

400 Thames Valley Park - Concept Fire Strategy

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1. Introduction

1.1 Background and intent

- 1.1.1 Ashton Fire has been commissioned by TVP Investment Ltd to provide fire safety consultancy for the 400 Thames Valley Park (TVP) project, located in Reading. This report details the concept fire safety strategy for the development.
- 1.1.2 This concept fire strategy has been prepared by Ashton Fire to accompany an application for a Prior Approval Application under Schedule 2, Part 20, Class AA (new dwellinghouses on detached buildings in commercial or mixed-use), regarding the extension of the 400 Thames Valley Park. The application is to be submitted on behalf of TVP Investment Ltd.
- 1.1.3 This report describes the minimum fire safety provisions expected to be provided for the development along with design solutions to be further developed in subsequent stages, while highlighting risks and opportunities.
- 1.1.4 This document is specific to RIBA Stage 2 and, as such, it is a high-level outline document only and is not intended to be used for the Building Regulations application. The proposals in this report are expected to be further developed in subsequent design stages.

1.2 Fire safety guidance

- 1.2.1 Where strict adherence with ADB may conflict with the wider aspirations for the proposed development, alternative design solutions are proposed.
- 1.2.2 The fire strategy has been developed to satisfy the functional requirements of the Building Regulations 2010 (as amended). This has been achieved by adopting the guidance within Approved Document B (ADB) Volume 1 and Volume 2, and the codes of practice referenced therein. Where updated guidance exists, such as British Standard (BS) 9991: 2024, the elements not covered in ADB Volume 1 and Volume 2 have been viewed as best practice and considered part of this fire strategy. This includes the provision and protection of evacuation lifts.

1.3 Qualifications and experiences

- 1.3.1 The relevant experience of the authors and reviewers of this document is indicated in Table 1 overleaf.

Table 1 – Qualifications and relevant experience

Name and title	Academic qualifications	Membership of professional bodies	Relevant experience
Kieran Watson Principal Fire Engineer	MEng (Hons) in Structural Engineering with Architecture	Member of the Institution of Fire Engineers (MIFireE)	Six years' experience developing fire strategies for large residential and mixed-use developments.
Ethan Chong Graduate Fire Engineer	BSc (Hons) Chemical Engineering MSc Chemical Engineering	Associate of the Institution of Fire Engineers (AIFireE)	Degree in engineering and 12 months' experience developing fire strategies for various building types.

Name and title	Academic qualifications	Membership of professional bodies	Relevant experience
Daniel Mois	BEng Civil Engineering MSc in Building Structures	Associate of the Institution of Fire Engineers (AIFireE)	Six years' experience developing fire strategies for large residential and mixed-use developments.

1.4 Referenced information

- 1.4.1 This document is based on information provided by the architect to Ashton Fire, summarised in Table 2. Additional contradictory information or subsequent design variations to the information supplied may render the findings and recommendations of this report invalid.
- 1.4.2 The figures used within this report are indicative and may not be representative of the final arrangement.

Table 2 – Referenced information

Description	Reference	Revision / date	Author
Site location plan	PD-001	1 / 13.06.25	Rohacs Architects Ltd
Existing site plan	PD-002	1 / 13.06.25	
Proposed site plan	PD-004	1 / 13.06.25	
Existing basement plan	PD-009	1 / 13.06.25	
Existing ground floor plan	PD-010	1 / 13.06.25	
Existing first floor plan	PD-011	1 / 13.06.25	
Existing second floor plan	PD-012	1 / 13.06.25	
Existing third floor plan	PD-013	1 / 13.06.25	
Existing fourth floor plan	PD-014	1 / 13.06.25	
Existing roof plan	PD-015	1 / 13.06.25	
Existing section	PD-021	1 / 13.06.25	
Existing front elevation	PD-031	1 / 13.06.25	
Existing rear elevation	PD-032	1 / 13.06.25	
Existing side elevation	PD-033	1 / 13.06.25	
Proposed basement floor plan	PD-499	3 / 07.01.25	
Proposed ground floor plan	PD-500	1 / 13.06.25	
Proposed first floor plan	PD-501	1 / 13.06.25	
Proposed second and third floor plan	PD-502	1 / 13.06.25	

Description	Reference	Revision / date	Author
Proposed fourth floor plan	PD-504	2 / 20.06.25	
Proposed fifth floor plan	PD-505	1 / 20.06.25	
Proposed sixth floor plan	PD-506	2 / 20.06.25	
Proposed roof plan	PD-507	2 / 20.06.25	
Proposed section	PD-601	1 / 13.06.25	
Proposed front elevation	PD-701	1 / 13.06.25	
Proposed rear elevation	PD-702	1 / 13.06.25	
Proposed side elevations	PD-703	1 / 13.06.25	

2. Project overview

2.1 Building description

- 2.1.1 The existing structure is a 4-storey office building above ground, with an additional Basement Level (B, G+4). The existing building has an approximate footprint of 973.77 m² and a has a building height of 12.45 m above ground. The storeys between Ground Floor and Level 3 are designated as office space, while Level 4 and Basement Level serve as plant use.
- 2.1.2 The office and residential floors will be served by separate and independent stairs; the building uses with therefore function independently in terms of access and egress. Access to the office floors between Level 1 and 3 will be provided by three protected stairs. Due to building height being beyond 18m above ground, access to the proposed residential floors on Level 4 and 5 will be provided by two fire-fighting shafts and a separate protected stair.
- 2.1.3 The project will comprise the extension of the existing office building to provide two additional residential storeys above and rooftop plant equipment, resulting in 6 above ground storeys (G+6). Ground Floor to Level 3 and Basement Level will be maintained as office use and plantroom, respectively. The proposed building will feature a reduced footprint of approximately 785.92 m² and an increased building height to 19.65 m.
- 2.1.4 The proposed structure will primarily consist of a reinforced concrete frame. All external walls of the building will be designed to meet the requirements of Regulation 7(2).
- 2.1.5 The proposed use of the respective levels is shown in Figure 1. The residential floors are shaded in yellow, office floors in green and Basement Level in purple. An indicative site plan is shown in Figure 2.



Figure 1 Proposed use of the respective levels.

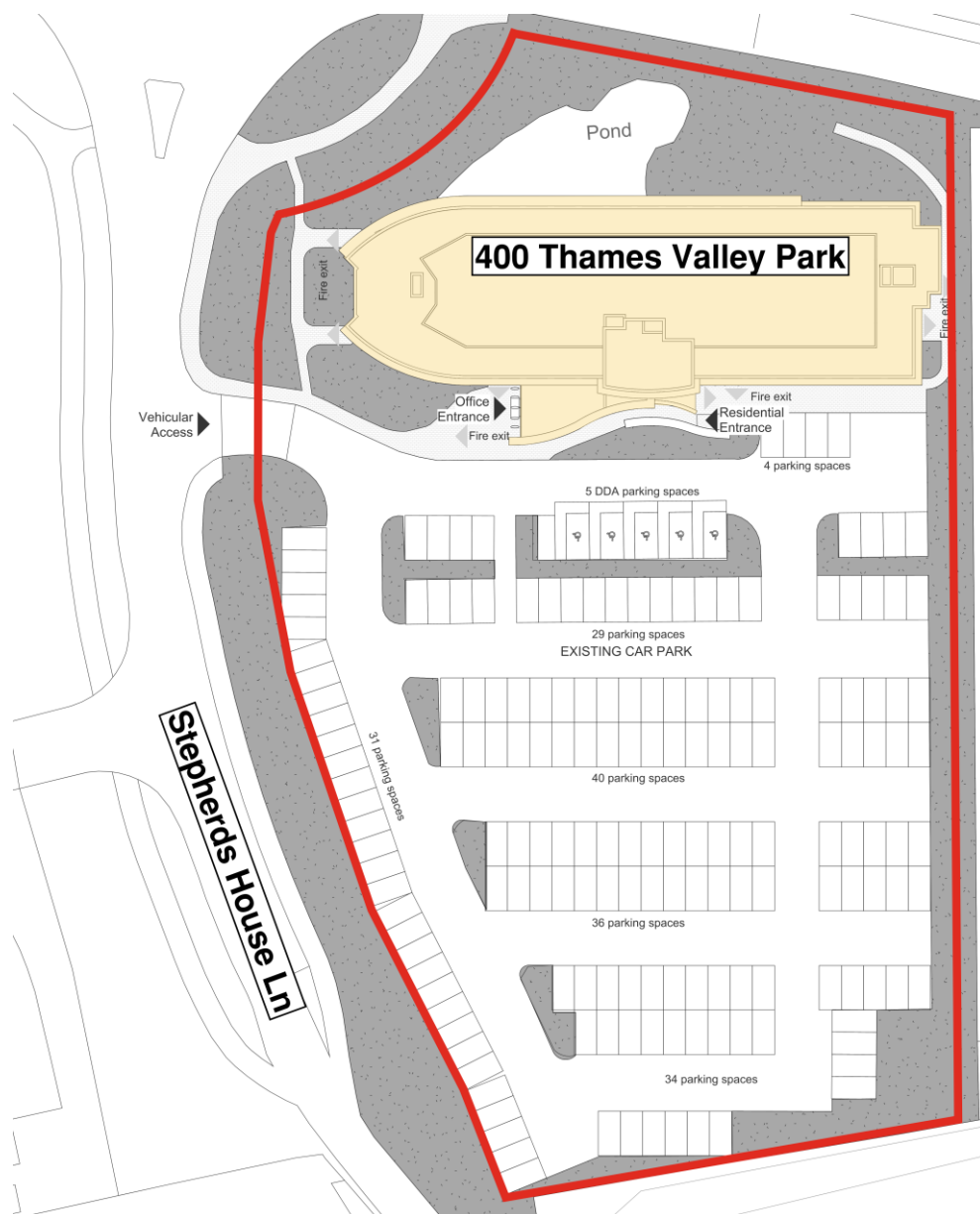


Figure 2 - Indicative site layout

3. Fire safety design

3.1 General

- 3.1.1 This section discusses the fire safety design principles for the building and how they are intended to operate. Fire safety systems have been specified in accordance with the guidance in Approved Document B and relevant documents referenced therein.
- 3.1.2 A high-level overview of the fire safety systems expected to be required in support of the fire strategy is provided in Table 3. These items are not exhaustive and additional fire safety provisions may be required as the design progresses to complement the architectural proposals. These items should be further developed at subsequent RIBA stages.
- 3.1.3 Further detailed comments on the buildings are included in Appendix A.

Table 3 – Proposed fire safety provisions

Provision	Description
Purpose groups	The building is a mixed-use development, comprising office accommodation from Ground Floor to Level 3, and residential accommodation at Level 4 and 5. The building will be classified as: Ground Floor to Level 3: Purpose group 3 - 'Office' Level 4 to Level 5: Purpose group 1(a) - 'Residential (dwellings)-flat'
Active fire safety systems	
Means of detection and alarm	A Category L3(M) system conforming to BS 5839-1:2017 will be provided to the basement plantroom.
	A Category L3(M) system conforming to BS 5839-1:2017 will be provided to office floors between Ground Floor and Level 3.
	A grade D1 category LD1 system conforming to BS 5839-6:2019 will be installed within the residential flats at Level 4 and 5.
	Category L5 system conforming to BS 5839-1:2017 will be installed within communal escape routes of residential flats. Sounds and/or visual beacons will be provided to roofs.
Evacuation alert system	An evacuation alert system in accordance with BS 8629:2019 will be provided throughout the building to support the fire brigade during firefighting and rescue operations and facilitate a wider evacuation of the building should it be deemed necessary.
Suppression ⁽¹⁾	A Category OH1 sprinkler system conforming to BS EN 12845:2015+A1:2019 will be provided to all non-residential areas. This includes office areas between Ground Floor to Level 3 and Basement Level. A Category 4 sprinkler system conforming to BS 9251:2021 will be provided for the residential floors between Level 4 and 5.

Provision	Description
Smoke ventilation /control system ⁽²⁾	A 1.0 m² AOV will be provided at the head of each residential protected/fire-fighting staircase. The evacuation lift lobbies will be provided with the same level of protection as the stairs they serve and should each be provided with an inlet air shaft. Each common residential corridor on Level 4 and 5 will be provided with a cross-corridor door with the West section of the corridor being served by a set of push-pull systems and the East section being served by a mechanical smoke shaft. The dimensions of the push-pull system and the mechanical smoke shaft should be confirmed in subsequent design stages by means of computational fluid dynamics (CFD) modelling. Based on the building heights, they are expected to achieve a minimum cross-sectional area of 0.6 m². The inlet air shafts within the residential lift lobbies should typically achieve the same dimensions as the adjoining push-pull system or the mechanical smoke shaft.
	The basement level will be provided with a mechanical smoke clearance system, designed to achieve a minimum of 10 air changes per hour. The mechanical smoke clearance system shall be supported via a sprinkler system conforming to BS EN 12845:2015+A1:2019.
Fire safety signage	Fire safety signage, fire service wayfinding signage and emergency lighting, will be provided in accordance with The Health and Safety (Signs and Signals) Regulations 1996, i.e. signage to be specified according to BS ISO 3864-1:2011, BS 5499-4:2013 and BS 5499-10:2014+A1:2023 and ADB.
Emergency lighting	Emergency lighting will be provided in accordance with the recommendations of BS 5266-1:2016, BS EN 1838:2013 and BS EN 60598-2-22:2014+A1:2020 and Table 5.1 of ADB Volume 2.
Emergency voice communication systems	Emergency voice communication (EVC) systems in accordance with BS 5839-9:2021 should be provided to protected refuges and temporary waiting space within protected lobbies adjoining the stairs in the building. Type B outstations should be provided in all cases to support evacuation procedures.
Fire mains	All stairs in the building should be provided with a dry fire main with outlets at each storey, including Ground Floor.

Provision	Description
Fire-fighting and evacuation lifts	No fire-fighting lift will be provided to the office floors due to the building height being less than 18 m. The residential floors between Level 4 and 5 will be provided with two fire-fighting shafts each having a fire-fighting lift. The central core will contain a separate evacuation lift; the lift in the other fire-fighting shaft is to be a combined fire-fighting and evacuation lift. Consideration should be given to undertaking an escape capacity assessment by the vertical transport consultant in subsequent design stages to demonstrate that the lift provision is sufficient. Fire-fighting lifts will be designed in accordance with BS EN 81-20:2014 and BS EN 81-72:2020. Evacuation lifts should be designed in accordance with BS EN 81-20:2014 and BS EN 81-70:2021.
Emergency power supply	All life safety systems should be provided with a secondary power supply via a generator or from a secondary substation that is on a separate HV main in accordance with BS 5519:2020.
Note 1: The design of the sprinkler system should be undertaken by a sprinkler specialist. Note 2: Mechanical smoke ventilation systems will be supported by CFD modelling, which will be carried out in subsequent design stages.	
Means of warning and escape	
Evacuation strategy	A 'stay-put' strategy will be implemented the residential floors (Level 4 and 5). In the event of a flat fire, only the unit of fire origin will receive a signal to evacuate. No other flats will receive an alert notification, though should residents become aware of a fire, they may leave the building if they wish – escape routes and fire protection systems will be designed to support this. The office floors between Ground Floor and Level 3 are to operate a simultaneous evacuation strategy, whereby all areas of the office floors will evacuate upon activation of the fire alarm system, sprinkler flow valve or actuation of a manual call point. The cause and effect of the detection and alarm system will be further developed in subsequent design stages.

Provision	Description
Means of escape – residential areas	Evacuation shafts serving the residential floors will be designed to adequately protect the evacuation lift and associated lobby in accordance with the recommendations of the ADB Vol.1 2024 amendments, as described below: • Provide a temporary waiting area within a protected lobby or stair. • Provide a smoke control system in the adjoining internal corridors to the lift lobby. This system is designed to protect the lobby from the ingress of smoke and ultimately ensure adequate tenability within the lobby is maintained. • Provide an inlet air shaft within the lobby to be used as a fresh air inlet for the extract system within the corridor. This will also facilitate the removal of any small quantities of smoke entering the lobby during the initial means of escape phase; and • By adequately protecting the lift lobby, the stairs and lift shafts will also be appropriately protected from the ingress of smoke. The same level of protection will be adopted throughout the entire evacuation shafts within the building. Each residential floor will be served by a protected stair, two fire-fighting stairs, a fire-fighting lift, an evacuation lift and a hybrid lift (designed for fire-fighting and evacuation). Escape from flats on Level 4 and 5 will be via a mechanically ventilated corridor leading to two ventilated lobbies. The residential corridor in the West section is served by a protected stair and a fire-fighting shaft. However, as there is no evacuation lift associated with the West protected stair, escape in this direction has not been considered and the corridor has been treated as a dead-end for travel distance assessment purposes. The corridor on the East section will be served by two fire-fighting shafts. The West section (dead-end portion) of the common corridor on the residential floors will feature extended travel distances, given the absence of evacuation lifts within the protected stairs – travel distance to the nearest evacuation lift will be circa 21.8 m. Therefore, a push-pull ventilation system will be provided in this portion of the corridor to support the extended travel distance¹. The maximum travel distance within the common corridor will not exceed 30 m. In lieu of a cross-corridor door between fire-fighting shafts in the East section of the common corridor, a mechanical smoke shaft will be provided to ensure adequate separation between stairs (see AF_TN002.02_Residential_ventilation_approach - Risco et al. and Hopkin et al.).

Provision	Description
Internal flat design	All flats will be designed as flats with a protected entrance hall on the basis that the following criteria are met: • The travel distance within the protected entrance hall is limited to 9m. • A minimum 30-minute fire-resisting walls are installed to separate the entrance hall and the adjacent habitable rooms. • 30-minute fire doorsets are installed to provide access from the entrance hall to any habitable rooms. • A 30-minute fire doorset is installed to provide access from the protected corridor to the protected entrance hall of the flat. • 30-minute fire doorsets along with a 30-minute fire-resisting walls between the protected entrance hall and any bathrooms or 30-minute fire-resisting construction between any habitable rooms and the adjacent bathrooms are installed. • Where practical, the cooking facility should be sited remote from any flat entrance door or escape routes.
Exit widths	The required width of each exit depends upon the number of occupants expected to use it. According to ADB Vol.2, a minimum clear width of 850 mm, and 1,050 mm can accommodate a maximum of 110, and 220 people, respectively. Due to the provision of multiple exits on Ground Floor, the largest exit will be discounted when estimating the total available exit capacity, assuming that it is blocked by a fire. The exits leading from the stairs or doors should be at least as wide as the doors and stairs they connect. However, wider stairs may be required to comply with Part M requirements, which are outside of the scope of this report.
Travel distances - non-residential areas	Escape from the office floors will be available via three protected stairs, resulting in three-storey exits, and will be designed as follows:

Provision	Description
	Travel distances when measured to a storey exit or final exit should be within the acceptance limits listed below, reproduced from ADB Vol.2. • Office: 18 m (single direction) and 45 m (multiple directions). • Place of special fire hazard: 9 m (single direction) and 18 m (multiple directions). • Plant room or roof-top plant: - distance within the room: 9 m (single direction) and 35 m (multiple directions). - escape route not in open air (overall travel distance): 18 m (single direction) and 45 m (multiple directions). - escape route in open air (overall travel dist.): 60 m (single direction) and 100 m (multiple directions). The travel distances listed above apply where the internal layouts are known (e.g. partitions, fitting, etc.). Where the layouts are unknown (e.g. shell-and-core design), the direct travel distances should be taken as two-thirds of these limits.
Protected escape stairs	Escape from the residential floors will be via two fire-fighting stairs and a protected stair which are accessible via ventilated lobbies. Each fire-fighting stair and protected stair will achieve a minimum clear width of 1,100 mm and 1,000 mm, respectively. Escape from the office areas will be facilitated by three protected stairs, each achieving a minimum clear width of 1,000 mm. All the stairs serving the upper levels will terminate at Ground Floor, providing either direct access to the outside of the building or access via a protected corridor. The exits leading from the stairs or doors should be at least as wide as the doors and stairs they connect. Basement will be served by a separate protected stair, achieving a minimum clear width of 1,200 mm. Access from the basement stair to the outside of the building will be provided via a protected corridor. An initial occupancy calculation has been undertaken to verify the adequacy of the width of each protected stair on the office floors. The provision of three protected stairs serving the office floors, each measuring 1,100 mm in width, will accommodate a maximum occupancy of 600 above Ground Floor (after discounting). This is adequate for the anticipated occupancy based on a floor space factor of 1:6. The occupancy will be further reviewed in subsequent design stages.

Provision	Description
MIP egress provisions	Every storey in the building will be provided with at least one evacuation lift which is accessed via a protected lobby. The office floors will be provided with one evacuation lift while the residential floors will be provided with one evacuation lift and a hybrid lift (designed for fire-fighting and evacuation). The evacuation lift on the office floors will be accessed via the central protected lobby. Access to the evacuation lift and hybrid lift on the residential floor will be provided via the central fire-fighting lobby and the fire-fighting lobby in the east section of the building, respectively. Disabled occupants making their escape will be expected to seek refuge within the lift lobby or the protected lobby whilst waiting for the lift car to arrive. Therefore, the lift lobbies will be provided with the same level of protection as the associated escape stairs. Each lobby or stair on the office floors will comprise a refuge area while each lobby on the residential floors will feature a waiting space to allow the occupants to wait for the lift car's arrival. Refuge areas will have a minimum dimension of 900 mm x 1400 mm and will be provided with Type B outstations in accordance with BS 5839-9:2021, allowing occupants to communicate with the building management team. On the office floors between Level 1 and 3 of the building, the refuge space should not encroach on the clear escape route of the lobby or stairs. There will not be a need for a clear space in the lobby of the residential floors due to the 'stay-put' evacuation strategy. However, each residential lobby will have a minimum dimension of 1500 mm x 2100 mm to serve as a temporary waiting space to accommodate people with mobility impairments. Each lobby will be provided with Type B outstations in accordance with BS 5839-9:2021 to allow occupants to communicate with the building management team. Confirmation from the client/end-user of the preferred operating sequence is required. The operation requirements and cause-and-effect arrangements may require consultation with a specialist vertical transport consultant.
Note 1: Mechanical smoke ventilation systems will be supported by CFD modelling, which will be carried out in subsequent design stages.	
Passive fire protection	
Structural fire resistance	All load-bearing elements of the building should achieve a minimum fire resistance rating of 90 minutes. All fire-fighting shafts should achieve a minimum fire resistance rating of 120 minutes. Existing elements of construction (i.e. within the office floors) are expected to achieve this and may require additional fire protection to do so. This should be decided by the project structural engineer.

Provision	Description
Compartmentation and fire-resisting construction	All compartment walls separating flats from each other and from adjoining areas will be designed with a 60-minutes fire resistance rating. All other compartment walls and compartment floors will be constructed to achieve the same level of fire resistance as the load-bearing structure. All residential floors will be constructed as compartment floors achieving the same level of fire resistance as the load-bearing structure. The compartment floor separating the Level 3 office floor and Level 4 residential floor will achieve a 90-minute fire resistance rating. The compartment floor separating the building at Basement Level and Ground Floor will achieve a 90-minute fire resistance rating. As a simultaneous evacuation strategy will be implemented and the building height is less than 30 m, no compartment floor will be required on the office floors. Where the protected stairs are sited against the exterior walls, the re-entrants within 1,800 mm of the protected stairs should be constructed to achieve the same level of fire resistance as the load-bearing structure. Where the fire-fighting shafts are sited against the exterior wall, the re-entrants within 5,000 mm and 110° of fire-fighting shafts should be constructed to achieve a 120-minute fire resistance rating.
	The protected stairs serving the office floors will be enclosed in 30-minute fire resisting construction, provided they do not pass through compartment floors.
	All protected shafts passing through compartment floors should maintain compartmentation between levels, and thus achieve the same fire resistance as the elements of structure. Therefore, the protected shaft will be designed to achieve a 90-minute fire resistance rating.

Provision	Description
	ADB recommends that areas classified as places of special fire hazard should be enclosed in a minimum of 30-minutes fire-resisting construction. Notwithstanding the above, plantrooms will be enclosed in a minimum of 30- or 60-minute fire-resisting construction depending on their use and associated risk, unless adjoining a wall requiring higher fire resistance. Plantrooms housing low or extra low-voltage equipment should be enclosed in 30-minute fire-resisting construction whereas plantrooms containing medium or high-voltage equipment should be enclosed in 60-minute fire-resisting construction. Any plantrooms containing life safety equipment should be enclosed in 120-minute fire-resisting construction. The use and associated risk of plantrooms will be assessed to implement the appropriate level of fire resistance for each plantroom.
Fire doors	Fire doors will be provided in accordance with Appendix C of ADB.
Fire stopping	Openings in fire-resisting walls and floors are expected to be fire-stopped to the same rating as the wall/floor through which they pass, including all relevant openings for pipes, ducts and conduits for cables in accordance with Section 9 of ADB Vol.1 and Section 10 of ADB Vol.2.
Concealed spaces	Cavity barriers will be provided to enclose the edges of cavities, including around openings (e.g. windows/doors, service penetrations and ventilation ducts opening within an external cavity wall). Cavity barriers will also be provided at the junction of an external cavity wall and every compartment wall and compartment floor in line with Section 8 of ADB Vol.1. Furthermore, cavity barriers will be provided to sub-divide extensive cavities, such that they do not exceed 20 m in any direction.
External fire spread	
External walls and balconies	External walls of the buildings will be specified in accordance with Section 10 of ADB Vol.1 and Section 12 of ADB Vol.2. As the building will contain one or more dwellings and will have a floor at a height greater than 18 m above ground level, it will be classified as a 'relevant building' under Regulation 7(4) of the Building Regulations. Therefore, all walls will be specified to achieve a European Classification A2-s1, d0 or Class A1 in accordance with BS EN 13501-1:2018. Any insulation product, filler material or similar product used in the construction of the wall should also achieve class A2-s1, d0.
Roofs & terraces	Roof coverings should be specified to achieve a B _{ROOF} (t4) classification, as the east section of the building is situated less than 6m from the relevant boundary.

Provision	Description
Space separation	Should a fire occur in a building, heat will radiate through non-fire-resisting openings in the external walls. This heat can be sufficient to set fire to nearby buildings and to mitigate the risk of external fire spread, ADB places limits on the area of the external elevation with no fire resistance, known as the unprotected area. A preliminary external fire spread assessment has been carried out for the building. Given that the external wall on the east elevation of the building is within 1.0 m of the site boundary, the wall should achieve 100% protection. The external walls on the other elevations can be unprotected. A detailed assessment will be carried out in subsequent design stages.
Access and facilities for the fire service	
Vehicular access	Fire service access to the building will be via Shepherds House Ln to the west of the site. Appliance access to the building will be provided within 18 m and in clear sight of the dry fire main inlet located on an external wall. Access for pumping appliances should also be provided to within 45 m of all points on Ground Floor areas which are not provided with fire mains and accessed independently from outside. Appliances will not be required to reverse more than 20 m based on the current design.
Fire mains	The building will be provided with a dry fire main within each escape stair. All fire mains will be designed in accordance with BS 9990:2015 and will serve each level. Fire main outlets will be located within the full landing of the stair enclosure such that all areas on the floorplate are within 60 m when measured from a fire-fighting shaft.

Provision	Description
Fire-fighting shafts and escape stairs	The residential floors between Level 4 and 5 will feature a top storey height more than 18 m above the fire service access level and will have a floor area of less than 900 m²; therefore, ADB recommends that at least one fire-fighting shaft should be provided. However, two separate fire-fighting shafts, in addition to a protected stair, are proposed to be provided for the residential floors to incorporate resilience and redundancy for firefighting operations. This arrangement will facilitate firefighting intervention and minimise the risk of counterflow of escaping occupants when firefighters enter the building. The rooftop plant will be served exclusively by the central residential fire-fighting shaft to mitigate the risk of fire originating from the rooftop plant impacting the levels below. As specified in Section 17 of ADB Volume 2, all fire-fighting shafts will be in accordance with Figure 20 from BS 9999:2017, with the stairs discharging directly to the outside via an independent dedicated access route. Given that the office floors will feature a top storey height below 18m above the fire service access level, access to Level 1 to 3 via protected stairs is deemed sufficient. The stairs will connect to protected lobbies on each level and discharge directly to the outside on Ground Floor. All protected stairs and fire-fighting shafts serving the upper levels will terminate at Ground Floor while the Basement Level will be served by a separate protected stair. This arrangement helps mitigate the risk of basement fires impacting the upper levels.
Fire hydrants	Hydrants will be required in the vicinity of the buildings to support firefighting operations as indicated below: • Within 90 m of each dry fire main inlet. • Within 90 m of an entrance to the building (where fire mains are not provided) and a maximum of 90m apart. An existing hydrant has been identified on Shepherds House Ln which falls within the distances above. The fire hydrant has been confirmed as operational by the Royal Berkshire Fire & Rescue Service.
Other considerations	
Assembly points	Assembly areas should be located such as they are remote from access routes for the fire and rescue service (FRS) and evacuation from the building can be achieved without exposure to any hazards from a building fire. The selection of appropriate assembly zones outside the building is an operator-led exercise. Potential indicative locations are shown in Appendix A. The suggested locations shown should be further reviewed and confirmed by the building operator. The landscape design must ensure the safe escape to and from the relevant locations and that the routes are usable by all occupants.

4. Design challenges and project risks

4.1 General

- 4.1.1 This section discusses the main project challenges, variations or areas that are not explicitly covered in standard fire safety guidance.
- 4.1.2 Table 4 below summarises the key items to be addressed during subsequent design development but it does not form an exhaustive list. These items will represent a project risk until further substantiated and agreed upon with the wider team.

Table 4 – Design challenges and variations from standard guidance

Item	Variation from guidance	Comments
Extended travel distance on the residential levels.	Based on Diagram 3.8 of ADB Volume 1, corridor access with dead ends is only permitted with a maximum corridor travel distance of 7.5m.	The corridors in the west section between Level 4 and 5 will feature extended travel distances exceeding 7.5 m. It is proposed that a push-pull ventilation system is provided to support this deviation. The system will be designed to ensure tenable conditions are maintained during the means of escape and fire-fighting phases. To support the cross-corridor door between fire-fighting shafts in the East section of the common corridor, a mechanical smoke shaft will be provided to ensure adequate separation between stairs. The mechanical system will be further substantiated by means of CFD modelling.
Element of existing construction between Ground Floor and Level 3	Table B3 of ADB Volume 2 recommends that the element of construction of a block of flats with a sprinkler system up to 30 m should be designed to achieve a minimum fire resistance of 90 minutes.	The office building will feature elements of existing construction, which may need to be upgraded to satisfy the regulated fire resistance period. The performance of the existing construction elements will be validated by structural fire engineers and the need for additional fire protection will be defined at a later design stage.
Re-entrant concerns	Clause 3.3 of ADB Volume 2 recommends that re-entrants within 1,800 mm of the protected stairs should achieve the same level of fire resistance as the load-bearing structure. Section 20.3 of BS 9999:2017 recommends that re-entrants within 5,000 mm and 110° of fire-fighting shafts should achieve a minimum fire resistance of 120 minutes.	The building will feature re-entrant concerns where external walls abut the fire-fighting shafts and protected stairs. As such part of the external walls will be constructed to be as follows: - Where the protected stairs are sited against the exterior walls, the re-entrants within 1,800 mm of the protected stairs should be constructed to achieve the same level of fire resistance as the load-bearing structure. - Where the fire-fighting shafts are sited against the exterior wall, the re-entrants within 5,000 mm and 110° of fire-fighting shafts should be constructed to achieve a 120-minute fire resistance rating.

Item	Variation from guidance	Comments
Connection between the residential and office floors.	According to clause 17.4 of ADB Volume 2, fire-fighting shafts should serve all storeys through which they pass.	The stairs serving the office and residential floors will be separate and independent for each respective use, with no connection established between the office and the residential floors. This arrangement is in accordance with clause 2.5 of ADB Volume 2 which recommends the provision of separate means of escape to storeys used for residential purposes. Hence, independent access and egress routes will also be provided from the office floors.

5. Conclusions

5.1 General

- 5.1.1 This concept fire strategy report summarises the RIBA Stage 2 fire strategy design information and demonstrates how the buildings shall satisfy the functional requirements of the Building Regulations through further design development.
- 5.1.2 Any departures from current guidance will be subject to consultation with the approval authorities and represent a project risk until agreed.
- 5.1.3 It is expected that a detailed fire strategy report for the buildings shall be developed as the project progresses through subsequent design stages following further co-ordination with the design team.

6. Limitations

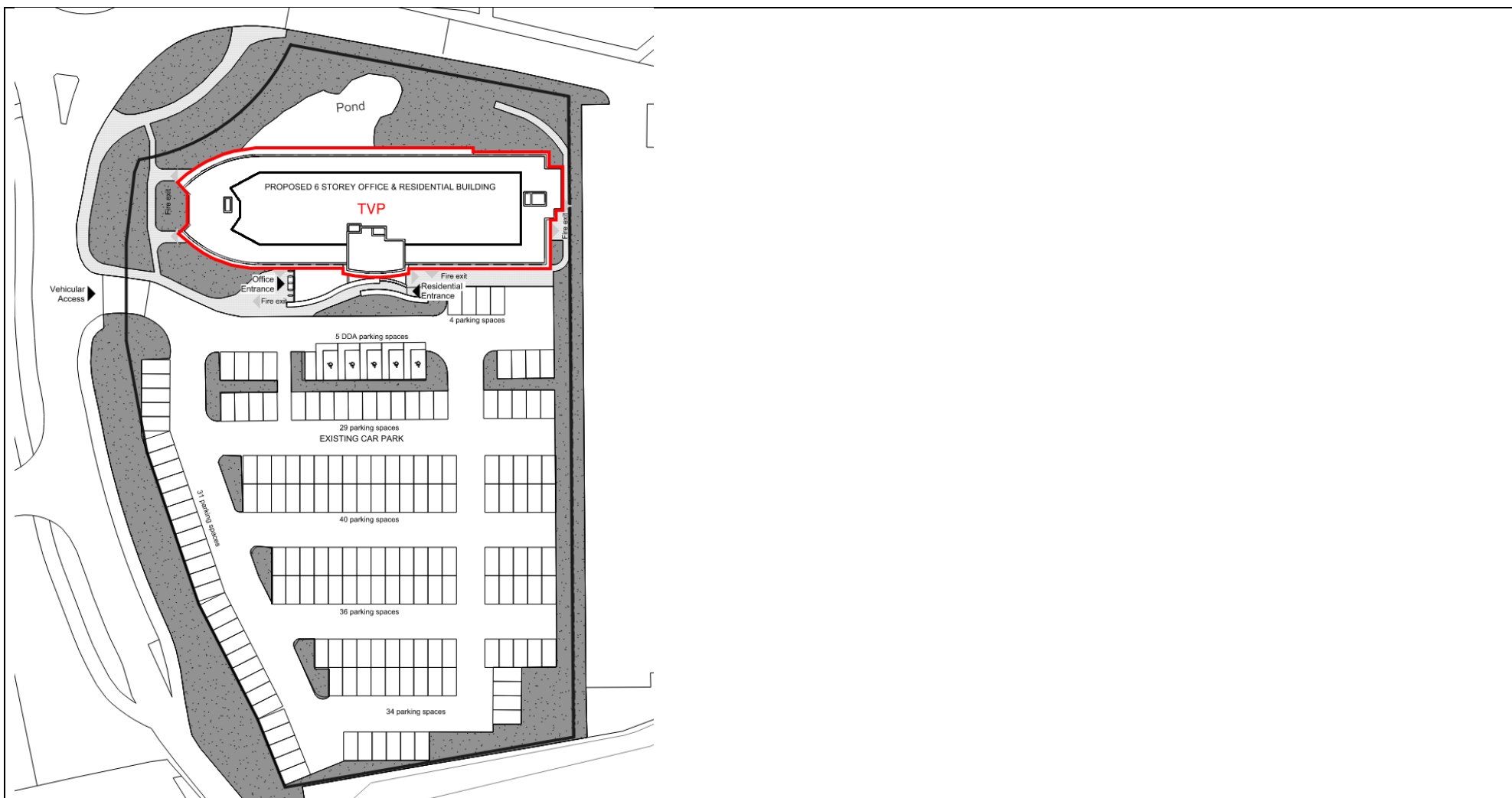
- 6.1.1 This report remains valid only for the project identified in the title of this document.
- 6.1.2 The assessment is issued on the basis of information made available and submitted at the time of writing. If contradictory evidence becomes available, Ashton Fire reserves the right to withdraw the assessment unconditionally.

Appendix A - Gateway 1 fire statement

Fire statement form

Application information	
1. Site address line 1	400 Thames Valley Park
Site address line 2	Earley
Site address line 3	
Town	Reading
County	Berkshire
Site postcode (optional)	RG6 1PT
2. Description of proposed development including any change of use (as stated on the application form):	400 Thames Valley Park is an existing office building (G+3). The project will comprise the extension of the existing building to provide two additional residential storeys above and rooftop plant equipment, resulting in a building height of 19.65m with 6 storeys (G+5) above ground storeys. Office use will be maintained at Ground floor to Level 03; Level 04 and 05 will be residential use only.
3. Name of person completing the fire statement (as section 15.), relevant qualifications and experience. Guide: no more than 200 words	Name: Kieran Watson Role: Principal Fire Engineer Qualifications: MEng (Hons) Structural Engineering with Architecture Memberships: Member of the Institution of Fire Engineers (MIFireE) Experience: 6+ years developing fire safety strategies for high-rise residential and mixed-use buildings. Reviewer Name: David Connaughton Role: Principal Fire Engineer Qualifications: MEng Mechanical and Manufacturing Engineering Memberships: Chartered Engineer registered with the Engineering Council (CEng), Member of the Chartered Institution of Building Services Engineers (MCIBSE), Associate Member of the Institution of Fire Engineers (AIFireE) Experience: 9 years developing fire safety strategies for high-rise residential and mixed-use buildings.
4. State what, if any, consultation has been undertaken on issues relating to the fire safety of the development; and	Prior to Ashton Fire's involvement, consultation with Health and Safety Executive (HSE) has been undertaken (ref: pgo-5811) with their responses reviewed and considered during the design phase as follows: • Separation of stairs for residential flats and offices. • Removal of external stairs. • Provision of two fire-fighting shafts serving the residential floors.

what account has been taken of this. Guide: no more than 200 words	Ashton Fire has prepared initial fire strategy mark-ups with comments highlighting areas of design consideration/risks/changes required to the current design proposals. Subsequently, a fire safety design review report will be developed by Ashton Fire. The fire safety design review report highlights the proposed fire safety design and fire strategy for the development.
5. Site layout plan with block numbering as per building schedule referred to in 6. (consistent with other plans drawings and information submitted in connection with the application)	
Site layout plan is: inserted in the form	



The principles, concepts and approach relating to fire safety that have been applied to the development

6. Building schedule

Site information

Building information

Resident safety information

400 Thames Valley Park	b) • block height (m) • number of storeys excluding those below ground level • number of storeys including those below ground level	c) proposed use (one per line)	d) location of use within block by storey	e) standards relating to fire safety/ approach applied	f) balconies	g) external wall systems	h) approach to evacuation	i) automatic suppression	j) accessible housing provided
400 Thames Valley Park	19.65 m 6 storeys 7 storeys (B+G+5)	Service area	Below ground level	Approved document B vol 2	no balconies	worse than class A2-s1, d0	simultaneous	yes-commercial sprinklers, full	N/A non resi
400 Thames Valley Park	19.65 m 6 storeys 7 storeys (B+G+5)	office, research and development	Ground to third floor	Approved document B vol 2	no balconies	class A2-s1, d0 or better	simultaneous	yes-commercial sprinklers, full	N/A non resi
400 Thames Valley Park	19.65 m 6 storeys 7 storeys (B+G+5)	other residential accommodation	Fourth and fifth floor	Approved document B vol 1	no balconies	class A2-s1, d0 or better	stay put	yes-residential sprinklers, full	M4(2)

7. Specific technical complexities

Explain any specific technical complexities in terms of fire safety (for example green walls) and/or departures from information in building schedule above

Guide: no more than 500 words

The building will be a mixed-use development, comprising office accommodation below and residential accommodation above. The plans have been designed to ensure that each use functions independently, with separate stair cores provided for the residential floors. From both evacuation and fire service access perspectives, the office and residential uses are completely independent. Where more stringent requirements apply to the residential use—such as sprinkler protection and external wall performance—these higher standards have been adopted throughout the building.

Evacuation lifts are to be provided within each residential core. Each evacuation lift will be provided with the same level of protection as the stair, and it will be separated from any accommodation by a protected lobby provided with inlet air and a protected corridor provided with mechanical ventilation. A bespoke smoke control system has been proposed to adequately protect occupants awaiting the lift car's arrival and to mitigate the risk of smoke spreading across multiple floors.

One portion of the common corridor in the proposed layouts will feature extended travel distances along the corridors, which require additional fire safety measures to ensure compliance with regulations and occupant safety. Hence, two sets of push-pull systems will be introduced to ensure effective and safe extraction of smoke so that the corridor remains safe for evacuation during a fire. A cross-corridor door will also be introduced to prevent smoke from spreading between sections of the cross-corridor, ensuring that the smoke from one section does not encroach on the adjacent section. The design will be further supported by computational fluid dynamics (CFD) modelling which will be carried out during subsequent design stages.

The building will feature elements of existing construction, which may need to be upgraded to satisfy the requirement fire resistance period. The performance of the existing construction elements will be validated by structural fire engineers and the need for additional fire protection defined at a later design stage.

The building will feature re-entrant concerns where external walls abut the fire-fighting shafts and protected stairs. As such, parts of the external walls will require fire resistance to maintain compartmentation and protected fire service access routes and escape routes.

8. Issues which might affect the fire safety of the development

Explain how any issues which might affect the fire safety of the development have been addressed.

Guide: no more than 500 words

All specific technical complexities have been outlined in Section 7. In each case, the deviations from standard guidance have been carefully considered and robust solutions put in place.

9. Local development document policies relating to fire safety

Explain how any policies relating to fire safety in relevant local development documents have been taken into account.

Guide: no more than 500 words

Ashton Fire is not aware that there are any specific local authority policies related to fire safety to be taken into account.

Emergency road vehicle access and water supplies for firefighting purposes

10. Fire service site plan

Explanation of fire service site plan(s) provided in 14. including what guidance documents have informed the proposed arrangements for fire service access and facilities?

Guide: no more than 200 words

Fire brigade access will be provided in accordance with the recommendations in Approved Document B Volume 1 and Volume 2. Access for emergency vehicles to the building will be provided as discussed in Section 12 below.

The residential levels on fourth and fifth floor will feature two firefighting shafts and one additional protected stair, all provided with a dry rising fire main. Each stair will be fitted with a 1.0m² automatic opening vent (AOV) at the head of the stair and dry fire main outlet. Each firefighting stair will be connected to a firefighting lobby with an inlet air shaft at each residential storey.

At ground floor, the central firefighting shaft can be accessed either through a residential entrance lobby or directly from the outside via the fire-fighting stair. The east firefighting shaft will be accessed directly from the outside. Access to each residential protected stair will be provided directly from the outside via a perimeter door.

The office core between ground and third floor will be provided with three protected stairs serving all office storeys. Each stair will be provided with a dry rising fire main. Access to each protected stair and ground floor office area will be provided directly from the outside via perimeter door.

11. Emergency road vehicle access

Specify emergency road vehicle access to the site entrances indicated on the site plan

Guide: no more than 200 words

Fire service access to the building site will be via Shepherds House Ln from the west of the site.

Is the emergency vehicle tracking route within the site to the siting points for appliances clear and unobstructed?

yes

12. Siting of fire appliances

Guide: no more than 200 words

Access for emergency vehicles will be provided such that they are within 18m and within sight of the dry fire main inlet connection point.

13. Suitability of water supply for the scale of development proposed

Guide: no more than 200 words

An existing hydrant is located at Shepherds House Ln which is within 90 meters of the building's dry fire main inlets. The existing fire hydrant has been confirmed as operational by the Royal Berkshire Fire & Rescue Service. The proposed works do not involve alterations to the water supplies hence the existing fire hydrants will remain operational.

Nature of water supply:

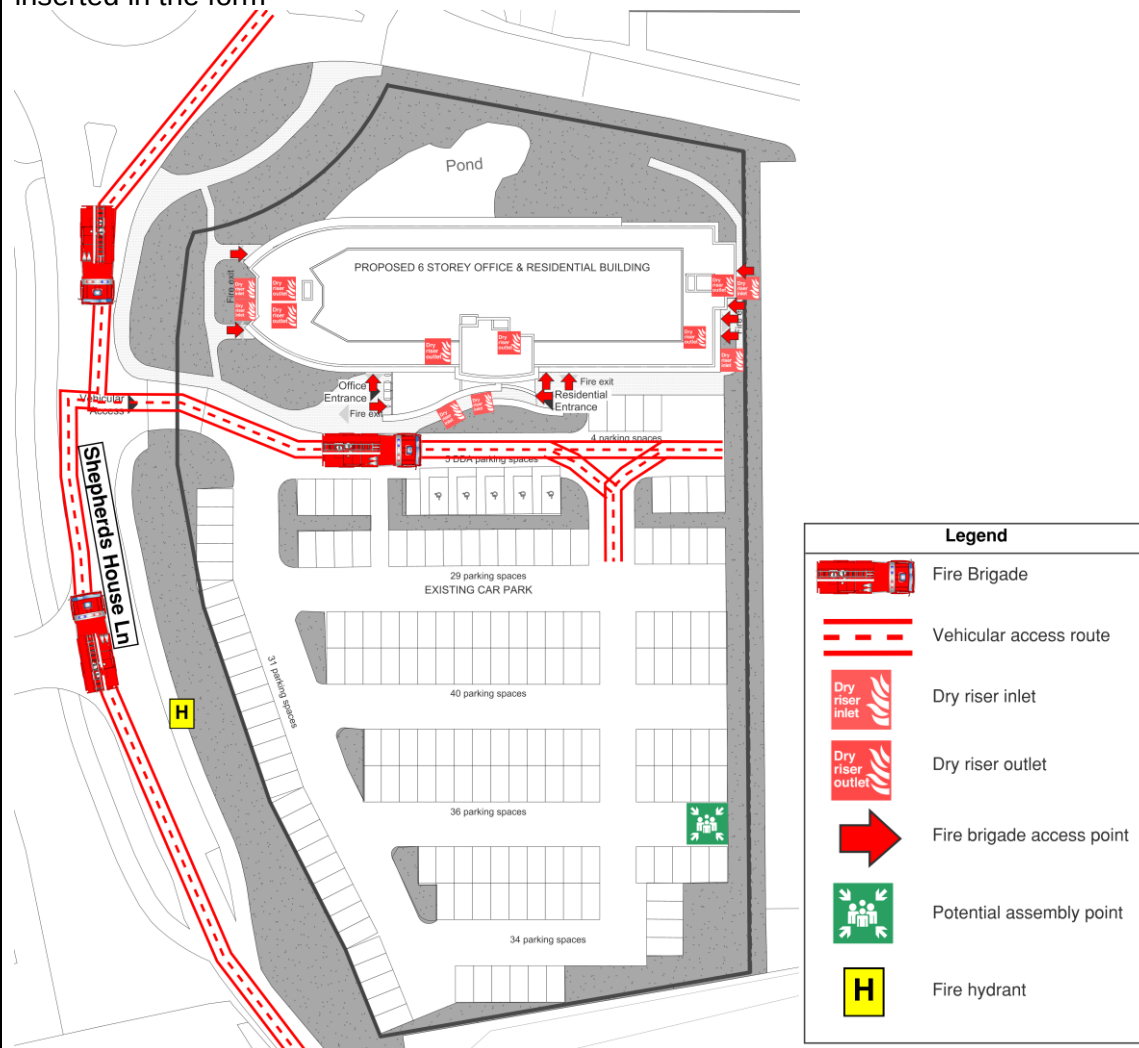
hydrant- public

Does the proposed development rely on existing hydrants and if so are they currently usable / operable?

yes

14. Fire service site plan

Fire service site plan is:
inserted in the form





Indicative ground floor layout

15. Signature

KW

16. Date

22/01/2025

Appendix B - Fire safety mark-ups

Legend

Firefighting Stair

Protected Stair

Mechanically ventilated area

Naturally ventilated area

Firefighting lift

Evacuation lift

Firefighting/evacuation lift

Natural smoke shaft

Mechanical smoke shaft

Dry riser outlet

Dry riser inlet

ASHTON

FIRE

Project Name:
400 Thames Valley Park

Drawing Title:
PRELIMINARY FIRE SAFETY COMMENTS

Author: EC

Date: 17.07.25

Checked: KW

Issue: 04

Project Number: AF 5331

Notes

1. The buildings have been reviewed in accordance with the guidance within Approved Document B (ADB Volume 1 and 2) in the first instance, supplemented by British Standard (BS 9999 and BS 9991) where more onerous guidance exists.

2. Escape from the the residential core will be facilitated by 2 firefighting stairs, 1 protected stair and 2 evacuation lifts. Ventilation will be provided to the corridors and evacuation lift lobbies to protect the lift and escape stairs. The office space will feature independent escape routes via 3 protected stair.

3. The building has a top storey height more than 18m above ground and therefore, external walls should be designed in accordance with Regulation 7(2) and all materials forming part of the walls should achieve a fire performance rating of class A2-s1, d0 or better.

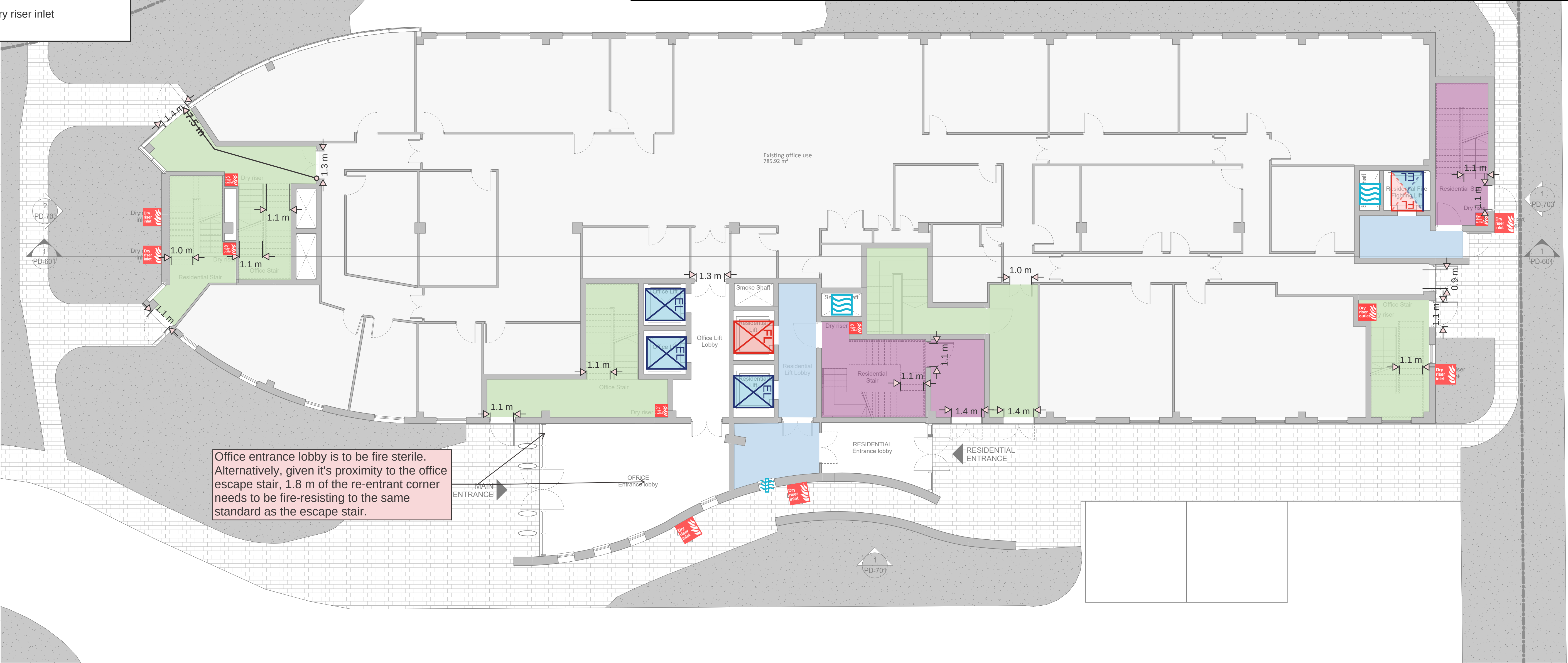
4. With the office space measuring 785.92m2, the maximum calculated occupancy is 130 persons, based on a floor space factor of 6m2/person. The provision of five storey exits can accommodate up to a total of 528 occupants on the ground floor, thereby fulfilling the requirement. This calculation accounts for the discounting of one storey exit to consider scenarios where flames may obstruct access to the particular storey exit.

4. The residential areas should be provided with a Category 4 sprinkler system in compliance with BS 9251. Non residential areas such as office areas should be provided sprinklers in accordance with BS EN 12845 (OH1).

5. The building will be provided with at least one dry fire mains on each floor (central firefighting stair) with a maximum hose laying distance of 60m from the fire main outlet in the firefighting shaft. Fire service access points should be provided within 18m and within sight of the dry riser inlet.

6. Hydrants should be provided such that they are within 90 m of dry fire main inlets and within 90m of an entrance to the non-residential areas of the buildings.

7. Where the residential firefighting lifts do not connect the office areas, early consultation should be conducted with the local fire and rescue service in relation to the setting up of a bridgehead by fire crews below the floor of fire origin.



Legend

Firefighting Stair

Protected Stair

Mechanically ventilated area

Naturally ventilated area

Firefighting lift

Evacuation lift

Firefighting/evacuation lift

Natural smoke shaft

Mechanical smoke shaft

Dry riser outlet

Dry riser inlet

ASHTON

FIRE

Project Name:

400 Thames Valley Park

Drawing Title:

PRELIMINARY FIRE SAFETY COMMENTS

Author:

EC

Date:

17.07.25

Checked:

KW

Issue:

04

Project Number:

AF 5331

Notes

1. With the office space measuring 822.13m2, the maximum calculated occupancy is 137 persons, based on a floor space factor of 6m2/person. The provision of three storey exits, each measuring 900mm in width, can accommodate up to 220 occupants every floor, thereby fulfilling the requirement. This calculation accounts for the discounting of one storey exit to consider scenarios where flames may obstruct access to the particular storey exit.

2. The combined occupant capacity of the office core between level 1 and 3 is 415 persons. The provision of three protected stairs, each measuring 1,100mm can accommodate a total occupants of 600 persons, thereby fulfilling the requirement. The absence of a smoke control system and a protected lobby connecting a protected stair on the ground level necessitates the discount of a protected stair from this calculation.

3. Full set of GAs to be provided before stair capacity calculations are undertake.

The figure is a detailed architectural floor plan of the first floor of 400 Thames Valley Park. The plan is elongated and features a central corridor system. Key elements include:

- Stairs:** Multiple stairwells are shown, color-coded as Firefighting Stairs (purple) and Protected Stairs (green). Dimensions for stair widths are provided, such as 1.0 m, 1.1 m, and 0.9 m.
- Core and Lifts:** A central core contains an 'Office Lift Lobby' and 'Toilets'. It also features firefighting and evacuation lifts, marked with red and blue symbols respectively. A note specifies: 'Fire-fighting and evacuation lift to open in the fire-fighting lobby on all levels.'
- Smoke Shafts:** Several smoke shafts are indicated, some with mechanical ventilation symbols.
- Dimensions:** Large areas are dimensioned, including 'Existing office use 822.13 m²' and various room widths like 9.4 m, 20.3 m, and 28.2 m.
- Other Features:** The plan shows 'Dry riser' outlets and inlets, 'Refuge points' (marked with green wheelchair icons), and various door types. A note points to a door: 'Door to be increased to match the width of the exits leading onto it to prevent the escape route narrowing.'
- Orientation and Scale:** The drawing includes a north arrow pointing towards the top right and a scale bar indicating 0m, 5m, and 10m, with a scale of 1:100.

Produced by: Rohacs Architects Ltd 55 Whitfield Street, London, W1T 4AH	Client: TVP Investments Ltd. 2 Wellington Road, London, NW8 9SP	Project: 400 Thames Valley Park Reading, RG6 1PT	Drawing Title: Proposed First Floor Plan Permitted Development	© 2025 Rohacs Architects Ltd. This document is copyright and may not be reproduced or used for other than the purpose indicated in the drawing title without the permission of the owner. Area figures in this drawing are approximate and relate to the likely areas of the building at the current stage of design. Any decisions made on the basis of these area figures, whether as to project viability, pre-letting, lease or sale agreements and the like, should make allowance for design development, accurate site survey, site levels and site dimensions, construction methods and building tolerances, Local Authority and Statutory consents. Do not scale from this drawing except for town planning purposes! This documentation is not for construction. Ordnance Survey data contained herein is licensed for this project only. © Crown copyright and database rights 2025 Ordnance Survey 0100031673.	Scale @ A1: 1 : 100	Current Revision Date: 13/06/2025	Drawing No: PD-501	Revision: 1
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Legend

Firefighting Stair

Protected Stair

Mechanically ventilated area

Naturally ventilated area

Firefighting lift

Evacuation lift

Firefighting/evacuation lift

Natural smoke shaft

Mechanical smoke shaft

Dry riser outlet

Dry riser inlet

ASHTON

FIRE

Project Name:
400 Thames Valley Park

Drawing Title:
PRELIMINARY FIRE SAFETY COMMENTS

Author: EC

Date: 17.07.25

Checked: KW

Issue: 04

Project Number: AF 5331

Notes

1. With the office space measuring 835.54m2, the maximum calculated occupancy is 139 persons, based on a floor space factor of 6m2/person. The provision of three storey exits, each measuring 900mm in width, can accommodate up to 220 occupants every floor, thereby fulfilling the requirement. This calculation accounts for the discounting of one storey exit to consider scenarios where flames may obstruct access to the particular storey exit.

2. The combined occupant capacity of the office core between level 1 and 3 is 415 persons. The provision of three protected stairs, each measuring 1,100mm can accommodate a total occupants of 600 persons, thereby fulfilling the requirement. The absence of a smoke control system and a protected lobby connecting a protected stair on the ground level necessitates the discount of a protected stair from this calculation.

3. Full set of GAs to be provided before stair capacity calculations are undertake.

Produced by: Rohacs Architects Ltd 55 Whitfield Street, London, W1T 4AH	Client: TVP Investments Ltd. 2 Wellington Road, London, NW8 9SP	Project: 400 Thames Valley Park Reading, RG6 1PT	Drawing Title: Proposed Second & Third Floor Plan Permitted Development	© 2025 Rohacs Architects Ltd. This document is copyright and may not be reproduced or used for other than the purpose indicated in the drawing title without the permission of the owner. Area figures in this drawing are approximate and relate to the likely areas of the building at the current stage of design. Any decisions made on the basis of these area figures, whether as to project viability, pre-letting, lease or sale agreements and the like, should make allowance for design development, accurate site survey, site levels and site dimensions, construction methods and building tolerances, Local Authority and Statutory consents. Do not scale from this drawing except for town planning purposes! This documentation is not for construction. Ordnance Survey data contained herein is licensed for this project only. © Crown copyright and database rights 2025 Ordnance Survey 0100031673.	Scale @ A1: 1 : 100	Current Revision Date: 13/06/2025	Drawing No: PD-502	Revision: 1
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Legend

Firefighting Stair

Protected Stair

Mechanically ventilated area

Naturally ventilated area

Firefighting lift

Evacuation lift

Firefighting/evacuation lift

Natural smoke shaft

Mechanical smoke shaft

Dry riser outlet

Dry riser inlet

ASHTON

FIRE

Project Name:
400 Thames Valley Park

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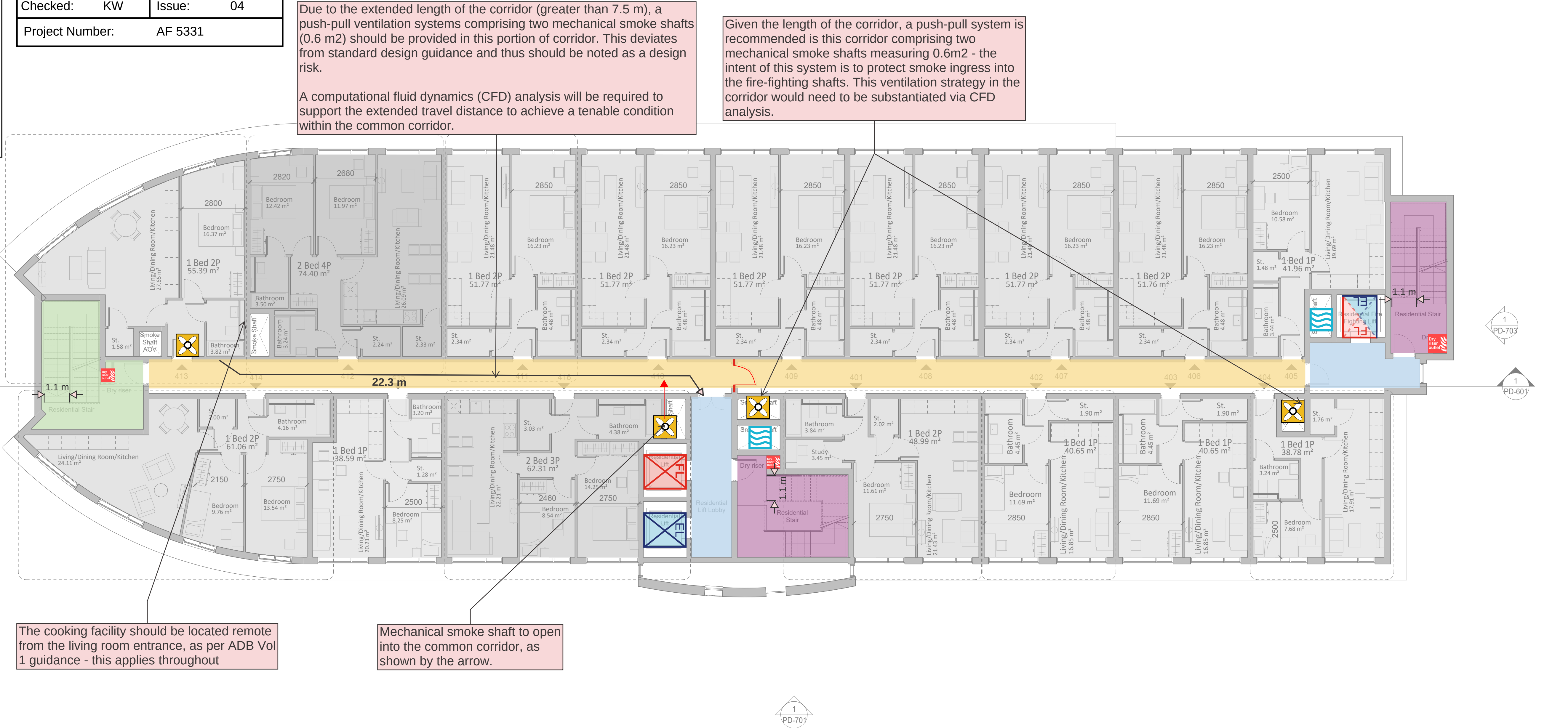
Author: EC

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Legend

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Due to the extended length of the corridor (greater than 7.5 m), a push-pull ventilation systems comprising two mechanical smoke shafts (0.6 m2) should be provided in this portion of corridor. This deviates from standard design guidance and thus should be noted as a design risk.

A computational fluid dynamics (CFD) analysis will be required to support the extended travel distance to achieve a tenable condition within the common corridor.

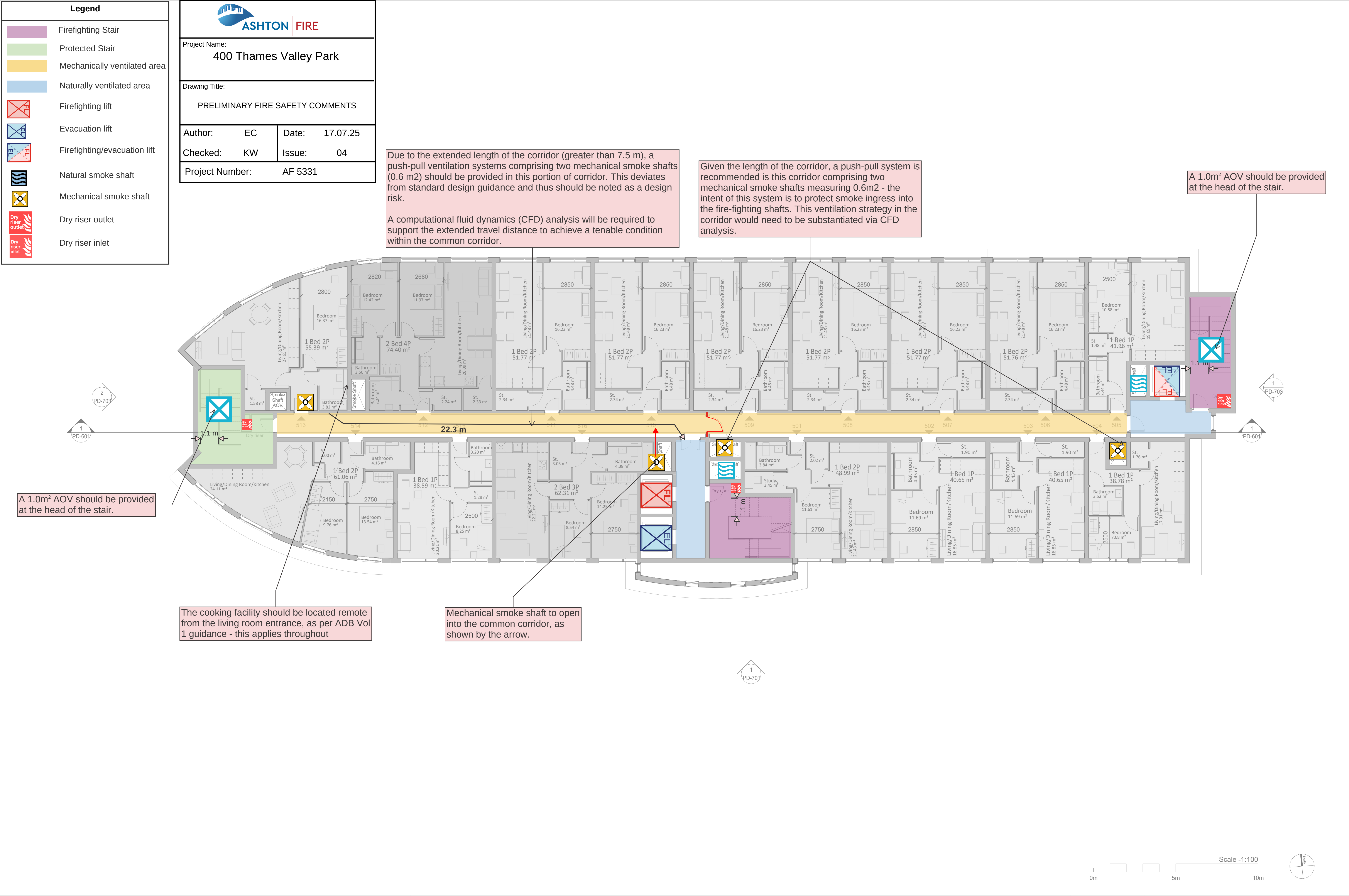
Given the length of the corridor, a push-pull system is recommended is this corridor comprising two mechanical smoke shafts measuring 0.6m2 - the intent of this system is to protect smoke ingress into the fire-fighting shafts. This ventilation strategy in the corridor would need to be substantiated via CFD analysis.

A 1.0m² AOV should be provided at the head of the stair.

A 1.0m² AOV should be provided at the head of the stair.

The cooking facility should be located remote from the living room entrance, as per ADB Vol 1 guidance - this applies throughout

Mechanical smoke shaft to open into the common corridor, as shown by the arrow.



Legend

Firefighting Stair

Protected Stair

Mechanically ventilated area

Naturally ventilated area

Firefighting lift

Evacuation lift

Firefighting/evacuation lift

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Mechanical smoke shaft

Dry riser outlet

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