Fire Statement – Leisure Box, Great Northern, Manchester

Project No.: MA21195 | Date: 11/11/2022 | Revision: R01

Author: ST | Reviewer: AR | Approver: SFL

1 INTRODUCTION

OFR Consultants (OFR) has been appointed by GNW Developments Limited to develop a fire statement for the Leisure Box of the Great Northern scheme in Deansgate, Manchester. The fire statement aims to provide an abridged version of the Outline Fire Strategy, and follows the process as outlined within the UK Government Guidance issued on 24/06/21 that came into effect on 01/08/21. Said guidance requests submission via a form published by the Secretary of State (or a form to similar effect) containing the particulars specified or referred to in the form, which includes information about (not exhaustive list):

- The principles, concepts and approach relating to fire safety that have been applied to each building in the development;
- The site layout;
- Emergency vehicle access and water supplies for firefighting purposes;
- What, if any, consultation has been undertaken on issues relating to the fire safety of the development; and what account has been taken of this.

The RIBA Stage 2 outline fire strategy was produced by OFR named *'220831-R00-MA21195-WP3-Leisure Box_Outline_Fire_Strategy-OF-CIC.pdf'*, dated 31/08/2022. The following pages contain the fire statement, in the format provided by the UK government.

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2 FIRE STATEMENT FORM

Application information	
1. Site address line 1	Great Northern Warehouse, Deansgate
Site address line 2	
Town	Manchester
County	Greater Manchester
Site postcode (optional)	
2. Description of proposed development including any change of use (as stated on the application form):	The proposed design consists of: • Basement to Level 1 – retaining the current levels as car park with some refurbishment works including significant structural works to add new residential cores, service areas and plant rooms at Basement and Ground Floor; • Level 2 to 3 – refurbishing the existing retail, restaurant uses and adding one additional level to the car park, plus additional retail and gym uses; and • Level 4 and above – adding 3 new residential towers above the car park, the residential towers each comprise of 1, 2 and 3-bedroom flats with resident amenity spaces including roof terraces. The proposed towers are 13-storey, 24-storey and 31-storey above the car park with a height of c. 51.4 m, c. 84.0 m and c. 105.2 m respectively (when measured from the fire service access level to the highest occupied floor). The car park levels will be provided with escape stairs and unvented protected lobbies with dry risers. The residential towers will each be provided with 3 stairs, which 2 of them will form fire-fighting shafts with wet riser outlets and the third stair is a protected escape stair. As the towers step back and the floor areas reduce on the higher levels, only the 2 fire-fighting shafts will serve these upper levels.

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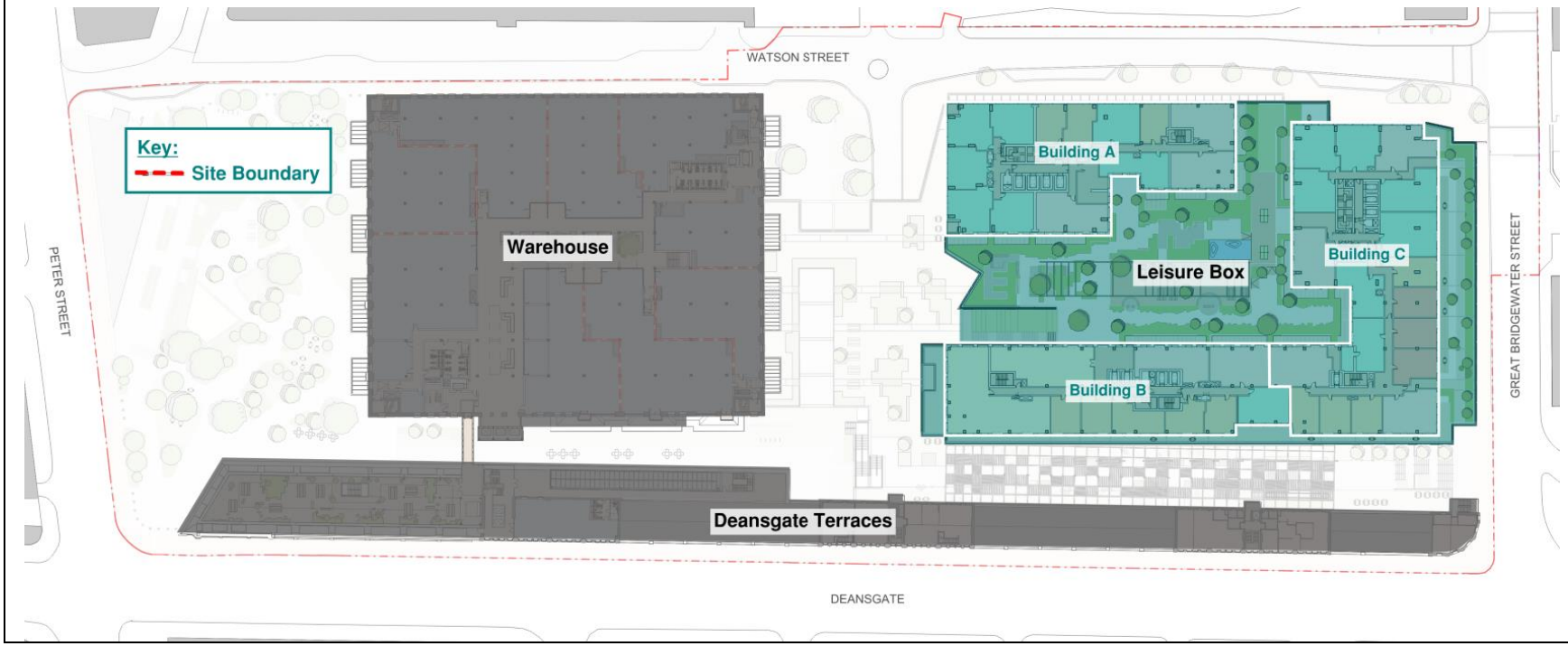
	Besides the Leisure Box, there is also the Great Northern Warehouse and Deansgate Terraces which all are under the same ownership. They are considered as separate buildings and the Warehouse and Deansgate Terraces are not considered as relevant buildings under Regulation 7(4) and so are not discussed in this fire statement.
3. Name of person completing the fire statement (as section 15.), relevant qualifications and experience.	 Simon Lay Fire Engineer CEng, M.IFE, BEng (Hons), F.CTBUH, FRSA simon.lay@ofrconsultants.com 25 years' experience as a fire & risk engineer covering all aspects of fire safety design and operation in all market sectors. Experience includes projects in the UK, USA, Europe, Africa, Middle East, India, Hong Kong & China. Led the development for the overlay fire safety strategy solutions for the 2014 Commonwealth Games. Primary skill is developing and gaining approval for practical, innovative solutions using performance based design to deliver safe, sustainable results. Best known for resolving challenges in high rise (dwellings / mixed use / hotel / commercial), stadia, leisure, transportation and retail schemes.
4. State what, if any, consultation has been undertaken on issues relating to the fire safety of the development; and what account has been taken of this.	Consultation during this early design stage has been undertaken between the fire engineers (OFR Consultants Ltd), the architectural team (SimpsonHaugh), the Building Control Body (Ball & Berry) and the Client's representative (Trilogy Property) with regards to meeting the requirements of the Building Regulations 2010 (as amended), including the discussions on fire service access, evacuation lifts, sprinklers, smoke control, backup power, and access to residential cores on car park levels. Recommendations from these preliminary consultations have been considered and have been incorporated into the outline fire strategy report developed by OFR. Preliminary discussions with the approval authorities have commenced for the project, with agreement in

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	principle reached, but final proposals are subject to approval by the Building Control Body (BCB), Ball & Berry, including their statutory consultation with the Greater Manchester Fire and Rescue Service (GMFRS).

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)



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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		
a) block no. as per site layout plan above	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
Sole block for the car park and podium (Basement to Level 3)	• block height (measured from the fire service access level	Residential Flats Other Residential Accommodation	Level 4 – Level 34 Basement – Level 4, Level	BS 9991:2015, BS 9999:2017. AD B v1 2020, AD B,v2 2020 used where the	class A2-s1, d0 or better	class A2-s1, d0 or better (The external wall	Stay put in residential flats, simultaneous in non-dwelling areas	Yes – non-residential and residential areas, full	none

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3 blocks (Tower A, B and C) for the residential levels (Level 4 to Level 34, each tower has different number of storeys)	to the highest occupied floor) Car park and podium, c. 13.9 m Tower A c. 105.2 m, Tower B c. 51.4 m and Tower C c. 84.0 m • number of storeys excluding those below ground level Carpark and podium – 4 Residential Towers (no. of	Car Parking Shop Café	10, Level 12 – 13 Basement – Level 3 Ground Floor – Level 3 Level 2 – Level 3	recommendations in AD B are more onerous (e.g., sprinklers, external wall provisions etc.)		elements of the carpark and podium will also need to achieve minimum Class A2-s1, d0 or better as the residential towers (with top storey more than 18 m) will be built above the car park.			

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	storey above the car park) – Tower A: 31 Tower B: 13 Tower C 24 • number of storeys including those below ground level Carpark and podium – 5								

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- **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

- This is the redevelopment of an existing site which introduces complexities with regards to the relationship to neighbouring historic buildings, changes in grade around the site and existing structures on the site.
- Travel distances in the residential common corridors are within the limits recommended in BS 9991:2015. The current proposal is to provide mechanical ventilation systems within the residential common corridor with the objective to protect the stairs from smoke ingress and clear smoke from the corridor. The systems will be an enhancement to minimum recommended in BS 9991. The systems will be developed as the design progress, and it will subject to validation using CFD or similar.
- An evacuation lift will be provided in each residential tower to be suitable for use in an evacuation for mobility impaired persons. At the next design stage, a smoke modelling assessment will be undertaken to demonstrate that during the escape phase, the conditions in the lift lobby will remain tenable to support means of escape via the lift.
- BS 9991 states that enclosed car park should not connect with any part of the only escape route from one or more dwelling(s) on the same storey as the car park unless provided with a lobby. Some of the residential stairs will connect to the enclosed car park, a ventilated protected lobby will be provided at every car park access level.
- The design consists of open-plan flats with escape through a living area containing a kitchen and which is not located with a separate enclosure. The following will be incorporated into the design as per the guidance in the DRAFT BS 9991:
    - All rooms in the dwelling will be provided with a sprinkler system conforming to BS 9251:2021;
    - The dwelling will be provided with a Category LD1 fire detection and fire alarm system in accordance with BS 5839-6:2019+A1:2020;
    - All cooking apparatus, will be located such that the edge of the cooking apparatus is 1.8 m away from a means of escape route to an escape door;
    - All egress routes from habitable rooms to the escape door from the apartment will not be less than 0.9 m in width; and
    - A gap of 0.3 m will be provided between the leading edge of the door and the 1.8 m zone from the cooking apparatus, to allow people with mobility impairments to access the door hardware.

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- **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

The proposed design generally aligns with the recommendations in standard guidance documentation i.e. BS 9991, BS 9999 and (where necessary the Approved Documents). During this stage of the design, the following items have been highlighted as they are likely to require alternative solutions to the design recommendations in standard guidance.

- The residential stairs either discharge into a protected route leading to a final exit to outside, or via the residential entrance lobby leading to outside. This arrangement does not fully align with the recommendations in BS 9991:2015 as the route via the residential entrance lobby is not a protected route. However, standard guidance presumes only a single route being available. The protected route and residential entrance lobby will be interconnected and occupants will have the opportunity to use the unaffected route to reach the final exit. This strategy is to be supported by dynamic exit signage;
- For Building B, the Fire Service access route to the fire-fighting stairs will be via the residential entrance lobby. This arrangement does not align with the recommendations in BS 9991:2015 as the route via the residential entrance lobby is not a protected route. This is considered to be reasonable as it is expected that if there is a fire on one of the residential levels, the Fire Service will still be able to access the fire-fighting stairs via the residential entrance lobby as it will remain unaffected from the fire. If there is a fire in the residential entrance lobby, the Fire Service will not need to enter the lobby to reach the fire. There will also be additional measures in place, e.g., separating the fire-fighting stairs from the residential entrance lobby with protected lobbies / fire curtains to ensure that a fire in the residential entrance lobby will not compromise the fire-fighting stairs.
- The distance from the fire and rescue service entrance point to some of the fire-fighting shaft access points will exceed 18 m, which is above BS 9999:2017 recommendation of not more than 18 m in length.
- As the residential levels will be sprinklered, BS 9991:2015 states that every part of every storey should be no more than 60 m from a fire main outlet in a fire-fighting shaft. The hose coverage distance measure c. 65 m in some of the flats on Level 4 – Level 11 of Building C. These flats are furthest away from the fire-fighting stairs. The hose coverage is only a small extension above recommendation (exceeded by c. 5 m) and the wet riser outlets are within 60 m to the entrance

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of all flats. Moreover, the provisions of sprinklers will reduce the fire size and limit a fire from spreading out of the flat of fire origin, and the enhanced mechanical ventilation systems within the residential common corridor will protect the stairs from smoke ingress and clear smoke from the corridor.

7. 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

Not applicable.

Emergency road vehicle access and water supplies for firefighting purposes

8. 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?

Non-residential areas (Basement – Level 3) – escape stairs and unvented protected lobbies with dry risers will be provided. Sufficient number of dry risers will be provided to meet maximum hose coverage distance, which is 60 m as the car park will be sprinklered throughout. The dry riser inlet points will be provided close to the entrance points of the building, visible and within 18 m of the fire service appliance parking locations, in accordance with BS 9999:2017.

Residential areas (Level 4 – Level 34) – two fire-fighting shaft(s) complying with the recommendation in BS 9991:2015 will be provided in each tower, comprising of fire-fighting stairs, fire-fighting lifts, smoke control and 2 wet risers (as the towers will have a floor higher than 50 m above fire-fighting access level). An evacuation lift will also be provided in each tower to be suitable for use in an evacuation for mobility impaired persons. The wet riser inlet points will be provided within 18 m of, and within sight of, a suitable entrance giving access to the wet fire main and within sight of the inlet for the emergency replenishment of the suction tank for the wet fire main in accordance with BS 9991:2015.

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9. Emergency road vehicle access

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

Access for the fire service appliance is available via Watson Street, Great Bridgewater Street and Deansgate. The fire service vehicle can park within 18 m of the dry riser inlet point as recommended in Clause 21.4 of BS 9999:2017. Wet riser inlet points will be provided within 18 m of, and within sight of, a suitable entrance giving access to the wet fire main and within sight of the inlet for the emergency replenishment of the suction tank for the wet fire main in accordance with Clause 50.1.3 of BS 9991:2015.

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

yes

10. Siting of fire appliances

Non-residential areas (Basement – Level 3) – Sufficient dry risers will be provided to meet maximum hose coverage distance, with the dry riser inlet points provided close to the entrance points of the building, visible and within 18 m of the fire service appliance parking locations.

Residential areas (Level 4 – Level 34) – 2 wet risers will be provided in each tower, with wet riser inlet points will be provided within 18 m of, and within sight of, a suitable entrance giving access to the wet fire main and within sight of the inlet for the emergency replenishment of the suction tank for the wet fire main.

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

Guide: no more than 200 words

There are multiple fire hydrants located along Watson Street and at least one on Deansgate, the nearest hydrants are within 90 m of all dry fire main inlets on a route suitable for laying hose, in accordance with the recommendations in Clause 22.2 of BS 9999:2017.

The nearest fire hydrants also located within 90 m of an entry point to the building on a route suitable for laying hose, and hydrants are not more than 90 m apart, in accordance with the recommendations in Clause 51.2 of BS 9991:2015.

The water main supplying these should provide pressure and flow in accordance with BS 9990:2015. This will be confirmed by the infrastructure engineer during detailed design.

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Nature of water supply:

hydrant- public

Does the proposed development rely on existing hydrants and if so are they currently usable / operable? (note that this is an existing city centre site and it is presumed that the hydrant services are being maintained by the appropriate authorities).

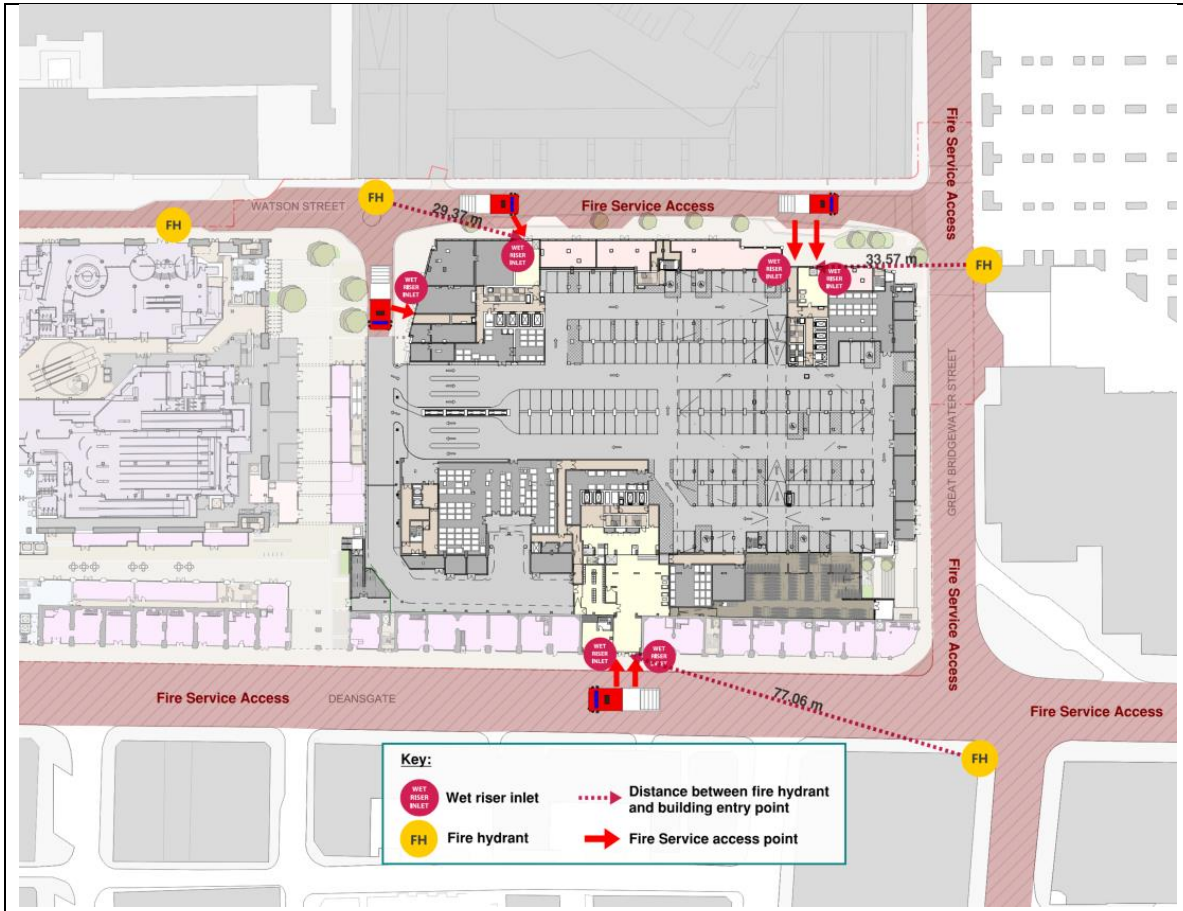
yes

12. Fire service site plan

Fire service site plan is: inserted in the form

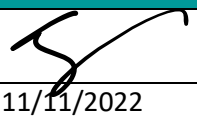
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Fire statement completed by	
13. Signature	
14. Date	11/11/2022

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