Fire Statement v.01 (Rev.B)
Centre of Excellence for Airside Support Vehicles, Sipson
Former Sipson Garden Centre, Sipson Road, Sipson, London, UB7 0HW
(20th December 2023 – Richard Walker, BEng (Hons), PhD, MIFireE)

1.0 Introduction

1.1 Fire Statement

London Plan 2021 Policy D12 requires that development proposals achieve the highest standards of fire safety and that these are embedded at the earliest possible stage. This Fire Statement identifies the fire safety objectives and performance requirements for this development.

1.2 Author Qualifications

Richard Walker is an experienced Fire Engineer and director of 3-FE Ltd. Richard worked for West Midlands Fire Service (WMFS) for seventeen years in roles including Operational Firefighter, Crew Commander, Fire Safety Officer, and Fire Engineer. He completed the BEng Fire Engineering degree and his PhD at University of Central Lancashire (UCLAN), attaining first class honours in the former.

Richard is a Member of the Institution of Fire Engineers (MIFireE), with membership number 00044182. This can be checked on the IFE Member Directory at the following link: - MyIFE > Resources > IFE Member and Engineering Council Registrant Directory. He has worked on major projects throughout the UK, including complex buildings for Jaguar Land Rover and Nationwide Building Society, as well as high-rise residential projects.

1.3 Declaration of Compliance

I confirm that the information in this Fire Statement satisfies the requirements of the London Plan 2021 Policy D12B (major development proposals) for this development.

1.4 General Description and Layout

This new building will be used as a Centre of Excellence for Airside Support Vehicles and will sit approximately 1.3 km to the north of Heathrow Airport. The building will consist of a two-storey office and amenity area to the front with a single storey, 8 vehicle service bay area to the rear of the site. The two areas are adjoined and will have an internal connection. The development includes HGV and car parking areas, and an operational hardstanding area. The office accommodation and amenity areas will be accessed at ground floor and will be located across the ground and first floors. The current design shows that the first-floor office will be accessed via a single stair.

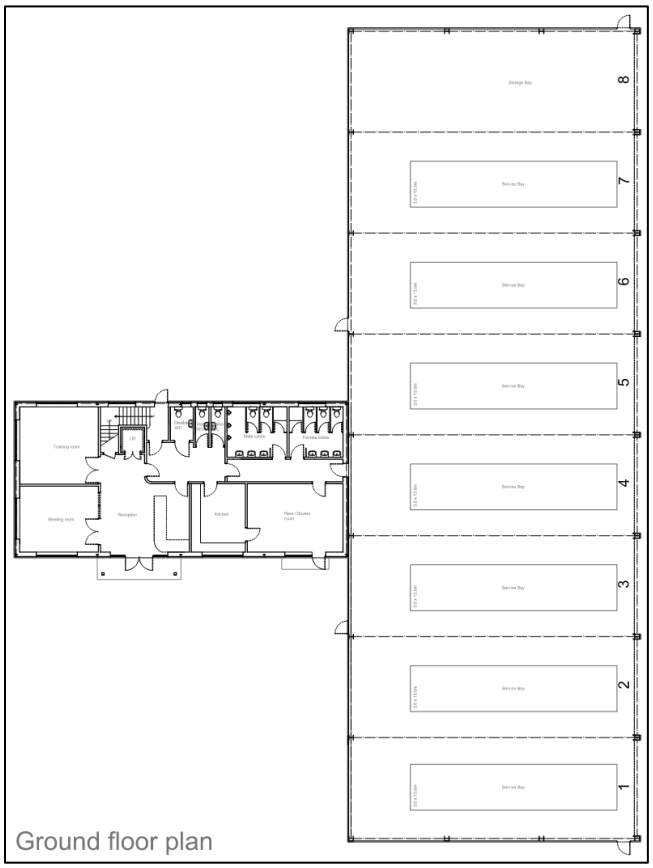

Figure 1 – Ground floor building plan

The total site area will be approximately 7 Ha, and the overall area of the building across two floors will be 1,455 sq.m.

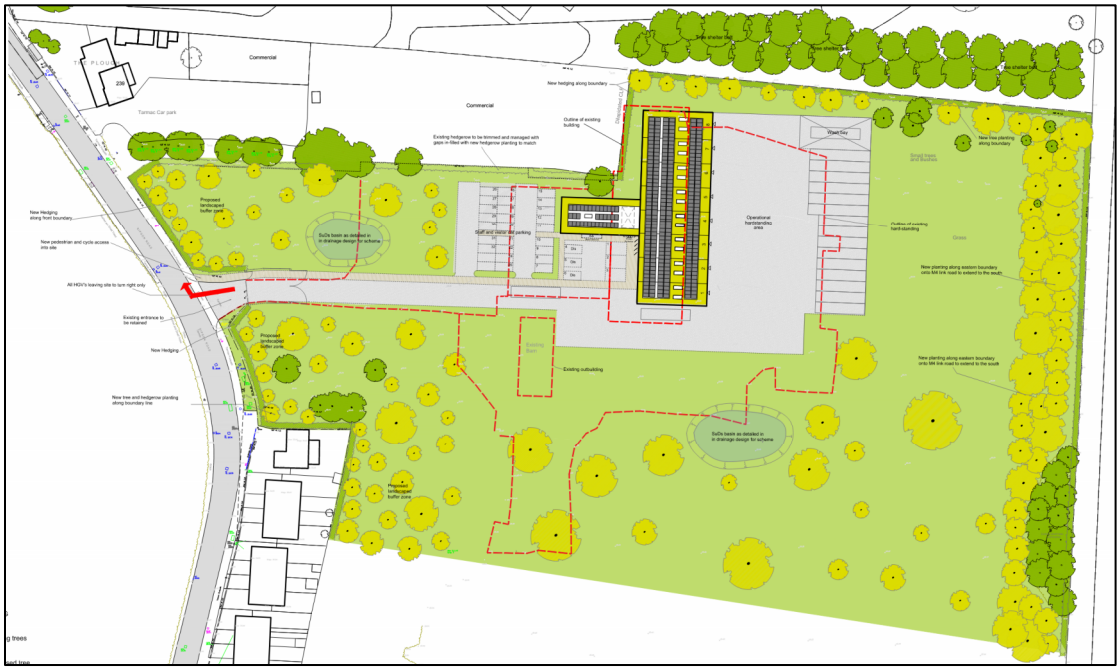

Figure 2 – Overall site layout

The building is T-shaped, and the taller vehicle service area is 7.50 m to the ridge and 5.95 m to the eaves in height. The first-floor level of the office area is 3.05 m above access level. The vehicle service area is 19.2 × 53.3 m and the office area is 10.3 × 21.8 m in dimension.

The guidance document that forms the basis for this report is Approved Document B Vol. 2 (ADB) [i]. For the purposes of Building Regulations compliance, this building is considered to be purpose group 7(a) - Normal Hazard – Storage and other non-residential, and 3 - Office [ii]. If the vehicle service building is to be used for storage of higher hazard materials, such as liquified gas, corrosive substances, or oxidising agents then the higher hazard rating should be applied.

The table below shows the rough gross internal area (GIA) of the building, as well as applying the appropriate floor space factor (FSF) for occupancy levels. The stair core areas have not been deducted from the floor area of the offices, so this calculation provides a conservative maximum occupancy of 102 people.

Floor Level	Use	Area (sq.m)	FSF (sq.m/person)	Occupancy
Ground	Vehicle service	1,001	30	34
	Office	201	6	34
First	Office	201	6	34
Total Occupancy				102

Table 1 – GIA floor area and occupancy

1.5 Plans

This Fire Statement should be read in association with the following plans that show the layouts of the development and the access routes: -

Plan Reference	Comment
10760.01 (Rev.L)	Sketch site plan
10760.04 (Rev.F)	Overall proposed plans and elevations
10760.05 (Rev.E)	Office building proposed plans and elevations
10760.06 (Rev.D)	Service building proposed floor plan
10760.07 (Rev.A)	Service building proposed elevations
10760.08 (Rev.-)	Sections through buildings
10760.09 (Rev.-)	Roof plan

Table 2 – Plan references

2.0 Policy D12 Fire Safety Requirements

The following 6 areas of requirements are taken from the London Plan 2021 as part of Policy D12 Fire Safety for major developments.

2.1 Construction Methods

Both areas will be formed of a steel framework, set on concrete pad foundations, with a concrete floor. The external walls of the office area will have the steel work clad externally as outlined in the accompanying spreadsheet. Then internally a suitable insulated wall will be formed (most likely timber framing), finished internally with the plasterboard, all to provide the required thermal, sound and fire ratings. The service area will have the steel framework clad / finished as per the accompanying spreadsheet. Both areas will be finished with a metal deck roof system as per the accompanying spreadsheet and topped by a green roof system and solar panels to both roofs.

Windows and doors to the office building will be Velfac window system made up of aluminium outer and timber inner sections. The service building will use industrial metal roller shutter doors, with fire exit provided by metal personal doors. The green roof should be designed in accordance with the DCLG guide on the Fire Performance of Green Roofs and Walls [iii].

It is a recommendation that the external wall systems will achieve the highest standards of fire performance and achieve a classification of A2-s1, d0.

Cladding will be designed to comply with wind loads calculated in accordance with the relevant British Standards and will be insulated to achieve a ‘U’ value to meet or better the requirements of the current Building Regulations.

The design and construction of all junctions, including corners, cills, eaves and cap flashings, will be in accordance with the cladding manufacturer's recommendations and in accordance with the architect's approved, robust, design details to ensure continuity of insulation.

2.2 Means of Escape and Evacuation Strategy

The means of escape strategy for this building is based on a simultaneous evacuation of both the office and vehicle service areas upon actuation of the fire alarm system, anywhere within the building. The occupants of the vehicle service area will evacuate through one of the four exits leading directly to outside. The occupants of the office area will evacuate via the protected stair enclosure and then through the either the front or rear exits from the reception.

The stair within the office area needs to be a protected stair because otherwise there would be extended travel distances in some first-floor locations. Where a protected stair is the only stair serving the building, it is not acceptable for the stair to connect directly with the reception area or the kitchen [iv]. The stair has a final exit direct to outside at the rear of the building and a lobby is provided to separate the stair from any of the rooms where there is a fire risk.

Travel distances in offices should have a maximum single direction travel of 18 m and multi-direction travel distance of 45 m. Travel distances in the vehicle service area should have a maximum single direction travel of 25 m and multi-direction travel distance of 45 m, given that that the level of fire hazard associated with the storage is Normal Hazard [v].

Any final layouts for the service and storage bays, fixtures and fittings within the building should be arranged so that these maximum travel distances are observed. Travel distances are measured to final exits or storey exits.

With the provision of four exits in the vehicle service area and the protected stair within the office area, travel distances can be achieved taking into account the provisions for the protection of the stair.

All horizontal exits should have a minimum clear exit width of 750 mm, although where the guidance for wheelchair access is followed to meet the requirements of Approved Document M there should be clear exit width of at least 850 mm [vi].

The occupancy calculations for the upper office floor means that there will be no more than 60 occupants above ground floor. This storey is therefore acceptable with only a single protected stair leading to a final exit.

The stair should be a minimum of 1.0 m clear width to accommodate the occupancy of the first floor and to meet the guidance in Approved Document M [vii]. Protected stair cores will be provided with refuges for wheelchair users.

As part of Policy D5 Inclusive Design of the London Plan 2021 the development should aim to achieve the highest standards of accessible and inclusive design. Part of this is to ensure that evacuation lifts are provided in all buildings with at least one lift core. The lift should therefore be an evacuation lift and be referenced in the Evacuation Strategy and the Building Management Plan as part of the Inclusive Design Statement.

Any variation on the provision of an evacuation lift will need to be discussed and agreed with Building Control and the Fire Authority at later stages in the building's development.

Emergency lighting will be provided throughout the building to BS 5266-1 [viii].

Portable fire extinguishers will be provided throughout the building to ensure that they are readily available for early intervention firefighting. Staff will be trained to use these, and the selection and installation of all fire extinguishers will be to BS 5306-8 [ix].

2.3 Fire Alarm System, Passive and Active Measures

This building will be fitted with an automatic fire detection and alarm system to L2 standard designed and installed to BS 5839-1 [x]. It is proposed that this provides an excellent standard of early detection and warning to occupants and is line with the guidance in ADB that an automatic fire detection and alarm system should be installed in any non-residential building where a fire could break out in an unoccupied part of the premises and affect an occupied part [xi].

The office area will be compartmented from the vehicle service area with 60-minute fire resistant compartment walls. Elements of structure for the office area will require 30 minutes fire resistance as the first floor is less than 5 m above ground level [xii].

Elements of structure only supporting the roof in the vehicle service area would not necessarily require fire protection, but this should be considered for property protection purposes. Protected stairs, protected lobbies and ancillary accommodation should all have a minimum of 30 minutes fire resistance.

Doors in compartment walls separating the two areas should be fire doors to FD 60S standard [xiii]. Doors to protected stairs should be FD 30S standard [xiv].

2.4 Access and Facilities for Firefighting

The kerb-to-kerb width of Sipson Road is approximately 6 m which is in excess of the 3.7 m width guidance for fire service vehicle access within ADB [xv]. The site access route to this building accommodates HGV vehicles, so fire service vehicle access should also be accommodated.

Fire service vehicle access should conform to Table 13.1 of ADB [xvi]: -

Table 13.1 Typical fire and rescue service vehicle access route specification

Appliance type	Minimum width of road between kerbs (m)	Minimum width of gateways (m)	Minimum turning circle between kerbs (m)	Minimum turning circle between walls (m)	Minimum clearance height (m)	Minimum carrying capacity (tonnes)
Pump	3.7	3.1	16.8	19.2	3.7	12.5
High reach	3.7	3.1	26.0	29.0	4.0	17.0

NOTES:

1. Fire appliances are not standardised. The building control body may, in consultation with the local fire and rescue service, use other dimensions.
2. The roadbase can be designed to 12.5 tonne capacity. Structures such as bridges should have the full 17-tonne capacity. The weight of high reach appliances is distributed over a number of axles, so infrequent use of a route designed to accommodate 12.5 tonnes should not cause damage.

Figure 3 - Access route specifications

The total GIA for this building is 1,403 sq.m and the height of the mean roof level is less than 11 m. Therefore, fire service vehicle access for a pumping appliance will be required to the perimeter of at least 15% of the building [xvii]. This can be achieved with vehicle access to the main entrance to the office area and to the east and south elevations of the vehicle service area.

The specific requirements for fire service vehicles should be followed in LFB Fire Safety Guidance Note GN29 [xviii]. This requires that access routes for vehicles are provided as follows: -

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 (tonnes)
Pump	3.7	3.1	16.8	19.2	3.7	14.0
Aerial	3.7	3.1	26.0	29.0	4.27	32.0
Special Appliance	6.1	3.1	27.5	32.0	4.27	32.0

Figure 4 - Typical LFB vehicle access route specification

To assist with fire-fighting operations it is recommended that a Premises Information Box is to be located either externally or at reception. Contents of such boxes should be determined in consultation with London Fire Brigade (LFB), but recommended inclusions are as follows: -

- Access keys, fobs or codes to the building,
- Site plans showing simple general layouts,

- Occupant information to include those who may require special assistance by equipment or resources, i.e. specific PEEP details,
- Details of fire protection systems or equipment installed to the building, and
- Keyholder details, including Landlord or their representative, plus relevant arranged contractors.

2.5 Fire Appliance Position and Assembly Point

This building is located on a main road which serves existing residential and commercial buildings in Heathrow. Appliances can park directly outside the building on hard standing. All elevations where fire service vehicle access is available should have at least one access point to the unit and the maximum distance between doors, or to the end of an elevation, should be no more than 60 m [xix].

The locations of assembly points are still to be determined and will be incorporated into the eventual fire strategy for the site. They should be a suitable safe distance away from the building and far enough away to be clear of any possible smoke or heat being generated by a fire within the building. As this is an existing site in a residential/commercial area hydrant provision is already available on Sipson Road. The Water Team at London Fire Brigade have been contacted for confirmation, and the plan provided is replicated overleaf.

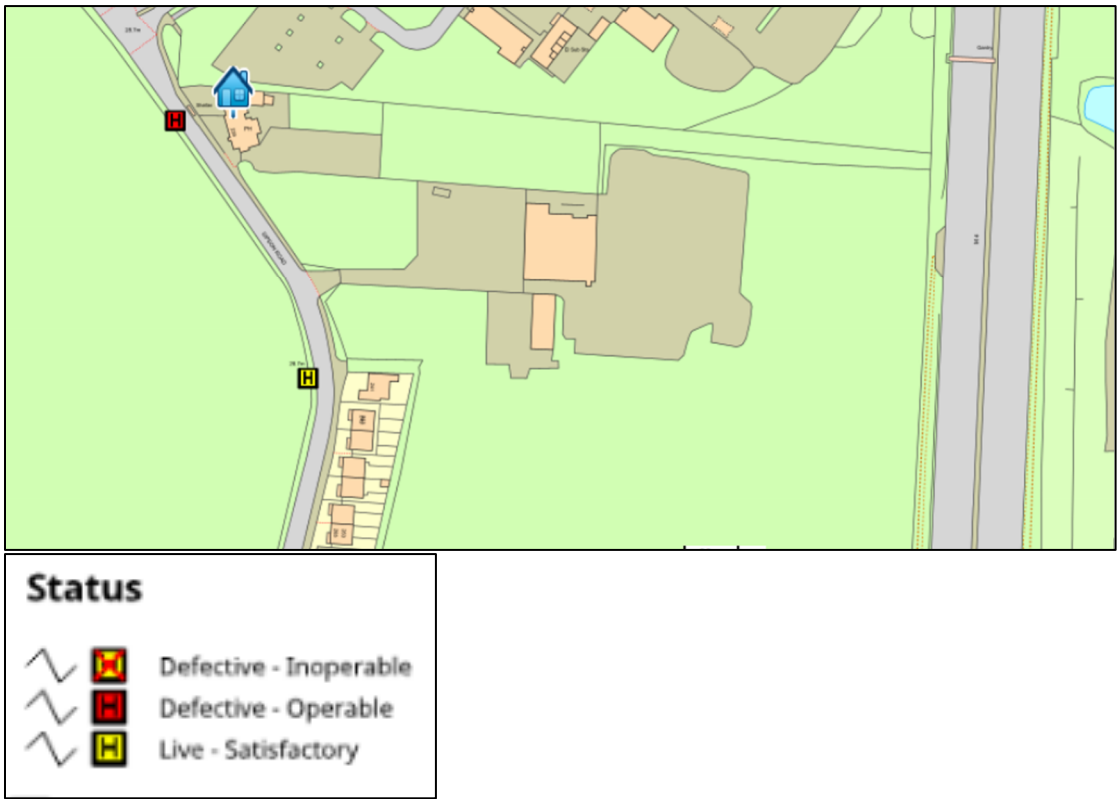

Figure 5 - Site plan showing nearby hydrant locations

There are two hydrants on Sipson Road and the closest appears to be approximately 108 m away from the new building. An additional private hydrant will need to be provided to meet the 90 m hose-laying distance from a hydrant to the entrances of this unit. Potential positions for a new hydrant would be adjacent to the site entrance gate which should meet the required criteria. Hydrants for use by firefighting operations should be capable of providing a minimum rate of 1,500 litres per minute at all times.

New hydrant positions will need to be agreed with Building Control and the Fire Authority.

2.6 Future Development and the "Golden Thread"

Management procedures always have a pivotal role to play in fire prevention, control and evacuation of occupants should a fire incident occur. The Regulatory Reform (Fire Safety) Order 2005 (FSO) places legal obligations on the management of the building once occupied. Management of fire safety must be integrated with all other management systems to ensure there is no doubt who is responsible. To facilitate consistency of approach it is important that the building's owners appoint designated fire safety representatives who will report to the nominated Building Safety Manager.

The Building Safety Manager should have the necessary authority and powers of sanction to ensure that standards of fire safety are maintained. The main duties of the Fire Safety Manager are listed in Section 9 of BS 9999. Maintenance procedures will be developed to ensure that all equipment and services are able to operate effectively. Maintenance staff will be trained in the importance of the fire safety systems and planned maintenance programmes developed. All staff will receive regular, appropriate fire safety training and will be able to safely evacuate residents if required.

Further advice and recommendations will be detailed within subsequent fire strategy reports in line with the FSO and the new Building Safety Bill.

3.0 Conclusion

This document assesses the proposed fire safety provisions required for this new development. It is considered that this Fire Statement satisfies the requirements of the London Plan 2021 Policy D12B for this development.

4.0 References

[i] DEPARTMENT OF COMMUNITIES AND LOCAL GOVERNMENT. APPROVED DOCUMENT B 2019 EDITION. *Volume 2 – Buildings other than dwellings.* London: NBS, 2019.

[ii] *Ibid*., Table 0.1, p.5.

[iii] DEPARTMENT FOR COMMUNITIES AND LOCAL GOVERNMENT. *Fire Performance of Green Roofs and Walls.* London: DCLG, 2013.

[iv] APPROVED DOCUMENT B, *op. cit.,* Clause 3.38, p.40.

[v] *Ibid*., Table 2.1, p.14.

[vi] *Ibid*., Clause 2.18 and Table 2.1, pp.18-19.

[vii] *Ibid*., Table 3.1, p.31.

[viii] BRITISH STANDARDS INSTITUTION. BS 5266-1:2016. *Emergency lighting. Code of practice for the emergency lighting of premises.* London: BSI, 2016.

[ix] BRITISH STANDARDS INSTITUTION. BS 5306-8:2012. *Fire extinguishing installations and equipment on premises. Selection and positioning of portable fire extinguishers. Code of practice.* London: BSI, 2016.

[x] BRITISH STANDARDS INSTITUTION. BS 5839-1:2017. *Fire detection and fire alarm systems for buildings — Part 1: Code of practice for system design, installation, commissioning and maintenance of systems in non-domestic premises.* London: BSI, 2017.

[xi] APPROVED DOCUMENT B, *op. cit.,* Clauses 1.3-1.5, p.9.

[xii] *Ibid*., Table B4, p.145.

[xiii] *Ibid*., Table C1, pp.152-153.

[xiv] *Ibid*., Table C1, pp.152-153.

[xv] *Ibid*., Table 15.2, p.112.

[xvi] *Ibid*., Table 13.1, p.98.

[xvii] *Ibid*., Table 15.1, p.110.

[xviii] LONDON FIRE BRIGADE. *Fire Safety Guidance Note GN29. Access for Fire Appliances Rev.13.* London: LFB, 2020. Table 1, p.2.

[xix] APPROVED DOCUMENT B, *op. cit.,* Clause 15.3 p.110.