

PARTICULAR SPECIFICATION AND SCHEDULE OF WORKS

AT

GROSVENOR HOUSE NN17 1QB

PREPARED FOR

**Corby Borough Council,
The Corby Cube, Parklands Gateway,
George Street, Corby,
Northamptonshire NN17 1QG**

BY



**Building Services Consulting Engineers
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PART III : MECHANICAL SERVICES PARTICULAR SPECIFICATIONS AND SCOPE OF WORKS

1.0 GENERAL

This particular section of the Mechanical Installation specification is to be read in conjunction with the preceding sections Parts I and II, and in particular the subsequent Schedule of Work, Rates and Quantities Part III and Appendices.

The work areas will be undertaken in compliance with the Principal Mechanical Contractors programme and sequence of the works in accordance with the specification schedules and Scope of Work, Rates and Quantities.

The specific upgrade requirements will be by the Mechanical Services Contractor and who will be responsible for the role of Principal Contractor. They will also carry out all BWIC with services requirements to enable the associated services upgrade works.

The Mechanical Contractor will be responsible for all essential modifications and new installations with alterations to the existing mechanical services described and covered by the Mechanical Services Specification and incorporated in the following Schedule of Works items which follow for each specific project location.

All work is envisaged to start as soon as possible after the heating season following initial surveys and set up site to be agreed prior commencement of survey/strip out for the main works to continue around normal operation and activities. Shutdowns for changeovers must be in accordance with this specification and contract particulars towards the end of Particular Section. The Principal Services Contractor must take all precautions and make all allowances to minimise and avoid wherever possible any inconvenience to Grosvenor House and the Olive Restaurant through unnecessary cessation of services in areas which could be affected by these works.

All shutdowns must be carefully co-ordinated to include all sub-trades and time/duration must be agreed with the Client before proceeding.

Further details about the scope of works given later for this project as given in the respective sections of this Particular Specification.

The Mechanical Contractor should note that space is very restricted for the storage of materials on site and therefore wherever possible off-site storage facilities should be adopted as described in the Particular Specification and the Schedule of Works, Rates and Quantities.

Noise restrictions will apply and drilling and noisy activities must be kept to a minimum and by arrangement.

2.0 SCOPE AND GENERAL TO ALL REQUIREMENTS

We have produced separate particular specification for tendering the proposed Mechanical Installation upgrades with a common general specification section (Parts I and II) applies to this project. The particular requirements **Part III** with Schedule of Work and separate tender breakdown for tender analysis with respective Appendices.

The work areas will be undertaken in compliance with the respective normal working day and sequence of the works to be agreed with consultant and Client representative for the CBC property estates team and particularly for any out of hours working or disruption which must be agreed and approved by the Client and Consultant.

The specific upgrade requirements will be responsibility of the Mechanical Services Contractor, who will be responsible for the role of Principal Contractor and allowances to carry out all surveys and serve respective F10/H&S notices, and include for all BWIC with services requirements to enable the associated services upgrade works, as specified.

The Mechanical Contractor will be responsible for all essential modifications and new installations to the existing mechanical services described and covered the by the Mechanical Services Specification for each specific plant room.

The Principal Services Contractor must take all precautions and make all allowances to minimise and avoid wherever possible any inconvenience to the tenants and building M&E services through unnecessary cessation of supplies in areas which could be affected by these works.

All shutdowns must be carefully co-ordinated to include all sub-trades and will be agreed with the Client/Consultant before proceeding.

The Mechanical Contractor to note that space is very restricted for the storage of materials on site and therefore wherever possible off-site storage facilities should be adopted as described in the Particular Specifications.

The Specification must be read in conjunction with the preceding 'Services Installations Materials, Practice and Workmanship' Parts I and II of the Standard Specification which precedes Part III Particular Specifications specific to Grosvenor House.

All relevant clauses contained in the Standard Specification Parts I and II will apply to this Particular Specification and equipment requirements in its entirety.

The work areas will be undertaken in compliance with the Principal Mechanical Contractors agreed programme for asbestos refurbishment surveys in advance of the proposed upgrade works to include new flue liners/terminals and weathering by and approved specialists contractor, as appropriate.

The Contractor will be responsible for the complete maintenance upgrade works and protection of the existing building and M&E supplies to provide new main heating plant and associated services to the existing building distribution systems. The Mechanical Contractor is to provide all safe access and secure restricted area/compound for the duration of the contract in order to control all labour and sub-contractors necessary to supervise the works and ensure proper installation (with reference to the CBC H&S brief. Also refer to CBC induction booklet).

In particular, with regard to Mechanical Services it should be noted the building will not be completely vacated during the course of the works as various tenants and public will be using the building as well as other staff and maintenance teams who may be working elsewhere within Grosvenor House or in close proximity but safe secure independent access must be maintained for the normal working day and plant rooms must be kept locked at all times. The Mechanical Contractor to take all precautions and make all allowances to minimise and avoid wherever possible any inconvenience to building occupants through unnecessary cessation of electrical and mechanical supplies in areas which could be affected by these works. **The Principal Contractor must allow for out of hours working deemed necessary, otherwise normal working hours by agreement and contractors may only use the designated toilets.**

Notice must be given for agreed shutdowns that will generally be arranged and carefully coordinated by the Principal Mechanical Contractor with all other associated sub-trades. Reasonable notice and agreement with the Clients team will be required before proceeding with any shutdown works or changeovers.

The Contractor will be expected to carry out a thorough site survey and inspection of existing systems in order to produce detailed procurement schedule with working drawings as appropriate, for approval, prior to any prefabrication of pipework and alteration to existing services to help reduce inconvenience, deliveries, noise and out of hours work on site.

IMPORTANT TO NOTE: Asbestos survey register on site must be inspected prior to any works and specific queries regarding suspect materials to be advised to CA without delay to arrange close inspection/sample testing. Although no asbestos should be present following visual inspection (**see appendices**), existing ducts/shuttering or equipment may contain asbestos. Therefore, the Contractor must still be vigilant when carrying out his own investigations and inspections as the work proceeds and particularly opening up boilers/flanges, ceilings, shafts/ducts and equipment casings. Specific queries regarding suspect materials to be advised to CDM-C, Project Manager/Consulting Engineer and Client representative without delay to arrange close inspection/sample testing.

If there is any doubt about asbestos or should Contractors come across asbestos during the works (particularly when opening up ceilings/bulkhead and ducts) which are not listed, they must stop work immediately and report the problem to the Project Manager. **APEC Environmental Ltd, Rotherham, S60 1BY Tel.01709 364646 or Oracle Solutions, Kettering, NN16 8PX Tel : 0844 800 0801 or equal and approved equivalent** 'licensed asbestos contractor' should be employed by the Principal Mechanical Contractor for refurbishment survey and for any additional attendance that may be required or indicated to deal with any suspect materials.

As specified and generally indicated the Mechanical Contractor will be responsible for testing, recording results, surveying and verifying all the existing services affected by these works and prior to commencement of any work, to identify and establish **performance of ALL existing HEATING and**

WATER supplies before any alterations are carried out. Following this, the Contractor must agree with the Consultant and Client representative alterations to existing installations and proposals for complete removal of all redundant heating boilers and associated main plant/pipework systems to be altered as indicated for **new installations including new flue liner replacement unless survey inspection of existing is satisfactory for reuse with new LPHW boiler specified.**

The existing pipework services which are to be diverted/modified must be left with appropriate labelling (temporary 'plant off' notices) to identify where the Mechanical Contractor safely isolated (valves noted) systems ready for new alterations and extensions for reconnection. Proper labels (for however short time period this may be) must be provided for the Clients Site Managers/Supervisors reference and to enable subsequent extension to be effectively and efficiently carried out. All open ends on new service pipes must always be covered and protected immediately until reconnected into the system. Working drawings to be produced and updated as the works progresses.

The Mechanical Contractor will also be responsible producing the necessary BWIC details and for liaising with specialists/ manufacturers and direct works Contractors to ensure all the requirements and recommendations are strictly followed. The new services should be set out and/or marked up by the Mechanical Contractor for the Design Team/Client to sign off prior to 1st fix (by the Mechanical Contractor).

It is important to note that a **NEW SPIROTECH Air and dirt separator/Spirocross on common main header is required PLUS new X-Pot or equal and approved equivalent,** on largest main VT circuit pump bearing in mind the mixed aged of installations but we have recommended sampling/testing at commencement and the Contractor will be required to submit report within the first 10 days for consideration with respective specifications for flushing out all pre-operational contaminants from the system. When the system has been flushed through a heat test shall be carried out on the system and associated controls, and the tenderer will need to allow for suitable water treatment programme and introduction of suitable additional inhibitor for each heating system/circuit.

The water treatment to be in strict accordance with the boiler manufacturer's instructions and water treatment specialists recommendations for long term system maintenance; Contact Boiler manufactures in the first instance to check on any particular aspect of water treatment or recommendation by specialist such as; Fernox Manufacturing Co Ltd or Hercules Betz Dearborn (Sentinel Division) or equivalent.

Labelling to be fully encapsulated, and left attached to the main heating plant air and dirt separator (low loss header) and/or dosing pot if more suitable place. A copy of this information is also to be kept in the O&M manual.

All the existing combustion and air ventilation louvres to be cleaned/overhauled, retained and checked by the Mechanical Contractor an upgraded with four new fire dampers as required and generally indicated. The Mechanical Contractor is to allow for all recommissioning of new and

modified plant preferably by the manufacturer and/or his own 'approved' specialist. The Contractor is to include for all new requirements as part of this specification.

All pre-commissioning cleaning, chlorination etc. will be carried out by an approved specialist to the satisfaction of the Client and Consultant.

Samples for each cleaned and treated system must be taken after 2 weeks of use and sent to an independent laboratory for analysis and confirmation that the systems have been satisfactorily cleaned/treated and therefore fit for public use.

3.0 CONTRACT PARTICULARS AND PRELIMINARIES REQUIREMENT

Please refer to the Preliminaries which form part of the tender package.

It will be the responsibility of the Principal Contractor to provide the Services SubContractors with all relevant details of the Main Contract to follow from the Client but an extract from a draft copy below for Contractors advanced information purposes only.

Specific Preliminary items

The Principal Mechanical Contractor must allow for management costs within their price.

The Contract

The Contract to be prepared by the Client will be based on the Agreement for Minor Building Works with Contractors Design – JCT 2016 Edition

III **PARTICULAR SPECIFICATION AND SCHEDULE OF WORKS FOR GROSVENOR HOUSE**

Site Address: Grosvenor House, George Street, Corby, Northamptonshire, NN17 1QB

Corby Borough Council Facilities Management Team

Contact Roger Bell Roger.Bell@corby.gov.uk Tel: 01536 464650 / 464000

- Surveys & inspections are to be booked in a minimum 1 weeks' notice for acceptance with a member of the Facilities Team.
- Details to be provided of company or individual attending, preferably with attendee names
- RAMS required for the tasks involved and must be site specific
- Identify areas, where possible, that access is required to
- ALL contractors report to **The Cube Reception** to sign in, receive PTW's etc.

Appended is CBC Contractor induction booklet. This is to be read and signed. The signed receipt must be given to the appointed receiving host who will complete CBC part and retain copy for record.

NEW MAIN BOILER PLANT AT GROSVENOR HOUSE

1. SCOPE OF WORKS

A) General

Provide TWO new twin LPHW condensing heating boilers and associated plant with main pipework system alterations to replace two Ideal 1Max F160 LPHW heating boilers and associated primary pumps. Also upgrade and replace main isolating and regulating valves, CT & VT system circulating pumps and motorised control valves, from point of entry to boiler room complete with new air dirt separator as part of new low loss header arrangement PLUS X-Pot or equivalent on main VT circuit (zone 1) with new 3-port motorised control valve on flow and similarly, new VT pump on zone 2 mixed flow for independent control. In addition Isolate and remove F&E tank open vent and cold feed to be replaced with new Mikrofill-3 or equivalent sealed system F&E expansion system and vessel, with all associated upgrades to existing automatic control panel as specified for plant room – refer to quotations appended.

Retain existing incoming main supplies, all domestic water services and general distribution pipework as specified and electrical supplies to controls fed from existing electrical distribution board in boiler room. Retain existing gas meter and main supply with automatic gas safety shut off valve system, subject to satisfactory test and re-commissioning of gas supply pipework entering basement boiler room.

New condensate to existing foul drainage/gulley required in plant room but overhaul and upgrade existing pit, install new duty/standby sump pumps as part of these works complete with new interfaces and high level alarm relay/connection for duty assist if required. New relay required on existing fire alarm system to shut down system and gas supply. Fire alarm interface by the clients specialist (contact Pete Lattimore, New Flame Tel 01733 248100 Mobile 07500 858638)or equivalent specialist.

Isolation, de-commissioning and removal of the two existing Gas fired boilers in basement plant room, complete with associated Flues (see flue and asbestos survey requirements) but retain separate zone/mains pipework circuits from point of entry to boiler room for modification as specified for to accommodate new pumps on main F&R pipework circuits with automatic controls for respective zone pumps. Utilising **two new separate Magna3 40~60 VT** or equivalent duty/standby pump sets after new 3-port installed required on mixed flow plus **two single Magna3 32~80 or equivalent zone 2 pump sets required as specified and associated alterations to existing installation**. Existing main flow and return pipework to be upgraded with new IV/RIV within plant room for each existing circuit/system, as distribution pipework and heaters generally appear to be in reasonable working order and to be retained.

The mechanical contractor is also to clean **air ventilation louvres and upgrade openings in fire compartment wall with four new fire dampers and thermal link to match existing arrangement (not currently interfaced with F/A system).**

Supply and Install New: **TWO** Gas fire condensing heating boilers; each as manufactured by Remeha, type GAS Quinta ACE **160** cascade/modular boilers or equivalent complete with all ancillaries, flue condense kit and new stainless steel flue header and liners required to rise within existing openings to new roof terminals as manufactured by A1 Flues or equivalent, complete with condense traps to drain in accordance with manufacturers guidelines and recommendations. New Spirocross or equivalent air dirt separator low loss header with modifications to fully insulated two pipe heavy weight mild steel heating pipework headers and new Grundfos Magna3 or equivalent system pumps for duty/standby operation on VT and one for each zone but LPHW boiler primary pumps supplied as part of cascade. In addition supply and install new Mikrofill-3 or equivalent F&E unit with 600 litre (min) expansion vessel and upgrade controls as specified. Retain and reuse existing supply air and ventilation louvres overhauled and upgraded to provide air intake/high level ventilation louvres to suit new plant requirements in accordance with regulations with four new thermal link fire dampers to maintain compartmentation as generally indicated.

All new fully insulated pipework services and alterations required within the boiler room including new isolating and regulating valves for each main branch/circuit but main pipework exit/entering plant room can only be retained if reliable from point of entry to boiler room and as existing distribution pipework is to be retained, subject to satisfactory test and recommissioning.

Upon receipt of order the Contractor to organise a detailed flue and asbestos survey's without delay for performance check of installations and specifically with regard to the proposed work which must be carried out during normal working hours prior to removal of any equipment or plant. A minimum of two weeks' notice required for asbestos refurbishment survey and further two weeks prior to any intrusive/enabling works or strip out but prefabrication will be required to minimise changeover time for new systems that must be tested and left fully operational prior to the heating season. Heat on date/time must be during normal working day in October (date to be agreed). Associated making good and remedial works must be carried out by approved builder employed by the successful tenderer including redecoration works necessary.

Important to note : Maintain the integrity of all main supplies and domestic H&C water services at all times to rest of building.

Carry out and demonstrate all new associated services commissioning before finally setting to work completed installation with draft manual/test certificates for final demonstration and snagging list to be completed for handover.

Following each work stage the services must be left fully functional under automatic control to prove system. Heating system must be proved with full load/heat test as part of final commissioning during the heating season.

Electrical services described within this specification will also be the responsibility of the Principal (Services) Contractor. Allow for placing orders, organizing and liaising with the specialist Control Systems manufacturer who will be responsible for supply and installation of the requisite automatic control panel(s) upgrade and associated wiring within plant room as part of this contract. The mechanical contractor will also be responsible for all associated builders work, scaffolding and any asbestos removal that may be required.

B) Removal of Redundant Services

As specified and generally indicated the Services Contractor will be responsible for surveying the existing services before any work commences on site and for identifying, establishing and subsequently agreeing with the Consultant which are to be made redundant and highlighting any discrepancies found.

All obsolete tanks, redundant pipework, boilers, flues and associated electrical works are to be removed by the Services Contractor without delay and must not be allowed to accumulate except where reused and/or agreed otherwise. Obsolete materials and debris must be safely and properly disposed of by the Services Contractor with due regard to all Health and Safety precautions. A 'licenced asbestos contractor' should be in attendance as indicated to deal with any suspect materials found when dismantling boiler and flues. **Asbestos Management report and refurbishment survey inspection with register to be kept** on site for inspection by all contractors, for their attention prior to any works.

All services which are to be reused and/or extended are to be carefully identified and proved before they are cut off and modified at point of entry into the boiler room. Proper labels (for however short time period this may be) must be provided to enable subsequent extension to be effectively and efficiently carried out. All open ends on existing service pipe must be covered and protected immediately until reconnected into the system. Working drawings to be produced and updated as the works progresses.

C) Associated Builders Work

The Principal Mechanical Contractor will also be responsible for the following which applies to the **boiler house(s) only** :-

- (a) Clean down and degrease existing floors, and make good walls and ceilings immediately after removal of redundant plant and services and allow for sealing/painting walls and ceilings and upgrading plant room floor with sealed protective anti slip floor paint. After completion make good and touch up any areas which may have been affected by new services works. Refer to Section which follows for all Painting requirements.
- (b) Re-level floor and/or construct new plinths to extend/replace existing bases as required for new free standing boilers and fame/cascade equipment. Infill with standard in-situ concrete mix reinforced with wire mesh and smooth trowelled finish and insert metal rods dowelled into the edge of the existing plinths at 100mm intervals.
- (c) NOT APPLICABLE.
- (d) All barriers/Heras fencing and scaffolding (if applicable) and works in connection with new flue liners and removal of old plant etc. and to provide independent safe and secure compound/access via loading bay to rear of building (no car parking available) with lockable access gates to basement boiler room and fire escape routes that must not be blocked. Maintain all shared fire escape routes (refer also to access plan appended)
- (e) NOT APPLICABLE.
- (f) **Sump pump** – upgrade existing pit and provide new uPVC tank liner and excavation for new sump pump pit sized to accommodate pump(s) with floats/control for operation, or construct with engineering brick on insitu concrete base and appropriately sealed.
- (g) **IMPORTANT to NOTE:** At least 4 weeks prior to any works the contractor must employ licensed specialist to carry out asbestos refurbishment survey for the working areas and report to be issued within 14 days to serve respective notices. This requirement is in addition to any register available or issued by CBC as management plan or previous non-intrusive survey may not be satisfactory under latest legislation – part extract appended for information but risk of any **Asbestos and associated removal works and respective timeframe allowances to be included as part of proposed**

contract programme for this all to be safely completed in advance of main contract/installation works. Tenderer to allow for all arrangements and surveys required by licensed specialist to be approved by CBC, contact **APEC Environmental Ltd, Rotherham, S60 1BY Tel.01709 364646 or Oracle Solutions, Kettering, NN16 8PX Tel : 0844 800 0801 or equal and approved equivalent specialist and for tender purposes include all allowances to manage and complete the specified works.**

New Equipment and Services Alterations

The Contractor is to supply and install all of the following equipment generally in accordance with the relevant preceding sections of the specification and all associated M&E services installation drawings and schedules.

Orders may only be placed after the Client and Consultants approval to proceed has been given.

NO ALTERNATIVE EQUIPMENT WILL BE ACCEPTED WITHOUT THE CONSULTANTS PRIOR APPROVAL. THE CONTRACTOR MUST THEREFORE ALLOW FOR THE SPECIFIED EQUIPMENT ONLY UNLESS OTHERWISE AGREED AS EQUIVALENT DURING TENDER STAGE. FAILURE TO FOLLOW THIS REQUIREMENT WILL RESULT IN THE EQUIPMENT BEING REMOVED AND REPLACED AT THE CONTRACTORS OWN EXPENSE.

D) Existing Main Supplies

(a) Electrical Supply

Main supply cable(s) to be checked and upgraded if required for new plant supplies and upgrading control panel.

At the appropriate stage upgrade existing Automatic Control Panel by an approved Control Systems specialist and all associated supplies and wiring required under this contract.

(b) Tank Room

For tender purposes Contractor must allow for conversion to sealed system. However, contractor must also include for checking and verify condition and suitability of all old tanks at roof level for reuse prior to any disconnection or removal. Any obsolete cold feed and open vent pipework to be labelled and/or removed where possible and holes/sleeves fire stopped/sealed through plant room penetrations.

(c) Gas Supply

The existing incoming gas main enters the respective boiler room. THE CONTRACTOR MUST ENSURE THE GAS MAINS ARE ADEQUATELY PROTECTED AND ISOLATED AS APPROPRIATE DURING THE COURSE OF THE WORKS, BUT SUPPLIES SERVING OTHER PARTS OF THE BUILDING MUST BE MAINTAINED AS WELL AS ALL THE OTHER BUILDING SERVICES DURING THE COURSE OF BOILER REPLACEMENT WORKS.

Retain existing main supply pipework and respective gas solenoid valves but install new heating boiler pipework header with new main GC on branch to replace existing for new boilers required as part of these works. New branch GC and modification to existing supply must be included as appropriate to serve new boiler plant. The approved control system specialist or Fire Alarm contractor to connect between new fire alarm relay and safety shut-off system in control panel.

(d) Water Supply

The existing water supply to the building(s) and mains tank/boosted feed appear to be in order (refer to separate water Hygiene report) but reconnect main to new Mikrofill-3 or equivalent F&E system with RPZ anti-vac/check valve as appropriate for WRAS/Local authority requirements. Water hygiene report to be checked and survey required at the outset to ensure the building water systems are fully compliant and no dead legs or ongoing issues.

E) Existing Boiler House & Associated Equipment

<u>New F&E System – MicroFill-3 or equivalent 600 litre/3.5bar</u>	Contractor to check/verify size/location/operating system pressure and report on water treatment/ condition.
Allow for testing and commissioning pressurisation unit and expansion vessel(s).	Change over from old system will be subject to access/constraints and programme to be agreed.
<u>Ventilation:</u>	
Check and confirm to verify adequate low and high level ventilation with review to rationalise existing to suit new boiler plant, in accordance with BS/Regulations.	Retain and upgrade ventilation louvres/grillage at high level. For purposes of tender allow for cleaning overhauling and upgrading as indicated and to confirm satisfactory to meet current BS/requirements.
<u>Other Notes:</u>	
	Existing LTHW pipework to be modified as generally indicated and existing/new pipework in plant room to be completely refinished in metal clad with new extensions/alterations fully insulated as specified.

F) New Automatic Control Services

Supply and install automated controls for the following new equipment and ancillaries in accordance with this specification.

In order to ensure compatibility and negate potential issues & project complexity the control system in its entirety (design, control panel manufacture, field controls, BMS controller & touch-screen, electrical installation and commissioning) shall be sourced from a single, independent BMS Controls Specialist contractor who shall have all of the following in-house facilities;

1. Design and manufacture custom built site specific control panel
2. Supply BMS controllers and touch-screen display (housed within the control panels and accessible with controlled access levels/codes to be agreed)
3. Provide electrical installation in connection with BMS / control systems in accordance with GGA master specification for workmanship and standards that will apply to this particular project.
4. BMS software design/engineering to suit site specific equipment and particular specification.
5. Provide commissioning of BMS / control systems and separate client demonstrations at the start of the heating season (date TBA)
6. Provide maintenance of installed BMS / control systems for the first 12 months and provide quotation for annual PPM thereafter.
7. Provide off-site BMS monitoring facilities with out-of-hours response if required by the client in the future.

BMS contractors who cannot provide all the above or who provide any of these services via sub-contractors or separate suppliers shall not be considered.

The BMS contractor's office should be based within a 1 hour response time or 30 mile radius of the site to keep the environmental impact of project delivery to a minimum and promote speedy site response during the contracted work and for the 12 month defect liability period.

The BMS contractor must be an accredited partner of the BMS manufacturer being proposed and as such, must demonstrate to the manufacturer that they satisfy qualification criteria and undergo regular formal audits to ensure their activities continue to meet the manufacturer's required standards.

The successful tender will be expected to confirm the specialist contrails contractor at time of tender and before any orders are placed, subject to agreement to contract programme.

(a) Gas Supply

Retain and test/recommission gas main from existing meter (not utilities supply below ground level) and existing safety solenoid shut-off valves/branches on main supply to boiler room with new thermal link/knock off button by door and Fire alarm interface by the clients specialist (contact Pete Lattimore, New Flame Tel 01733

248100 Mobile 07500 858638) or equivalent. Supply and install new main header from existing gas supply with 32mm GC/branches to each boiler with purge/test point on new 50 mm pipework header to new heating boilers.

(b) Optimiser/Compensator (to be incorporated with new control panel by AES or equivalent control system specialist)

BMS based night set back, optimiser and weather compensation controller required with web browser/IT/alarm interface facilities. Sequence control included and rotation for Summer/Winter lead/lag boilers, duty operation and separate zone/extension timers with manual overrides and rotation switches for duty/standby pumps sets and push button count back extension timers for each zone.

Separate time switch channel included for heating and operation of respective new duty/standby heating pumps, internal/external sensors, common/mixed flow and system return sensors with high limit protection provided on heating systems.

CONTROL PANEL

Wall mounting two-section (power & control) providing power supplies and / or control of the following plant (all assumed 4 kW for tender purposes or less unless stated):

- 2 – Boilers
- Pressurisation Unit
- Zone 1 VT Heating Pump set
- Zone 2 VT Heating Pump set
- 2 – Sump Pump Units

ASSOCIATED ELECTRICAL INSTALLATION

Control System Installation:

- Fit aforementioned control panel and then install wiring to controls and aforementioned plant

Associated Electrical Work:

- Strip out old control panel and all outgoing wiring including incoming supply.
- From existing TP breaker (labelled "Boiler Panel") in existing DB install power supply cables to new TPN DB in boiler house
- Supply & fit new TPN DB and then install wiring to the following;
 - i) Boiler house lighting consisting of 4 No. approved LED light fittings (c/w PIR's) one of which to have integral maintained emergency pack
 - ii) New control panel
 - iii) RCD Double Socket Outlet

COMMISSIONING

Upon completion of the installation the remote access system must be fully tested and commissioned, and coordinated with other trades including the following:-

- i. electrical installation testing where not covered by the scope of controls specialist.
- ii. Gas/oil systems are filled and tested.
- iii. A permanent electrical supply must be available.
- iv. Continuity of the site work must be maintained.

Any handover or pre-commissioning visits must be included.

Abortive visits must not be charged or passed onto client/CBC.

(c) Proposed Heating boilers:

Supply and install TWO new Remeha Gas **160 ACE** condensing boilers or equivalent each complete with flue condense kit to Deltavent SF or equivalent manufacturers to BS EN 1856-1 and constructed from 0.71mm thick 304 grade fully seam welded flue and components with spigot location and sealed V-band jointing system (carrying minimum 4 hour fire rating certificate) header to individual Class 1 Grade 316 flexible flue liner and terminals by A1 Flue systems or equivalent approved specialist.

Include terminals, storm collars/flashings and upstands, site survey, working drawings, secure safe bracketry and access equipment/scaffold, boiler adaptors, wall sleeves, new class 1 flue liners, ½” BSP test points per appliance, condense traps/drain points in accordance with regulations and boiler manufacturer’s guidelines.

In addition supply and install new Spirocross or equivalent low loss air/dirt separator as part of a SMART cascade/boiler manufacturer’s supply. Also supply and install new X-Pot on new Magna3 VT or equivalent duty/standby pump sets (invertor driven circulating pumps) for main Zone (1) and separate Magna3 or equivalent pumps for Zone 2 VT circuit as specified but all other distribution pipework to be reused but with new separate main regulation/isolation valves as indicated.

Note: shunt pumps to be included as part of boiler manufactures package sized to suit cascade and boilers to be supplied complete with cascade system and for tender purposes full flue system replacement and individual 150mm dia (2 off) rising to class 1 flexible 316 S/S flexible flue liners/terminal, plus weathering by approved builder/roofing Contractor.

CONDENSING HEATING BOILERS and ancillaries required plus manufacturers commissioning for extended warranty or equal and approved equivalent, for example:

Product	Description
2 x 7625903	Quinta Ace 160
2 x L002-2	Comm-Quinta/110/120/GAHP(2)
KTS00253	Cascade for 2 x Quinta Ace 160 Blrs - Free standing in line
Kit contains:	
1 x 111699	- Flange blank gas DN65
1 x 111703	- Flange blank water DN100
3 x 111807	- Set Screw
2 x 7611804	- Insulation Set Ace Cascade
3 x 7612941	- I-leg Ace cascade
2 x 7613401	- Insulation Set Pipes QP Ace
1 x 7614795	- L2 DN100 Ace
2 x 7621566	- Frame between legs Ace cascade
2 x 7622701	- Connection set straight Ace
2 x 7631858	- Insulation back Ace cascade
1 x 7641015	- Mounting Plate Control Ace
XC100FK45	Rem-DS Air Dirt Separator DN100
TBX100	Insulation for Dirt Separator DN100 (100mm)
7637223	Pump QAce 160 - UPMXL 25-105 180 Auto (230v 50/60hz)

(d) DHWS: - Not applicable.

(e) **Primary Boiler shunt pumps:**

For Each boiler: Supply and install new primary heating system pumps and pipework and control/signal as part of new low loss header from boiler connections with new reverse return pipework (equal loop length connections to each boiler) – refer to manufacturers schematic and installation instructions.

(f) **Heating Pumps: Duty/Standby**

Supply and install New Grundfos sump pumps or equivalent with float control and LPHW heating Magna3 or equivalent single head system pump sets for duty/standby pump arrangement to serve each heating zone with new main branch regulation/isolating valves within boiler room, as follows for example:

Zone 1 - MAGNA3 40-60 F 220 1x230V PN6/10 or equal and approved equivalent duty and standby single head variable speed glandless circulator energy efficiency index 0.19

Zone 2 - MAGNA3 32-80 F 220 1x230V PN6/10 or equal and approved equivalent duty and standby single head variable speed glandless circulator energy efficiency index 0.19

All zone pumps must be of the canned-rotor type, which means that pump and motor form an integral unit without shaft seal and with only two gaskets for sealing. The bearings are lubricated by the pumped liquid.

The MAGNA3 for example is a pump with no maintenance requirements and with extremely low life cycle cost.

Characteristic features

- AUTOADAPT
- FLOWADAPT and FLOWLIMIT (reduces the need for pump throttling valves)
- Proportional-pressure control
- Constant-pressure control
- Constant-temperature control
- Differential temperature control (requires an additional temperature sensor)
- Constant-curve duty
- Maximum and minimum curve duty
- Automatic night setback
- Heat energy monitor
- No external motor protection required

- Innovative clamp ring with only one screw enabling easy repositioning of the pump head
- Insulating shells supplied with single-head pumps for heating systems
- Large temperature range due to air cooled electronics

Communication

- Wireless communication for example with the Grundfos GO R remote app
- Fieldbus communication via CIM modules
- Digital inputs
- Relay outputs
- Analog input

The MAGNA3 for example, is a single-phase pump and characterised by the following

- Controller integrated in the control box
- Control panel with TFT display on the control box
- Control box prepared for optional CIM modules
- Built-in differential-pressure and temperature sensor
- Cast-iron pump housing (also available in stainless steel versions)
- Carbon-fibre-reinforced composite rotor can
- Stainless-steel bearing plate and rotor cladding
- Aluminium alloy stator housing
- Air-cooled power electronics

Motor and electronic controller

The MAGNA3 for example incorporates a 4-pole synchronous, permanent-magnet motor (PM motor). This motor type is characterised by higher efficiency than a conventional asynchronous squirrel-cage motor.

Pump speed must be controlled by an integrated frequency converter.

Liquid:

Pumped liquid: Water
 Liquid temperature range: -10 .. 110 °C
 Selected liquid temperature: 60 °C
 Density at selected liquid temperature: 983.2 kg/m³

Technical:

Rated flow Zone 1: 2.417 l/s
 Rated head Zone 1 (Min): 41.46 kPa
 Rated flow Zone 2: 1.556 l/s
 Resulting head of the pump(Z2 Min): 52 kPa
 TF class: 110

Approvals on nameplate: CE ,VDE ,E AC,CN R OHS ,WE E E

Materials:

Pump housing: Cast iron
E N-GJ L-250
AS TM A48-250B

Impeller: PE S 30%GF

Installation:

Range of ambient temperature: 0 .. 40 °C

Max. operating Pressure: 10 bar

Flange standard: DIN

Pipe connection: DN 40 (Zone 1) and DN 32 (Zone 2)

Pressure rating: PN6/10

Port-to-port length: 220 mm

Electrical data:

Power input - P 1: 12 .. 185 W and 9....136w respectively

Mains frequency: 50 Hz

Rated voltage: 1 x 230 V

Maximum current consumption:
0.11..1.58 A (Zone 1)
And (Zone 2)
0.09 ... 1.19 A respectively

Enclosure class (IE C 34-5): X 4D Insulation class (IE C 85): F

Others:

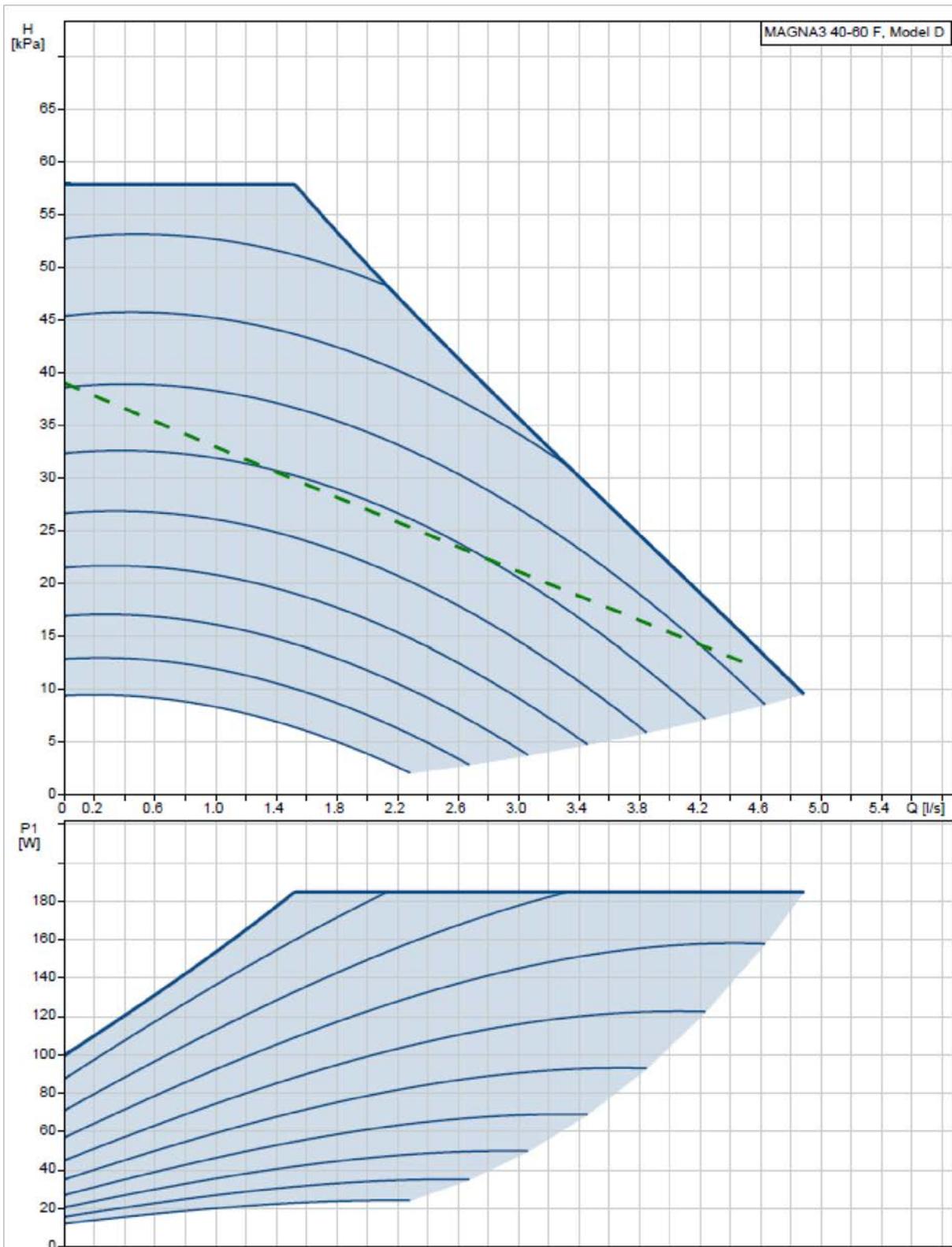
Energy (E E I): 0.19

Net weight: 9.92 kg

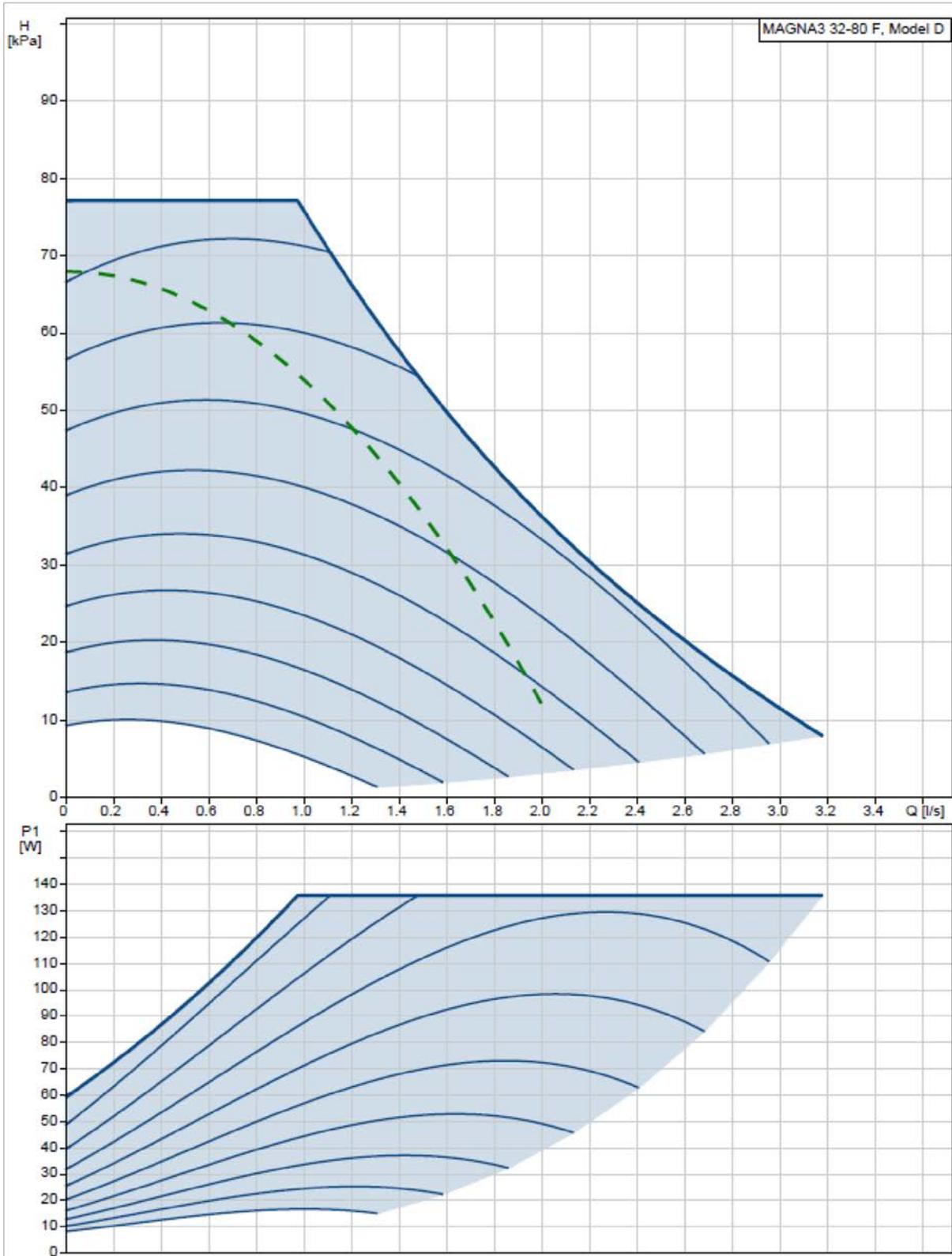
Gross weight: 10.4 kg

Shipping volume: 0.019 m³

Zone 1 - Duty and performance must be plotted against existing pump curve for consideration of any equivalent pump with system flow rates that must be checked and confirmed for consideration by consultant and for approval before draining down or decommissioning existing system.



Zone 2 - Duty and performance must be plotted against existing pump curve for consideration of any equivalent pump with system flow rates that must be checked and confirmed for consideration by consultant and for approval before draining down or decommissioning existing system.



(g) **Feed and Expansion Equipment:**

For tender purposes allow for survey and report on existing system but include for supply and install New Mikrofill-3 or equivalent F&E unit complete with respective 600/3.5 bar expansion vessels and ancillaries including quick fill arrangement: Subject to cost saving option offer to client; the existing tank F&E system must be safely isolated and removed if not considered to be cost effective/serviceable for long term reliability after overhaul to current WRAC regulations. Suitable location and pipework to be checked and size/head confirmed prior to any orders or alterations to system and following the contractors' initial survey and report to client and consultant, and to confirm size and condition of existing system. All vessels and charge pressure to be tested when empty and any new equipment or controls will need to be commissioned upon completion.

(h) **Water Treatment:**

Fernox (See G(a) below).

(i) **Boiler Flue System:**

Allow for worst case at tender stage for the complete replacement in full, to include supply and installation of new separate stainless steel flue and liners for each boiler to new roof terminal with new liners within existing shaft (10 Storey), removal of existing 150mm dia flue systems by licensed contractor if necessary following survey/inspection.

In addition, for tender also include allowances for CCTV survey and visual inspection for assessment and calculations as appropriate by approved specialist and if PIG test cannot be carried out at the same time allow for return visit to complete the CCTV survey should the existing liners prove suitable for reuse with new boiler installation. Saving to tender sum will need to be offered for approval by CBC/Consultants should full replacement not be required. At this stage allow for all associated builders work/weathering and access/openings for surveys and new liners within existing shaft to new roof terminals with soaker plates and upstand curbs. All subject to satisfactory survey and inspections included as part of the works. Include for all associated removals, additional BWIC/openings, access/scaffold guard rails and platforms by an Licensed and CBC approved Scaffolder Contractor and make good following installation, to match existing finishes as appropriate.

Flue System - Deltavent or equivalent multi-purpose, twin-wall, prefabricated Stainless Steel duct system manufactured for the conveyance of all associated products of combustion from a wide range of combustion and process equipment, capable of withstanding continuous flue gas temperatures of up to 760°C and designated as (H1) for pressure resistance in accordance with BS EN 1856-1.

The Flue systems to be designed for:

- A four hour fire rating is specified
- A watertight flue system is specified

Application Examples

- Fan Assisted Flue System & Condensing Boilers
- Oil and Gas Fired Boilers
- Incinerators/Cremators: use heavy duty flanges for jointing (Ultra seal)

Quality Assurance - The complete range of components are to be manufactured, tested, and where required, installed within scope of stringent quality controlled conditions in accordance with EN ISO 9001:2008 and BS EN 1856-1/2:2009 chimneys-requirements for metal chimneys with system(s) of assessment and verification of constancy of performance of the construction product as set out in Construction Products Regulation (2011) Annex V: System 2+ BSI certification issued for factory production. When requested, Flue System manufacturer shall submit copies of type test reports relating to product performance in addition to the "Certificate of Registration" administered by the British Standards Institute (BSI) and have EC-DECLARATION OF CONFORMITY Issued in accordance with the Construction Products Regulation (2011) EU No: 305/2011 for multipurpose double wall insulated stainless steel flue/chimney product to take both positive and negative pressurised waste gases and combustion Products from appliance to atmosphere.

Fire Rating - The flue system must be successfully assessed by the Loss Prevention Council for Fire Resistance. A fire rating of 4 hours to be achieved in accordance with stability and integrity criteria of BS 476: part 20. If required, Flue System manufacturer shall submit all test reports in support.

Construction - Deltavent flue or equivalent sectional lengths/fitting components to be fabricated in a variety of diameters and lengths with continuously welded vertical seams. The system to utilise four insulated/non-insulated annular variation options to provide a required minimum external case surface temperature. Inner liner coupler characteristics consist of male and female connection sockets complete with a 10mm 90° right angled flange formed at either end of all components. Joints shall be secured by clamping an externally fitted V-Band over the mating flanges of the adjoining components. Sealant, available from Flue Systems manufacturer, should be applied to the inside profile of the V-Band and to both flange faces before installation. Closure of the space between parallel external case components shall be achieved by first inserting a pre-cut length of insulation into the annulus void between the joining

lengths and securing it into position using a profiled Clamp Band which locates within the grooves formed in all outer cases.

Product Description- Standard Number:

EN 1856-1: 2009. The standard for system chimney products - requirements for metal chimneys. Comprising of a series of essential harmonised European Standards and elements for both single and multi- wall chimney products with rigid metallic liners.

EN 1856-2: 2009. Requirements for metal chimneys- part 2: Metal flue liners and connecting flue pipes. Relates to the essential harmonised European Standards and elements of all products used to convey the products of combustion from appliances to the outside atmosphere.

In compliance with Regulation 305/2011/EU of the European Parliament and of the Council of 9 March 2011 (the Construction Products Regulation or CPR), all the provisions concerning the assessment and verification of constancy of performance described in Annex ZA of the above standard(s) under system 2+ are applied and that the factory production control fulfils all the prescribed requirements. All components are manufactured to BS EN 1856-1-2:2009. Chimneys Requirements for Metal Chimneys. British Standard Institute (BSI) Certificate number: 0086-CPR-599465.

The CE Designation Scheme

The compliance of a chimney system product to the relevant technical performance characteristics according to the designation scheme is described by the following example.

Product Description	Product Designations						
System Chimney Product	EN 1856-1	T450	H1	D	V1	L20091	G(50)
Metal Flue Liners	EN 1856-2	T160	P1	W	V1	L20056	O(50)
Connecting Flue Pipe	EN 1856-2	T200	P1	W	V2	L50056	G(50)
	Standard Number	Temperature Level °C	Pressure Level N,P,H	Condensate Resistance	Corrosion Resistance	Flue Liner Specification	Soot Fire Resistance

Product Specification

Deltavent flue system or equivalent twin-wall stainless steel prefabricated chimney system with a 25/50/75/100mm thick Rockwool high density insulation. Dependent on diameter and specification, the liner can be constructed using either 0.70mm or 0.90mm grade 304 / 316 stainless steels. The relevant technical performance classifications and designations are:

Standard	Product Description					
BS EN 1856-1	Temperature Class	Pressure Class	Condense Resistance	Corrosion Class	Material Specification Liner Grade + Thickness	Soot Fire Resistance
	T600	H1	D	Vm	L20070	G(50)
				V2	L50070	
				Vm	L20090	
			V2	L50090		

Standard	Product Description					
BS EN 1856-1	Temperature Class	Pressure Class	Condense Resistance	Corrosion Class	Material Specification Liner Grade + Thickness	Soot Fire Resistance
	T200	H1	W	Vm	L20070	O(50)
				V2	L50070	
				Vm	L20090	
			V2	L50090		

Product Technical Information According To BS EN 1856-1 Par.7 and Annex ZA.1

Essential Characteristics Requirements According To BS EN 1856-1	Levels and/or classes: Informative Data	Document	Additional Information
Internal diameters Par.4.b	Available in diameters of 150mm-1200mm	Manufacturer's declared	Product catalogue Factory Production Control (Continuous Surveillance)
Liner Material Par. 4 .a and Par. 6.7.2	304 (1.4301 X5CrNi 18-10) 0.7mm + 0.9mm 316 (1.4404 X2CrNiMo 17-12-2)0.7mm+0.9mm	Manufacturer's declared	Product catalogue Factory Production Control (Continuous Surveillance)
Wind Load Resistance Par. 7.2 .d and Par. 6.2.3.2	Limitations of height location of exposed section of the chimney shall be 2.5 meters Maximum distance between lateral supports shall be 3.0 meters. Complied with the applied load of 312Kg on 200 Ø sections and fittings.	Manufacturer's declared Test report 19404/1/2	Annex A + Typical Installation

Compressive strength Par.7.2.e and Par.6.2.1			
Chimney sections and fittings Par.6.2.1.1 Chimney support Par.6.2.1.2	Chimney sections, fittings and Supports shall withstand an intensity of load of at least 3 x the declared design load, as per EN 1859 (Designated by the distance between supports)	Test report 19404/1 + test report AL3484	Annex A + Typical Installation
Tensile strength Par.6.2.2	Chimney shall withstand a load of at least 1.5 x manufacturer's declared, as per EH 1859	Test report 19404/1	
Lateral strength Par.6.2.3	Non-vertical installation. Maximum distance unsupported at 45° of 1.5 meters Vertical installation. Maximum spacing of lateral supports of 3.0 meters	Manufacturer's declared	Annex A + Typical Installation
Distance to combustibles, temperature related Par.7.2.f and Par.6.6.1	T600: 300mm T450:50mm T200:50mm	Test report 19404/1	
Flow resistance Par.7.2.g and Par.6.6.7	Mean value of roughness as per EN 13384-1:2002 Table B.4. 0.001mm	Manufacturer's declared Test report 19404/1	
Thermal resistance Par.7.2.h and Par.6.6.3	14.51 M ² k/Kw at T200°C	Test report 19404/1	
Thermal performance Par.6.6.1	Performance tests for designations	Test report 19404/1	Appendix A tests 4, 5, 6, 9, 10, and 11
Accidental human contact Par.6.6.2	Provide protective shield and/or place warning signs in access areas	Test report 19404/1	Appendix A tests 1, 2, 3, and 8
Gas tightness Par.6.5 and Table 1	The leakage rate for gas tightness 0.00064 l/s/m ² . Designation (H1)	Test report 19404/1	Factory Production Control (Continuous Surveillance)
Sootfire resistance Par.6.4	G(50):Yes Applies O(50):No	Test report 19404/1	
Water vapour diffusion resistance Par.6.6.4	D(Dry) T450 +T600 W(Wet)T200	Test report 19404/1/2	
Durability against corrosion Par.6.7	Stainless steel 304 (1.4301) or 316 (1.4404) 0.7mm and 0.9mm grades	Manufacturer's declared	Product catalogue

Fixing Of Chimney Identification Plate

In accordance to BS EN 1856-1: 2009, chimney identification plates retaining information related to product specifications and designations are to be permanently secured to a chimney system and/or in close proximity to it in an unobstructive but visible location. Suitable fixing positions would be either to/or near any Clean Out Doors, Draught Stabilisers, Manual Dampers or boiler connection components. It is also extremely important that this plate is not removed or defaced at any point. If the chimney plate is lost stolen off the system, then contact Flue System manufacturer for a replacement plate that must be fitted onto the system.

(j) Heating Distribution System:

Reconnect each zone and existing two pipe mild steel heating services pipework systems to mains/risers within boiler room and issue report on completion of all works including recommission/balancing existing LPHW heating circuits.

(k) General:

The tenderer is to ensure that each circuit is capable of independent isolation (this may not be possible in all cases) and where this is not already provided new valves to be supplied and installed on main branches within boiler room(s).

Isolation valves should ideally and where possible be located at high level/point of entry.

On initial survey the tenderer is to check all dimensions and access for new plant to ensure that the new equipment and materials proposed will be satisfactory.

Test all heating and hot water circuits/outlets on completion, make good walls and surfaces including paintwork to match existing finishes.

On Initial completion:

Attention is drawn to the boiler manufacturer's recommendations concerning the flushing out of all pre-operational contaminants from the system with the boiler temporarily isolated. When the system has been flushed through and totally clear, a heat test shall then be carried out on the system and associated controls.

The tenderer shall allow for a suitable water treatment programme to be introduced into the heating system but only after the system has been thoroughly flushed through and satisfactory heat test carried out.

The water treatment is to be in strict accordance with the boiler manufacturer's instructions and recommendations.

Contact boiler manufacturer in the first instance to check on any particular aspect of water treatment or recommended water treatment companies such as :-

Fernox Manufacturing Co Ltd – Tel 0017 9955 0811, or,

Betz Dearborn (Sentinel) – Tel 0151 495 1861

Or equivalent

Attention is drawn to the variety of mixed metals which will be found in the heating system and accordingly this aspect should be discussed with one or both of the above mentioned manufacturing companies.

The tenderer is to ensure that the system is adequately labelled within the boiler room stating:-

The heating system contains water treatment/inhibitor within it, and is not to be drained down unless at the request of the consultant.

The product used is Fernox MB1 (as example).

The amount required for the system is 50 litres (as example).
The product was installed on 15/10/2019 (as example).

All the above information is to be in **bold** print on the label.

The label itself is to be fully encapsulated, and left attached to the low loss header or if a more suitable place can be agreed on.

A copy of the above information is also to be kept in the O&M manual.

On Final Completion:

The tenderer shall allow for ringing and numbering all valves within the boiler room. Cable ties are not to be used.

The valves duty of operation and number information is to be clearly shown on a valve chart which is to be hung and displayed in the boiler room after being encapsulated and framed.

IMPORTANT NOTE :

1. The tenderer is to check the asbestos register before commencing any survey or works, paying particular attention to the boiler flue/terminals, boiler room ceiling and associated areas where works will take place, if there is any doubt about asbestos or you come across asbestos during the works which are not listed, you must stop work immediately and report the problem to the CA/Consultant. APEC/Oracle or equal and approved equivalent 'licensed asbestos contractor' should be in attendance as indicated to deal with any suspect materials when dismantling boiler and flues.

G) Additional Requirements

(a) Water Treatment:

Refer to additional clause and Section 9 of Part II of the main specification for all Alpha Fry Technology UK Fernox or equivalent water treatment and cleansing materials to be supplied and installed by the Services Contractor. Allow for testing/reporting prior to draining, flushing and refilling with clean water at least 2 times and until clear before installing a total of up to approx **150 litres of MB1** (or 4% concentration) or equivalent, in the completed installation(s).

(b) Boiler Room ventilation and combustion air:

The existing grillage/louvres are to be overhauled, cleaned or upgraded as previously specified (not less than 15mm wide spacing) for high level ventilation and low level air supply to the boiler rooms for combustion and ventilation to outside air but the Contractor is to allow for cleaning all dirt and dust from airways, shafts, windows/openings and louvres. Any additional new low level louvres required must be approved but four new 600x600 thermal linked fire dampers required as indicated to maintain separate boiler room fire compartmentation.

(c) Associated Control panel and automatic control equipment:

Further to Clause F above - Alterations and extensions to control systems and associated field wiring to be carried out by a single, independent BMS Controls Specialist contractor who shall have all the in-house facilities to complete the new control system design and manufacture custom built site specific control panel with BMS controllers and touch-screen display, BMS software design/engineering to suit the site specific equipment and particular specification and full commissioning requirements, with off-site BMS monitoring facilities and out-of-hours response if required by the client in the future or for the maintenance of installed BMS / control systems which must be included for the first 12 months (quotation to be provided upon completion and handover of O&M manuals for annual PPM thereafter).

Specialist control system contractors to be employed as part of the mechanical contract must be able to provide all the above. If not able to provide any of these services, sub-contractors or separate suppliers shall not be considered.

The BMS contractor's office should be based within a 1 hour response time or 30 mile radius of the site to keep the environmental impact of project delivery to a minimum and promote speedy site response during the contracted work and for the 12 month defect liability period.

The specialist contractor must be an accredited partner of the BMS manufacturer being proposed and as such, must be able to demonstrate to the manufacturer that they satisfy qualification criteria and undergo regular formal audits to ensure their activities continue to meet the manufacturer's required standards.

The successful tender will be expected to confirm the specialist contractor at time of tender and before any orders are placed, subject to agreement to contract programme.

The associated electrical installation in connection with BMS / control systems must be compliant with the GGA master specification for workmanship and standards that will apply to this particular project.

This requirement excludes upgrades to general lighting and power or contactors on supplies but they can be approached for additional quote for this if required by tenderers as all costs must be included by the Principal Mechanical Contractor responsible for appointing Control System specialist. AES Ltd or equal and approved equivalent to be confirmed at time of tender, for complete manufacture and supply of all associated controls as indicated (points list/take off below).

Panel Ref. / Loc:		MCP01 / Boilerhouse				Panel Type:		Two section (power & control) with door-interlocked isolator in power section, internal isolator in control section, control circuit MCB & panel live indicator.							
												Electrical Installation			
Totals:				9			7	7	4	8		25	4		2
Item No.	Qty	Controls Description	Item of Plant (All plant rated at 4kW unless stated)	Drives	Panel Kit	Plant Duty	AI	DI	AO	DO	Comments	PR	R	Ext.	Loc.
	1				DI40AM						main incoming supply from DB in plantroom (under Lighting & Small Power)				
		Safety Circuit													
	1										fire alarm relay provided by others adjacent to panel	1			
	2	Knock-off button									one in plant room, one at top of basement stairs	1	1		
	2	Electro-thermal links										2			
	1	65 mm gas solenoid valve	Tenderers to allow for replacement of existing if required - subject to satisfactory testing and checking that existing is serviceable, and only then will saving be considered if offered to client.									1			
	2	Gas sensors (Nat. Gas)									one above each boiler, 300 mm below ceiling level	2			
	1		Gas Safety Circuit Activated		indicator			1			Gas safety circuit status				
		Boiler Plant													
	2		Heating Boilers	2	1FSLLM	5A		2	2	2	fault / control / enable	2			
	1	Immersion sensor / pocket					1				common boiler flow	1			
	1	Immersion sensor / pocket					1				common boiler return	1			
	1		Pressurisation Unit	1	1FLM	10A		1			fault	1			

(d) Fire Stopping:

Supply and install 'Promaseal' range of proprietary fire resistant penetration seals or equivalent around each service or group of pipe/duct or cable, which pass through a fire compartment wall, floor or ceiling/roof. Use Promaseal fire compound or equivalent for large holes or Promaseal Silicone Sealant or equivalent for smaller holes.

These seals must be applied in strict accordance with manufacturers' recommendations, all as supplied by Messrs Promat UK Ltd, or equal and approved equivalent at time of tender.

(e) Drainage suitable temperature rated uPVC as required:

All overflows, condense, traps, as boiler manufacturers installation instructions, safety valve discharges via Tundish's to common low level perimeter header and terminate at a safe position close to floor level, above new floor gulley/sump to be upgraded with new Grundfos sump pumps and check valve.

Sump pumps – Supply and install new Grundfos UNILIFT KP250-M-1 (012K7100 & 96590429) or equivalent and new sump pump pit (size to accommodate two pumps with floats to operate as duty standby or duty assist) with high level alarm via volt free contact to operate sounder/buzzer (mute facility) and light/beacon etc as part of panel by specialist controls system provider to be included as part of mechanical works.

(f) Pipework Systems:

(i) Dosing Pots

Xpot required or equivalent as indicated above to be supplied complete with spare filters for changing at 3 months and 6 months intervals thereafter as part of this contract until the end of the defects liability period.

(ii) Test Plugs for Commissioning Valves

As supplied by Messrs IHL (Walraven Group) or equivalent for example, Type Twinlok ¼ BSP or equal and approved equivalent.

In addition, Twinlok test plugs to be fitted both sides of all circulating pumps with separate tee fitting suited for pumps with binder point for testing system differential pressure.

H) Specification for Painting and Finishes

The Mechanical Contractor is to allow for all cleaning down and for providing and installing subsequent new paint/stain finishes or equivalent to the following schedule as an example or material standards required:-

(a) Walls

Manufacturer : ICI Paints – Dulux Trade Classic Colours
Primer : One Coat Dulux Alkali resistant primer
Colour : White
Finish : 2 Coats Dulux Trade quick drying eggshell
Colour : White

NOTE : Existing walls to be rubbed down and thoroughly cleaned prior to new paint application.

Louvres and Doors

Clean down retreat timber work/frames (except where not appropriate/uPVC).

(b) Ceilings

Not Applicable.

(c) Floors

Manufacturer : Flowcrete Industrial Flooring Ltd – Flowcoat SF41
Finish : 2 Coat 2 pack epoxy resin coating with anti-slip finish – 1st coat followed by fine sand spread before applying final coat
Colour : Goosewing Grey 222
NOTE : Refer to manufacturers data sheets which must be adhered to for application.

I) Electrical Services

The following electrical mains and upgrade works on main panel will be carried out by qualified electrician or equal controls specialist to be confirmed at tender stage but allow for new MEM electrical distribution board or equivalent to serve associated new lighting and power supplies for heating boiler plant room only and timely orders will need to be placed by the successful Mechanical Contractor who will be responsible for co-ordination and liaison. Existing main electrical distribution equipment and existing cold water booster equipment must remain fully intact and operational at all times.

The contractor will be responsible for :-

- Strip out and removal of redundant main electrical and associated trunking within the old plant room.
- If required and existing faulty then, new LED enclosed linear 1500 long luminaires, lighting circuits and remove redundant lighting and associated wiring etc (See subsequent item i) Lighting).
- New emergency luminaire (may be integral as part of LED luminaire) fed from new d/board and local lighting circuit.

All works will be carried out during normal working hours Monday – Friday and with continuous work being available.

(i) Lighting

The boiler house lighting services wiring is to be replaced unless rewiring possible on point for point basis but with new low smoke single core cables enclosed in galvanised conduit altered to suit new layout/Led luminaires specified. The Mechanical Contractor and his electrician must allow for testing and verifying circuits and if required to supply and install the following new luminaires for installation. Alternative quotes with technical submissions will be required from the Contractor and preferably for consideration at tender stage, for example:-

Luminaires : General – 3 No main block Luceco ‘Climate’ LCL12W22E40 or equivalent single tube LED (one with integral emergency pack) totally enclosed IP65 linear luminaires 1240mm long. The emergency pack to be wired on a permanent supply with key operated test switch adjacent to the general light switch at the entrance door labelled ‘emergency light test’.

In addition, the existing luminaires within the boiler house only are to be removed but circuit protective device in the local distribution board replaced/upgraded as appropriate for the new D/Board required for clear demarcation and testing purposes.

Switches : MK Metalclad or equivalent single gang DP switch and adjacent 1 way secret key switch for emergency lighting test.

These will be wired as separate circuit from the new distribution board using 1.5mm sq LSF cables enclosed in galvanised conduit or MICV cables all surface fixed.

(ii) Small Power

Existing boiler room L&P circuits. 2 No MK Metalclad or equivalent surface mounted twin 13 amp SSO wired as a separate 20 amp radial circuit protected by a combined RCD/MCB in the distribution board with 2.5mm sq LSF single core cables enclosed in galvanised conduit all surface fixed.

(iii) Additional Main Earth Bonding

Additional new main bonding between the main electrical supply earth terminal bar and separate protective equipotential bonding to the incoming water and gas supplies to be supplied and installed using 2.5mm sq single core insulated green yellow LSF cables.

(iv) Automatic Controls

Upgrade existing automatic control panel to be carried out by approved Control System specialist or equal specialist approved at tender stage to include all associated electrical wiring to new heating plant, equipment and remote controls and gas detection/safety system and allowances to be included as part of the Mechanical Services Contract. All temporary wiring provisions must be allowed for in the Services Contractors tender. New relay required on existing fire alarm system to shut down system and gas supply. Fire alarm interface by the clients specialist or equivalent (existing provider, contact Pete Lattimore, New Flame Tel 01733 248100 Mobile 07500 858638).

J) Schedule of PC and Provisional Sums (see following breakdown)

In addition to the foregoing which the Contractor must allow for in his tender the Services Contractor is also to allow the following :-

1. For possible additional BWIC with Services and chimney stack/roof terminals.
Allow a Provisional Sum of £ 1750.00

2. For possible additional work associated with existing electrical and Fire Alarm System interfaces.
Allow a Provisional Sum of £ 1750.00
3. For contingency required for this section of upgrade works or for spares.
Allow a Provisional Sum of £ 1500.00
- TOTAL** **£ 5000.00**

K) Key Dates for GROSVENOR HOUSE

Summer 2019 - building with various tenants and occupied seven days per week

Shutdowns for any closures or disruptions must be agreed with at least seven days' notice (timelines TBA) but heating not anticipated as being required until MidOctober (date TBC).

670 – GH – AOT
(sheet 1 of 2)

GROSVENOR HOUSE BOILER REPLACEMENT SCHEME **BREAKDOWN OF WORKS**

For the complete supply and installation, testing, commissioning and setting to work, as indicated and specified :

1.1	<u>Inspections, Reports, Removal and Temporary Works</u> For all specified surveys including asbestos refurbishment and CCTV flue inspections, testing and reports, removal of all obsolete services and notices and temporary provisions including lockable skips (if required).	£
1.2	<u>New Main Plant</u>	
1.2.1	New LPHW gas fired boiler plant and new flues to existing shaft as specified including two new boilers, two new flue liners and terminals, plus new inverter single head pump sets for each circuit and new sealed system F&E, PLUS new duty/standby sump pumps as specified or equal and approved equivalent.	£
1.3	<u>New Piped Services</u>	
1.3.1	Extending existing gas supplies with new pipework to serve new boilers including utilising existing safety shut-off valve (allowance for new gas valve to be included and saving option to be offered to client, subject to satisfactory survey/testing etc).	£
1.3.2	Modify existing LPHW mains, headers and distributing pipework within boiler houses including new Spirocross low loss air/dirt separators, new X-Pot c/w auto-controls and connections to existing distribution system retained/reused with new valves on existing mains within boiler room.	£
1.3.3	Essential temporaries and modifications to existing heating and electrical services to facilitate new boiler plant	£
1.4	<u>New Thermal Insulation</u>	
	All Pipework Services: FOR PLANT ROOMS PLUS approx. 10m of existing MCW supply at high level of basement to Olive restaurant.	£
1.5	<u>Electrical Services</u>	
1.5.1	Lighting Installation – alterations.	£
1.5.2	Small Power Installation – alterations.	£

1.5.3	Earth Bonding – Upgrades.	£
1.6	H&V Control Panel Installations	
	Supply of upgraded BMS controller, controls, wiring and final commissioning by specialists responsible for BMA/controls and fire alarm interfaces	£
1.7	BWIC Services	
1.7.1	Extension and alterations to floor/concrete bases for plant.	£
1.7.2	Cleaning and modifying associated floor gulley/sump pump pit and drainage FOR PLANT ROOM.	£
1.7.3	Making good and fire stopping around services.	£
1.7.4	Flue/terminal structural remedial works and redecoration works as specified.	£
1.7.5	BWIC with replacing/upgrading existing 600mm (approx.) square vent louvres with FOUR new fire damper/thermal links with fire stopping/making good as appropriate to maintain compartmentation and match existing.	£
1.8	Testing and Commissioning	
1.8.1	Existing and New Gas Services.	£
1.8.2	Cleansing and final water treatment for all LPHW space heating and only associated domestic pipework systems.	£
1.8.3	All new boiler plant, equipment, pipework services, associated H&V control panel, controls and electrical services	£
1.9	Drawings and Manuals	
1.9.1	Fully co-ordinated detailed working and associated BWIC drawings.	£
1.9.2	'As Installed' drawings and details.	£
1.9.3	All Operating and Maintenance Manuals.	£
1.9.4	Handover procedures and practical demonstration to CBC staff and Client representatives.	£
	Sub-Total =	£
	PC and Provisional Sums	£ 5000.00
	TENDER SUM	£

670 –GH – AOT
(sheet 2 of 2)

GROSVENOR HOUSE BOILER REPLACEMENT SCHEME
SUMMER 2019 WORKS
ANALYSIS OF TENDER :
MECHANICAL

I/We confirm that the above tender is offered and is fully inclusive of all installation requirements in accordance with the specification and details, and inclusive of allowances for contract conditions and preliminaries and Contractors discounts.

I/We further agree that our personnel CV/registration details and detailed tender breakdown will be made available for the inspection of the Consultant and the prices contained therein will form the basis of a schedule of rates for the purposes of assessing and agreeing any cost variations which the Client, Consultants may subsequently decide upon.

I/We confirm that our tender will remain open for the period of 1 month from the return of tender for acceptance by the Client and Consultant.

I/We confirm that all operatives will have enhanced DBS (formerly CRB) certification for inspection upon arrival to site for inspection/approval by the Corby Borough Council at the outset of the project. I/We confirm the day work percentage will be:-

Labour%
Material%
Plant%

I/We confirm the above tender is based on the following normal working hours for operatives:-

Normal working hours per week
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NAME OF MECHANICAL CONTRACTOR	
COMPANY ADDRESS	

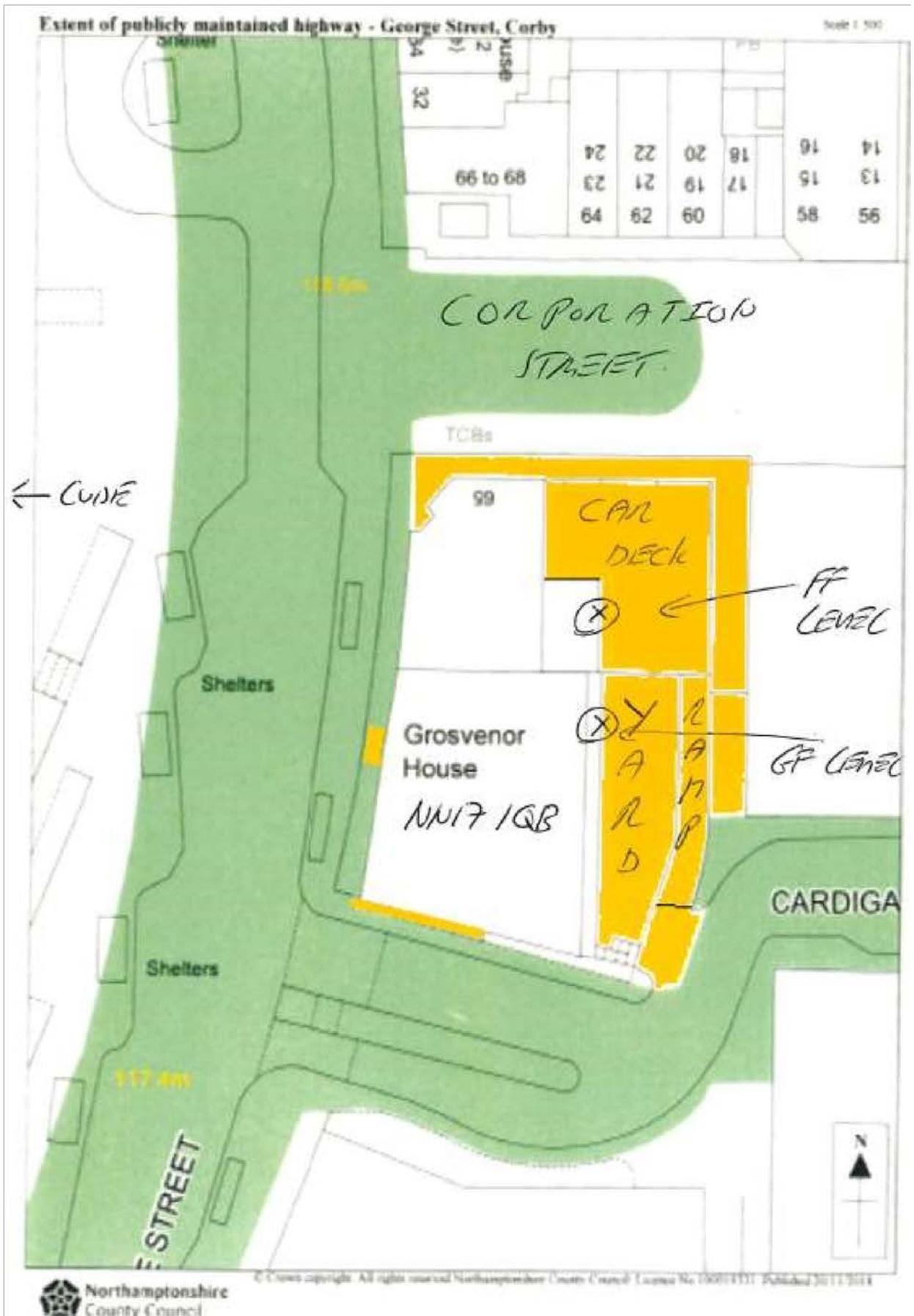
SIGNED BY:	
PRINT NAME:	
DATE:	

APPENDICES – GGA Spec Part III 670

1. Site Location/access plan & Internal layouts
(extract from asbestos survey plan) – page 45 - 47

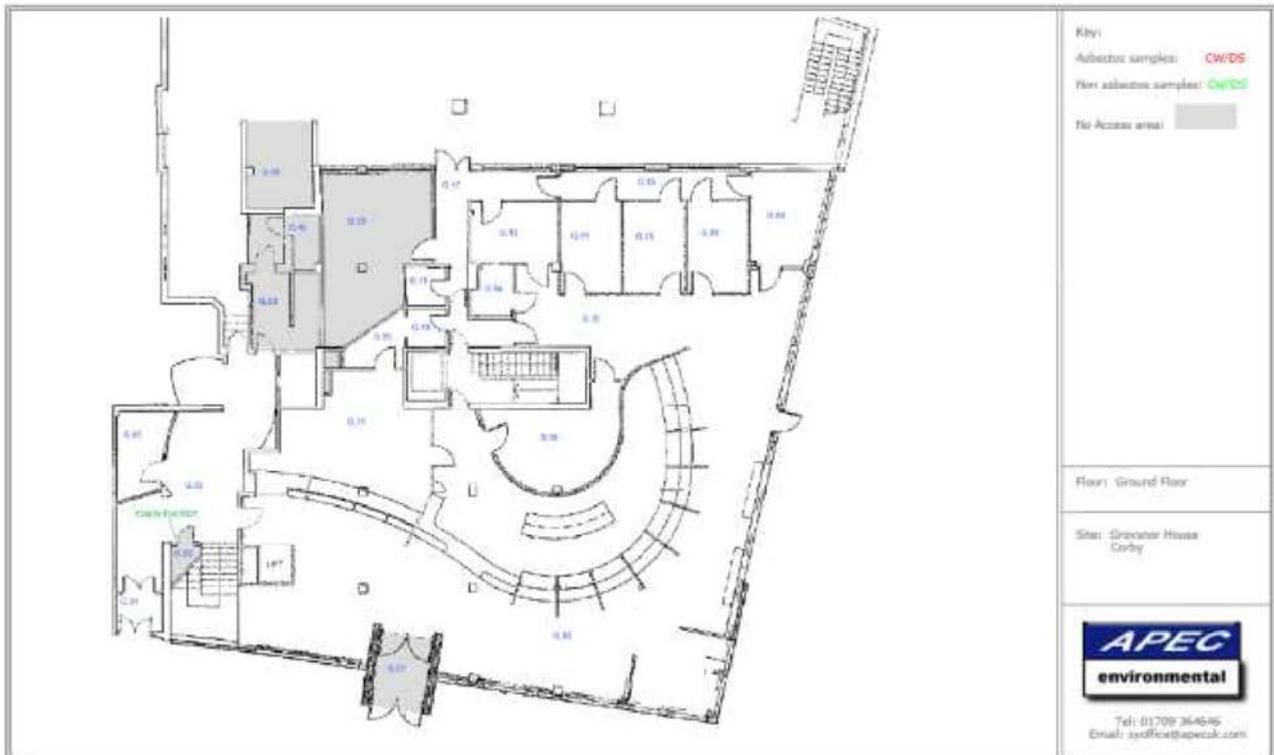
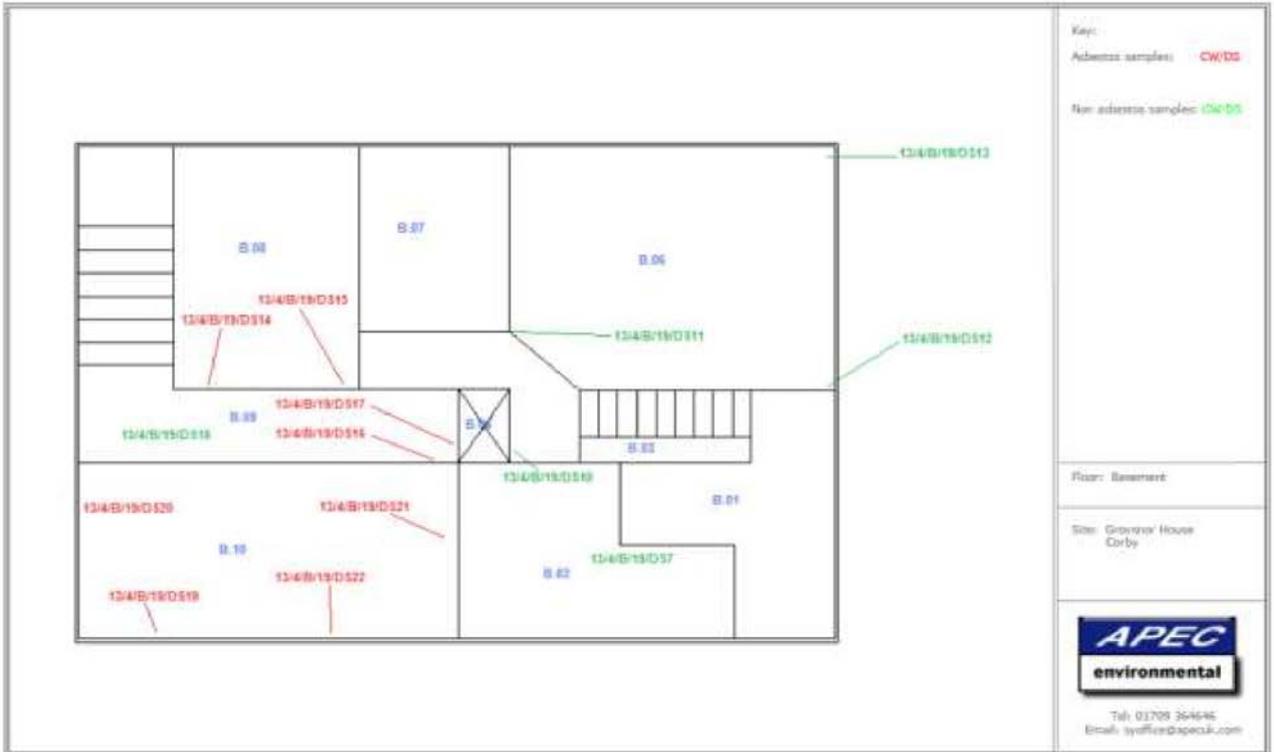
2. Proposed LPHW heating upgrade and main plant replacement sketch – page 48

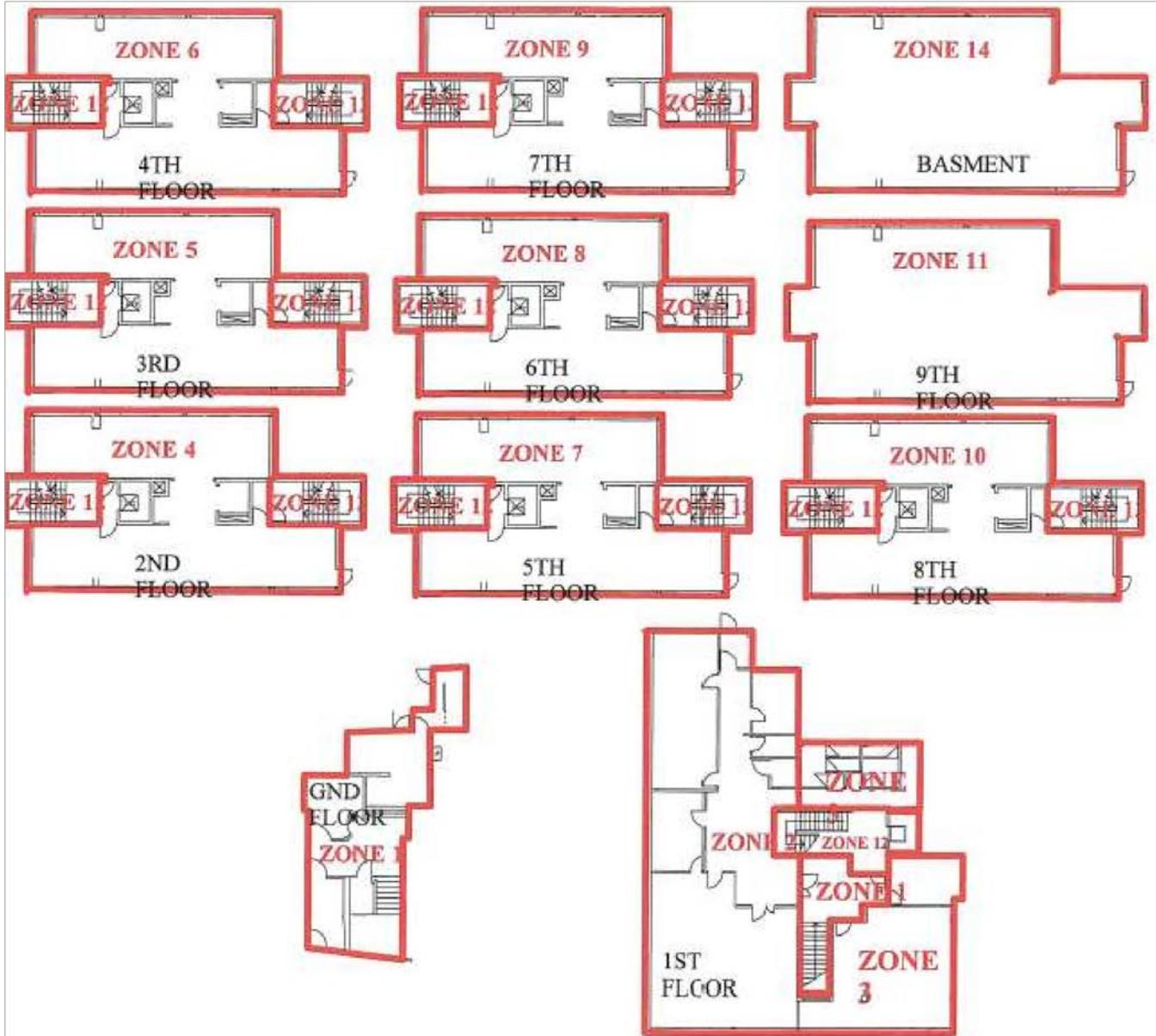
3. Refer to Asbestos Management plan (AMP 2018), Fire Risk Assessment, Water hygiene/Legionella report (GH-Water-Q-March 19), CBC Induction booklet – full copies uploaded as separate file/download on LGA portal for information only to all Tenderers before carrying out their own any surveys and inspections.



CBC are not obliged to offer car parking

- 1 vehicle may be accommodated, subject to space on the GF yard for loading unloading.
- There is plenty of reasonably priced Pay & Display car parking locally





CBC - GROSVENOR HOUSE (MAY '19)

PROPOSED BOILER REPLACEMENT

REFER TO 99A SPECIFICATION

