

Berol Quarter Limited

2 Berol Yard

Fire Statement – National Requirements



Project Name	2 Berol Yard
Report Title	Fire Statement – National Requirements
Description	National Requirements
Ref. No.	BSD – BYH – FST – 01
Issue	01
Revision	01
Date	21 November 2022
Prepared by	Sandesh Mohan
Reviewed by	Jianqiang Mai
Approved by	Holy Liang
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Fire Statement Form

Application Information		
1.	Site address line 1	2 Berol Yard
	Site address line 2	
	Site address line 3	Ashley Road
	Town	
	County	Greater London
	Site postcode (optional)	N17
2.	Description of the proposed development including any change of use (as stated on the application form).	2 Berol Yard will be a mixed-use residential building within the development of Berol Quarters in the London Borough of Haringey. The site is located between Ashley Road on the west and Watermead Way on the east. The building constitutes six Blocks, A, B, C, D, E and stair core blocks that are connected internally. The building massing reduces at the upper levels as such Blocks A, B and E terminate at levels 17, 24 and 05 respectively. Blocks C and D extend to level 29 followed by the stair core block. The height of the building (as measured from the fire service access level to the highest occupied floor) is approximately 100 meters. No subterranean levels are incorporated within the design. The building is provided with four retail units at the ground floor podium. An enclosed car park entered from Gessner Lane on the north is also located on the ground floor. An enclosed bicycle storage area is provided on the mezzanine floor. Ancillary areas associated with the residential units and retail units are located on the ground and mezzanine floor. All residents will have access to two community spaces of 157 m² and 164 m² that are provided at level 01 of Blocks A and E. The building will comprise 210 residential units located on levels 01 to 29. All residential units on each floor will have a private balcony. Shared Amenity space has been proposed within the building at level 01, level 25 and level 30. It has been proposed to install PV arrays on the roof of Block B at level 27, on the roof of Block C at level 30 and on the roof of Block E at level 06. Green/Brown roofs are incorporated within the design. They are located on the roof of Blocks B, C and E at levels 27, 30 and 06 respectively.



3. Name of person completing the fire statement (as per section 15, relevant qualifications and experience. Guide: no more than 200 words	This report has been signed off by Dr Jianqiang Mai, Technical Director of AESG UK Fire Engineering Division. A summary of Dr Mai’s qualification and experience has been displayed in the table below;	
	Qualifications / Experience based (minimum requirements)	
	Chartered engineer?	Yes – (CEng)
	Member of Institute of Fire Engineers?	Yes – (MIFireE)
	Fire engineering experience?	Yes – 20+ years
	Qualifications / Experience based (Additional)	
	Qualification 1	BEng, Hydraulic Machinery
	Qualification 2	Meng, Fluid Machinery
	Qualification 3	PhD, Mechanical Engineering

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. Guide: no more than 200 words	AESG has conducted a fire and life safety review of the proposed design. The review has been undertaken using the guidance detailed in British Standard 9991 and ADB 2020 where appropriate. The purpose of the review was to ensure that the design can support a robust fire strategy, which is suitable and sufficient for the building use and occupancy. The main considerations were; • Means of warning and escape • Internal fire spread (linings) • Internal fire spread (structure) • External fire spread • Access and facilities for the fire service The review has also established if the proposals would comply with the functional requirements of Part B – Schedule 1 of the Building Regulations 2010 (as amended in 2018) using the standard guidance of BS 9991, ADB 2020, or if fire engineered solutions would be required in order to achieve the minimum performance criteria for the building. Based on the findings of the review AESG has concluded that the new elements of the building have been designed in a code-compliant manner and that the existing fire safety provisions remain sufficient for the risks associated with the building.
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Site layout plan with block numbering as per building schedule referred to in 6			
5.	Plans must be consistent with other plans drawings and information submitted in connection with the application.	Tick one:	
		Provided as a separate plan	Inserted into form
		✓ (See Appendix A)	

The principles, concepts and approach relating to fire safety that have been applied to the development. Where instructed to do so you must select one of the options in the relevant section of the Table at the end of this Form.										
6.	Building Schedule									
	Site information				Building information			Resident safety information		
	a) • Block no. as per site plan layout	b) • Block height (m) • Number of storeys excluding basements • Number of stories including basements	c) • Proposed use (one per line)	d) • Location of use within the block by floor level	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
	2 Berol Yard	Approx. 100 m	Commercial (Retail units and community)	Ground Floor to 1 st	BS 9999:2017	NA	Class A2-s1, d0 or better	'Simultaneous'	Provided (In accordance with BS 12845)	NA
30 Storeys		Residential Flats (L01 and above)		1 st floor to 29 th floor	DRAFT BS 9991:2021	Class A2-s1, d0 or A1	Class A2-s1, d0 or better	'Defend in Place' for residential units Note: Occupants only in the flat of fire origin will evacuate.	Provided (In accordance with BS 9251)	Yes 22 units
		No Basement								



Specific technical complexities		
7.	Explain any specific technical complexities in terms of fire safety (for example green walls) and/or departures from information Guide: no more than 500 words	The height of the building as measured from ground level is approximately 100 meters and it is served by two stairs. The stairs will be constructed as a firefighting stair within two firefighting shafts achieving a minimum fire resistance of 120 minutes. AOVs will be provided at the head of both stairs that will achieve a minimum free area of 1m². AESG acknowledges that the specific guidance for elements of structure at 30 meters is 120 minutes. A consultation with the structural engineer will be conducted to assess if the fire resistance of the elements of the structure needs to be increased to deal with the height and loads of a tall building. Due to the height of the building, a Qualitative Design Review (QDR) of the building will be conducted to determine if the building needs a fire resistance of more than 120 minutes. This will include coordination with the various stakeholders, structural engineers, and other specialists for the design under consideration. Means of escape for residential floors are designed in accordance with Figure 9(b) of DRAFT BS 9991:2021. The design limits the travel distance to 15 m as sprinkler suppression is provided. The corridor will be interconnected and will however be divided into zones without any physical partitions or doors. The south corridor will be Zone 1 whereas the north corridor will be Zone 2. An intelligent mechanical smoke control system will be used within the corridor i.e., once the smoke is detected in zone 1, the shaft in this zone will serve as an extract whilst the shaft in zone 2 will provide makeup/supply air. Similarly, once the smoke is detected in zone 2, the shaft in this zone will serve as an extract whilst the shaft in zone 1 will provide makeup/supply air. The area near the lift will be provided with pressure sensors to regulate the supply and limit the pressure differential. This is to ensure an effective smoke ventilation design and at the same time meet the daily access needs. The proposed push-pull system will not rely on opening of the stair doors to provide replacement air and therefore will protect the stairs better. These arrangements of the smoke control system will be validated by Computational Fluid Dynamics (CFD). These are matters appropriate to be worked up at the RIBA Stage 3 and 4 which will achieve the functional requirements of Building Regulations 2010 as amended. As the building is tall, the QDR process will review if additional measures are needed to improve the reliability of the smoke control system and the backup power supply system. The building will be fitted with a sprinkler protection system throughout. Residential areas will be protected in accordance with BS 9251 and non-residential areas will be protected in accordance with BS 12845. The QDR process will review if additional measures are needed to improve the reliability of the sprinkler systems in relation to the height of the building. The design incorporates open plan layouts with no protected entrance halls and bedrooms that are inner rooms to the living/kitchen area. These flats will be designed in accordance with section 9.5 of DRAFT BS 9991:2021. Some flats are proposed to have an unenclosed kitchen where the escape route from the flat will pass. As such a hob assessment of the open plan kitchen will be conducted in the RIBA stage 3 Fire and Life Safety Strategy to ensure that a safe escape route can be available. This is to ensure that a general distance of 1.8 m is maintained between the escape route within the apartment and the hob. The design incorporates 4 lifts contained in two firefighting shafts and will have the corridor combined with the lift lobby without any separation. A ventilated common corridor is provided between apartment units and escape stairs. In accordance with the London Plan 2021, occupants must be able to enter, use and exit a building safely and with dignity therefore a minimum of one lift per core will be suitably sized as an evacuation lift within the design. Two of the lifts will be designed for use as evacuation lifts. In order to manage the lift operation adequately, a sufficient number of competent staff will be assigned within the building management team at all times. It should be noted this does not imply that the occupants are not able to leave the flat to reach the storey exit or leave the lift and exit on the ground floor. The occupants requiring assistance will be prioritised in an evacuation via evacuation lifts. A communication system will be provided to the lift lobby to facilitate communication with the building management team. Car park ventilation will be achieved by mechanical ventilation. The potential two options considered by AESG are: Extract through a duct system to open air or a Jet fan system supported by CFD. These are matters appropriate to be worked up at the RIBA Stage 3 and 4 which will achieve the functional requirements of Building Regulations 2010 as amended.



	22 units will be designed for assisted living, it is understood that occupants who reside within these units are capable of independent escape. However, they may still require the use of walking frames, wheelchairs or similar in order to escape. To facilitate an effective egress strategy, the minimum width of a door will be 850 mm to comply with the guidance in Approved Document M. In addition, if ramps are proposed along the escape routes, they should be provided with suitable ramping with a gradient no greater than 1:12. Green roofs will be constructed in accordance with the guidance within 'Fire Performance of Green Roofs and Walls'. It recommends either the provision of non-vegetated border zones or fire breaks in specific areas such as around all openings/ roof lights in roofs, around vertical elements and at intervals across roofs to limit the area of the green roof. If any non-compliant issues are identified during the design development, a suitable robust fire engineering design will be applied.
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Issues which might affect the fire safety of the development		
8.	Explain how any issues which might affect the fire safety of the development have been addressed Guide: no more than 500 words	In order to support a 'defend in place' evacuation strategy residential areas are compartmented. Escape routes leading from dwellings to storey exits will be enclosed with fire-resistant construction. Protected common corridors will also be provided with smoke ventilation systems. Commercial areas do not require the same level of compartmentation to comply with the guidance of BS 9999. As such, all commercial areas will adopt a simultaneous evacuation strategy. As the building is above 18 meters and will have storeys having an area of more than 900m², it is required to be provided with two firefighting shafts containing firefighting stairs, a firefighting lift and a firefighting main. The firefighting stairs will be enclosed in a 120-minute fire-rated construction. The design incorporates 4 lifts, two of the lifts will be designed for use as an evacuation lift and two will be designed to be used as a firefighting lift. The lift shafts will be constructed to achieve 120-minute fire-resistant protection, with lift doors achieving FD60. All residential floors are to be constructed as compartment floors. The floors shall achieve the same fire rating as the elements of the structure of the building i.e., 120 minutes. The compartment floor will also be used to separate the commercial occupancy and the residential occupancy. This compartment floor will achieve a minimum fire resistance of 120 minutes. Block E will be structurally independent of the main tower (Blocks A to D). As such, due to the height of Block E, it is required to have a minimum fire resistance of 60 minutes. Recent changes to the Building Regulations 2010 (Amended) require the installation and provision of 'wayfinding signage' for the fire service use in purpose group 1a' (Residential (Block of Flats)) with a floor exceeding 11m above ground level, see MHCLG circular letter dated 26 May 2020. A suitable emergency lighting and signage strategy will be provided in all common escape routes and stairs in the commercial area, ancillary areas, and residential areas. The proposed building is above 50 meters and therefore both the stairs will be provided with a wet rising main. The fire service can access all areas on each floor within 60 meters from the fire main provided at each level. This is compliant with the requirement of DRAFT BS 9991:2021. The community/Amenity area on the 1st floor is provided with a single exit and therefore the occupancy will be limited to 60 people. Bicycle storage on the mezzanine floor will be used by the residents of the building. The design does not provide provisions for the repair or storage of tools and equipment. Refuse stores on the ground floor will be separated from the escape route by a ventilated lobby, either by 0.2 m² permanent ventilation or via mechanical ventilation. A robust management strategy will be employed in the building to ensure that the removal of bins/refuse does not block or impede the escape route.



Local development document policies relating to fire safety		
9.	Explain how any policies relating to fire safety in relevant local development documents have been taken into account Guide: no more than 500 words	Following London Planning requirements, two evacuation lifts will be provided to the building.

Emergency road vehicle access and water supplies for firefighting purposes		
Fire Service Site Plan		
10.	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 Service Access and Facilities will be designed and installed as per the guidance within section 50.1 of DRAFT BS 9991:2021. Fire Service vehicles can approach the site from the west via Ashley Road or they can approach from the east via Watermead Way. Access to the firefighting stair cores within the building is provided from both Ashley Road and Watermead Way. Fire service access to the commercial spaces within the building is via Ashley Road. The proposed building is above 50 meters and therefore it will be provided with a wet rising main within both the firefighting stair enclosure. Where a wet riser main is provided, section 50.1 of BS 9991:2015 requires that fire service pumping appliances shall be sited within 18 m of the entrance point to a wet fire main and 90 m within the emergency tank inlet. The fire service can access all areas on each residential floor within 60 meters from the fire main provided at each level. This is compliant with the requirement of DRAFT BS 9991:2021. The Fire and Rescue Service can use the existing public fire hydrant located on Croydon High Street to replenish the water supply for use in firefighting operations. The hydrant is located within 90 meters of the fire main entry point. There is no parking directly outside the building. Parking spaces are located on Gessner Lane. These are marked bays and the parking in these locations will not obstruct the firefighting operations. Other emergency service vehicles such as ambulances can be sited on the existing roadways around the west and north perimeter of the building. The access roads are existing and so the load-bearing requirement and width measurements are assumed to be suitable for the required fire appliance. Firefighting appliances can be parked around the building along the existing roadway.



Emergency road vehicle access							
11.	Specify emergency road vehicle access to the site entrances indicated on the site plan Guide: no more than 200 words	Fire Service and other emergency road vehicles can approach the site from the west via Ashley Road or they can approach from the east via Watermead Way. Access to the firefighting stair core within the building is provided from both Ashley Road to the west and Watermead Way to the east. Fire service access to the commercial spaces within the building is via Ashley Road. In order to maintain an unobstructed access route, parking locations will be marked in positions that prevent any vehicle from impeding this route. Other emergency service vehicles such as ambulances can be sited on the existing roadways around the west and north perimeter of the building.					
	Is the emergency vehicle tracking route within the site to the siting points for appliances clear and unobstructed?	<table><thead><tr><th colspan="2">Tick one:</th></tr><tr><th>Yes</th><th>No</th></tr></thead><tbody><tr><td>✓</td><td></td></tr></tbody></table>	Tick one:		Yes	No	✓
Tick one:							
Yes	No						
✓							

Siting of fire appliances		
12.	Where possible provide information on which fire service appliances are accommodated by the site Guide: no more than 200 words	The 2 main vehicles used by the Fire Service are pumping appliances and high-reach appliances. As the building is above 18 m it is anticipated that the predetermined attendance will include a high-reach appliance. Table 20 of BS 9999:2017, provides minimum weight carrying capacity and width measurement of the roadway suitable for different fire service appliance types. An assessment of Ashley Road, Watermead Way and Gessner Lane has not been conducted as part of this fire statement. As these are existing roadway within an established residential area, it is reasonable to assume that it meets the criteria for width and weight criteria set out within the British Standards.

Siting of fire appliances		
13.	Suitability of water supply for the scale of development proposed Guide: no more than 200 words	The building will be provided with two firefighting stair enclosure, which includes a firefighting main. The fire main outlets will be located on each floor such that all areas within the building are accessible within 60m. The distance is measured from the outlet to the most remote area on each floor along a route suitable for laying the hose. Fire service pumping appliances have a water tank that can carry approximately 1365 litres of water. The tank water will be used in the early stages of the fire whilst firefighters connect to a supplementary water source. The hydrant located on Ashley Road will provide additional water for use in firefighting operations. Typically, fire hydrants in London deliver a minimum of 2000 litres per minute. Additionally, a wet riser tank has been proposed on the mezzanine level of the building. This type of water supply arrangement will be sufficient for this size and type of building. A suitable and sufficient supply of water will be made available for the suppression system within the building. Detailed design of the system will be followed in RIBA stage 3. It is anticipated that a feed from the town main will be provided within the building.



		Tick one:			
		Nature of water supply			
		Open water-limited		Open water - unlimited	
		Hydrant - public	✓	Hydrant - private	
		Tank supply			
		Tick one:			
		Does the proposed development rely on existing hydrants and if so, are they currently usable / operable?			
		Yes			
		No			
		Don't know		✓	

Fire service site plan			
14.	The fire service plan should clearly illustrate the following; • Emergency road vehicle routes/tracking • Siting of appliances for firefighting purposes • Main fire personnel access points to buildings • Any dry / wet risers • Locations of any evacuation assembly points	Tick one:	
		Provided as a separate plan	Inserted into form
		✓ (See Appendix A)	



	- Any cores and lift features (any firefighting lifts / evacuation lifts) - Locations of water hydrants the proposals rely on and associated distances Guide: no more than 200 words	
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Fire statement completed by		
15.	Signature	<i>J Mai</i>

16.	Date	17 October 2022
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Table for completion of Box 6

6cA. Purpose use		
Choose 1 of the following per line for box 6		
Residential flats, maisonettes, studios	Hotel	Hospital
Residential houses	Shop	School
Residential bedsits, cluster flats	Restaurant, café, hot food take-away, drinking establishment	Community use, childcare (not school)
Supported accommodation	Office, research and development	Prison, detention centre
Student accommodation	Industrial, storage or distribution	Car parking
Serviced apartments	Care home	Service area
Other residential accommodation	Health care	Flexible use

6eA. Standards relating to fire safety/ approach applied (including to external wall systems)		
Choose 1 of the following per line for box 6		
Approved Document B vol 1 (Wayfinding and Signage)	BS 9999 (Retail units)	HTM0502
BS 9991 (Residential units)	Fire engineered approach (if CFD is used)	BS 7974
Approved Document B vol 2	BB100	

6fA. Balconies		
Choose 1 of the following per line for box 6		
No balconies	Class A2- s1, d0 or better	Worse than Class A2-s1, d0



6gA. External wall systems		
Choose 1 of the following per line for box 6		
Class A2- s1, d0 or better	Worse than Class A2-s, d0	

6hA. Approach to evacuation		
Choose 1 of the following per line for box 6		
Simultaneous (Commercial)	Staged	Progressive horizontal
Phased	Defend in Place (Residential)	Delayed

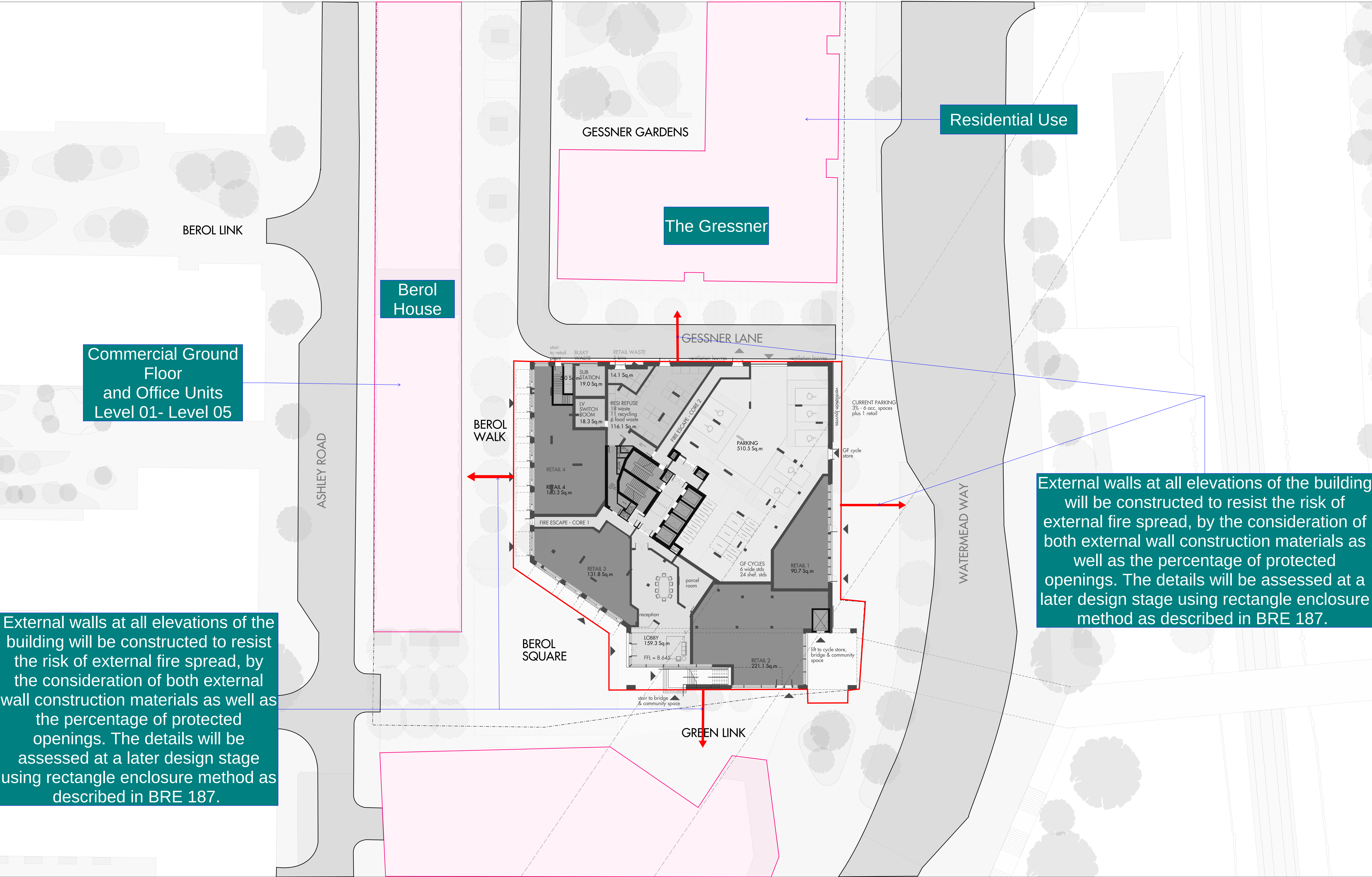
6iA. Automatic suppression		
Choose 1 of the following per line for box 6		
Yes- residential sprinklers, full	Yes- commercial sprinklers, full	Yes- other
Yes- residential sprinklers, partial	Yes- commercial sprinklers, partial	Not provided

6jA. Accessible housing provided		
Choose 1 of the following per line for box 6		
None	M4(2) & M4(3)	N/A non-residential
M4(2)	M4(3)	



APPENDIX A

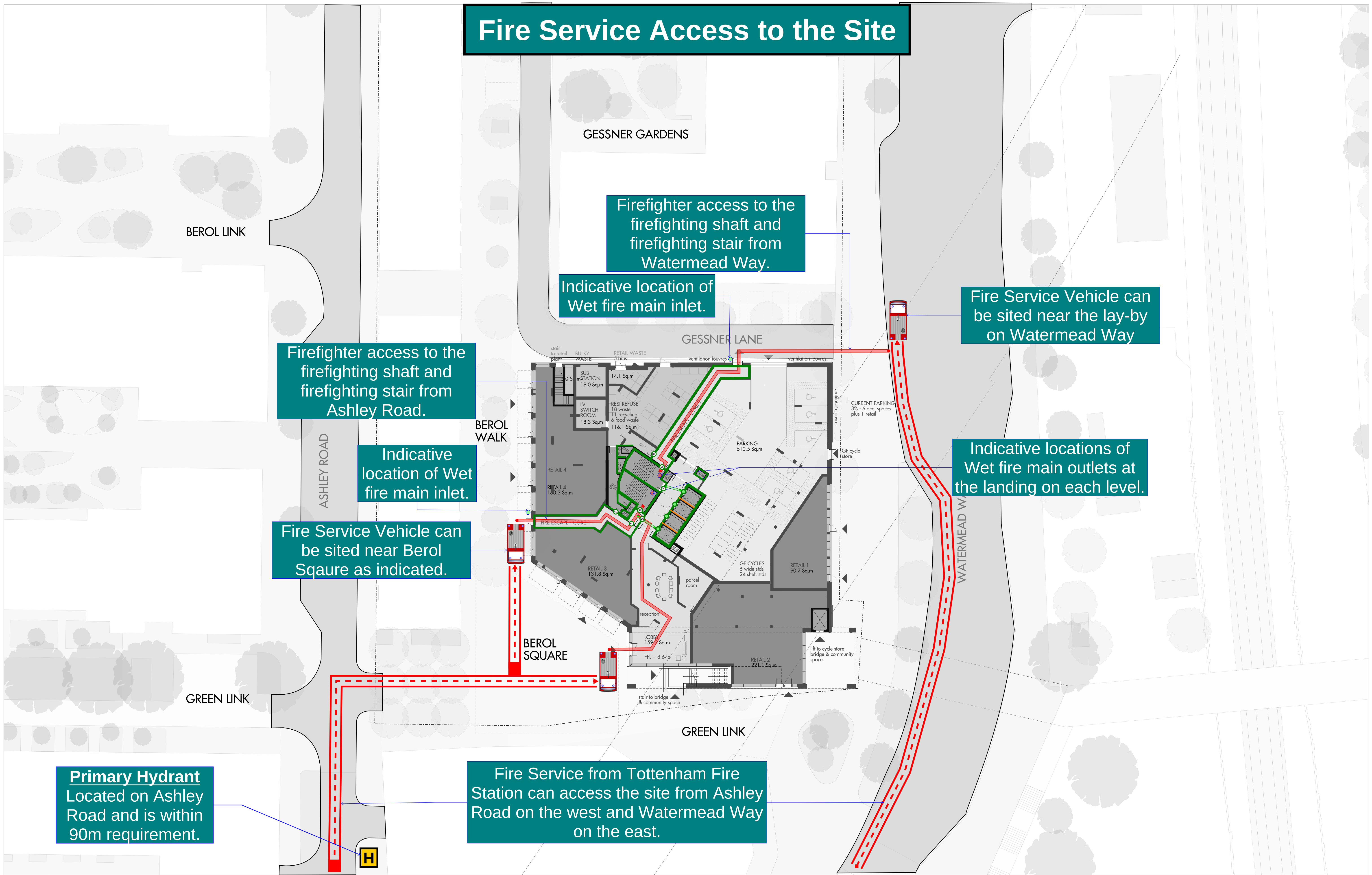
FIRE STRATEGY DRAWINGS



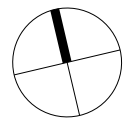
External walls at all elevations of the building will be constructed to resist the risk of external fire spread, by the consideration of both external wall construction materials as well as the percentage of protected openings. The details will be assessed at a later design stage using rectangle enclosure method as described in BRE 187.

External walls at all elevations of the building will be constructed to resist the risk of external fire spread, by the consideration of both external wall construction materials as well as the percentage of protected openings. The details will be assessed at a later design stage using rectangle enclosure method as described in BRE 187.

Fire Service Access to the Site



REV	DATE	DESCRIPTION	CKD	REV	DATE	DESCRIPTION	CKD
P1	29.06.2022	FOR INFORMATION	AJD				
P2	28.07.2022	FOR INFORMATION	YH				
P3	02.09.2022	FOR INFORMATION	JD				
P4	16.09.2022	FOR INFORMATION	AJD				
P5	01.10.2022	FOR INFORMATION: DESIGN FREEZE FOR ANALYSIS	AJD				
P6	13.10.2022	FOR INFORMATION: RETAIL 1 & 2 ADJUSTED FOR MEZZ CYCLE STORE	AJD				
P7	24.10.2022	FOR INFORMATION: AMENDED FOR FIRE & GRP COMMENTS	AJD				



0 2.00m 10.00m

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2 BEROL YARD
GROUND FLOOR PLAN
GENERAL ARRANGEMENT
22049_06_100
SCALE 1:250 @A1 1:500 @A3