

Project: 44-46 Hampstead Lane, London N6 4LL

FHP ESS Project No.: 6678

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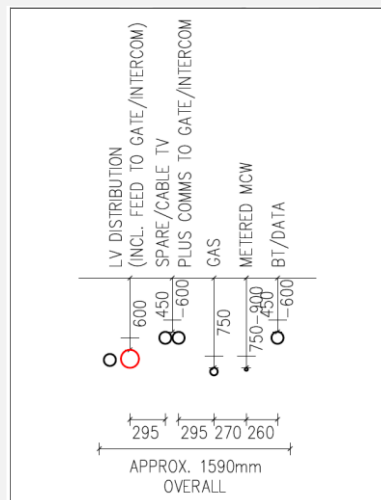
Item No.	Description
1.0	Introduction This Services Strategy summarises the technical design proposals for the MEP building services installations for the proposed development at 44-46 Hampstead Lane, London N6 4LL. This is considered to be a working document, requiring input from all members of the Client's Design Team. Where required, further issues will be submitted, incorporating various comments and observations from Team Members.
2.0	Site Overview 44-46 Hampstead Lane is an existing residential care home, located on the Hampstead Lane, North London N6 4LL. The site is being redeveloped for a new privately operated elderly persons' residential care home.
3.0	Development Proposals Current redevelopment proposals are for demolition, and construction of a privately operated elderly persons' residential care home, arranged over Basement to Third Floors, to provide some 66No. suited bedrooms The proposed general arrangement plans (GAs) indicate an underground car park at Basement Level, along with services plant, back of house areas, and commercial kitchen. Elderly resident suites, lounge/TV/activity and dining areas, front of house and office/admin areas are all located at Lower Ground to Third Floors. The building architecture provides multiple roof pitches and valleys, with minimal flat roof areas available for plant. Where utilised, flat roof areas are to be accessible for maintenance of plant, location of photovoltaic panels (PV) and inclusion of green roofs (tbc by Architect).
4.0	Incoming Service Provision The proposals for the Contractor's temporary builders supplies (TBS) are to be confirmed, however it is assumed that the development is to be provided with new utility service connections typically routed to plant areas located on the Basement Level, from Hampstead Lane. New services to include: • Mains cold water • Low voltage electrics (LV) • Subject to UKPN agreement an on-site substation shall be provided for a new

site-wide electricity connection. Requirement for substation tbc

- BT/Comms
- Gas (if required for commercial catering equipment)

In addition the site is to be connected to the combined sewer in Hampstead Lane, complete with sustainable urban drainage (SuDS). Please refer to the SuDS Report, issued under separate cover.

New incoming services will be arranged in accordance with the National Joint Utilities Group guidance (NJUG); see typical detail below:



5.0

Building Fabric

The building is to be designed and constructed to the following *minimum* building fabric efficiencies to meet the requirements of the Building Regulations calculations for approved document Part L2A:

- External walls: 0.16 W/m²K
- Basement floor, ground floor and floor above car park: 0.11 W/m²K
- Roofs and terraces at 0.13 W/m²K
- External doors at 1.5 W/m²K
- Windows and roof lights at 1.2 W/m²K (0.4 g-value)
- Accredited construction details
- Air permeability rate of 3m³/h.m²

In addition, the L2A calculations inform the following M&E elements:

- Individual MVHR ventilation units
- Heating by communal air source heat pumps.
- Comfort cooling by VRF system.
- Lighting (100% low energy proposed) with a luminaire efficacy of 110 lm/cW
- Power factor 95 necessitating power factor correction device

6.0

M&E Services Strategy

New M&E services are to be provided throughout, broadly as follows:

6.1 - ELECTRICAL SERVICES

1. General

Final colour and finish of domestic wiring accessories to be confirmed.

Fixing heights of domestic wiring accessories to be in accordance with Building Regs Part M, briefly summarised as follows:

- Sockets to be positioned at 450-1,000mm above finished floor level (FFL)
- Switches for permanently wired appliances to be positioned at 450-1,200mm above FFL
- Switches and controls which require precise hand movements to be positioned at 750-1,200mm above FFL
- Simple push button controls which require limited dexterity to be located at no greater than 1,200mm above FFL
- Switches and sockets to be more than 300mm from an inside corner measured horizontally.

2. Lighting

The scope for the lighting is yet to be confirmed by the Client in consultation with his/her preferred Audio Visual Specialist (where applicable) and in liaison with the Interior Designer (where applicable).

We suspect that standard switching will be used throughout. However, options might include:

- a) standard switching arrangements with/without inclusion of rotary dimmers
- b) digital dimming as Lutron 'Rania' or equal & approved
- c) provision of digital dimming with mood setting on a room by room basis using standalone 'systems' such as Lutron 'Grafik Eye' or equal & approved
- d) fully programmable lighting throughout with digital dimming with mood setting throughout stems' such as Lutron 'Home Works' or equal & approved

All switch plate finishes are to suit architectural requirements.

The luminaire schedule is to be confirmed by the Interior Designer and/or Architect, however Part L low energy lighting is proposed for a 100% of all fixed lighting (75% minimum), as light emitting diode types (LED), plus consideration to be given to compliant compact fluorescent types (CFL).

It is presumed that luminaires will generally be recessed within walls, ceilings or coffers.

Further feature lighting may include pendant lighting or wall sconces.

Inclusion of 5A lighting circuits is unlikely, but to be confirmed by the Client.
IP rated fittings will be provided to all external landscaping areas, flat roof areas, balconies and/or roof terraces.

Lighting levels to be in accordance with the Chartered Institute of Building Services guides (CIBSE):

<u>Room</u>	<u>Illuminance (lux)</u>
Residential specific areas	
Living Room	50 – 300 (CIBSE)
Bathroom / En-suite	150
WC	100
Kitchen	150 – 300
Hall/Stair/Landing	100
Non-residential areas	
Underground car parking	75 for parking bays / 300 for entrance and exit zones during daytime
Bedheads/wards	100 (LG9) Additionally: Curtained bedded areas no less than 300 lux using combination of ambient and task lighting. Central space between bed foot rails no less than 100 lux (75 lux with all curtains closed), measured at floor level
Circulation spaces (wards)	200 (CIBSE)
Consulting/treatment rooms	300 (maintained) / 500 (CIBSE)
Nurses' station	300
Operating theatres	n/a
Laundry rooms and utility areas	200 (LG9)
Recreation areas	200-500 (LG9) - depending upon use

3. Small Power

The electrical meter will be positioned in Primary Electrical Switch Room, with lighting and small power separately metered, similarly for significant energy consuming M&E plant such as air handling units, heat pumps, water circulating pump sets, space and water heating plant, passenger/goods/vehicle lifts, car park ventilation, car charging, commercial kitchen, laundry, etc.

All 13 Amp socket outlets to be protected by 30mA RCD (Residual Current Device). Inclusion of USB sockets is to be confirmed by the Client.

13Amp connection units to be provided to serve appliances, ventilation systems, heated towel rails (where applicable), U/F heating manifolds, electric floor warming, fire alarm system, intruder alarms, access control system and Landlord's CCTV. Connection units to be concealed where practicable.

4. Audio/Visual

The inclusion of A/V equipment and the extent of the scope are yet to be confirmed.

Fibre optic broadband will be provided, subject to availability.

Communal 'Sky Q' TV installation with outlets in suites, communal spaces and front of house areas, all as Client scope (tbc).

5. Access Control/Door Entry

Audio visual access control system as BPT Nova or similar (tbc), with colour monitor entry panel at building Reception, connected back to main front pedestrian access on Hampstead Lane.

6. Security

The inclusion of A/V equipment and the extent of the scope are yet to be confirmed.

Where provided an intruder alarm to be a hard-wired system, comprising of door contacts, window vipers, 4-way PIR detectors, and keypad located in the Staff Office. All areas accessible from Ground and Basement Levels, or via flat roofs to be considered. Provision of panic buttons to be confirmed, but presumed to include the Staff Office as a minimum.

7. Smoke Alarms

Mains operated smoke detection heads to be provided throughout, complete with battery back-up in accordance with BS5839 Part 6. The fire alarm shall be a fully addressable LD1 system.

Sounder Strobes to be provide in all toilets and communal areas.

Audible and visual indication to be provided in all bedrooms, communal toilets and bathrooms/shower rooms.

Heat detectors to be provided in commercial kitchens, serveries and kitchenettes/tea rooms.

Carbon monoxide detection to be provided for all gas burning appliances.

6.2 - MECHANICAL SERVICES

1. Environmental Control

Design parameters as follows:

Winter

<u>Location</u>	<u>Dry bulb temp (°C)</u>
External ambient	-4 (saturated)
Residential specific areas	
Bedroom	19
Living Room / Dining areas	22

Bathroom / WC / Assisted Bath	22
Hallways and circulation spaces	19
Reception / Lift Lobbies & circulation	19
<u>Location</u>	<u>Dry bulb temp (°C)</u>
Staircase	19
Non-residential areas	
Circulation spaces (wards)	19-24
Consulting/treatment rooms	22-24
Nurses' station	19-22

Summer

<u>Location</u>	<u>Dry bulb temp (°C)</u>
Residential specific areas	
External ambient	30
Bedroom	23 ± 2
Living Room / Kitchen	23 ± 2
Bathroom / WC	Not conditioned
Hallway	Not conditioned
Reception / Lift Lobbies & circulation	Not conditioned
Staircase	Not conditioned
Dining and Living/Activity Areas	23 ± 2

A. Space Heating

Space heating is to be provided by a combined water chiller and heat pump system in a cascade arrangement for simultaneous heating and cooling.

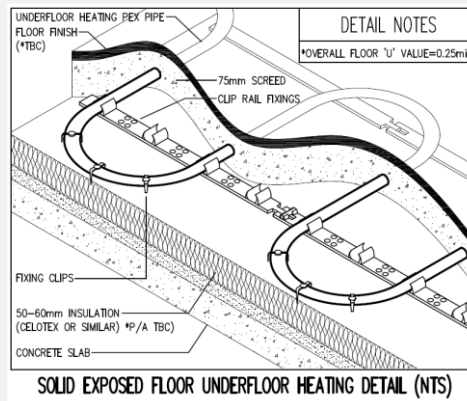


Water to Water Heat Pump

Space heating to be provided by means of wet underfloor heating systems and/or low surface temperature radiators (LST), limited to 43°C surface temperature.

Wet underfloor heating systems each to be complete with manifold, circulation pump and 3-port mixing valve.

Wet underfloor heating assumed to be a traditional 'clipped' system within the floor screed (as detail below), typically 65mm screed depth - final arrangement tbc:



Wet under floor heating arrangement

Floor probes to be provided under sensitive floor finishes such as timber or engineered board.

As a point of note, in order to guarantee effectiveness of the underfloor heating systems floor finishes above underfloor heating systems must not provide insulation levels greater than 2tog.

Underfloor heating controllers to be provided in each zone for temperature control and time scheduling.

Consideration will be given for interfacing the underfloor heating with the A/V, where provided, typically via connection with a 'Heatmiser' control system, or equal & approved.

LST electric heat emitters/towel rails to be provided in bathrooms, shower rooms, en-suites, etc., with surface temperatures not to exceed 43°C – selections to be confirmed on Interior Designer's/Architect's sanitary ware schedule.

Back of house, lift lobbies and circulation spaces can be provided with electric panel heaters for background heating, where deemed to be too small for u/floor heating systems.

B. Comfort Cooling/Air Conditioning

Water to water heat pumps to provide comfort cooling/air-conditioning in all resident bedrooms, and common rooms, such as Dining Rooms, Lounge/Activity Rooms.

Cooling to be provided by 2-pipe chilled water fan coil units (FCU), assumed to be located in dropped ceilings in resident bedrooms, typically above bedroom doors, or with en-suite.

Conditioned supply and return air shall be distributed from/to FCUs by way of discreet frameless diffusers. Diffusers to be plaster-in powder coated types to match joinery/wall/ceiling finishes. Options include:

- a) Bladed diffusers
- b) High induction slot diffusers
- c) Linear bar grilles with swirl diffusers directed behind

Where grille lengths cannot accommodate supply & return the return air can be conveyed via shadow gap details at skirting level, subject to airflow rates.

Comfort cooling controls to be subject to inclusion of A/V. Options to include:

- a) Local controls only.
As flush mounted 'simplified' local controllers for each comfort cooled room, connected back to a 'master' controller with time clock scheduling in each dwelling
- b) Interface and partial over-ride by home automation type systems.
As (a) but with necessary equipment to permit interfacing closed protocol from comfort cooling master controller to A/V system. Retain local comfort cooling controllers
- c) Interface and full over-ride by home automation type systems.
As (b) but excluding local comfort cooling controllers. Provision of thimble sensors or similar on A/V system, allowing full control of comfort cooling via A/V controller(s)

2. Cold Water

Cold water is to be provided via a new bulk metered supply from Hampstead Lane, in turn feeding a cold water storage tank with delayed action valve assembly, and cold water booster pump arrangement within a Basement Level Tank Room.

Cold water storage volume to be nominal 9.0m³, as determined by BS EN 806-3. Typical tank dimensions to be in the region of 3.0m(l) x 2.0m(w) x 1.5m(h).

Boosted cold water to be provided throughout, with cold water supply routed through the common area ceilings.

Water pressure to suit the requirements of the sanitary ware fittings specified within the Interior Designer's/Architect's sanitary ware schedule. Typically 1.5 bar minimum, rising to as high as 3 bar to suit said fittings.

Pressure reducing valves (PRV) to be installed where required preventing over-pressure.

Water conditioning devices to be installed to prevent excessive scale build-up, particularly on the hot water as required by Building Regulations Part L. Safeguarding measures might include an electrolytic scale inhibitor between tank and booster, as 'KalGUARD' by Sentinel Performance Solutions, or equal & approved. 'KalGUARD' to include meter for varying the performance of the zinc anode, complete with pre-filter upstream of meter.

Sanitaryware and fittings (plus white goods) to be selected by the Architect/Interior Designer to surpass Building Regulations water efficiency targets (Part G2) such as the use of eco fittings with aerated heads, etc.

3. Hot Water

Communal hot water will be provided by way of a cascade heat pump arrangement, namely water to water heat pumps.

Hot water storage volumes to be circa 1700 litres with 2No cylinders having typical dimensions of 1.0mØx2.1mH.

Hot water service distribution pipework to terminate at local isolation valves and thermostatic blending valves (TMV) on all residents' outlets; excluded from back of house areas, such as kitchens and cleaners sinks. TMVs set for 44°C max. A hot water return service to be installed, to ensure hot water draw-off not less than 50°C within 30 seconds of fully opening a hot tap (subject to inclusion of TMVs).

Water pressure to suit the requirements of the sanitary ware fittings specified within the Interior Designer's/Architect's sanitary ware schedule. Typically 1.5 bar minimum, rising to as high as 3 bar to suit said fittings.

Pressure reducing valves (PRV) to be installed where required preventing over-pressure.

Water conditioning devices to be installed to prevent excessive scale build-up, particularly on the hot water as required by Building Regulations Part L. Safeguarding measures might include an electrolytic scale inhibitor between tank and booster, as 'KalGUARD' by Sentinel Performance Solutions, or equal & approved. 'KalGUARD' to include meter for varying the performance of the zinc anode, complete with pre-filter upstream of meter.

Sanitaryware and fittings (plus white goods) to be selected by the Architect/Interior Designer to surpass Building Regulations water efficiency targets (Part G2) such as the use of eco fittings with aerated heads, etc.

4. Ventilation

Ventilation shall be in accordance with the air quality assessment and the overheating report.

In the interests of isolating odours and noise, residents' bedroom ventilation is to conform to Building Regulations Part F, 'system 4' - MVHR 'whole house' ventilation. MVHR units to be selected to assist with the SBEM Building Regulations compliance calculations, with correspondingly low specific fan power, and heat recovery cores with high heat exchange efficiency.

The MVHR units will be installed as Building Regulations 'System 4' with operation at trickle rate, further increased to 'boost' rate by interlocks with light switches. MVHR units shall be selected to include 'Summer' bypass function.

Where practicable ventilation systems to operate at 'background' ventilation rates with boost rate when required, via interlocks with bathroom lighting, dedicated PIRs (movement detectors), or remote boost switches.

Typically purge ventilation is proposed as by openable windows, as per the Architect's design and window schedules e.g. for purging odours, airing a bedrooms, etc.

Common areas, such as dining rooms, lounge/activity areas, etc., each to have individual commercial heat recovery air handling units (AHU).

Ventilation terminals typically proposed as white powder coated air valves located within ceilings. Where FCUs provided fresh air supply can be introduced via the comfort cooling diffusers (located in ceilings and/or joinery). Fresh air inlet and exhaust air terminations shall be via louvres above windows, as indicated by the Architect's elevations.

The commercial Kitchen will be provided with mechanical extract ventilation, to suit the proposed appliance, but vaguely in-line with the typical 60 air changes per hour, predetermined by BESA 'DW/172' guidance. Make-up air is to be provided at 85% of the extract rate, to ensure negative pressures within the Kitchen, and thereby avoid transfer of odours to surrounds areas.

The commercial kitchen extract system is to be designed by a Kitchen Specialist, with odour and noise abatement, as required. However, we have predetermined an extract and supply duct route through the building to a flat roof, where fans to be located, with any acoustic attenuation provisions, as required.

An overheating analysis is being performed as part of the Energy & Sustainability Statement to assess the performance of the proposed development against CIBSE TM52/TM59. Results will be published in due course but are predicted to confirm the requirement for cooling in residents' bedrooms.

Similarly the model will consider communal/circulation areas. Where overheating is deemed to be a concern, environmental control is proposed to be provided by the smoke extract systems, whether this be natural smoke extract systems, or an engineered solution with smoke fans. Typically, this would entail operation of the AOV louvres, and energising of secondary environmental control fans on an engineered solution, by way of thermostat(s) in the corridors.

A sample of the expected worst performing residential units have been modelled. The predicted internal temperature was simulated considering all aspects of occupancy, solar gain and predicted internal heat gains. Specific weather files have been applied to the model to assess the building performance against urban heat island effects and projected future climate conditions.

5. Gas

Since space and hot water heating is proposed by way of electrically driven heat pumps, gas will only be provided if required for commercial cooking (tbc). Where required, the site will be provided with a new metered supply from Hampstead Lane, with gas meter and GRP kiosk located within the landscaping within the site boundary.

The gas will run through the Basement Level, with gas shut-off valve, before routing through to feed commercial catering equipment. Any gas pipes within unventilated voids, such as ceilings, a pipe-in-pipe solution will be required, typically as 'TracPipe CC' by Omegaflex, or equal & approved, except where not a recognised product by warranty providers as a suitable 'pipe-in-pipe' offering for use in unventilated voids e.g. NHBC.

6. Car Park Ventilation

Mechanical extract ventilation system shall be provided for basement car park capable of at least six air changes per hour. In fire mode the system will extract 10ac/hr. Impulse fans shall be utilised to assist extract ventilation.

The whole system shall be discussed and agreed with the Building Control Officer.

Car park extract air fans shall be provided to the Basement car park area. The extract ductwork shall be run from a Basement shaft to a Ground Level landscape area housing, with discharge louver to be provide for termination of the exhaust duct.

An air intake shaft shall be provided from Ground Level to the Basement car park.

7. Acoustics

External Plant noise

Refer to the Acoustic Report, sent under separate cover, in respect of acoustic performance and mitigation measures.

Internal plant noise

Ventilation and comfort cooling to be designed in accordance with the CIBSE guides:

<u>Room</u>	<u>Noise Rating (NR)</u>
Residential specific areas (hotel design criteria)	
Individual room, suite	20-30 (CIBSE)
Ballroom, banquet room	30-35 (CIBSE)
Corridor, lobby	35-40 (CIBSE)
Kitchen, laundry	40-45 (CIBSE)
Non-residential areas	
Cafeteria, canteen,	40-45 (CIBSE)
Waiting room	35 (CIBSE)
Corridor,	35-40 (CIBSE)
Wash room, toilet, kitchen	35-40 (CIBSE)
Staff room, recreation room	30-40 (CIBSE)
External ambient	To be advised

Acoustic attenuators (silencers) will be considered where necessary. All FCUs to be selected at low fan speed.

Drainage to also give consideration to acoustic targets whether through use of cast iron pipework, specific acoustic products such as Geberit 'Silent-db20', Terrain 'dB12', or equal & approved, or insulation packed around stacks and crucial offsets.

6.3 - PUBLIC HEALTH SERVICES

1. Above Ground Foul Water Drainage

It is proposed that cast iron soil and waste vent stacks will be used with PVCu branch pipework, eliminating the requirement for fire collars on the vertical floor-to-floor penetrations, and thereby permitting reduced heights within ceiling voids, and also in an effort to eliminate noise.

Acoustic pipework to be considered as an alternative to cast iron, such as Geberit 'Silent-db20', Terrain 'dB12', or Marley 'dBlue', or equal & approved.

All drainage to be concealed, but to include access points for rodding at heights above the appliances being served e.g. above wash hand basin heights.

Multi-manifolds to be used where floor levels dictate, or where 'no-connection zones' on SVPs can't be avoided. Multi-manifolds to be recessed into the floor slabs within nominal 250 x 250mm builders work holes, permitting 42mmØ low level drainage from baths and showers to run within the depth of the floor build-up (screed and finishes).

All soil vent pipes (SVP) and waste vent pipes (WVP) to vent to atmosphere where practicable.

Air admittance valves (AAV) to be used only where stacks ventilation to atmosphere is impracticable. Where installed, AAVs can be used for rodding access to stub-stacks. Ventilation openings to be provided in box-outs where AAVs are concealed, to permit air intake to AAVs.

2. Above Ground Rain Water Drainage

The rainwater goods are to be designed and selected by the Architect, but the general principle to include either rainwater outlets or weir overflows and hoppers and/or gutters from the flat roofs, with collection via a series and downpipes.

Rainwater disposal from the any further intermediate flat roof areas and front entrance porches to be designed by the Architect.

FHP ESS propose metal roof outlets, balcony outlets, floor gullies and floor channels within plant rooms, refuse stores, tank rooms, etc. Cast iron pipework and accessories throughout with rodding access.

3. Below Ground Drainage

Design principles for the below ground drainage external to the building footprint are to be based on high level suspended cast iron drainage within the Basement, conveyed by gravity to the outfalls.

Foul and storm water drainage in the Basement itself is to be collected in pump chambers for pumped discharge to a high level gravity system before exiting to the outfalls. Basement level foul water drainage may include pressure and temperature blow down, tank warning pipes and overflows, and general plant drain down. Basement level storm water drainage capture is may include water ingress via car park entrances/ramps, and ventilation light wells, where relevant, with collection by way of channel/slot drains.

The foul water drainage pump chamber will be selected to provide 24hr storage capacity, and will be provided complete with duplex pumps for run/standby, and lead pump rotation, as well as all necessary float and level switches, alarms and repeater panels, etc.

Similarly, the surface water drainage pump chamber will be complete with duplex pumps for run/standby, lead pump rotation, and all necessary float and level switches, alarms and repeater panels, etc.

Where required, cavity drainage is to be designed by Architect, with connections back to a packaged cavity pump chamber, with pumped discharge to high level suspended gravity drainage.

External rainwater collection is to form part of a Sustainable Urban Drainage System (SuDS). Refer to the SuDS Report, sent under separate cover.

6.4 – COMMUNAL SERVICES

1. Lighting

Lighting to all communal areas to be PIR controlled LED and/or compliant CFL type bulkheads, all as 100% low energy luminaires.

External lighting requirements to be confirmed, with consideration to light pollution, Secured by Design (where applicable), etc. Control presumed to be by dusk 'til dawn sensors.

2. Small Power

Key enabled 13A fused socket outlets provided in communal and circulation areas for Cleaners' use.

3. Fire Fighting

Fire Alarm

Type LD1 fire alarm, with fully addressable fire alarm panel inside the front entrance.

Additionally a smoke extract system may be required, such as an automatic opening vent (AOV), to be determined by the Fire Strategy. Where installed this system is to be linked to the fire alarm system.

Dry Riser

Dry risers may be required, subject to the Fire Strategy. Where required, these to be provided in each stair core, in compliance with the Fire Strategy.

The dry riser to comprise 100mmØ inlet breaching valve set(s), with 100mmØ grooved or 'Victaulic' galvanized pipe arrangement, conveying to 65mmØ landing/outlet valves, within fire rated recessed landing valve cabinets.

Sprinkler systems and fire hoses

Where required by the Fire Strategy, BS9251 compliant sprinkler systems shall be provided (tbc).

Back-up power/secondary supply

A diesel/fuel oil generator shall be provided to serve all life safety systems, including but not limited to fire fighting lift(s), mechanical smoke extract system(s) (AOV), mechanical car park smoke clearance systems, fire sprinkler pumps. Generators to provide power for a minimum of 2 hours.

4. Security

Closed circuit television (cctv) cameras to be strategically positioned at all site entrances, with hard drive recording facility behind the Reception Desk, or in a Manager's back of house office area (tbc) – Client to confirm any requirements for external monitoring, by Redcare line or other.

Furthermore, internal rooms, circulation areas, or other may require monitoring (Client to confirm).

Regardless, scope will be included for the system to be connected to LAN for web

connection at a future date.

5. Access Control

Access control as described in Section 6.1-5

6. Lightning Protection

Subject to a risk assessment, the building structure shall be protected with an air termination network, so as to disperse a direct strike to ground, in accordance with BS 6651.

Also, due to the installation of communications and media systems equipment, it is proposed to provide suitable electronic surge protection on incoming copper cabled services, electricity, BT, TV aerials/satellite dish, etc.

7. Cold water

Communal cold water storage and booster as described in section 6.2.2.

Water outlets to be provided where required for the landscaping proposals, also to include a Cat5 outlet for wash down of the Refuse Store(s).

Pressure reducing valves (PRV) to be installed at each level to prevent over-pressure.

8. Ventilation

Communal Refuse Stores to be naturally ventilated where possible using standard weather louvres/louvred doors. Where mechanically ventilated ductwork must be fire rated were passing through any adjacent fire compartments, as should fan(s).

9. AOV/ Mechanical Smoke ventilation

Automatic opening vents (AOV) shall be provided to meet Building Control requirements. The stairs and corridors shall be provided with either natural or mechanical forced smoke ventilation (engineered solution), as determined by the Fire Strategy.

10. Heating

Space heating as described in section 6.2-1-A.

11. Vertical Transportation

New passenger lift(s) to be provided in each core. Exact capacity, configuration, travel speed, etc., are all subject to a lift analysis and performance specification, but likely to be based on motor-room-less types (MRL) for space saving.

FHP ESS understand that fire fighting lift(s) will be provided. These to form the means of evacuation for ambulant residents, in place of providing disabled refuge points and alarm call points (tbc by the Fire Strategy).

7.0

Acoustics

Refer to Acoustic Report issued under separate cover.

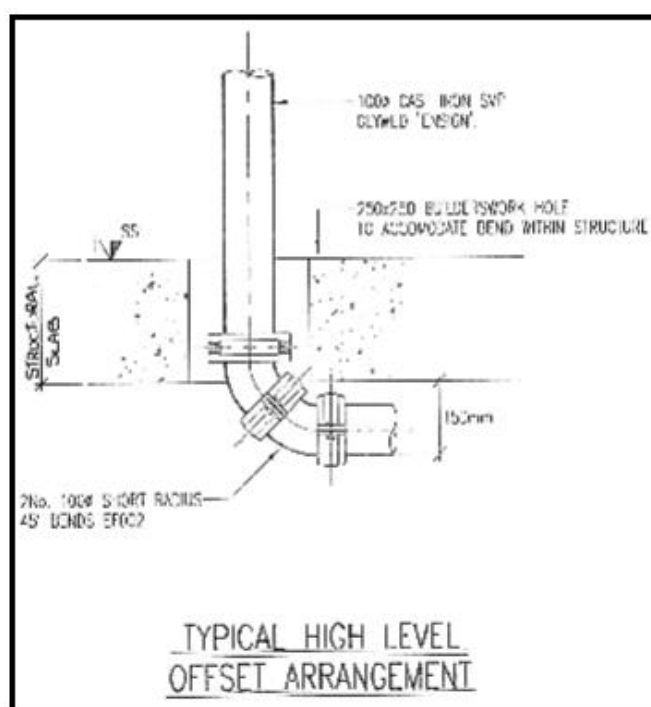
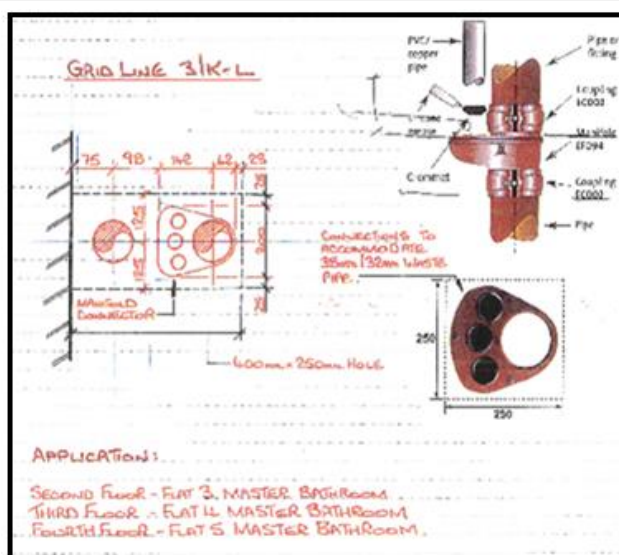
	The Acoustic Report outlines the remedial acoustic measures required in order to meet Local Authority requirements. Measures include: • Acoustic silencer for the kitchen extract duct termination, and kitchen intake fan • Rooftop plant enclosures for heat pumps. • Acoustic barriers for all external AHUs and heat pumps. Barrier height to match the plant served
8.0	Air Quality Refer to Air Quality Report, issued under separate cover. The Acoustic Report will outline the remedial air quality control measures required in order to meet Local Authority requirements. Measures include: • Mitigation measures to minimise dust emissions during construction • Filtration of road-side air intakes
9.0	Sustainable Urban Drainage (SuDS) Refer to the Flood Risk Assessment (FRA), and SuDS report, issued under separate cover. The SuDS Report outlines the remedial rainwater attenuation measures required in order to meet the required discharge rates to the local storm water sewer, located in Hampstead Lane. The measures include: • Green roofs, • Porous surfacing for areas of hard standing, underlain by a hydrocarbon removing geotextile membrane, at the driveway and external car parking areas. • Raingarden planters • Attenuation tank(s) in line with the requirements of The London plan
10.0	Sustainability Refer to the Energy & Sustainability Statement to be issued under separate cover. It is proposed that high efficiency heat pumps are to be installed for space heating and cooling. Heat pump units to be located on the flat roof areas. These will extract low grade heat from the ambient air, in a similar manner to the condensers of traditional air-conditioning systems. The redevelopment should aim to include electric car charging, at a level in accordance with the Local Authority Borough, typically 20% 'active' car charging points, and 20% 'passive' (80% 'passive', where sufficient electrical power can be made available). That's to say infrastructure should be installed for electric car charging at a minimum of 40% (potentially 80%) of the total number of car parking spaces, with car charging points physically installed and operational at 20% of these. Infrastructure is defined as electrical capacity, cable containment, and capacity to accommodate at all main distribution boards/switchgear. The output of these car charging points is proposed as 3.6kW single or three phase, although higher outputs of 7kW and 22kW three phase outlets are available for fast

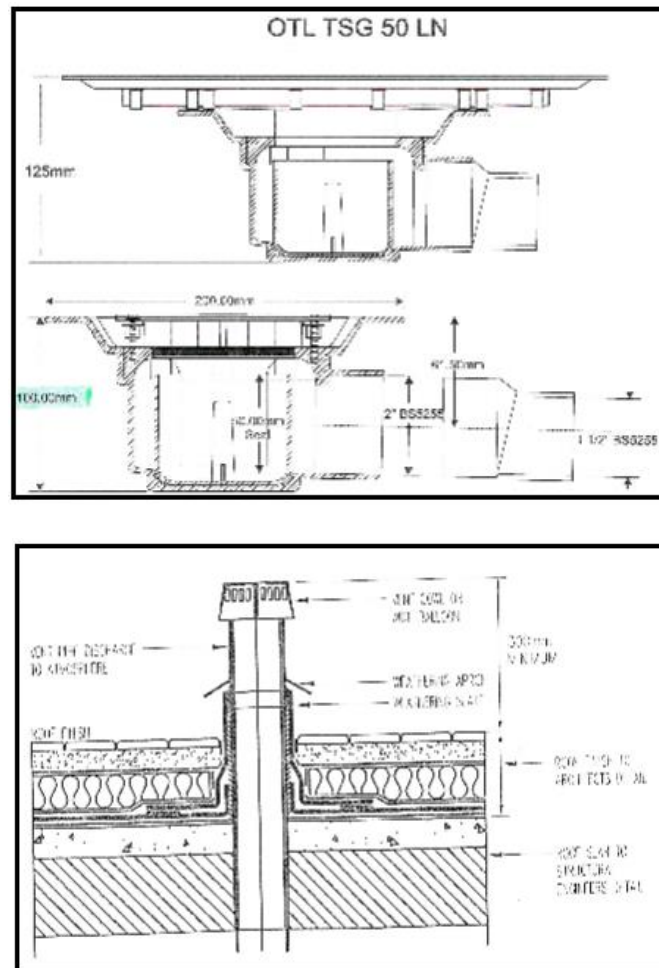
charging. We would propose the 3.6kW outlets in this instance, such as those available in single wall-mount type or dual outlet posts from Podpoint, or equal & approved.

The London Plan requires new build sites to maximise on the inclusion of photovoltaic panels (PV), for on-site power generation. In line with the Energy & Sustainability Strategy solar PV installation with a peak power output of 24 kWp shall be provided.

11.0 'Typical' drainage details

Proposed drainage details as follows:





12.0

Associated Reports

Awaiting the following:

- Energy & Sustainability Strategy

Circulation:

'44-46 Hampstead Lane' Design Team

Bob Bashford, Vin Makwana and Bipin Bhatt and @ FHP ESS

by Tamer Asim of FHP ESS