Appendix B

Energy Efficiency Assessment

Land at

Woodlawn Garage

644 Hanworth Road

Hounslow

Middlesex

TW4 5NP

Proposed Redevelopment

for

Retail and residential purposes

On behalf of

Adrian and Janet Godwin

December 2009

General Description

The proposal is for the redevelopment of this site within a mixed residential and commercial area. The proposal is to erect two buildings, one partly commercial on the ground floor with residential accommodation over and the other fully residential.

The proposed development will comply with Level 4 of the Code for Sustainable Homes and the commercial element will comply with BREEAM Standards. Detailed examination of the required design will take place once planning permission has been granted at which stage one can then identify the content of the buildings, the approved form of access thereto and any required design features. Below is the preliminary assessment of the methods by which one can consider a fully sustainable building and the areas that will be considered in greater detail in the overall design.

There are a number of alternatives of the heating of the proposed building/buildings, and whilst one may exclude any form of electrical heating, one would also need to consider any alternatives against the background of the economic viability of certain systems given the type of building. It would not therefore for example be necessarily viable to use ground source heat pumps, but photovoltaic cells within the roof design or an air source heat pump may be considered to be more appropriate.

The lead document with respect to design and the choice of materials would be Approved Documents L1A and L1B dealing with thermal efficiency and prevention of heat loss. Moreover the construction will need to take full account of the provisions of Robust Details and thus limiting cold bridging and thermal leakage. The building would need to be placed under a Pressure test upon completion, and prior to occupation. Thus there will be a full monitoring of the construction process by the use of the Robust Details checklist at every vulnerable stage.

Further the Standard Assessment (SAP) procedure will be used, with a Design Emission Rate (DER) and Target Emission Rate (TER) being fully determined and calculated prior to any construction works, the SAP calculation will be completed for the building which will provide an indication of the overall energy performance of the Building, and this will take into account the buildings design, materials used in the building, the area of glazing the type of heating and ventilation to be provided, and finally the use of lighting.

Part F of the Building Regulations (Ventilation) would also be a consideration, and one would take into account the alternatives within that document against the background of the heating system to be used within the building.

As such it is believed that the Building will comply with the main tenets of the various policies contained within the Surrey Structure Plans, the London Plan and a number of Local Authority Plans which all relate to Renewable Energy, Energy

Conservation and the reduction in the carbon footprint of the new structures. Further the design will, as far as is practicable, reduce energy consumption and Co2 emissions in the spirit of Central Government Policy.

General Intentions Relating to Heating Design.

It is intended to use a mix of mechanical and passive ventilation with mechanical ventilators within the bathroom and kitchen areas, but background ventilation within windows and with airbricks at various points in the Building Structure. Thus the building would be fully compliant with Approved Document F (2006) of the Building Regulations.

Decoratively it would be finished internally either as a whole or its components parts with light or pastel colours, ceilings for the most would be white emulsion to reflect and make use of natural daylight.

The following are measures that will be considered for the heating and lighting design:

1. Utilization of high efficiency, fully condensing boilers, with full time and close zonal controls.
2. A heat recovery system within all ventilation systems where possible to deliver internal heat gains back into occupied spaces.
3. Soft start controls on all pumps and motors.

4. Low energy and high efficiency appliances where supplied as part of the kitchen and utility room packages.
5. Low energy lighting with presence detection throughout internal and external corridor areas where appropriate.
6. Low energy lighting to all habitable rooms, where practical.
7. Low energy external lighting, with daylight sensitive controls and presence detection where appropriate.

We consider that the above measures, when implemented, will reduce annual energy consumption to any building by at least 15% when compared to a conventional design.

There are a number of heating systems that are available for consideration within this development. We will as part of the investigation into the best method of heating this building consider the following:

1. Solar panels within the roof space.
2. Air exchange heaters.
3. Nu-Lok roofing systems, harnessing the suns natural energy simply and efficiently through solar photovoltaic (PV) panels converted directly to electricity for use in homes.
4. Ground source heat pumps.
5. Use of a conventional system with other measures to reduce the amount of energy required within a building.

6. Upgrading elements of structure to improve thermal performance over and above the basic requirements of the Building Regulations.
7. Air source heat pumps
8. Exhaust units

Until such time as planning permission has been granted, and a detailed analysis of internal areas, volumes and exposed external elevations has been considered, the exact form of heating and energy system to be provided cannot be determined. However the applicant is prepared to accept the imposition of condition, which will require submission of details of the heating system to be used at a later date when the detailed design and thermal calculations for the building have been carried out.

Water Conservation Measures.

All property will be placed on a water meter, which automatically encourages a more frugal use of the water supply.

Bathroom and kitchen appliances would be provided with low flow appliances with supply restrictor valves, low flow shower heads, spray taps and dual flush toilet systems, all combining to reduce water consumption by some 30%, over and above a more conventional and hitherto inefficient water installation. There would also be a considerable saving in energy given the need to heat lower volumes of water.

Kevin J Turner
Chartered Surveyor • Architecture • Town Planning

It is intended that subject to agreement with Building Control and the NHBC that some rainwater and surface water run off water from areas of hard landscaping will be collected in rainwater butts of suitable size, and underground tanks, provided with pump controls, to allow all collected water to be re-used for gardening purposes, car cleaning, and hard surface cleaning. Rainwater harvesting would be introduced where possible and determined upon the effective run off rainwater from the building, given its size, areas of hard standing, and other related factors.

The area generally is any event of either permeable or semi permeable nature. Soak-aways, fully compliant with Approved Document will be provided to collect the remainder of roof and ground water.

In summary it is believed that by use of the above methods, some 70% of rainwater, (allowing for evaporation) which falls directly onto the building, could be harvested for future use within the buildings perimeter.

- Building Surveying
- New Building Design
- Town Planning
- Planning Appeals
- Structural Surveys
- Homebuyers Surveys
- Party Wall matters

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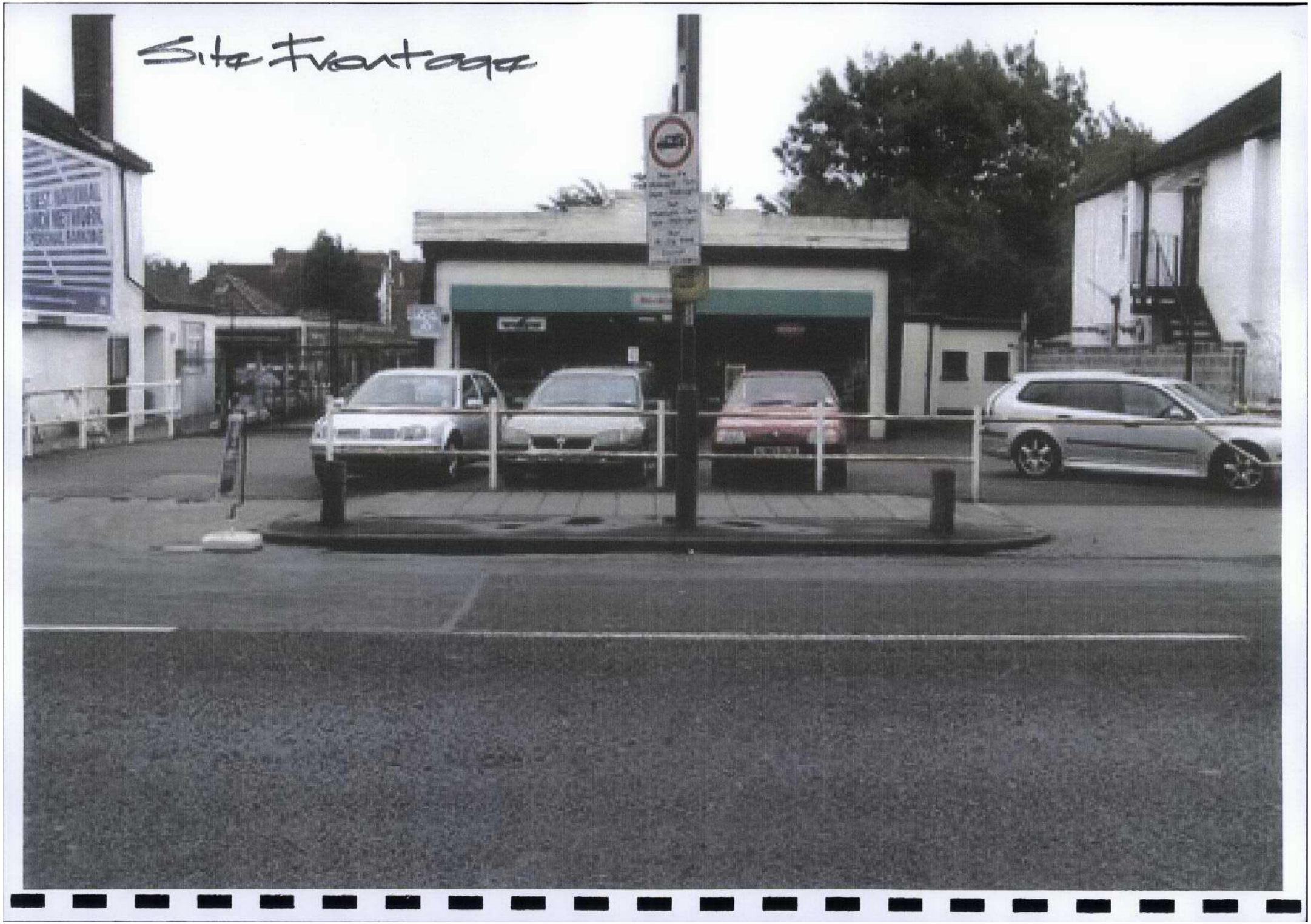

Site frontage


Frontage looking North
A.G. UPVC CENTRE

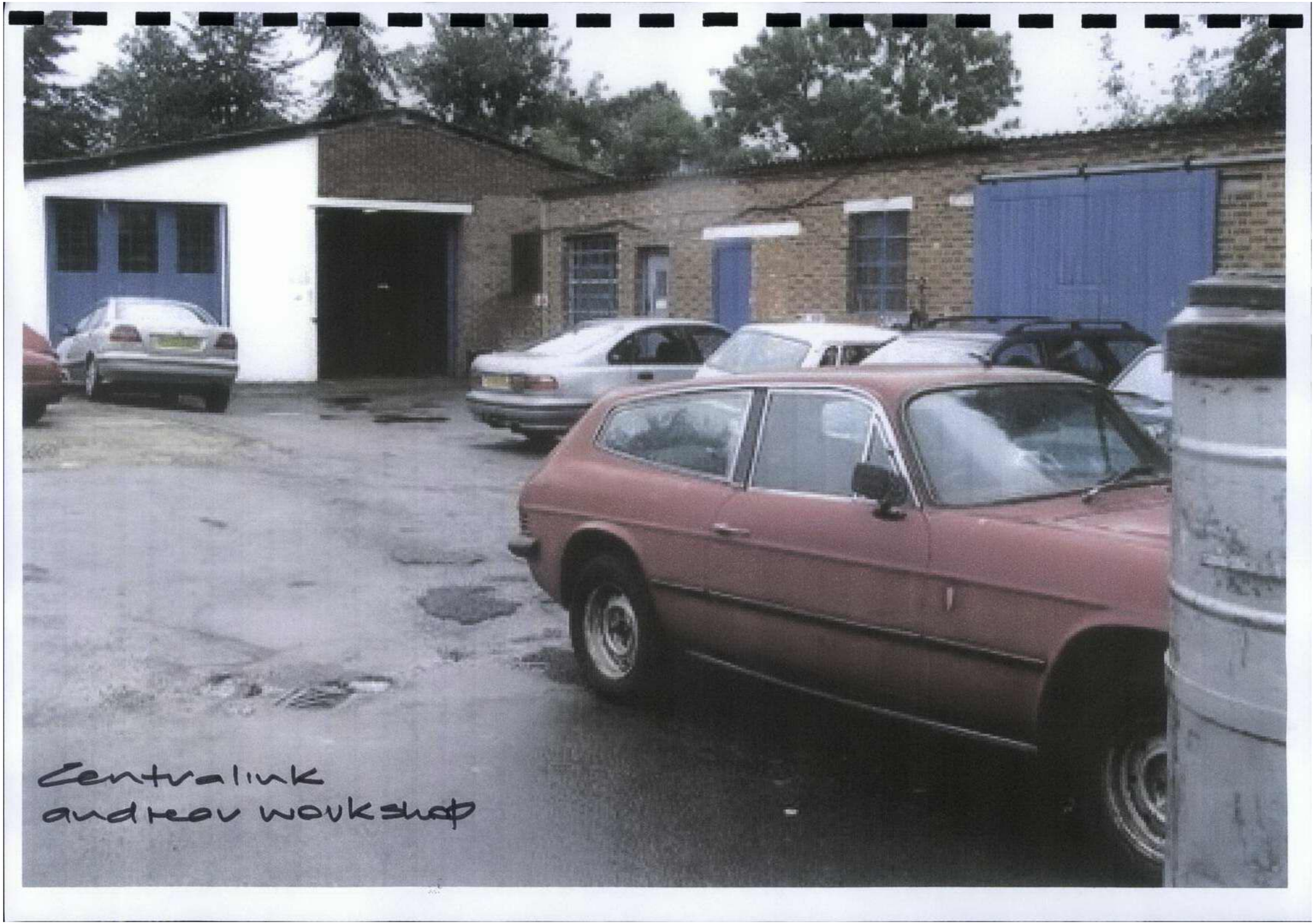

Frontage to South
POST OFFICE
NEWSAGENT


existing access road
looking to site frontage

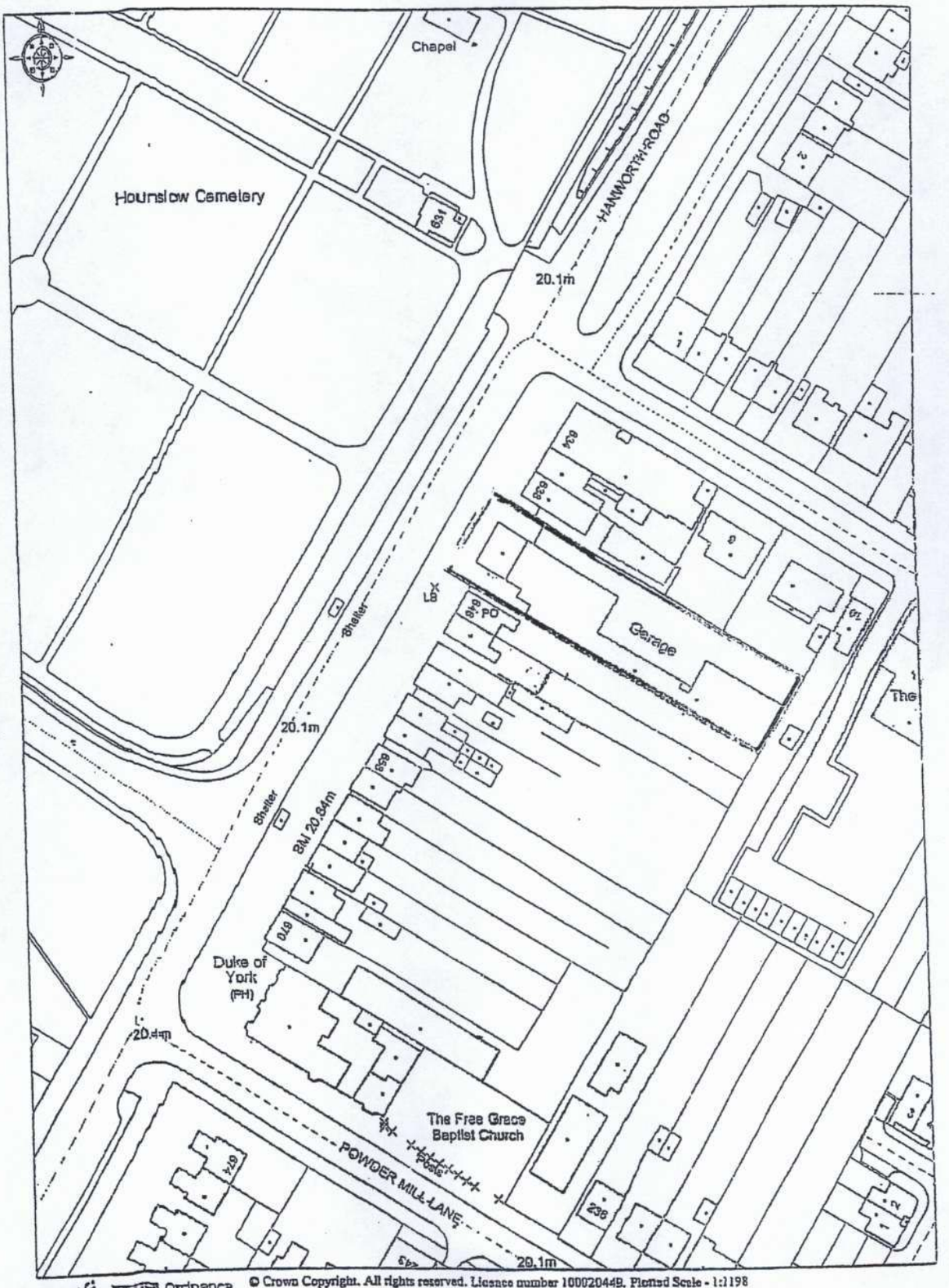

Northern boundary
parking area


Rear Yard looking to West


Northern
boundary


Centralink
andrew workshop


Northern boundary
near workshop



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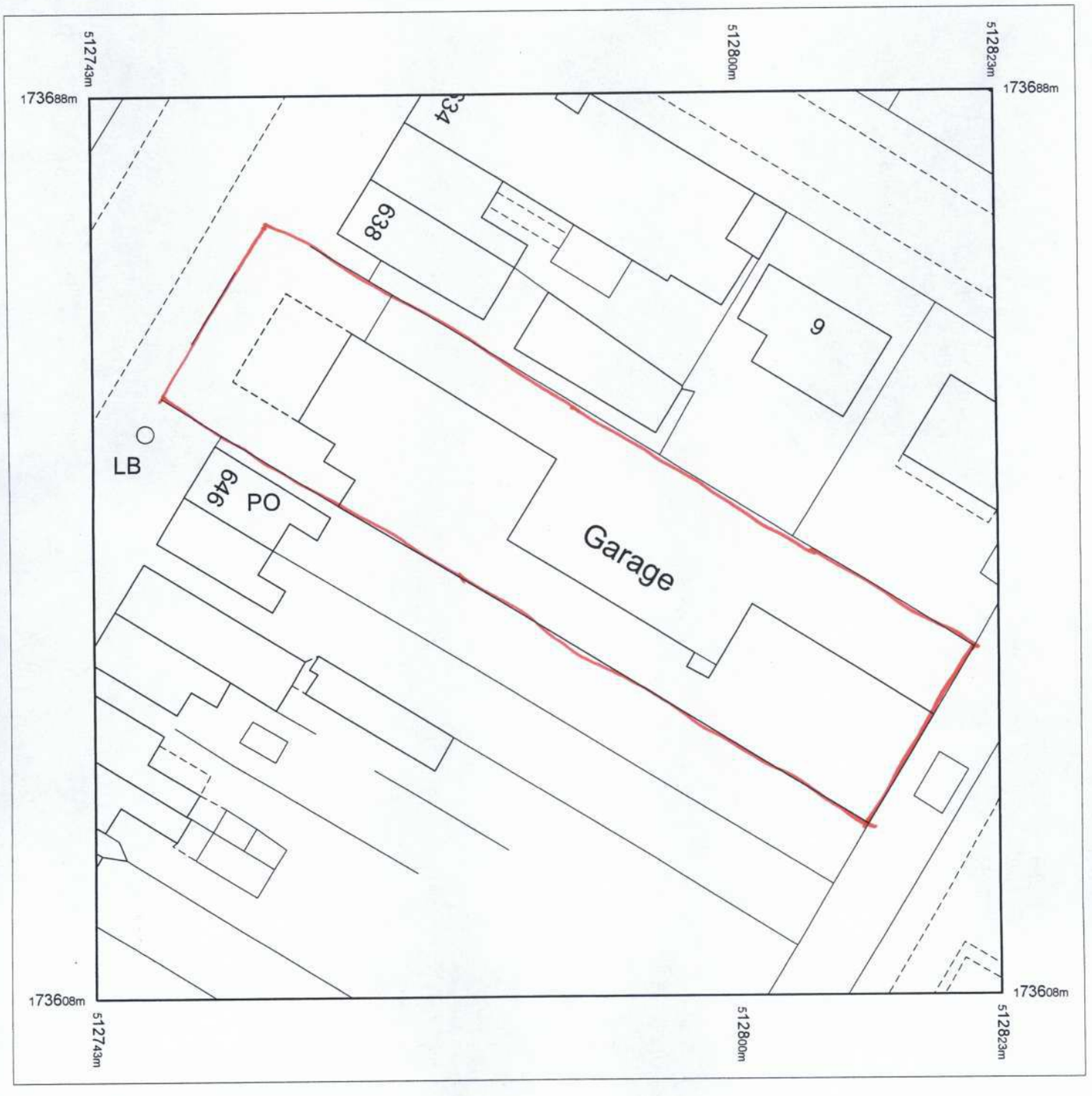

Metres
0 5 10 15 20

Scale 1:500

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