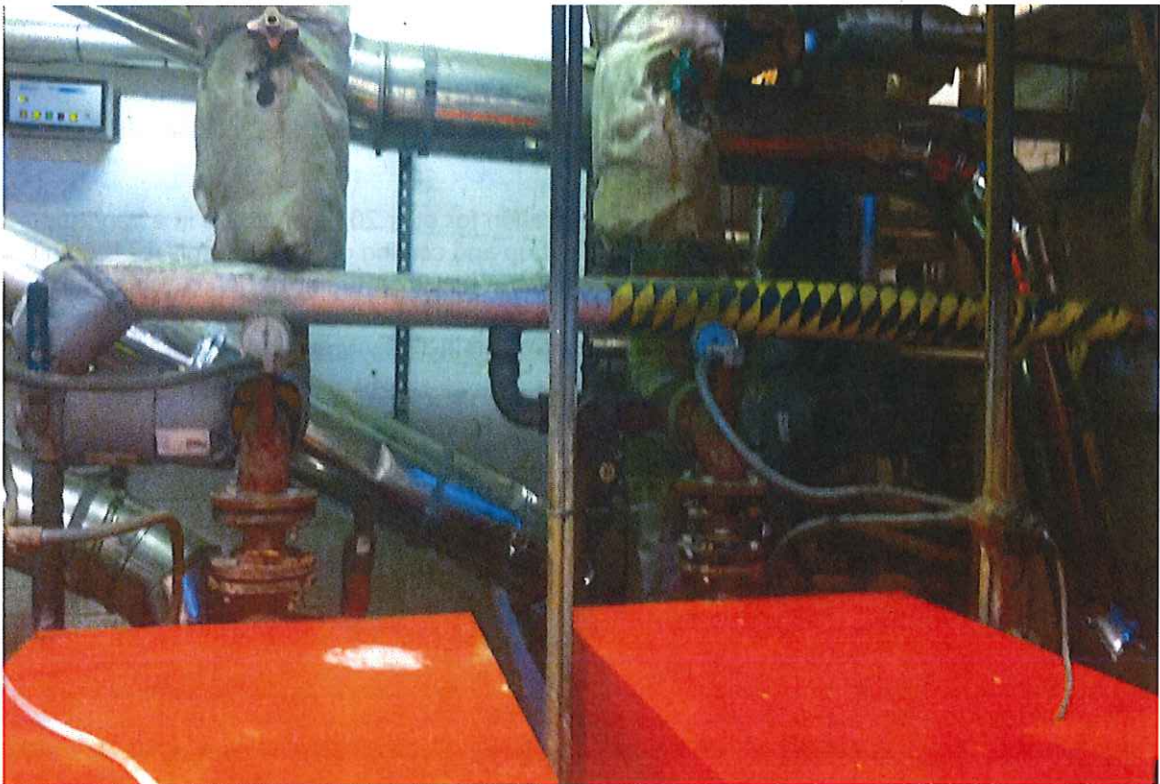
Hot water is circulated round the entire dwellings with the use HWS flow and return pipework aided by the water head from the CWST and by thermohaline circulation

Generally, the entire pipework & valves within the boiler house, apart from sections that have been replaced due the replacement of failed items such as pumps and valves will require replacement due to its age and condition. There is overwhelming evidence of corrosion; rusting, & leakage, and the age of the pipework together with valves, make it susceptible to failure.

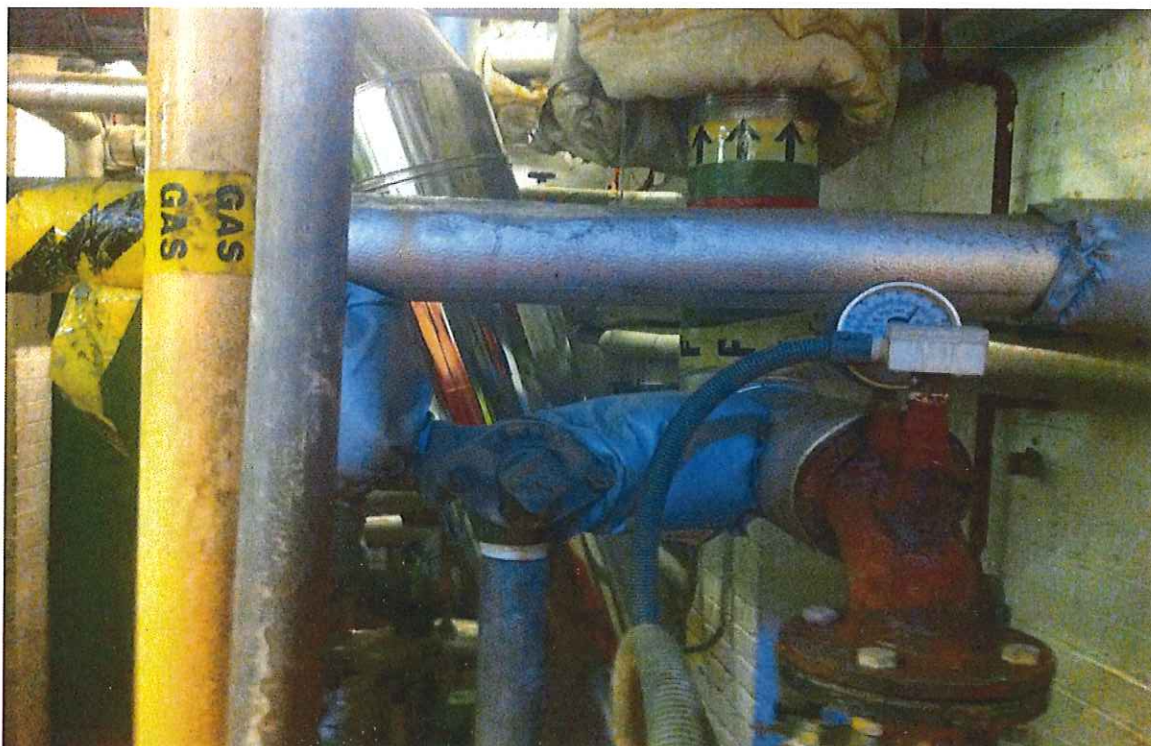
The state of the Heating system's feed and expansion tank and the CWST could not be assessed due to not having access to the tank room at the top of the 7 storey block. It is assumed that the Beaumont bulk hot water storage unit, vent into the cold water storage tank.

The hot water configuration is such that, the cold water down service is connected to the hot water flow. This raises some concern about the ability of the unit to deliver hot water at the required temperatures as well as the set-up's ability to control the legionella bacteria.

There was no sighting of a hot water circulatory pump, though there was the provision of HWS flow and return pipework. It is assumed that the HWS circulatory configuration run on gravity aided by the head on the tank & by thermohaline circulation

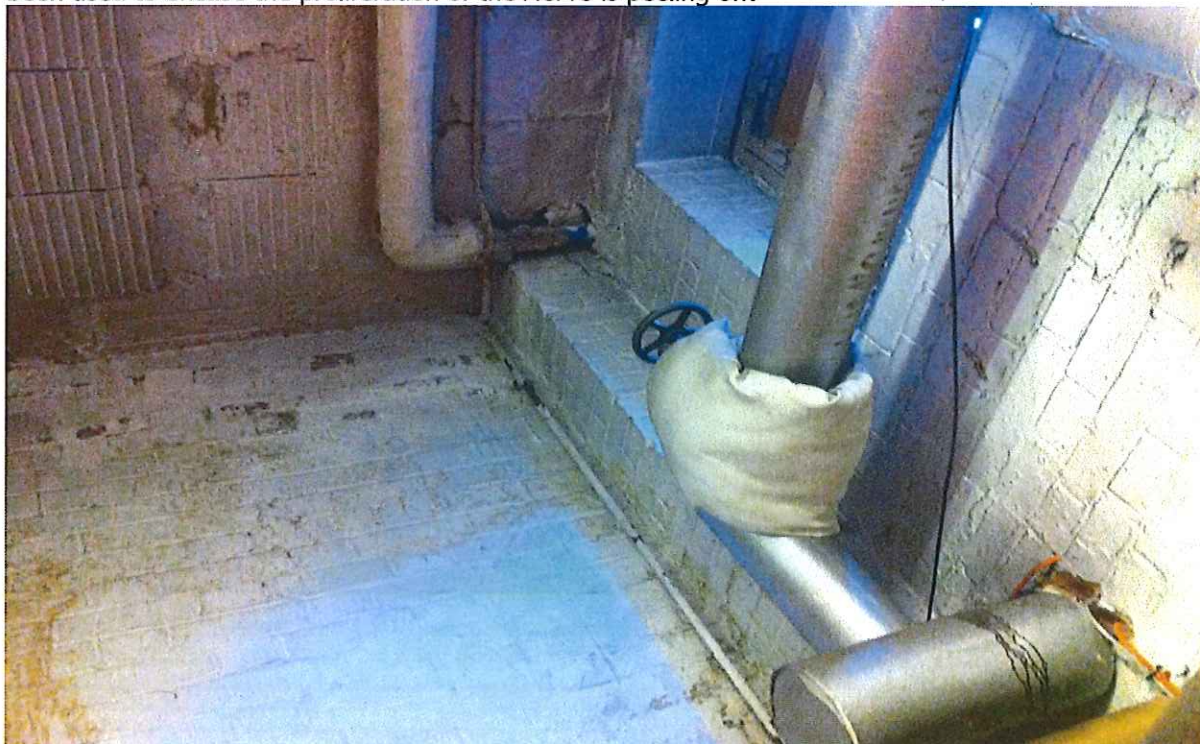


Distribution pipework

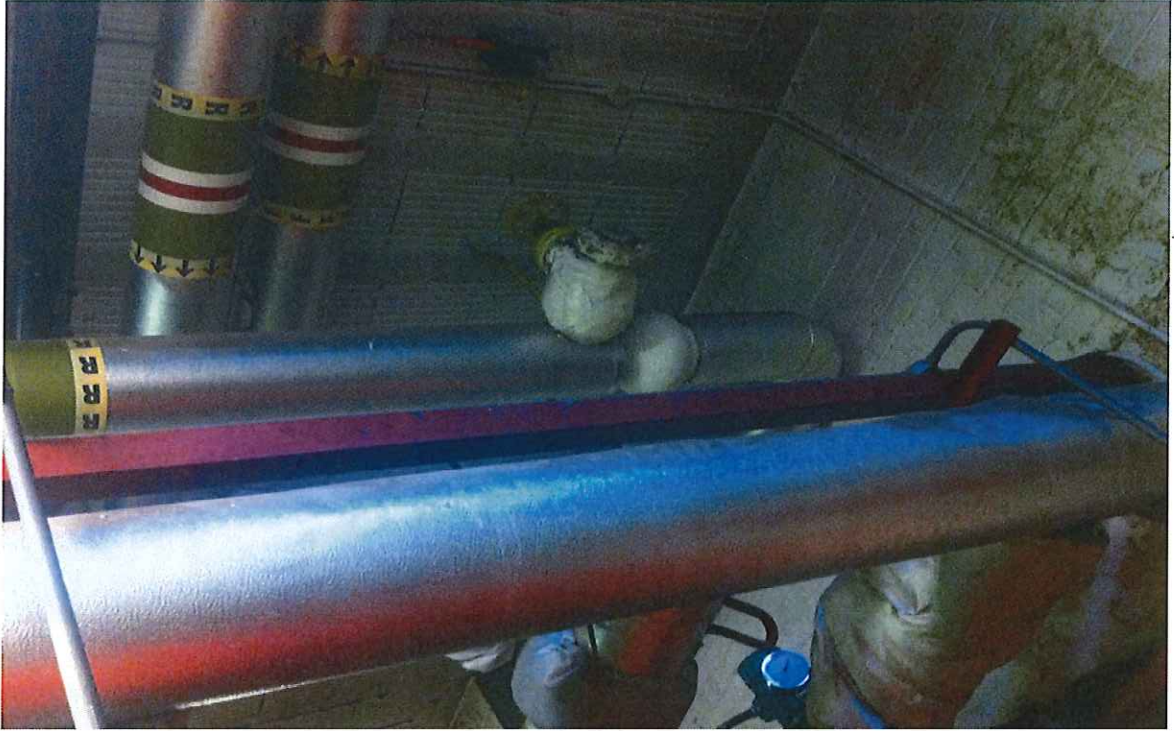


Distribution pipework

The lagging of the pipework in many parts, are of material suspected to be asbestos. The slabs that form part of the floor above the boiler house are also suspected to have been incorporated with asbestos containing materials (ACM'S). The paint which to have been used to encase the proliferation of the ACM's is peeling off.

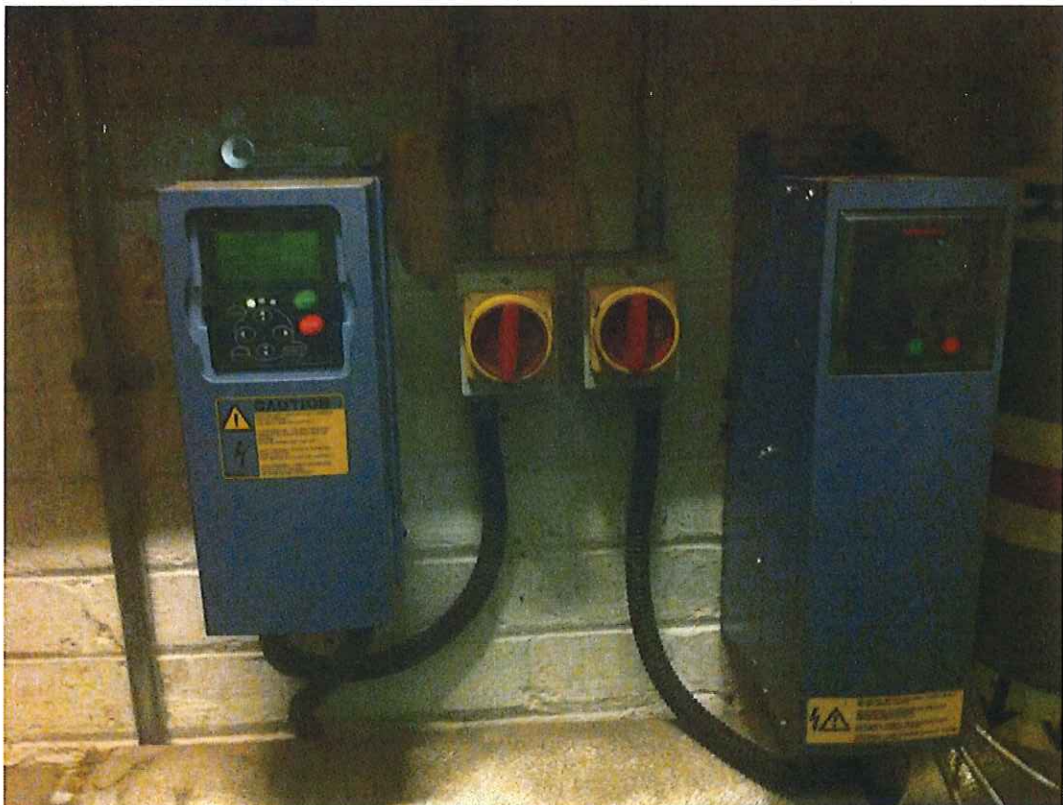






There are two belt-driven 'Pullen' pumps on each block's heating zone (Duty and Standby), for each of which an inverter (1 inverter per pump pair) has been installed. This is an unusual set-up and defeats the effect of the inverter on the operation of the pump. The entire pump set will require replacing due to its age condition and efficiency.





One of the self-actuating units and the valves on one of the blocks' heating distribution pipework has been replaced and there are signs of operational shortfalls on the other, which will require urgent attention to ensure optimum operation.



The boilers shunt pumps (3 No.) situated at high level on steel beam shows a lot of signs of leakage and corrosion, though they seem to have been replaced since the original installation. The lagging around the pipework within close proximity to the shunt pumps is in a bad state and will require immediate attention.



2.1.6 Controls

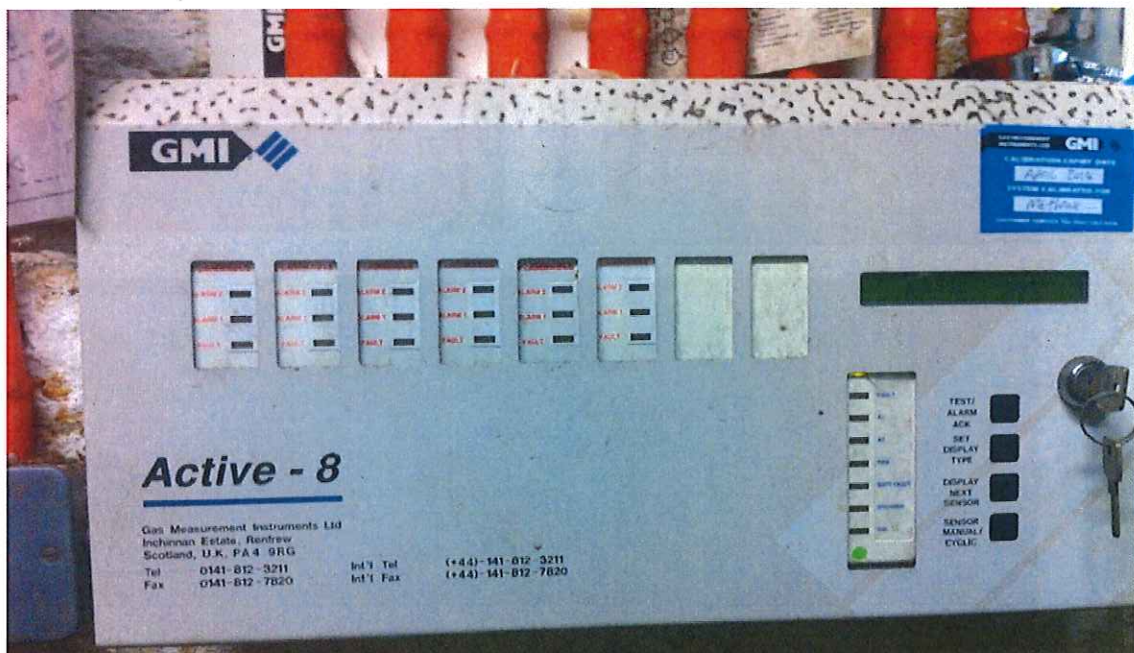
The 2 heating zones together with their controls are administered by Thorn's JEL UC800 controller and a main indicator control panel with operational / power supply indicators together with selector switches.

The controls would require replacing due to its age and condition. There were indicated faults displayed on the panel at the time of the site visit and could have been as result of a fault(s) on any of the control chain. This was a very common observation within all the boiler houses that were surveyed with this typical controller installed. There were also a few dead indicator panel lights as seen on the photograph.



2.1.7 Safety

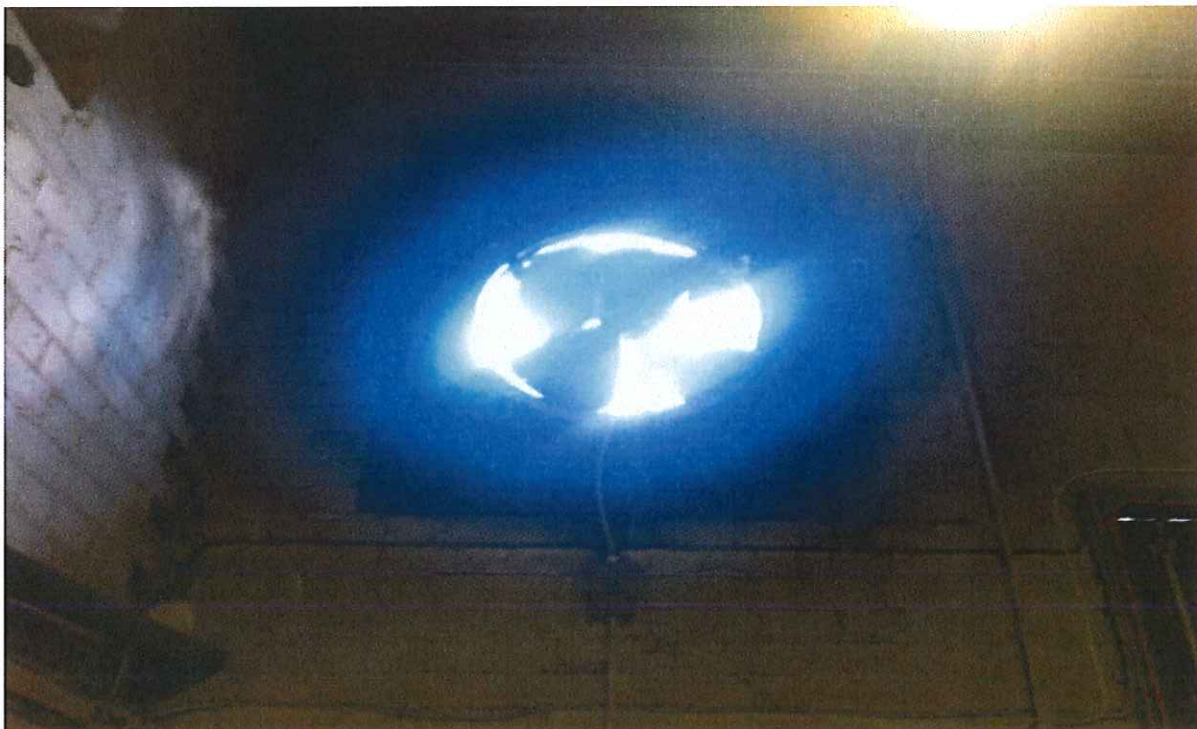
Gas safety within the boiler house is governed by a wall mounted emergency gas push button and a solenoid valve on the incoming mains. There is also installed, a GMI Active - 8 gas monitoring/measuring device which shuts off gas supply to the boiler house at the detection of gas escape. Fuse-able thermal links are also in place above the boilers. The operational status of these could not be verified. It will be recommended for renewal together with any associated works to be undertaken within the boiler house.



The fabric of the flue does not appear to be in a bad state, but all the seals (aluminium joining ring straps and aluminium foil faced sealants) are in a very bad state and require urgent replacement. The flue ducts have been connected to the boilers with cement sealant all of which appears cracked with parts fallen off, creating a potential avenue for the escape of products of combustion.



The boiler house ventilation has not been fully assessed at this stage, but there were some very concerning observations made about ventilation provisions which were; (a) the boarding up of ventilation grilles and (b) the non-operation of the fresh air intake fan which does not seem to be interlocked with the operation the gas fired units within the boiler house. At the time of the survey, the fan was not operational yet all the gas fired units were firing up.



SECTION 3.1:
Proposals

3.1 PROPOSALS

3.1.1 Incoming Services

The capacity of the incoming gas supply is adequate for the loading it is serving. The electrical feed to the intake panel is also adequate but will be recommended for renewal due to its age.

3.1.2 Heating

The boilers and the burners are in good condition and will not require replacement. In their present condition the boilers together with the burners should be capable of delivering at least 5 years of service under good maintenance regime. The individual flue ductwork serving the boilers should be renewed, re-installed/repared to correct the defects that are visible on all the joints /connecting sections of the flue duct.

3.1.3 Hot & cold Water Services

The supply of cold water services outside of the boiler house was not under the commission of this survey and therefore no proposals will be considered.

The generation of hot water is by direct gas fired units. As the unit assembly is at end of its life, it is proposed that:

- (a) A new direct gas fired, high efficient (possibly condensing) water heaters, at least 2 number, be installed to replace the existing unit.
This will not only guarantee the reliability of supply, but also provide an avenue for cost/energy savings due to high efficiencies. The existing unit is only 78% efficient compared to present units that offer 98-100% efficiencies.
The flue duct will be renewed as part of the installation.
- (b) A second option will be to install new indirect calorifiers to be fed from the existing LTHW circuit. A detail assessment shall be required to establish the spare capacity on the boilers to allow for additional loading. At present, initial assessment of the capacity of the boilers indicates there shall be enough capacity to facilitate this arrangement.

3.1.4 Distribution pipework and pumps

It will be necessary for the entire pipework and pumps, together with all associated distribution ancillary units be stripped out and replaced with new. This work should be carried out in conjunction with the removal of all remnant asbestos containing materials within the boiler house

3.1.5 Controls

The age and condition of the panel and of the Thorn JEL UC800 controller will require that they be renewed. This will allow for the other proposals to fall in line with the entire control strategy, for the provision of heating and hot water.

A new control strategy will allow for:

- Optimised LTHW supply to the dwellings
- Reliable hot water provision with a hot water preference hot water generation arrangement
- Fully compensated LTHW supply for space heating
- Differential zone control
- Fully varied pump speeds for energy efficiency and valve life

3.1.6 Safety

The boiler house gas safety arrangement should be upgraded as part of the improvement works within the boiler house. The existing system does not incorporate a fire alarm isolation provision and is proposed to be installed as part of the works

A mention has already been made of the need to correct the defects on the boiler flues.

The ventilation provision within the boiler house shall require upgrading to cater for the combustion & operational temperature requirements of all boiler house units. At present, the ventilation fan does not work in synchrony with the gas fired units within the boiler house. Every mechanically aided ventilation provision shall be interlocked with the supply of gas into the boiler house.

Section 4.1 Recommendations

4.1 RECOMMENDATIONS

It is recommended that the existing boilers & burners be left as installed. The 3 no. dedicated flue ducts serving these boilers should be renewed with the consideration of a common flue duct header to link the 3 boilers.

It is recommended that a new indirect calorifier be installed, with LTHW fed from the existing boilers, for the provision of hot water to all the dwellings within the two blocks.

The entire heating, hot & cold water distribution pipework together with all pumps and ancillary units should be stripped out and replaced with new.

New controls, display panel and controller(s) to be installed to administer the provision of heating, hot & cold water

New boiler house gas safety equipment to be installed plus ventilation improvement works to include interlocked mechanical ventilation.

Section 5.1 Programme

5.1 PROGRAMME

The proposed works installation would be installed at any time within the year but to minimise the capacity of the temporary heating & hot water provisions during the installation and reduce cost, it will be prudent to carry out the works in a controlled manner during the warmer months. These works to the plantroom would hardly affect the operation of the dwellings, except for short periods when it would be necessary to change over from the existing system to the new installation.

Based on the above, we would suggest an installation period of approx 8 weeks, with periodic minor disruption and weekend works where deemed necessary. We would also suggest that works are carried out over the summer months.

The above do not include for consultant design and or any planning approval process, nor anything not specifically related to the proposed installation.

Section 6.1 Budget Costs

6.1 BUDGET COSTS

As a result of our investigations and assessment of the heating, hot & cold water requirements and the associated pipework, we have assessed the costs associated with the provision of a new systems, this to include all preliminaries and builders-work requirements. These costs are as set out in the below table.

Indirect calorifiers with all other recommended works-Recommended Option

| Works Element | Costs £ |
|--|---------|
| Asbestos Removal (Provisional) | 25,000 |
| Stripping out | 10,000 |
| Installation of new flue for existing boilers (3 number) | 25,000 |
| New boiler house mechanical ventilation with interlock | 5,000 |
| Gas safety infrastructure | 5,000 |
| Boiler house Heating, Hot and Cold water distribution | 110,200 |
| Hot water generator (s) (indirect Calorifier) & associated works | 25,000 |
| Controls | 30,000 |
| Electrical works | 10,000 |
| Builders-work | 10,000 |
| Commissioning | 8,000 |
| Handover (O&M Manuals etc.) | 5,000 |
| Provisional Sum for Unknowns | 20,000 |
| Contingencies | 5,000 |
| Preliminaries | 12,000 |
| Total | 305,200 |

The above costs do not include fees or VAT, Local Authority or consultancy fees.

Our design and Contract administration Fess on this type of work/project would be in the order of 10% of outturn costs.

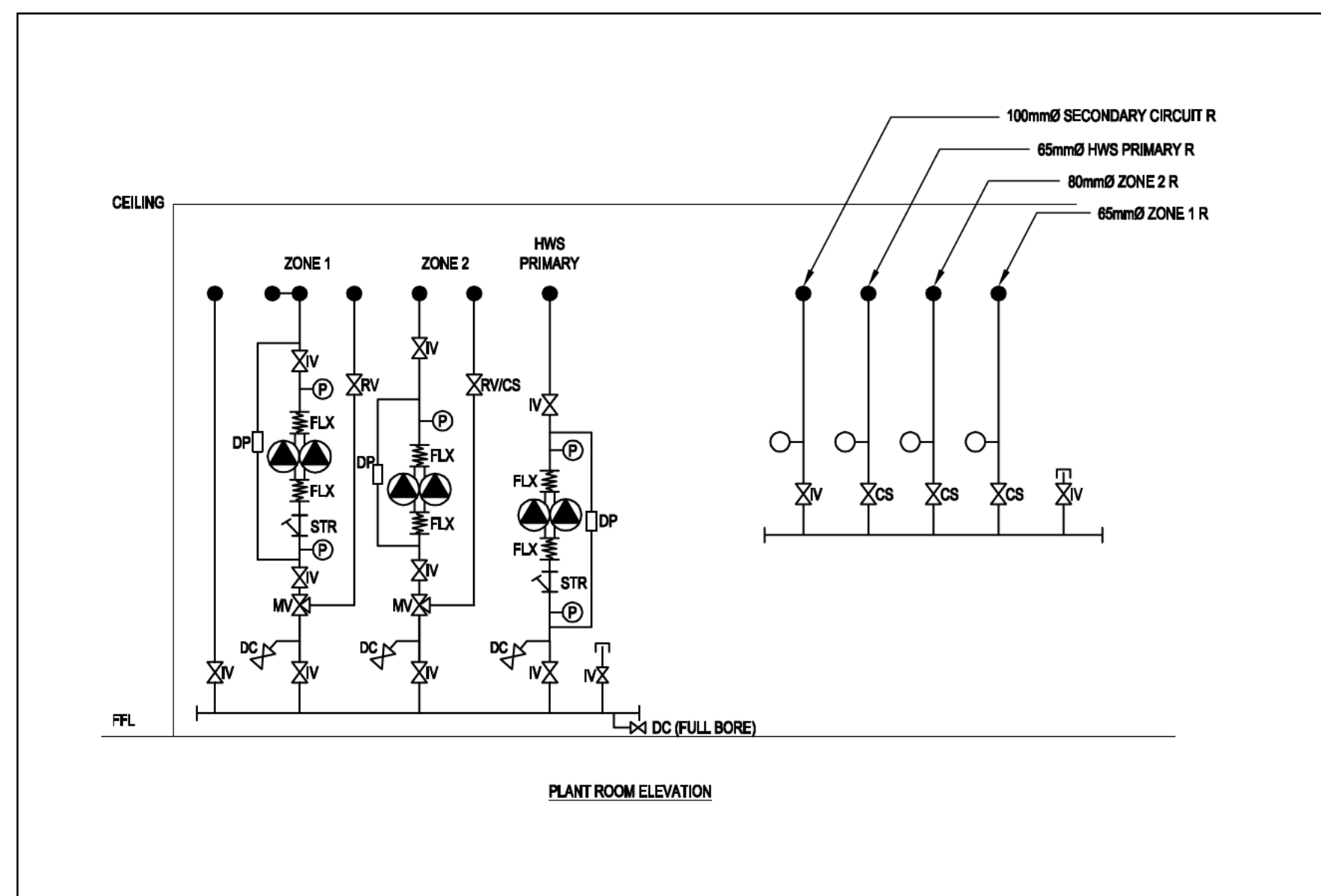
Direct gas fired hot water generator with all other recommended works - Option

| Works Element | Costs £ |
|---|---------|
| Asbestos Removal (Provisional) | 25,000 |
| Stripping out | 10,000 |
| Installation of new flue for existing boilers (3 number) | 25,000 |
| New boiler house mechanical ventilation with interlock | 5,000 |
| Gas safety infrastructure | 5,000 |
| Boiler house Heating, Hot and Cold water distribution | 105,000 |
| Hot water generator (s) (direct gas fired) & associated works | 23,000 |
| Controls | 30,000 |
| Electrical works | 10,000 |
| Builders-work | 10,000 |
| Commissioning | 8,000 |
| Handover (O&M Manuals etc.) | 5,000 |
| Provisional Sum for Unknowns | 20,000 |
| Contingencies | 5,000 |
| | |
| Preliminaries | 12,000 |
| Total | 286,000 |

The above costs do not include fees or VAT, Local Authority or consultancy fees.

Our design and Contract administration Fess on this type of work/project would be in the order of 10% of outturn costs.

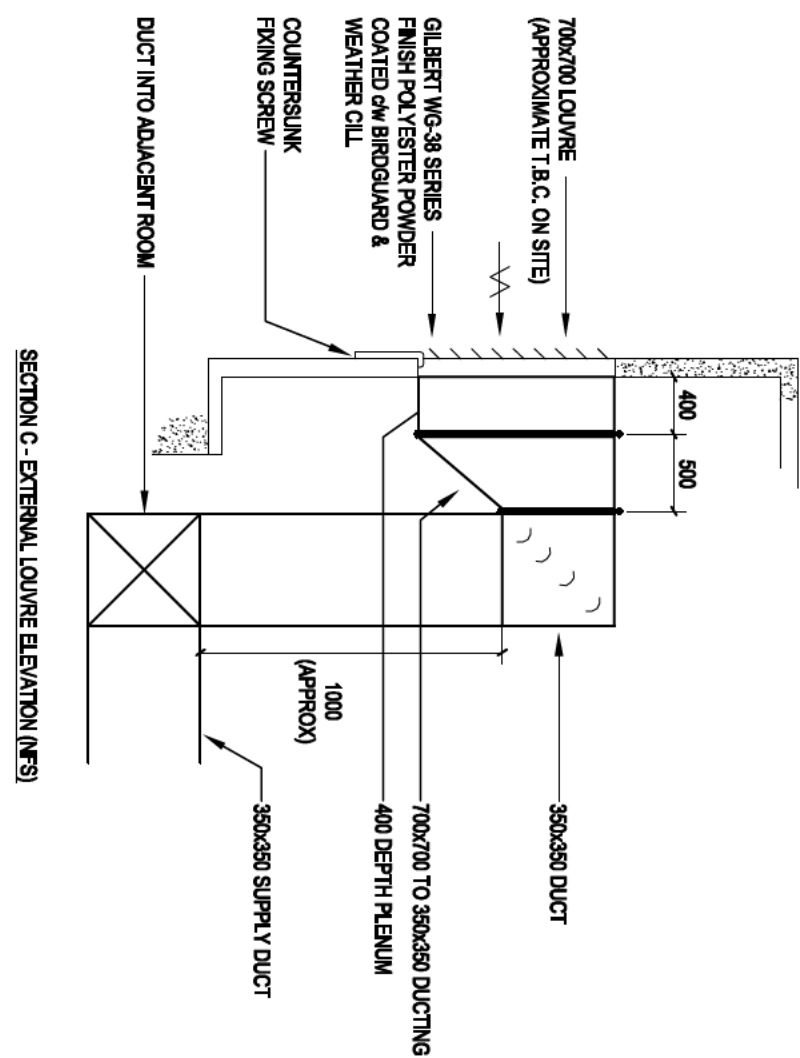
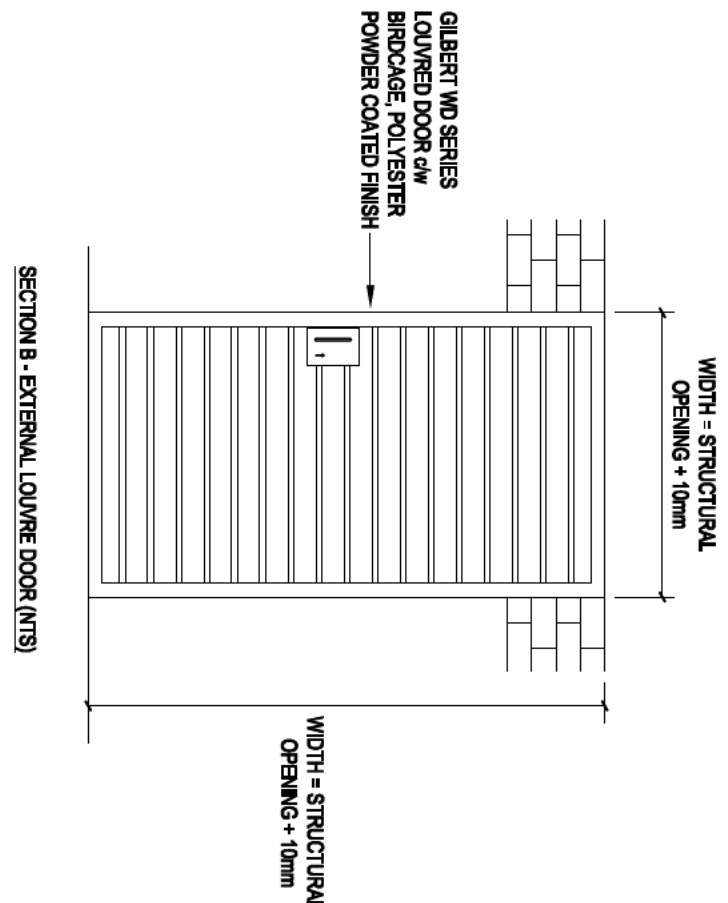
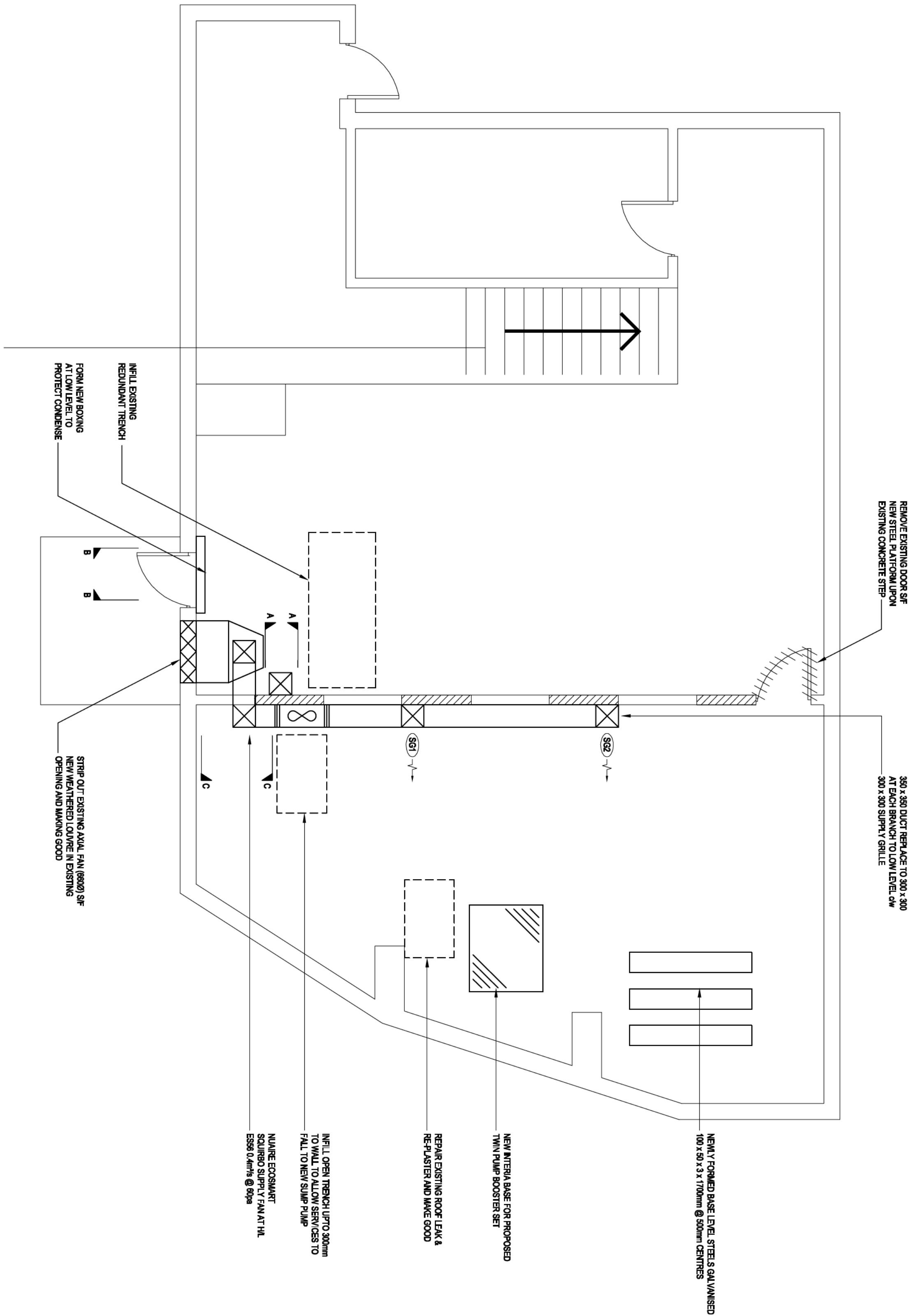
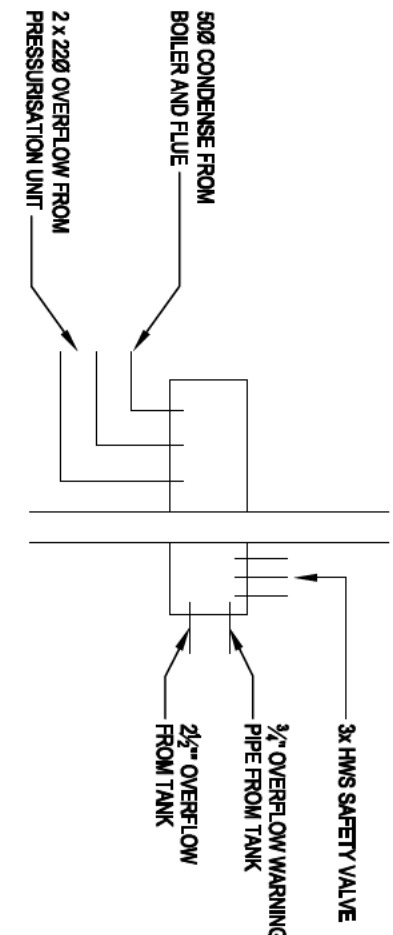
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PROPOSED PLANTROOM LAYOUT

rawing no.
6741.6-M-002 B

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| issued for B.O.Q. | date |
| issued for Tender | date |
| issued for Contract | date |



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BR5 3QA

Tel: 0845 608 0356
Fax: 0845 608 0394

project
CONANT HOUSE

title
PROPOSED BUILDERS WORK

scale
NTS@A1

drawn by
[redacted]

date
MARCH 2016

checked by
[redacted]

drawing no.
6741.6-M-003 A

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| issued for B.O.Q. | date |
| issued for Tender | date |
| issued for Contract | date |