Fire safety statement for planning. Hayes Park.

1. Introduction.

This report has been prepared in support of the detailed planning and listed building consent application being submitted by Shall Do Hayes Developments Ltd ('the Applicant') to the London Borough of Hillingdon ('the Council') for the proposed residential conversion of two listed buildings at Hayes Park, Hayes End Road, Hayes, UB4 8FE ('the site').

The description of the proposed development for the detailed planning and listed building consent application is as follows:

"Change of use of the existing buildings to provide new homes (Use Class C3), together with internal and external works to the buildings, landscaping, car and cycle parking, and other associated works."

The proposed development has evolved through an extensive pre-application and wider stakeholder consultation process, which has included collaborative discussions with the Council, Greater London Authority ('GLA'), Historic England ('HE'), and a number of other key stakeholders.

The proposed development will bring two long-term vacant office buildings, which are unique heritage assets, back into active use through their conversion to residential. The proposed development provides the opportunity of a second life for the buildings and presents a long-term sustainable use that will ensure the buildings are protected and celebrated for years to come.

From the outset, the Applicant has taken a carefully informed heritage-led design approach. The objective has been to enhance the listed buildings, their setting, and the contribution they make to the wider surroundings, whist at the same time delivering a range of planning benefits.

This fire safety statement has been prepared by Hoare Lea to accompany the planning application for the development. The intention of this document is to address The London Plan (March 2021) Policy D5 (Inclusive Design) and D12 (Fire Safety). This will include the main fire safety principles, and provide an overview of the requirements and recommendations, that the scheme will meet.

2. Proposed development.

The planning description for the proposed development is as follows:

"Change of use of the existing buildings to provide new homes (Use Class C3), together with internal and external works to the buildings, landscaping, car and cycle parking, and other associated works."

Specifically, the proposed development will comprise:

- The change of use of the buildings from office (Use Class E) to residential use (Use Class C3).
- 124 new homes, including 25 x Studios, 40 x 1-bed, 41 x 2-bed, 17 x 3-bed and 1 x 4-bed homes.
- A high proportion of open space across the site totalling 2.48 hectares (24,800 sqm), including the provision of a new playground, a new square, and extensive communal grassed areas surrounding the buildings.
- The provision of a variety of communal spaces within the buildings, including courtyards and flexible spaces on all levels:
  - 416 sqm internal communal amenity (lobbies, communal space, and storage)
  - 691 sqm external communal amenity

  - 1,153 sqm private external amenity
- The proposed development will seek to promote sustainable modes of transport and will provide the following:
  - 175 cycle parking spaces allocated as follows:
    - 175 cycle parking spaces allocated to the new homes.
    - 8 cycle parking spaces allocated to visitors to the site.
  - 124 vehicle parking spaces allocated as follows:
    - 124 (111 standard and 13 accessible) vehicle parking spaces allocated to the new homes.
    - No visitor spaces are provided.

3. Development description.

The site is located within the Charville Ward of the London Borough of Hillingdon ('the Council'), who will be the relevant Local Planning Authority for the application.

The site sits within a wider former business park know as 'Hayes Park'. The red line site area which forms the basis of this application is 3.73 hectares and comprises of Hayes Park South, Hayes Park Central, the surrounding grassland area, and the associated car parking and road areas.

The wider Hayes Park business park site (which includes Hayes Park North and the adjacent multi-storey car park - but does not form part of this application) extends to 5.22 hectares. The site is accessed from the east from Park Lane and from the west from Hayes Park Road.

The Hayes Park Central and Hayes Park South buildings are both Grade II* Listed and were designed in the 1960s by American architect Gordon Bunshaft as corporate offices and research laboratories for HJ Heinz UK Limited. The buildings have been occupied by various different occupiers since they were built but are now both vacant. Hayes Park Central has been vacant since September 2020 and Hayes Park South vacant since Summer 2017. Both buildings are three storeys in height and include a basement level used for plant and servicing.

The site is bound to the east and south by the open parkland, which is private land owned by the Church Commissioners. To the west the site is bound by the agricultural land and the buildings of Home Farm. To the north, the site is bound by Hayes Park North and the adjacent multi-storey car park, with open farmland beyond that.

The entirety of the site and the much of the surrounding land is located within the Green Belt. Beyond that, there are large areas of low-density terraced housing. There is a wide selection of parks and leisure facilities in the area, including the Hayes End Recreation Ground, Park Road Green and the Belmore Playing Fields. The nearest town centres are located at Hillingdon Heath Local Centre, 1.6km to the south west, and at Uxbridge Road Hayes Minor Centre, 3.3km to the south east.

The application site plan is shown in Figure 1.

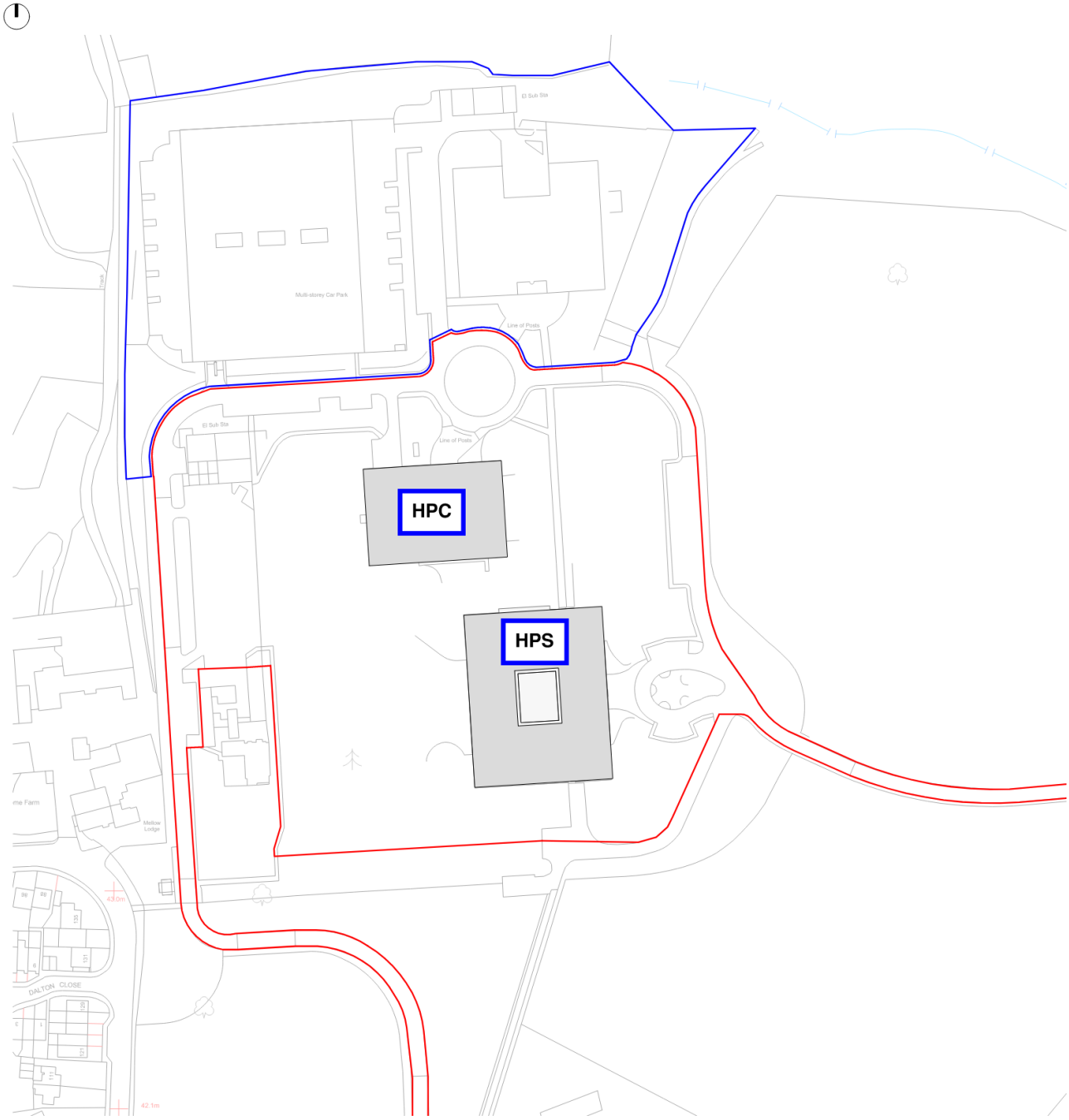

Figure 1: Application site plan, Hayes Park Central (HPC) is the smaller building to the north of the plan, Hayes Park South (HPS) is the larger building to the south.

Hayes Park Central is provided with three storeys, (Ground, First and Second, plus a partial basement level) with the top occupied storey height approximately 7.7m.

Hayes Park South is provided with three storeys (Ground, First and Second) again with a top occupied storey height of approximately 7.7m.

4. The London Plan – Policy D12 (Fire Safety).

The London Plan – Policy D12 states that in the interests of fire safety and to ensure the safety of all building users, all development proposals must achieve the highest standards of fire safety and ensure that they:

1. Identify suitably positioned unobstructed outside space:
    a. For fire appliances to be positioned on
    b. Appropriate for use as an evacuation assembly point
2. Are designed to incorporate appropriate features which reduce the risk to life and the risk of serious injury in the event of a fire; including appropriate fire alarm systems and passive and active fire safety measures;
3. Are constructed in an appropriate way to minimise the risk of fire spread;
4. Provide suitable and convenient means of escape, and associated evacuation strategy for all building users;
5. Develop a robust strategy for evacuation which can be periodically updated and published, which all building users can have confidence in; and
6. Provide suitable access and equipment for firefighting which is appropriate for the size and use of the development.

All major development proposals should be submitted with a Fire Statement, which is an independent fire strategy, produced by a third party suitably qualified assessor. The statement should detail how the development proposal will function in terms of:

1. The building's construction: methods, products and materials used, including manufacturers details;
2. The means of escape for all building users: suitably designed stair cores, escape for building users who are disabled or require level access, and the associated evacuation strategy approach;
3. Features which reduce the risk to life: fire alarm systems, passive and active fire safety measures and associated management and maintenance plans;
4. Access for Fire Service personnel and equipment: how this will be achieved in an evacuation situation, water supplies, provision and positioning of equipment, firefighting lifts, stairs and lobbies, any fire suppression and smoke ventilation systems proposed, and the ongoing maintenance and monitoring of these;
5. How provision will be made within the site to enable fire appliances to gain access to the building; and
6. Ensuring that any potential future modifications to the building will take into account and not compromise the base build fire safety/protection measures

These items are detailed in the following sections for the Hayes Park development.

5. Competency statement.

All Hoare Lea design projects are headed by highly trained engineers, supported by a team of chartered engineers across the UK, with proven experience on a wide range of fire safety consultancy projects.

Our staff have appropriate expertise and experience of fire safety design on a wide range of complex buildings, not only in the UK, but also world-wide. Whilst most of our work is conducted to satisfy safety regulations within the UK (e.g. Building Regulations and associated legislation), our staff have been responsible for developing fire safety strategies based on the NFPA standards and other international codes.

This statement has been produced, reviewed and approved by the following key individuals. The design and development of the fire safety strategy will be undertaken by the same individuals.

- Miller Hannah BEng (Hons), CEng, MIFireE – Director.
- Eric Swainson MEng (Hons), AIFireE – Associate Fire Engineer.
- Nicholas Wingfield, AIFireE – Graduate Fire Engineer.

6. Fire safety overview.

6.1 Building construction

- Both buildings are existing and understood to be constructed with typical building materials such as masonry, steel, and concrete elements.
- To limit the spread of fire within the buildings, all wall and ceiling linings will satisfy the appropriate classification stated within Approved Document B Volume 1: 2019 with 2022 amendments (AD-B).
- A detailed external fire spread assessment has not been undertaken for the development. However, considering the boundary distances available, the provision of an automatic suppression system, the high level of internal compartmentation and the proposed amount of unprotected area (i.e., windows), it is our opinion that the elevations of both buildings will not be required to be protected with fire resisting construction.
- As neither building has a storey that exceeds 11m in height, the external walls are to satisfy the performance criteria described in report BR 135 or the external wall surface should be in accordance with Table 10.1 of AD-B for surface spread of flame classification. Cavity barriers are to be provided in any external wall cavity as required in accordance with Section 8 of the AD-B.

6.2 Means of escape provisions

- A stay-put evacuation strategy is to be adopted in the residential demise. That is, on activation of individual apartment smoke/ heat detection, occupants within the apartment of fire origin are to evacuate while occupants in the remaining apartments are free to stay-put, unless they chose to leave or are directed to by the fire service.
- A simultaneous evacuation strategy is to be adopted for the non-residential areas (i.e., common areas of both buildings, and Hayes Park Central basement). That is, on activation of the fire alarm and detection system, all occupants in the non-residential areas are to evacuate without delay.
- The apartment layouts are proposed to be a mix of open plan and protected entrance hall design. and the open plan apartments can be designed based on the following principles:
  - Open-plan flats do not have a protected entrance hall but have bedrooms that are inner rooms and are accessed directly from the living room or kitchen. In accordance with the NHBC research, open-plan apartments should be provided with a Grade D2 Category LD1 fire detection and alarm system in accordance with BS 5839-6:2019 and a residential sprinkler system designed to BS 9251:2021. The open-plan flats should meet the following recommendations:
    - The size of the open-plan flat should not exceed 16m x 12m if the kitchen is enclosed separately;
    - The size of the open-plan flat should not exceed 8m x 4m if the kitchen is not enclosed;
    - Open-plan flats should be situated on a single level only; and
    - The ceilings should have a minimum height of 2.25m
  - However, it is also proposed to have apartments that exceed the maximum size recommended in described above for an open plan design. A fire engineered solution supported by a Computational Fluid Dynamics (CFD) analysis will be required to justify the apartments layouts. This would need to be discussed and agreed with the Approving Authorities.
- The majority of the apartments within the development are proposed to be single level apartments. However, several duplex apartments are proposed on the scheme. The internal layouts of these flats will be designed in accordance with Approach 1 and Approach 2 of 3.21 of AD-B.
- The maximum recommended travel distance for each area specified within Table 1, as per AD-B.

Table 1: Maximum recommended travel distances

Area	Actual travel distances [m]	
	Single direction	More than one direction
Residential common corridors Note 1	7.5	30
Other areas	18	45
Areas of special fire hazard Note 2	9	18
Plant rooms	9	18

Note:
1. Where these maxims are exceeded, smoke ventilation installations will be provided in accordance with current design guidance. As detailed in Section 6.3.
2. These are defined as: boiler rooms, storage spaces for fuel or other highly flammable materials, lab spaces, technology rooms with open heat sources, kitchens, oil filled transformer and switchgear rooms and rooms housing fixed internal combustion engines, cloakrooms.

- The protected stair escape stair arrangement in both buildings are as follows:
  - Hayes Park South: The First Floor will be served by two protected escape stairs which become two separately accessed cores (e.g. a single stair condition) on the second floor due to the common corridor arrangement. Both stairs will be separated via fire resisting construction. These stairs will be provided with a ventilated a corridor/ lobby on each floor, separating them from the accommodation on every level.
  - Hayes Park Central: All upper floors will be served by two protected escape stairs opening into an open deck, both separated via fire resisting construction. One protected stair will continue to serve basement level with alternative egress to be provided at basement level via an accommodation stair directly to outside.

- One evacuation lift per stair is proposed in each building to facilitate the evacuation of mobility impaired occupants and address the recommendations of Policy D5 (Inclusive Design) of The London Plan. The management procedures for the evacuation lifts will be developed during the detailed design stage.
- It is proposed to provide a disabled refuge in each of the escape stairs, plus, on all escape routes where level egress to the outside is not available. The refuge spaces will have the following minimum dimensions: 1400mm by 900mm. Emergency voice communication (EVC) systems will be provided next to the refuge areas as described above for the office accommodation, as per BS 5839-9: 2009.
- The final exit from all stairs will lead directly to the outside via a protected passageway to the outside. The protected passageway will be treated as an extension of the stairs provided with the same standard of fire protection (i.e., fire resistance and smoke ventilated lobby protection). The protected passageway will be at least as wide as the stairs and any apartments or ancillary areas located off this passageway will be accessed via a smoke ventilated lobby.

6.3 Features incorporated to reduce the risk to life

- The fire detection and warning arrangements are as follows:
  - A Category LD1 fire alarm and detection system is to be provided within all apartments in both buildings, designed and installed in accordance with BS 5839-6.: 2019 (+A1: 2020).
  - A category L3 fire alarm and detection system is to be provided to all ancillary spaces in both buildings. Designed and installed in accordance with BS 5839-1: 2017.
  - A Category L5 fire detection system is to be provided in the common corridors/ stair lobbies of both buildings to support the activation of the associated smoke control installation. Designed and installed in accordance with BS 5839-1: 2017.

- All residential common corridors/ lobbies adjacent to escape stairs are proposed to be provided with either a natural or mechanical smoke ventilation system. All of the stairs will be provided with a head of stair AOV with 1.0m^2 free area at the top of their enclosure.
  - Hayes Park South It is noted the travel distance in a single direction is exceeded, up to a maximum of 30m. A fire engineered arrangement will need to be adopted in this building consisting of two mechanical smoke ventilation extract shafts, known as a Double Reversible Mechanical Extract (DRME). This system will be justified by means of a CFD analysis at a later stage when the internal corridor layouts are set. This is to be discussed and agreed with the Approving Authorities.
- A water fire suppression system is to be provided throughout both buildings. This will be a Category 2 residential sprinkler installation incorporating an increased design density in line with Table 2 footnote B of BS 9251: 2021. The system will be designed and installed in accordance with BS 9251: 2021.
- All elements of structure are to achieve 60-minutes structural fire resistance.
- All floors are to be provided as compartment floors.
- Means of escape stairs are to be enclosed in 60-minutes fire resisting construction and provided with E30Sa fire doors.
- Any protected stairs within duplex apartments are to be separated via 30-minutes fire resisting construction and provided with E30Sa fire doors.
- Apartments are to be separated from each other via 60-minutes fire resisting construction and provided with E30Sa fire door entrances.
- Places of special fire hazard are to be enclosed in 30-minutes fire resisting construction and provided with E30 fire doors.
- Lift-shafts are to achieve 60-minutes fire resisting construction and provided with E30 fire doors.
- Open balcony approaches within both buildings will provide the following:
  - The structure, including the floor, is to achieve 30-minutes fire resisting construction.
  - The face of the building (excluding window openings) is to achieve 30-minutes fire resistance up to the height of 1100mm from finished floor level.
  - Flat entrances are to be provided with E30 fire doors.

6.4 Fire-fighting access within the building

- Access for the Fire Service will be provided at Ground Floor for each separate building. A suitable parking position will be provided within 18m of the fire main inlet in each block, the distance from the inlet to the firefighting core will be provided within 18m internally.
- Dry fire mains will be provided within each protected stair such that all areas of the floorplate can be reached within 45m. Installed in accordance with BS 9990: 2015.
- Hayes Park Central: The basement will be provided with smoke ventilation in accordance with the recommendations in AD-B Volume 1.

6.5 Fire-fighting access to the building

- Access for the Fire Service will be provided at Ground Floor for each building with a suitable parking position provided within 18m of every fire main inlet. The distance from the inlet to the firefighting core will be provided within 18m internally. This distance is noted to be extended in the north-east corner of Hayes Park South, however, an alternative inlet is also to be provided on the east façade within 18m of the firefighting core.
- All access routes shown in Figure 2 will meet the specifications for the pumping appliance listed in Table 2 below. As the building is provided with dry risers, it would be reasonable to design the fire service access route and hard standings in accordance with the pump appliance requirements, only. However, this would need to be discussed and agreed with the approval authorities.

Table 2: Access routes and hardstanding requirements for fire service appliances

Appliance type	Min. width of road between kerbs [m]	Min. width of gateways [m]	Min. turning circle between kerbs [m]	Min. turning circle between walls [m]	Min. clearance height [m]	Min. carrying capacity [t]
Pump	3.7	3.1	16.8	19.2	3.7	14[Note 1]
High Reach	3.7	3.1	26.0	29.0	4.27	32[Note 2]
Note 1: 12.5t in accordance with ADB; however, 14t in accordance with the LFB Fire safety guidance Note, Access for Fire Appliances, GN29. Note 2: 17t in accordance with ADB; however, 32t in accordance with the LFB Fire safety guidance Note, Access for Fire Appliances, GN29.						

- The locations of the existing hydrants are shown in Figure 3 below. Under code guidance hydrants are to be provided within 90m of an entrance to the building and no more than 90m apart. It is to our understanding that hydrants are provided within these recommendations.

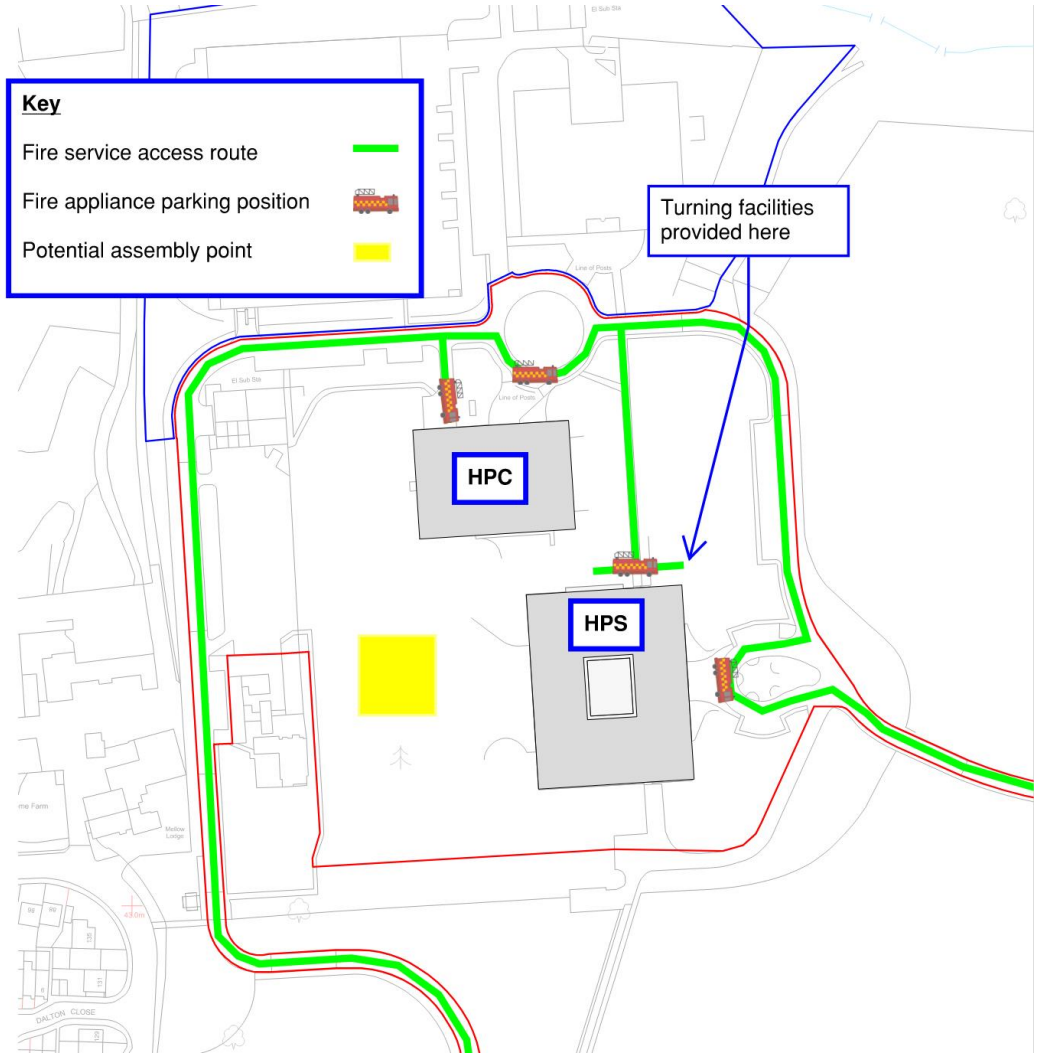

Figure 2: Fire service access around the proposed development

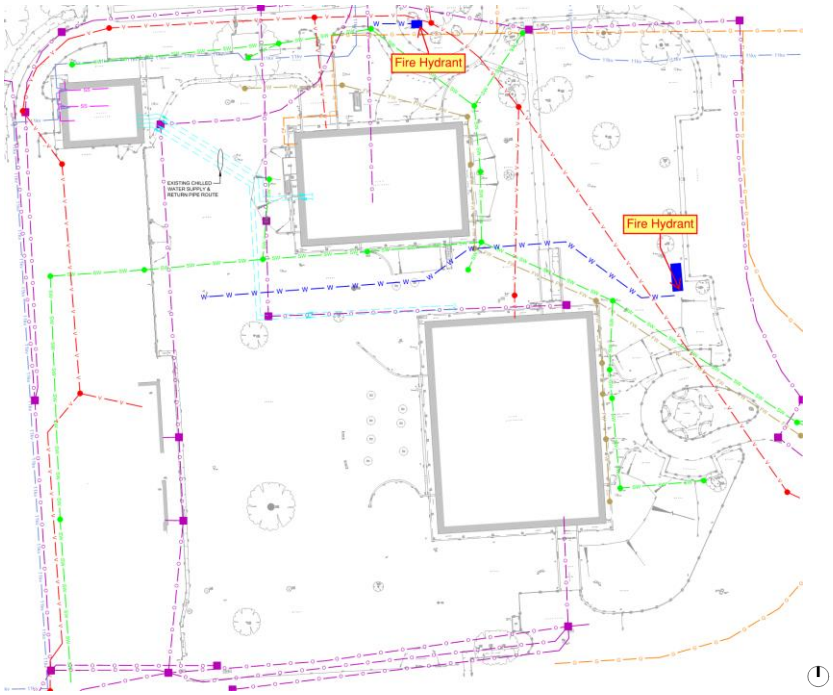

Figure 3: Existing hydrant locations

6.6 Measures to protect the base build fire safety strategy

- Any future modifications to the scheme will be subject to Building Regulations approval and should consider the base build fire strategy, such that fire safety measures are not compromised within the development.
- The development will consist of two residential buildings. It has been requested to provide an onsite management presence with management strategies in place to facilitate assistance for mobility impaired occupants.

7. Conclusion.

This fire safety statement has been prepared to outline the approach and provisions relating to fire safety for the Hayes Park development for compliance with The London Plan Policy D5 and D12.

This statement demonstrates that the proposals have considered fire safety at the earliest stage, and the further development of the fire strategy will be based upon these principles. The fire strategy will be further developed for submission to the Approving Authority at the appropriate time and will meet the functional requirements of the Building Regulations 2010, taking recommendations from Approved Document B Volume 1: 2019 (with 2022 amendments) and the requirements of Policy D5 and D12 of The London Plan.

Regulation 38 of the Building Regulations requires that fire safety information be given to the person responsible for the occupied building. Therefore, copies of the fire safety strategy, once agreed with the Approving Authority, and other relevant fire safety information should be issued to the responsible person. This will ensure publication of the proposed evacuation strategy and assist in evacuation of all building users.

Any future modifications to the scheme will be subject to Building Regulations approval and should consider the base build fire strategy.

Miller Hannah BEng (Hons), CEng, MIFireE