

Diagram 4 - Stepped approach WITH LEVEL LANDING

STEPPED APPROACH DETAILS FOR ALL DWELLINGS



AVK CLEARWAY HYDRANT

Minimum Flow Rates and Location of Fire Hydrants are:
 1. Housing
 Minimum of 8 l/sec (480 l/min) for detached or semi-detached of not more than two floors up to 35 l/sec (2100 l/min) for units of more than two floors, from any single hydrant on the development.

The main doors for entering the new dwellings (usually the front door) to have a door viewer unless other methods exist to see callers, such as clear glass within the door or a window next to the doorset. The same doorset to also have a door chain or door limiter.

All new external windows and doors within the dwellings to meet the PAS 24 Security Standard for controlled fittings.

All new dwelling houses TO be provided with an interlinked mains powered (with battery backup) fire detection and fire alarm systems in accordance with the relevant recommendations of BS 5839-6: 2019 to at least a Grade D2 Category LD2 standard. Detection should be provided in the circulation spaces within 7m of habitable room doors and within 3m of bedroom doors on each floor level along with a smoke detector in the lounge and a heat detector in the kitchen.



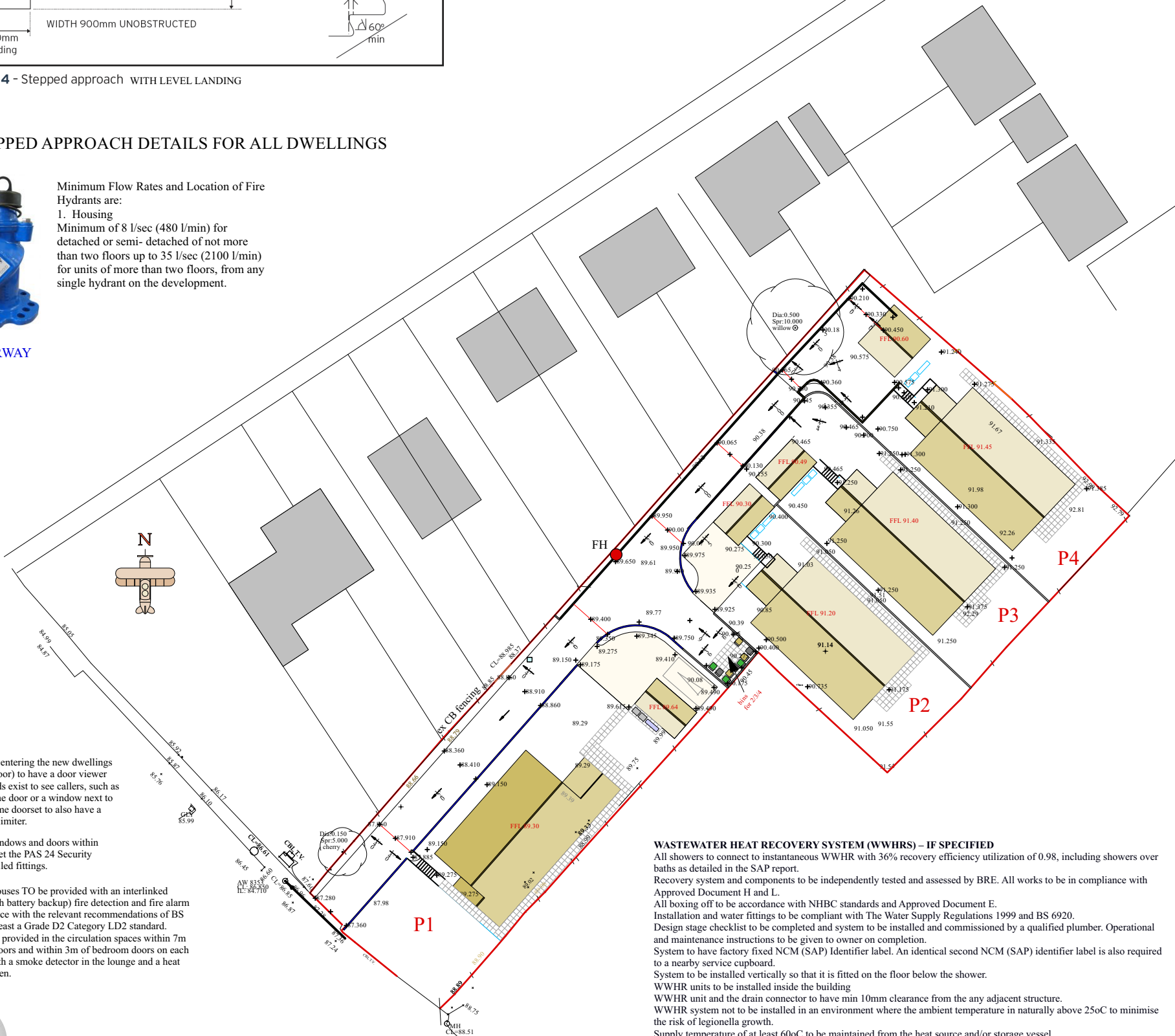
The road carrying capacity should also be designed to carry minimum 12.5 tonnes,



Each new dwelling is to be equipped with gigabit-ready physical infrastructure that extends from a network termination point for gigabit-capable public electronic communications networks and reaches a distribution point or, as close as is reasonably practicable to a distribution point in accordance with RA1.

Each dwelling to be provided with a connection to a gigabit-capable public electronic communications network in accordance with RA2.

Each garage to the 4no properties is to incorporate an external Regulation 44D/J compliant vehicle charging point - alongside the main garage doors
 All electric vehicle charge points to be designed and installed in accordance with BS EN 61851, have a min nominal rated output of 7kW, fitted with a Universal socket and charging indicator. It must also satisfy the requirements of BS EN IEC 61851-1 and BS 7671.



WASTEWATER HEAT RECOVERY SYSTEM (WWHR) – IF SPECIFIED

All showers to connect to instantaneous WWHR with 36% recovery efficiency utilization of 0.98, including showers over baths as detailed in the SAP report.
 Recovery system and components to be independently tested and assessed by BRE. All works to be in compliance with Approved Document H and L.
 All boxing off to be accordance with NHBC standards and Approved Document E.
 Installation and water fittings to be compliant with The Water Supply Regulations 1999 and BS 6920.
 Design stage checklist to be completed and system to be installed and commissioned by a qualified plumber. Operational and maintenance instructions to be given to owner on completion.
 System to have factory fixed NCM (SAP) Identifier label. An identical second NCM (SAP) identifier label is also required to a nearby service cupboard.
 System to be installed vertically so that it is fitted on the floor below the shower.
 WWHR units to be installed inside the building
 WWHR unit and the drain connector to have min 10mm clearance from the any adjacent structure.
 WWHR system not to be installed in an environment where the ambient temperature in naturally above 25oC to minimise the risk of legionella growth.
 Supply temperature of at least 60oC to be maintained from the heat source and/or storage vessel.
 An Approved single check valve prevention device providing backflow prevention to at least fluid category 2 to be fitted at the point of connection(s) between the water supply and the fitting or appliance.
 Length of drainpipe between shower and WWHR system to be less than 3 meters as far as practicable.
 Access points to be provided.
 Any shut-off valves for inlet and/or outlet to be full flow (non-restricting) shut off-valves.
 WWHR pipe to be the same nominal size as the waste pipe to which it is connecting.
 Pipework between the WWHRs preheated water outlet and the water heater and the shower cold-water inlet(s) to be insulated in accordance with the specification for DHW primary circulation pipes defined in 'Domestic Building Services Compliance Guide'.

SOLAR PANELS – IF SPECIFIED

All solar products to be tested and classified using methods described in BS 476-3:2004 or DD ENV 1187:2002 T4. Installation to be in compliance with all manufacturer's details and specifications.
 Installation must not impair the weather tightness of the roof. All penetrations through the roof to be weatherproofed and covered with suitable flashings, purpose-made tiles, etc.
 Installation to have sufficient resistance to wind suction forces for the location. The solar installer to calculate the wind loads for the location (taking into account the local wind speed, site altitude and topography, building height and roof configuration) and choose components or kits with a declared wind resistance that exceeds those wind loads.
 The roof structure to be designed to accommodate the load of the collectors, advice of a structural engineer to be sought if required. Floor construction to be capable of withstanding the load of any large cylinders or thermal stores.
 All components to have adequate resistance to the external spread of flame in compliance with Part B4 of Approved Document B.
 Ensure the panels are not fitted in the shadow of overhanging branches, a chimney or aerial.
 Collectors to be located so that they can be safely accessed for cleaning and maintenance, (at a pitch of more than 15° they are normally self-cleaning).
 The system control panel and display to be located in a prominent position, such as in the kitchen or alongside the central heating programmer.
 Pumps and controls to be located so that they are accessible for maintenance.
 Permanent labels and flow arrows to be fixed pipework, valves, etc. Pipes to be installed to falls and insulated with appropriate materials and in-line with the TIMSA guide
 Pipes of a solar primary system to be insulated throughout the length of the circuit. All other pipes connected to hot water storage vessel, including the vent pipe should be insulated for at least 1 meter from their points of connection to the cylinder, or insulated to the point where they become concealed.
 An EPC to be provided with Feed-in Tariff (FIT) application showing the energy efficiency of the building the installation is attached to or wired to provide electricity to is a level D or above.
 System to be commissioned and tested for correct operation in accordance with the MCS 012 standard.
 Provide operating instructions and maintenance recommendations for the homeowner.
 All electrical work to be undertaken by a Part P registered Electrician i.e. NAPIT, ELECSA and NICEIC.

SOLAR ELECTRIC (PHOTOVOLTAIC) – IF SPECIFIED

Installation to be in compliance with all manufacturer's details and specifications, the British Standard Approved Document For Photovoltaic (PV) and BS EN IEC 61730
 Installation must not impair the weather tightness of the roof. All penetrations through the roof to be weatherproofed and covered with suitable flashings, purpose-made tiles, etc.
 Installation to have sufficient resistance to wind suction forces for the location. The installer to calculate the wind loads for the location (taking into account the local wind speed, site altitude and topography, building height and roof configuration) and choose components or kits with a declared wind resistance that exceeds those wind loads.
 The roof structure to be designed to accommodate the load of the collectors, advice of a structural engineer to be sought if required
 All penetrations to be weatherproofed through the roof covering with suitable flashings, purpose-made tiles, etc
 Ensure the panels are not fitted in the shadow of overhanging branches, a chimney or aerial.
 For the installation of a grid-connected system, the local Distribution Network Operator (DNO) will need to be notified if the system output exceeds 16A per phase (Engineering Recommendation G83/1).
 An electrical fused spur outlet will normally be required. Pumps and controls should be located so that they are accessible for maintenance.
 Solar electric panels should be inclined as steeply as possible to ensure that rain and dirt run off quickly.
 Ventilation to be provided around the inverter and control equipment.
 Fix permanent labels to wiring, junction boxes, etc.
 Ensure that the system is commissioned properly and test for correct operation.
 Provide operating instructions and maintenance recommendations for the homeowner.
 An EPC to be provided with Feed-in Tariff (FIT) application showing the energy efficiency of the building the installation is attached to or wired to provide electricity to is a level D or above.
 System to be commissioned and tested for correct operation in accordance with the MCS 012 standard.
 All electrical work to be undertaken by a Part P registered Electrician i.e. NAPIT, ELECSA and NICEIC.

AIR SOURCE HEAT PUMPS (ASHPs) GENERAL PERFORMANCE REQUIREMENTS

External pipework between the dwelling and the ground heat exchanger should be insulated following the TIMSA guidance
 Pipe sizes should be in accordance to manufacturer's recommendations
 The load-bearing capacity of surface to take the heat pump, hot water cylinder and thermal store (where fitted) equipment to be assessed and access for maintenance should be provided.
 Increase the rating of the mains electrical power supply if required to accommodate the electrical current drawn by the heat pump.
 Fix permanent labels and flow arrows to pipework, valves, etc.
 Where the heat pump is to be backed up by another heat source, the control of that source must be interlocked to ensure that it can never operate as the priority or 'lead' device.
 Ensure that the system is commissioned properly and tested for correct operation by a member of the Microgeneration Certification Scheme.
 All electrical work to be undertaken by a Part P registered Electrician i.e. NAPIT, ELECSA and NICEIC.
 Installation to be BS EN 14511: Air conditioners, liquid chilling packages and heat pumps with electrically driven compressors for space heating and cooling (4 parts), BSI 20
 Provide operating instructions and maintenance recommendations for the homeowner.
 Health and safety Care should be taken to address all issues, including: the risk of Legionnaires' disease.

AIR SOURCE HEAT PUMP – ECODAN (OR EQUIVALENT)

Located as shown - Mitsubishi Ecodan single phase PUHZ-W85VHA2 or equivalent.
 SOUND PRESSURE LEVEL AT 1M (dBA) - 45 LOW NOISE MODE (dBA) - 40

Air Source Heat Pump Installation will comply with the Domestic Building Service Compliance Guide - Dept for Communities and Local Government 2001 and BS EN 15450 Tables C1 & C2 with a Seasonal Performance Factor (SPF) of at least 2.7.

The heating system is to be underfloor with water supply temperatures in the range of 30c to 40c. The Coefficient of Performance (CoP) is to be not less than 2.2 for space heating and 2.0 for domestic hot water. The Seasonal Performance Factor will be no worse than as described in Table C1 of BS EN 15450. The system will meet the minimum requirements for installation and controls in Table 35 for heat pumps.

The water distribution system is to include a low loss manifold system to maximize efficiency and ease commissioning and future maintenance. Pipework not contributing to the space heating system will be insulated to prevent heat loss. External pipework between the unit and the house to be insulated to the TIMSA Guide. The internal water distribution circuit should be protected by an anti-freeze solution as recommended by the heat pump manufacturer.

For full heating, the heat pump and any supplementary domestic HW heating should be capable of supplying water in the range of 60c to 65c. The domestic hot water (DHW) system should include a tank thermostat and a time clock to optimise the time taken to heat the water.

Heat pump unit controls to include :

1. control of water pump operation (internal and external)
2. control of water temperature for the distribution system
3. control of outdoor fan operation
4. defrost control of external airside heat exchanger
5. protection for water flow failure
6. protection for high water temperature
7. protection for high refrigerant pressure
8. protection for air flow failure

External controls to include :

1. room thermostat to regulate the space temperature and interlocked with the heat pump operation
2. timer to maximize the operation of the heat pump

System installation by Radiant Heating Hougham Mill Lane, Marston, Grantham Lincs, NG32 2FU. info@heating-solutions.biz 01400 250572

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Development at Harrowby Lane,
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 Drawing Title : Site Layout. Date : JULY 2023

Scale 1 to 500 at A3 Portrait

Drawing No JDA/2022/695/WD/SITE/001