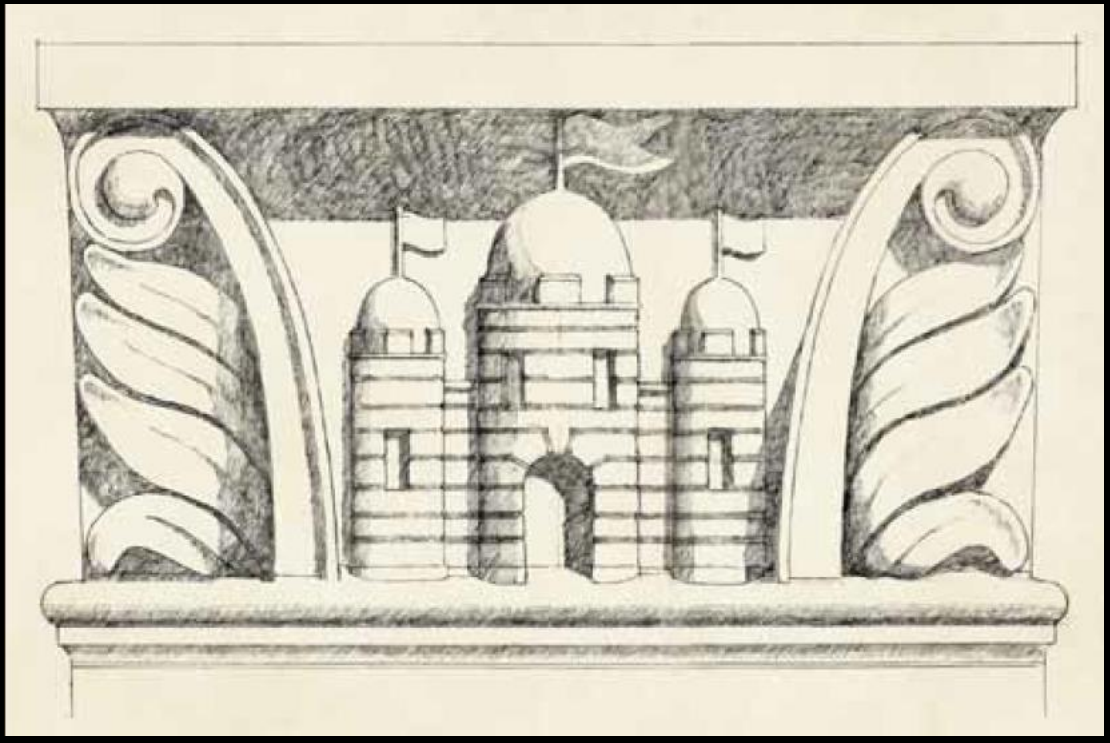

EAGLE QUARTER II
NEWBURY

FIRE STATEMENT

September 2023

LOCHAILORT

Eagle Quarter II, Newbury

Planning Gateway One Fire Statement

18 September 2023

Lochailort Newbury Limited

15076BC

Revision History

Version	Date	Author	Comments
01	07.09.2023	EG/HF	Initial issue
02	18.09.2023	HF	Update following feedback from design team

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Contents

Application Information		4
1.	Site Address	4
2.	Description of proposed development	4
3.	Qualifications & Experience of the Author	4
4.	Site layout plan with block numbering as per building schedule referred to in Section.	5
5.	Building Schedule-The principles, concepts and approach relating to fire safety that have been applied to the development.	6
6.	Specific technical complexities.	9
7.	Issues which might affect the fire safety of the development.	13
8.	Local development document policies relating to fire safety.	14
Emergency Road Vehicle Access & Water Supplies for Firefighting Purposes.		15
9.	Explanation of Fire service site plan.	15
10.	Emergency Road Vehicle Access	15
11.	Siting of Fire Appliances.	15
12.	Suitability of water supply for the scale of development proposed.	15
13.	Fire Service Site Plan	16

Application Information

1. Site Address

Table 1.1 Site Address

Site Address	
Site address line	Kennet Shopping Centre, Market Street
Town	Newbury
County	Berkshire
Site postcode (optional)	RG14 5EN

2. Description of proposed development

The description of proposed development as per the planning application is:

Full planning permission for the redevelopment of the Kennet Centre comprising the partial demolition of the existing building on site and the development of new residential dwellings (Use Class C3) and residents' ancillary facilities; commercial, business and service floorspace including office (Class E (a, b, c, d, e, f, and g)); access, parking, and cycle parking; landscaping and open space; sustainable energy installations; associated works, and alterations to the retained Vue Cinema and multi storey car park.

The structure is to be constructed from reinforced concrete frame and the façades are double skin with cavity insulation blockwork. This involves internal blockwork and external brickwork.

3. Qualifications & Experience of the Author

3.1 Experience- Hadrien Fruton

Hadrien Fruton is a Chartered Fire Engineer with the Institution of Fire Engineers (IFE) with ten years of experience as a fire engineer.

He has a Bachelor's degree in Health, Safety and Environment, followed by a Master of Science degree in Fire Safety Engineering from the University of Ulster, and a Master of Science degree in Construction Project Management from Heriot-Watt University.

He has a wide range of experience in residential buildings in and outside of London. He worked on buildings with various height (from small dwelling houses to 100m tall towers), offering private and/or affordable accommodation, mixed-use residential buildings, single stair residential buildings, open-plan apartment layouts, various smoke ventilation strategy for common corridors, sprinklered and un-sprinklered buildings, and various types of façade design.

Table 3.1 Qualifications

Qualifications	
Name	Qualifications
Academic Qualifications	MSc
Professional Qualifications	CEng, MIFireE
Role	Reviewer

3.2 Experience- Shamuil Dalvi

Following a First-Class honours from the University of Manchester in MEng Civil Engineering (Specialised in Structural, Fire and Sustainability Engineering), Shamuil has been working in the field of Fire Engineering for over 9 years and has been based in London, Manchester, Dubai and Melbourne. This has led to working on a wealth of projects throughout the world utilising an assortment of different codes and standards. Most notably, the British Suite of standards, Approved Document B, the Australian standards & NCC Suite, NFPA, UAE Fire Code, Qatar Code, GCC Code, IBC and Saudi Building Code.

Shamuil is an Associate Fire Engineer and is has worked full-time with BB7 Consulting Ltd since September 2022. He is also in the process of registering/applying for CEng registration with the Institution of Fire Engineers (IFE) and Engineering Council.

Shamuil has provided design advice and developed fire engineering solutions within a diverse range of sectors and buildings including: healthcare, retail, commercial, residential, defence, industrial and education.

Table 3.2 Qualifications

Qualifications	
Name	Shamuil Dalvi
Academic Qualifications	MEng (Hons)
Professional Qualification	MIFireE (Membership No. 00052835)
Role	Authoriser

4. Site layout plan with block numbering as per building schedule referred to in Section.

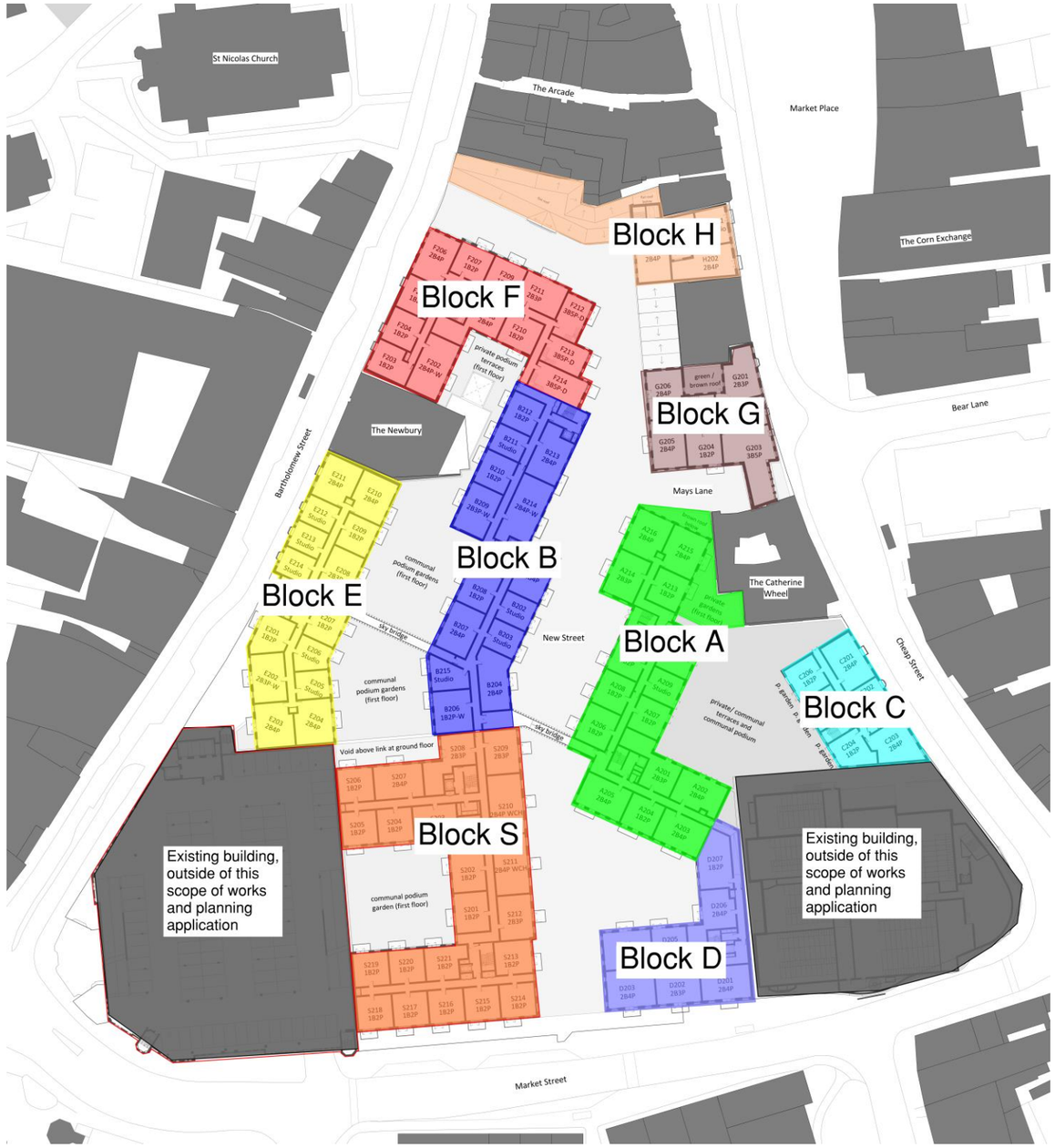

Figure 4.1 Site Layout Plan- Proposed Blocks A, B, C, D, E, F, G, H and S. (shown at First Floor level)

Note, the existing Car Park building and the Cinema Building are outside the scope of this report.

5. Building Schedule-The principles, concepts and approach relating to fire safety that have been applied to the development.

Table 5.1 Building Schedule

Site Information				Building Information			Resident Safety Information		
Block	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
Block A	Ground to Level 07 (top floor of duplex apartment) c. 24. m when measured from lowest ground to the topmost occupied storey (upper level of duplex apartment).	Residential Flats, Maisonettes, Studios. Service Area	Level 00 – Shared loading bay with Block C. Level 00 - Residential Amenity, Cycle Store, Bin Store, Plant rooms, Store Level 02 - Shared Communal Roof with Block C Level 01 - Plant Level 01 to Level 07 – Residential Apartments Level 06 and 07 - Communal Roof	BS9991 – Residential Areas BS9999 – Non-Residential Areas	class A2-s1, d0 or better	class A2-s1, d0 or better	stay put For the residential apartments. simultaneous For the non-residential areas.	yes- residential sprinklers, full For the residential Areas & non-residential areas with a compartment up to 100m^2. The sprinkler system will be designed and installed to BS 9251:2021. yes- commercial sprinklers, full For the non-residential areas with a compartment over 100m^2. The sprinkler system will be designed and installed to BS EN 12845:2015+A1:2019	M4(3)
Block B	Ground to Level 07 (top floor of duplex apartment) c. 24.8 m when measured from lowest ground to the topmost occupied storey (upper level of duplex apartment).	Residential Flats, Maisonettes, Studios. Shop Car parking	Level 00- Refuse Store, shared Car Park between Blocks B, E and F. Ground- Commercial Units B1-B5. Level 00- 07 Residential. On Levels 01 to 03, access to Block F is provided. On levels 01 to 06, access to Block S is provided. Level 01 -Shared Communal Garden with Blocks E and F Communal Roof Garden Level 06.	BS9991 – Residential Areas BS9999 – Non-Residential Areas	class A2-s1, d0 or better	class A2-s1, d0 or better	stay put For the residential apartments. simultaneous For the non-residential areas.	yes- residential sprinklers, full For the residential Areas & non-residential areas with a compartment up to 100m^2. The sprinkler system will be designed and installed to BS 9251:2021. yes- commercial sprinklers, full For the non-residential areas with a compartment over 100m^2. The sprinkler system will be designed and installed to BS EN 12845:2015+A1:2019	M4(3)

Site Information				Building Information			Resident Safety Information		
Block	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
Block C	Ground to Level 04 c. 14. m when measured from lowest ground to the topmost occupied storey	Residential Flats, Maisonettes, Studios. Service Area	Ground – Shared loading bay with Block A. Cycle Store, Refuse Store Level 02- Shared Communal Roof with Block A Level 01 to Level 04– Residential Apartments	BS9991 – Residential Areas BS9999 – Non-Residential Areas	class A2-s1, d0 or better	class A2-s1, d0 or better	stay put For the residential apartments. simultaneous For the non-residential areas.	yes- residential sprinklers, full For the residential Areas & non-residential areas with a compartment up to 100m^2. The sprinkler system will be designed and installed to BS 9251:2021.	None
Block D	Ground to Level 05 c. 17.2. m when measured from lowest ground to the topmost occupied storey	Residential Flats, Maisonettes, Studios. Shop	Ground – Refuse Store, Substation Ground- Commercial Unit D1-D3 Level 01-05 – Residential Apartments.	BS9991 – Residential Areas BS9999 – Non-Residential Areas	class A2-s1, d0 or better	class A2-s1, d0 or better	stay put For the residential apartments. simultaneous For the non-residential areas.	yes- residential sprinklers, full For the residential Areas & non-residential areas with a compartment up to 100m^2. The sprinkler system will be designed and installed to BS 9251:2021.	M4(3)
Block E	Ground to Level 05 c. 17.5. m when measured from lowest ground to the topmost occupied storey	Residential Flats, Maisonettes, Studios. Car parking	Level 00- Refuse Store, shared Car Park between Blocks B, E and F. Level 01- 04 – Residential Apartments. Level 01 -Shared Communal Garden with Blocks E and F	BS9991 – Residential Areas BS9999 – Non-Residential Areas fire engineered approach – Smoke Ventilation in the Common Corridor	class A2-s1, d0 or better	class A2-s1, d0 or better	stay put For the residential apartments. simultaneous For the non-residential areas.	yes- residential sprinklers, full For the residential Areas & non-residential areas with a compartment up to 100m^2. The sprinkler system will be designed and installed to BS 9251:2021.	M4(3)
Block F	Ground to Level 03 c. 10.6m when measured from the lowest ground to the topmost occupied storey.	Residential Flats, Maisonettes, Studios. Shop Car parking	Ground – Shared Car Park with Block B. Refuse Store/Cycle Store and Recycling with Block B. Ground- Commercial Unit F1-F7 Level 01-02 Residential Apartments Shared with Block B. Level 03 – Communal Roof Terrace and Residential Apartments	BS9991 – Residential Areas BS9999 – Non-Residential Areas	worse than class A2-s1, d0	worse than class A2-s1, d0	stay put For the residential apartments. simultaneous For the non-residential areas.	yes- residential sprinklers, full For the residential Areas & non-residential areas with a compartment up to 100m^2. The sprinkler system will be designed and installed to BS 9251:2021.	M4(3)

Site Information				Building Information			Resident Safety Information		
Block	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
Block G	Ground to Level 03 c. 10.4m when measured from the lowest ground to the topmost occupied storey.	Residential Flats, Maisonettes, Studios. Shop	Level 00 – Refuse Store, Cycle Store, Offices Spaces, Ground- Commercial Unit G1-G5 Level 01-03 – Residential Apartments.	BS9991 – Residential Areas BS9999 – Non-Residential Areas	worse than class A2-s1, d0	worse than class A2-s1, d0	stay put For the residential apartments. simultaneous For the non-residential areas.	yes- residential sprinklers, full For the residential Areas & non-residential areas with a compartment up to 100m^2. The sprinkler system will be designed and installed to BS 9251:2021.	None
Block H	Ground to Level 02 c. 7.2m when measured from lowest ground to the topmost occupied storey.	Residential Flats, Maisonettes, Studios. Shop	Level 00 – Refuse, Cycle Store, Ground- Commercial Unit H1-H9 Level 01 – Residential Apartments and Retail Managers Office. Level 02 – Residential Apartments.	BS9991 – Residential Areas BS9999 – Non-Residential Areas	worse than class A2-s1, d0	worse than class A2-s1, d0	stay put For the residential apartments. simultaneous For the non-residential areas.	yes- residential sprinklers, full For the residential Areas & non-residential areas with a compartment up to 100m^2. The sprinkler system will be designed and installed to BS 9251:2021.	None
Block S	Ground to Level 07 c. 25. m when measured from lowest ground to the topmost occupied storey	Residential Flats, Maisonettes, Studios. Shop Office, research and development	Level 00- Refuse Store, Cycles Store, Offices Spaces, Ground- Commercial Unit S1 -S3- Level 00- 07 – Residential Apartments. Communal Garden on levels 01. Two Communal Roof Terraces on 06.	BS9991 – Residential Areas BS9999 – Non-Residential Areas fire engineered approach – Smoke Ventilation in Common Corridor	class A2-s1, d0 or better	class A2-s1, d0 or better	stay put For the residential apartments. simultaneous For the non-residential areas.	yes- residential sprinklers, full For the residential Areas & non-residential areas with a compartment up to 100m^2. The sprinkler system will be designed and installed to BS 9251:2021.	M4(3)

6. Specific technical complexities.

6.1 Residential Corridors

The recommendations of BS 9991 permit single direction travel distances of 7.5 m (maximum of 15 m when sprinklered) and 30 m (maximum of 60 m where sprinklered) where an alternative escape is route is provided in a smoke ventilated corridor. The travel distances within the residential corridors are measured from the furthest apartment entrance door to the stair door.

There are extended residential corridor travel distances layouts in the following levels:

- Block E - Levels 01 -04
- Block F - Level 01 & Level 02
- Block S - Levels 01-05

These arrangements are to be justified based on a fire engineered solution (refer 6.1.4) in line with the recommendations of the SCA Guidance on Smoke Control to Common Escape Routes in Apartment Buildings (Flats and Maisonettes) Revision 3.1.

6.1.1 Block E – Travel distance description

In Block E Level 01 there is extended travel distance from one corridor from apartments E003 and E103. The travel distance is equivalent to the one at Level 02-03 shown in Figure 6.1 (approximately 23.4m).

On Levels 02 -03 of Block E, the central stair-core provides access to two common corridors. It is noted that there is extended travel distance from the furthest apartments in both common corridors. The travel distance from the stair lobby to the furthest apartments is measured to be 22.4 m and 23.4 m, as seen in Figure 6.1. This travel distance affects apartments E203, E204, E210, E211, E303, E304, E310 and E311.

The building steps in on Levels 04 of Block E, nevertheless there are extended travel distances from Apartments E403 and E404.

Please refer to the Section 6.1.4 for the proposed fire engineered solution.

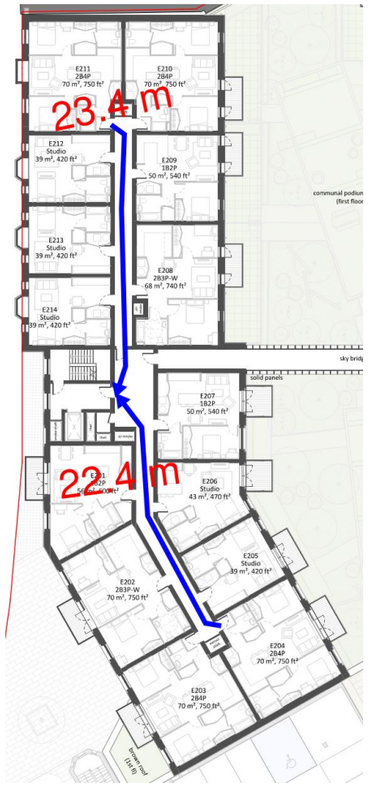

Figure 6.1 Block E-Level 02-03

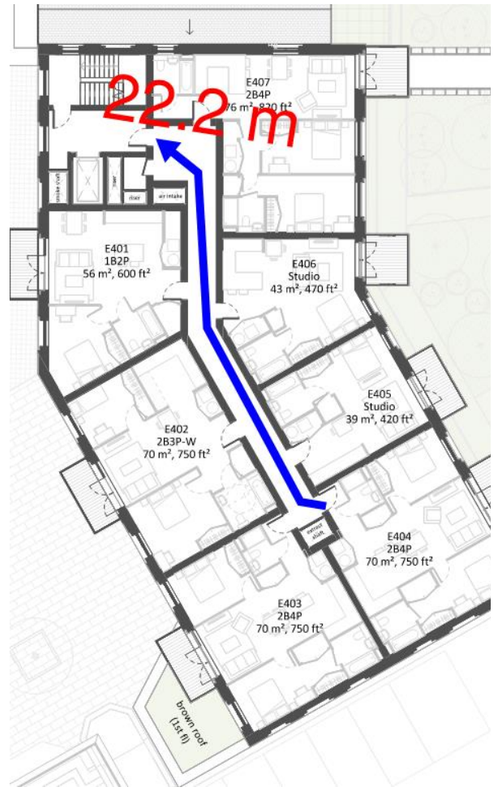

Figure 6.2 Block E-Level 04

6.1.2 Block F – Travel distance description

In Block F, the travel distance from Apartments 103 at Level 01 and 203 at Level 02 is approximately 16.8 m. This is in excess of the recommended travel distance of 15 m, when there is only a single direction of travel available via naturally smoke ventilated corridor and where all apartments are provided with sprinkler protection in accordance with BS 9251. Please refer to the Section 6.1.4 for the proposed fire engineered solution.

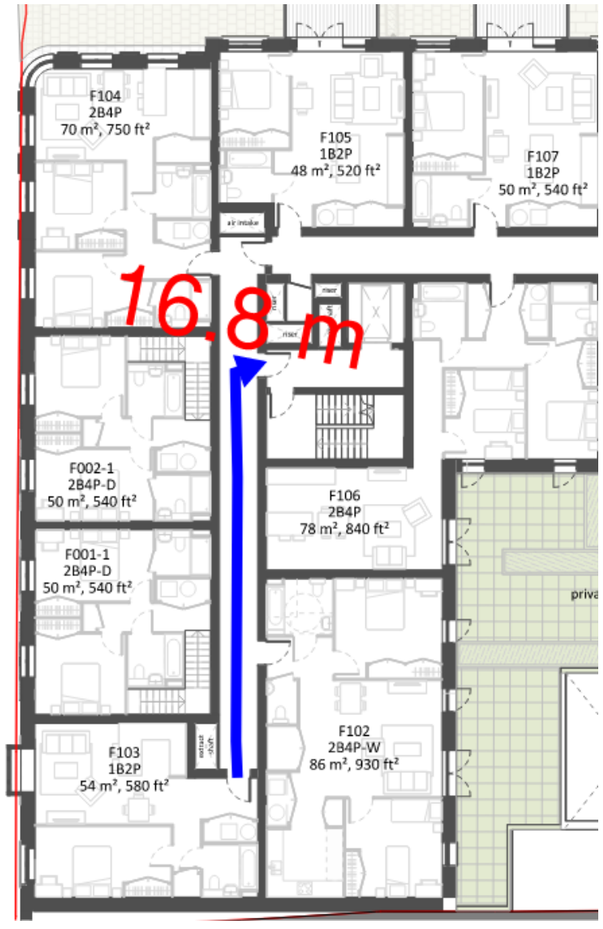

Figure 6.3 Extended Travel Distance- Block F Level 01 & Level 02

6.1.3 Block S – Travel distance description

In Block S levels 01-05 there are extended travel distances from apartments on two common corridors, these are 105, 106, 118 and 119, which is repeated up to level 5 (205, 206, 218, 219, 305, 306, 318, 319, 405, 406, 418, 419, 505, 506, 518 and 519). The travel distances from these apartments to the nearest stair is approximately 23.5m and 24.1m. This is excessive of the recommended travel distance of 15m. These distances can be seen on Figure 6.4. Please refer to the Section 6.1.4 for the proposed fire engineered solution.

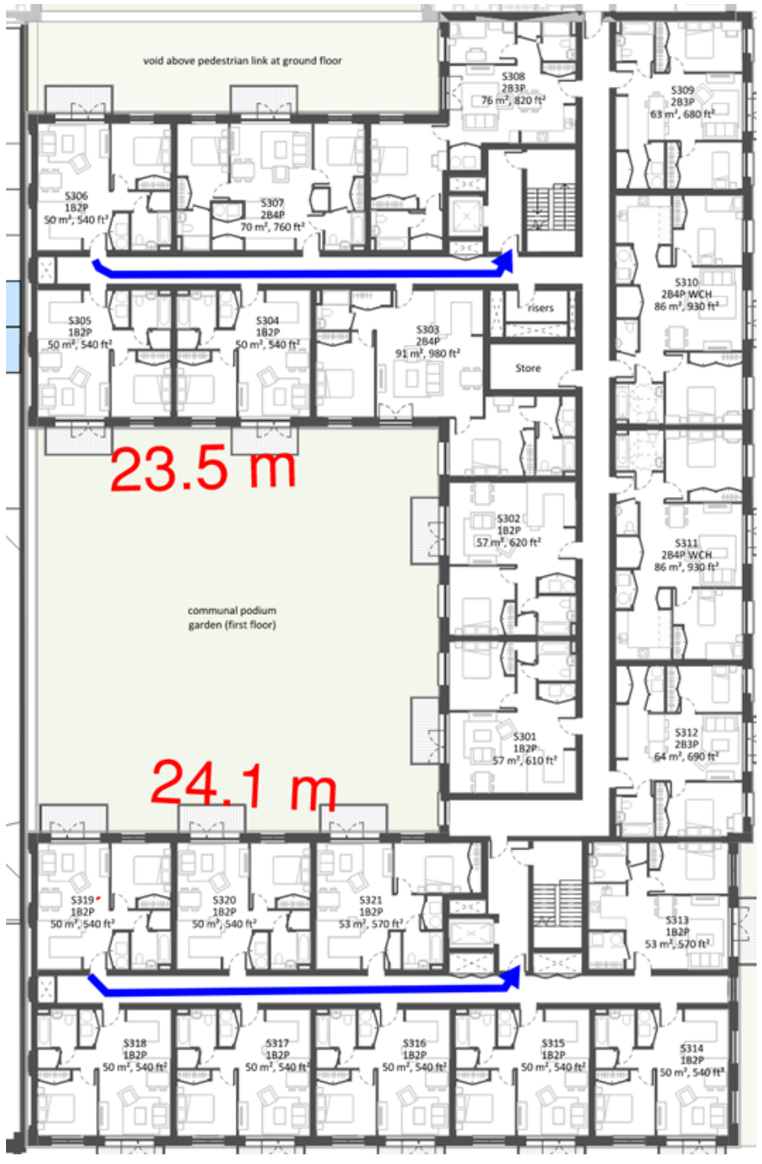

Figure 6.4 Extended Travel Distances - Block S: Level 01-05 and Level 07

6.1.4 Fire Engineered solution via enhanced smoke ventilation

A fire engineered solution will be proposed for the extended corridor travel distances incorporating an enhanced mechanical smoke ventilation system.

It is proposed that each core will be provided with a dedicated mechanical smoke extract shaft with a Cross Section Geometric Free Area (CSA) measuring at least 0.8 m^2. Extract shafts are to be located as far away from the stair as possible. Where shafts serve a corridor with multiple stairs, these can be designed as intelligent systems where the shafts can serve as both inlets and extract shafts depending on the fire location. This will be developed further in the next stage of design.

The smoke ventilation system will therefore not rely on the stair door being opened for air replacement. This will provide a more robust smoke ventilation system. Moreover, as the air inlet and the mechanical extract will be provided at each end of the common corridor, it will provide good air replacement in the common corridor, minimising the risk of dead spots. Finally, as the smoke extract is to be located away from the stair, the smoke is expected to be extracted away from the stair.

In Blocks E, F and the corridor on the top of the drawing in Block S, air replacement will be provided by a minimum 0.8 m^2 CSA air inlet shaft located on the opposite side of the common corridor. In the corridor on the bottom of the drawing in Block S, the air replacement will be provided via an AOV windows on the facade. The CSA of the vent will range between 0.8 m^2 to 1.5 m^2 free area depending on the results of the CFD modelling to be undertaken.

Furthermore, the lobbies in front of the stairs will be smoke ventilated independently to the common corridor, thus adding extra protection to the stair.

Computational fluid dynamics (CFD) analysis should be undertaken in the next design stage to demonstrate that tenable conditions for means of escape and firefighting can be achieved.

Indicative locations of the mechanical smoke extract systems have been shown in the figures below.

Figure 6.5 Block E – Level 01 – Ventilation Strategy

Figure 6.6 Block E-Level 02-03 - Ventilation Strategy

Figure 6.7 Block E-Level 04 - Ventilation Strategy

6.1.4.3

Figure 6.6 Extended Travel Distance- Block F Level 01 & Level 02- Ventilation Strategy

Figure 6.8 Extended Travel Distance- Block S: Level 01-05 -Ventilation Strategy

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

7.1 Open Plan Apartments

In accordance with BS 9991:2015, the kitchen should be enclosed in open-plan flats having an area exceeding 8 m × 4 m. Most of the apartments are designed as open-plan apartments greater than 8m x 4m and with an open kitchen. BB7 will develop a fire engineering solution based on a quantitative assessment to justify the proposed layout in the detailed design stage. BS 9991:2015 further states that cooking appliances in open-plan flats which have an area smaller than 8m x 4m should not be adjacent to the entrance of the flat. The main risk to occupants comes from the amount of radiation emitted by pan on fire, and the design of the apartments will be such that 2.3m will be provided between the location of the cooking facilities and any obstruction (i.e. 1.8m from a 0.5m wide escape route). In line with the draft BS 9991, this distance will be increased to 2.7m (i.e. 1.8m from a 0.9m wide escape route) for apartments designed as M4(3) where wheelchair users will be present.

7.2 Occupancy on top floor external amenity spaces

There are multiple blocks with an external roof top terrace. The roof top terraces are currently provided with a single escape route and are situated in the following areas:

- Block A – Level 06
- Block B – Level 04 & Level 06
- Block S – Level 06

As the external amenity spaces are served by only one stair, and therefore one exit, the overall capacity of that entire floor level (apartments plus terrace) should be limited to 60 persons. Occupants in their apartments are expected to stay put and remain in their apartments, therefore the occupancy of the external amenity spaces should be limited to 60 persons.

A management policy should be put in place to limit the occupants to 60 persons, or alternatively if there is no on-site management, the design of the terrace should be such that there is enough space just for 60 persons. This could be done by adding more furniture or more landscape. This will be developed during the next design stage.

7.3 Commercial Sprinkler system.

BS 9251:2021 states that compartments protected with a BS 9251 sprinkler system should be limited to a maximum of 100m^2.

There are multiple areas within the development which are greater than 100 m^2. A sprinkler system designed and installed in line with BS EN 12845 should therefore be provided. A tank size ranging between 70m^3 and 160m^3 will be required.

Enough space should be allocated at this stage for the water tank and the two sprinkler pumps. The exact tank size and design will need to be confirmed by the sprinkler specialist during the next RIBA stages.

7.4 Stair Discharge

Clause 34a of BS9991 states that protected stairways should discharge either:

- directly to a final exit; or
- into a protected corridor leading to a final exit which is itself lobbied from any accommodation.

In the current proposal it is noted that several stairs discharge into large lobby areas (approximately 35m^2). It has been discussed and agreed with the architect, that the lobbies will need to be managed

such that these spaces will not contain fire load, e.g. furniture or post boxes, and are considered to be a fire sterile areas..

8. Local development document policies relating to fire safety.

BB7 have not been made aware of any specific local policies relating to fire safety.

Emergency Road Vehicle Access & Water Supplies for Firefighting Purposes.

9. Explanation of Fire service site plan.

9.1 Emergency Access Roads

Refer to section 13 for the indicative emergency access routes and siting of fire appliances.

The proposed fire service access arrangement is to be consulted with the local Fire Authority. The access to the site for firefighting provisions is to be in accordance with guidance in BS 9991:2015 (Residential) and BS9999 (non-residential areas).

Access to the development is provided via the existing Market Street, Bartholomew Street and Cheap Street. Some of the blocks are accessed via New Street, a street newly created to allow access between all the blocks. The New Street will be designed to be suitable for a fire pump appliance.

Figure 13.1 shows in Red dotted line the existing roads and in magenta the new road that will be built. A green arrow shows the access to all stair cores. The location of the existing fire hydrants is identified with a H in a yellow box.

Fire appliance emergency access roads for pump appliances for Block Blocks E and F will be directly from Bartholomew Street at Ground Level.

Fire appliance emergency access roads for pump appliances for Blocks G and Block C will be directly from Cheap Street at Ground Level.

The rest of the blocks will be accessed from New Street.

9.2 Firefighting shaft & Dry Fire Main

Blocks A, B and S are more than 18m in height above fire appliance access but less than 50m. As such these buildings are to be provided with firefighting shafts.

Clause 50.2.1 of BS9991 states that a sufficient number of fire-fighting shafts should be provided to meet the maximum hose distance set out in Clause 50.2.2 (i.e., If the building is fitted throughout with a sprinkler system in accordance with BS 9251:2014, the hose laying is such that every part of every storey is no more than 60 m from a fire main outlet in a fire-fighting shaft). Clause 50.2.1 states that at least two fire-fighting shafts should be provided in buildings with a storey of 900 m^2 or more in area. Block A, B and S are all greater than 900 m^2, as such it is proposed that both stairs within each of the developments are designed as firefighting stairs as part of a firefighting shaft.

It is proposed that all blocks will be provided with Dry Riser mains, including those not designed as a firefighting shaft.

Evacuation lifts will also be provided where a lift is provided. This will be either a separate lift or will be combined with the firefighting lift.

10. Emergency Road Vehicle Access

Specify emergency road vehicle access to the site entrances indicated on the site plan.
Section 9.1 describes the access road into each of the blocks. Section 13 shows visually the access to each core and the fire and rescue service access road.

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

The tracking route for emergency vehicles (fire appliance for pump appliances) is to be provided by a vehicle tracking specialist. The routes are existing public highways and will be suitable for fire emergency vehicles.

11. Siting of Fire Appliances.

The distance from the parking position of a fire service vehicle to the dry riser inlet is not to exceed 18 m.

Based on the architectural drawings, the commercial areas on ground floor are sprinkler protected and every point on the project plan area is within 60 m of a vehicle parking position. The commercial units are also accessed directly from the outside, therefore dry rising mains will not be required to these areas.

Vehicle access to within 60 m of every point on the projected plan area or “footprint” of the building has been provided.

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

Nature of water supply:
hydrant- public
Several hydrants are present on site as shown on the Thames Water Search Result report dated May 2020. Their location has been reproduced in Figure 13.1. An additional hydrant should be located between Block A and Block B in the location identified with a H in a magenta box in Figure 13.1 so that all dry fire main inlet can be within 90m of a fire hydrant.

Does the proposed development rely on existing hydrants and if so, are they currently usable / operable?
don't know

To be confirmed by the water company at the next design stage.

13. Fire Service Site Plan

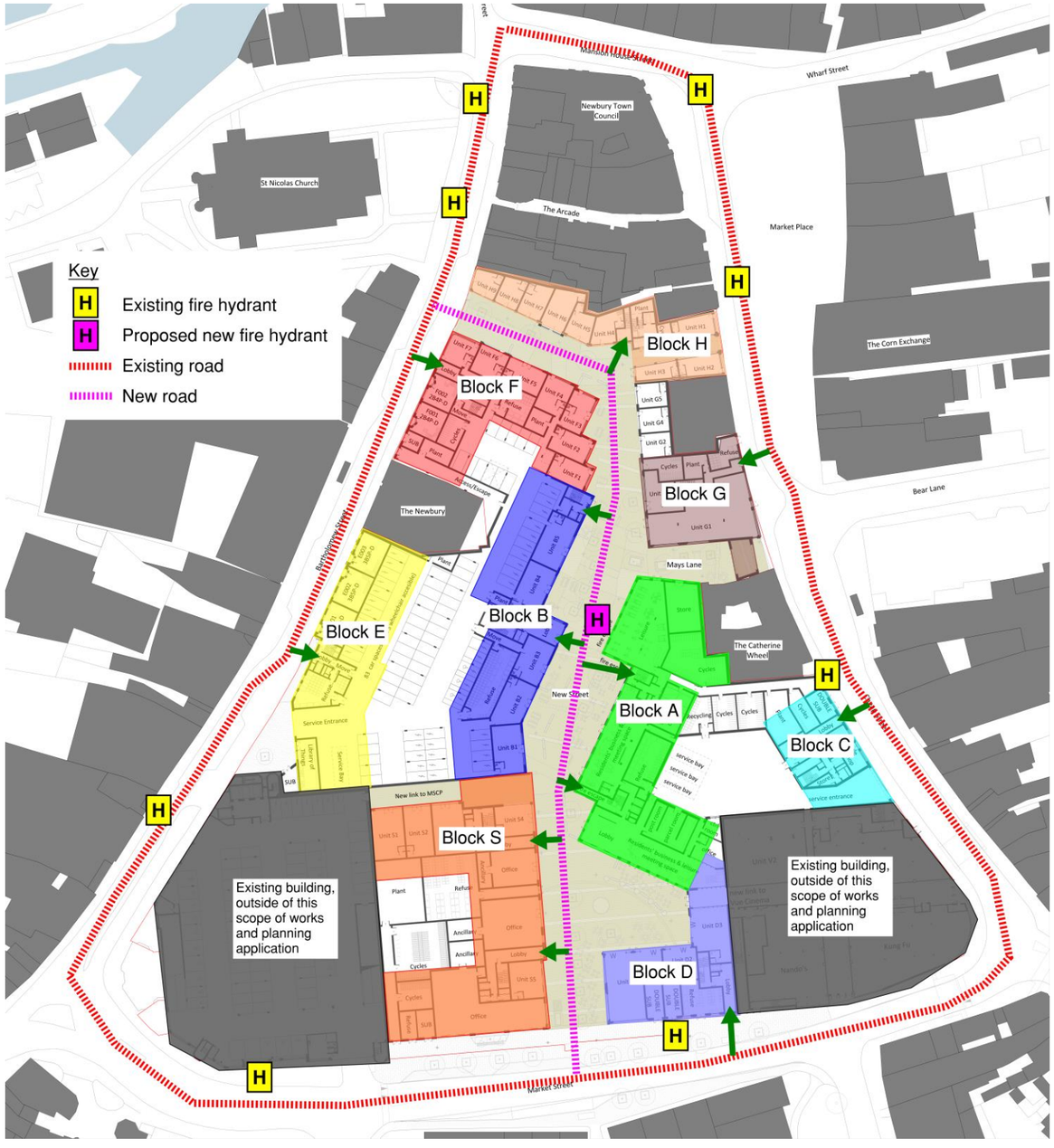

Figure 13.1 Road Access

We create safe spaces
where people, businesses
and communities thrive.