

CAMBRIDGE NORTH

FIRE SAFETY STATEMENT

JUNE 2022

PREPARED BY

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Moran

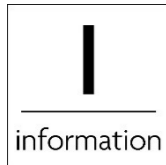
Masterplan Fire Statement

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CAMBRIDGE NORTH MASTERPLAN
CB4

CLIENT:
BROOKGATE





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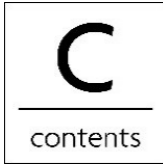
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1. Application Information

1.1. Site Address

Cambridge North Masterplan South of Cowley Road

1.2. Development Description

A hybrid planning application comprising,

- a) An Outline Application with all matters reserved (except for access and landscaping) for the construction of three new residential buildings of four to eight storeys, providing flexible Class E and Class F uses on the ground floor.
Two commercial buildings of five storeys for Use Classes E (g) i (offices), ii (research and development), providing flexible Class E and Class F uses on the ground floor, with associated car and cycle parking and infrastructure works; and
- b) A Full Application for the construction of three commercial buildings of four and seven storeys for Use Classes E(g) i (offices), ii (research and development), providing flexible Class E and Class F uses on the ground floor, with associated car and cycle parking, a multi-storey car and cycle park and associated landscaping and infrastructure works.

1.3. Author - Name of Person

Shaun McKeever AIFireE: BEng (Hons) Fire Safety Engineering
PGDip Forensic Fire investigation

Experience: 20 Years with local fire authorities serving as a fire safety inspecting officer in Hertfordshire and London Fire Brigade (enforcing officer for W1 area).
18 Years fire consultancy experience working national and international projects.

Past Projects (sample): Fire strategy for conversion of Bow Street magistrates court to hotel
Dubai Expo 2020 fire strategy for themed district
Fire strategy for French pavilion, Dubai Expo
Fire strategy for Leyhill prison and Bristol prison
Fire strategy for Castle House
Basildon shopping centre fire strategy

Current projects: 7 Millbank, London
20 Ropemaker Street, London
Barkers of Kensington
Alberton House, Manchester
50 Finsbury Square, London

1.4. Consultation

The application is subject to a PPA and we have carried out extensive public consultation on the application but nothing specific on fire safety (as not a validation or planning requirement).

1.5. Masterplan Layout and Block Numbering



2. Fire Safety Principles and Approach

2.1. Site Schedule

The principles, concepts and approach relating to fire safety that have been applied to the development									
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 basements number of storeys including basements	c) proposed use (one per line)	d) location of use within 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
Commercial Buildings									
S4	+30.835m to top of plant enclosure (L7) Basement, Ground and 7 storeys +23.400 Top occupied floor (L6)	office	Basement car parking/cycles/plant Ground floor retail/office/ancillary space L1-6 Office, L7 Roof plant	Approved document B vol 2	balconies- Class B-s1, d0 or worse	Class A2-s3, d2 or better	simultaneous	none	N/A non resi
S5	+18.310m to top of stair core Basement, Ground and 4 storeys	car parking	Basement car parking Ground floor retail/car parking/ancillary space L1-4 car parking	Approved document B vol 2	no balconies	Class A2-s3, d2 or better	simultaneous	none	N/A non resi
S6	+22.100m to top of plant enclosure (L4) Basement, Ground and 4 storeys +12.900 Top occupied floor (L3)	office, lab	Basement car parking/cycles/plant Ground floor – retail/office/lab/ancillary space L1-3 Office/lab, L4 Roof plant	Approved document B vol 2	balconies- Class B-s1, d0 or worse	Class A2-s3, d2 or better	simultaneous	none	N/A non resi
S7	+22.100m to top of plant enclosure (L4) Basement, Ground and 4 storeys +12.900 Top occupied floor (L3)	office, lab	Basement car parking/cycles/plant Ground floor – retail/office/lab/ancillary space L1-3 Office/lab, L4 Roof plant	Approved document B vol 2	balconies- Class B-s1, d0 or worse	Class A2-s3, d2 or better	simultaneous	none	N/A non resi
S8	+23.700m to top of plant enclosure (L5) Basement, Ground and 5 storeys +16.050 Top occupied floor (L4)	office, lab	Basement car parking/cycles/plant Ground floor – retail/office/lab/ancillary space L1-4 Office/lab, L5 Roof plant	Approved document B vol 2	balconies- Class B-s1, d0 or worse	Class A2-s3, d2 or better	simultaneous	none	N/A non resi

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

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 basements number of storeys including basements	c) proposed use (one per line)	d) location of use within 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
S9	+25.800m to top of plant enclosure (L5) Basement, Ground and 5 storeys +17.100 Top occupied floor (L4)	office	Basement car parking/cycles/plant Ground floor – retail/office/lab/ancillary space L1-4 Office/lab, L5 Roof plant	Approved document B vol 2	balconies- Class B-s1, d0 or worse	Class A2-s3, d2 or better	simultaneous	none	N/A non resi
Residential Buildings									
S11	+25.950m to top of plant enclosure (L8) Part Basement, Ground and 7 storeys	Residential	Basement plant Ground floor – retail/lobby/cycles/ancillary space L1-7 residential, L8 Roof terrace/plant	Approved document B vol 1	balconies- Class B-s1, d0 or worse	Class A2-s3, d2 or better	stay put	yes- residential sprinklers, full	none
S12	+22.875m to top of plant enclosure (L6) Part Basement, Ground and 6 storeys	Residential	Basement plant Ground floor – retail/lobby/cycles/ancillary space L1-6 residential, L7 Roof terrace/plant	Approved document B vol 1	balconies- Class B-s1, d0 or worse	Class A2-s3, d2 or better	stay put	yes- residential sprinklers, full	none
S13-S16	+22.875m to top of plant enclosure (L6) Part Basement, Ground and 6 storeys	Residential	Basement plant Ground floor – retail/lobby/cycles/ancillary space L1-6 residential, L7 Roof terrace/plant	Approved document B vol 1	balconies- Class B-s1, d0 or worse	Class A2-s3, d2 or better	stay put	yes- residential sprinklers, full	M4(2) & M4(3)
S17	+22.875m to top of plant enclosure (L6) Part Basement, Ground and 6 storeys	Residential	Basement plant Ground floor – retail/lobby/cycles/ancillary space L1-6 residential, L7 Roof terrace/plant	Approved document B vol 1	balconies- Class B-s1, d0 or worse	Class A2-s3, d2 or better	stay put	yes- residential sprinklers, full	none

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

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 basements number of storeys including basements	c) proposed use (one per line)	d) location of use within 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
Residential Buildings									
S18	+25.950m to top of plant enclosure (L8) Part Basement, Ground and 7 storeys	Residential	Basement plant Ground floor – retail/lobby/ cycles/ancillary space L1-7 residential, L8 Roof terrace/plant	Approved document B vol 2	balconies- Class B- s1, d0 or worse	Class A2-s3, d2 or better	stay put	yes- residential sprinklers, full	none
S19-S20	+29.025m to top of plant enclosure (L9) Part Basement, Ground and 8 storeys	Residential	Basement plant Ground floor – retail/lobby/ cycles/ancillary space L1-8 residential, L9 Roof terrace/plant	Approved document B vol 2	balconies- Class B- s1, d0 or worse	Class A2-s3, d2 or better	stay put	yes- residential sprinklers, full	none
S21	+25.950m to top of plant enclosure (L8) Part Basement, Ground and 7 storeys	Residential	Basement plant Ground floor – retail/lobby/ cycles/ancillary space L1-7 residential, L8 Roof terrace/plant	Approved document B vol 2	balconies- Class B- s1, d0 or worse	Class A2-s3, d2 or better	stay put	yes- residential sprinklers, full	none

2.2. Technical Complexity

No technical complexity.

2.3. Specific Fire Safety Issues

The full release of the new BS 9991 is unlikely to happen until late 2022. Some of the more considerable changes are listed below:

Applies to all residential buildings

In all developments where passenger lifts are installed, at least one lift should be an evacuation lift.

Secondary power supplies – BS 9991:2015 is ambiguous with respect to the design of secondary power supplies. It often creates much debate within the design teams over what is and is not suitable. The draft version of BS 9991 has taken steps to clarify the issue: -

The only acceptable arrangements for secondary power supplies are:

- a) A generator
- b) An independent high voltage supply, provided it is fed from an independent utility primary network substation to that feeding the primary supply
- c) An uninterruptible power supply (UPS). The standard advises on the sizing of the UPS
- d) Using a single intake with diverse routes and a life safety distribution board is no longer acceptable.

Cross referencing with the new residential sprinkler standard BS 9251:2021 (which has now been published), using a modified residential sprinkler system is acceptable for some ancillary areas such as retail, cafe, bin stores, plant rooms, car parks, etc. subject to a limit of 100 m².

Any non-residential areas larger than this limit will require protection using a commercial BS EN 12845 system. i.e. separate sprinkler tank and pumps.

Residential buildings over 11m

In line with changes to the Approved Documents, sprinklers will be required for all residential buildings over 11m in height. However, the standard advises that all areas must be protected, including corridors and stairs even if they are sterile.

Single-stair high-rise buildings will only be acceptable if:

- a) The stair is provided with a pressurisation system
- b) Structural protection is increased from 60 minutes to 90 minutes fire resistance (FR)
- c) Timber structure is not acceptable
- d) An additional lobby needs to be provided between the stair and corridor affording access to the flats (similar to current arrangements in Scotland)
- e) Stairs should be wider - 1.2m

If extended corridors are present, additional mechanical smoke extract may be required in addition to the stair pressurisation

Residential buildings over 18m

- a) Buildings over 18m in height require two evacuation lifts.
- b) An evacuation alert system is required for buildings over 18m with a stay put policy. Systems to BS 8629 provides sounders in apartments connected to a central fire alarm panel – this can be used by the fire service to raise an evacuation alarm in specific or all flats. This is not in any way automatic or connected to detectors and is only for the use of the fire service (already required in Scotland).

Many of the key items were considered when the residential formed part of the detailed planning, e.g., provision of two stairs, sprinklers, etc. were all considered within the space planning.

2.4. Fire Safety Policy

Fire safety of building works is legislated by the Building Regulations 2010 (including amendments up to 2019). The Regulations have been enacted under the Building Act 1984 and are published by the Controller of HMSO. The Regulations impose requirements on people carrying out building work. The requirements are functional rather than prescriptive in nature which means that the designer is given the freedom to choose the method they use to satisfy the legislation.

The fire strategy will be developed to address the functional requirements of Part B of the Regulations that governs fire safety of building design. These requirements are segregated into distinct aspects of building design as follows:

- B1 – Means of warning and escape;
- B2 – Internal fire spread (linings);
- B3 – Internal fire spread (structure);
- B4 – External fire spread; and

- B5 – Access and facilities for the fire and rescue service.

All aspects of the fire safety design will be subject to review by the building control body (including their statutory consultation with the local fire and rescue service), and, ultimately, formal approval by the building control body.

The final fire strategy report will form part of the information pack handed over to the building operators under Regulation 38 to assist the responsible person to operate and maintain the building with reasonable safety in accordance with the Regulatory Reform (Fire Safety) Order 2005 “FSO”.

The strategy has been developed in cognisance of the Construction (Design and Management) Regulations 2015 (CDM 2015), which sets out what designers are required to consider in order to protect anyone involved in the construction or ongoing use of a project. The strategy does not address site fire safety during the building works. The Health and Safety Executive (HSE) issues guidance notes on identifying and managing fire precautions during the works and they should be consulted by the appropriate party.

3. Emergency Vehicle Road Access and Water Supply for Firefighting

3.1. Overview

BS 9999 will be adopted in terms of the provisions regarding 'fire service access and facilities. So, for buildings fitted with dry fire mains, both of the following will apply:

- Access will be provided for a pumping appliance to within 18m of each fire main inlet connection point. Inlets should be on the face of the building.
- The fire main inlet connection point will be visible from the parking position of the appliance.



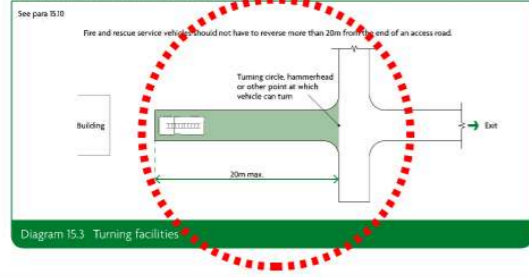
Proposed Dry Riser Inlet

Buildings fitted with fire mains

- 15.4 For buildings fitted with dry fire mains, both of the following apply:
- Access should be provided for a pumping appliance to within 18m of each fire main inlet connection point. Inlets should be on the face of the building.
 - The fire main inlet connection point should be visible from the parking position of the appliance, and satisfy paragraph 16.10.
- 15.5 For buildings fitted with wet fire mains, access for a pumping appliance should comply with both of the following:
- Within 18m, and within sight of, an entrance giving access to the fire main.
 - Within sight of the inlet to replenish the suction tank for the fire main in an emergency.
- 15.10 Dead-end access routes longer than 20m require turning facilities, as in Diagram 15.3. Turning facilities should comply with the guidance in Table 15.2.

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

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



Dead-end access routes longer than 20m require turning facilities.

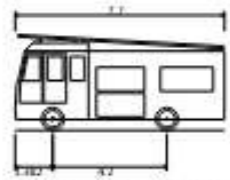


3.2. Emergency Vehicle Road Access

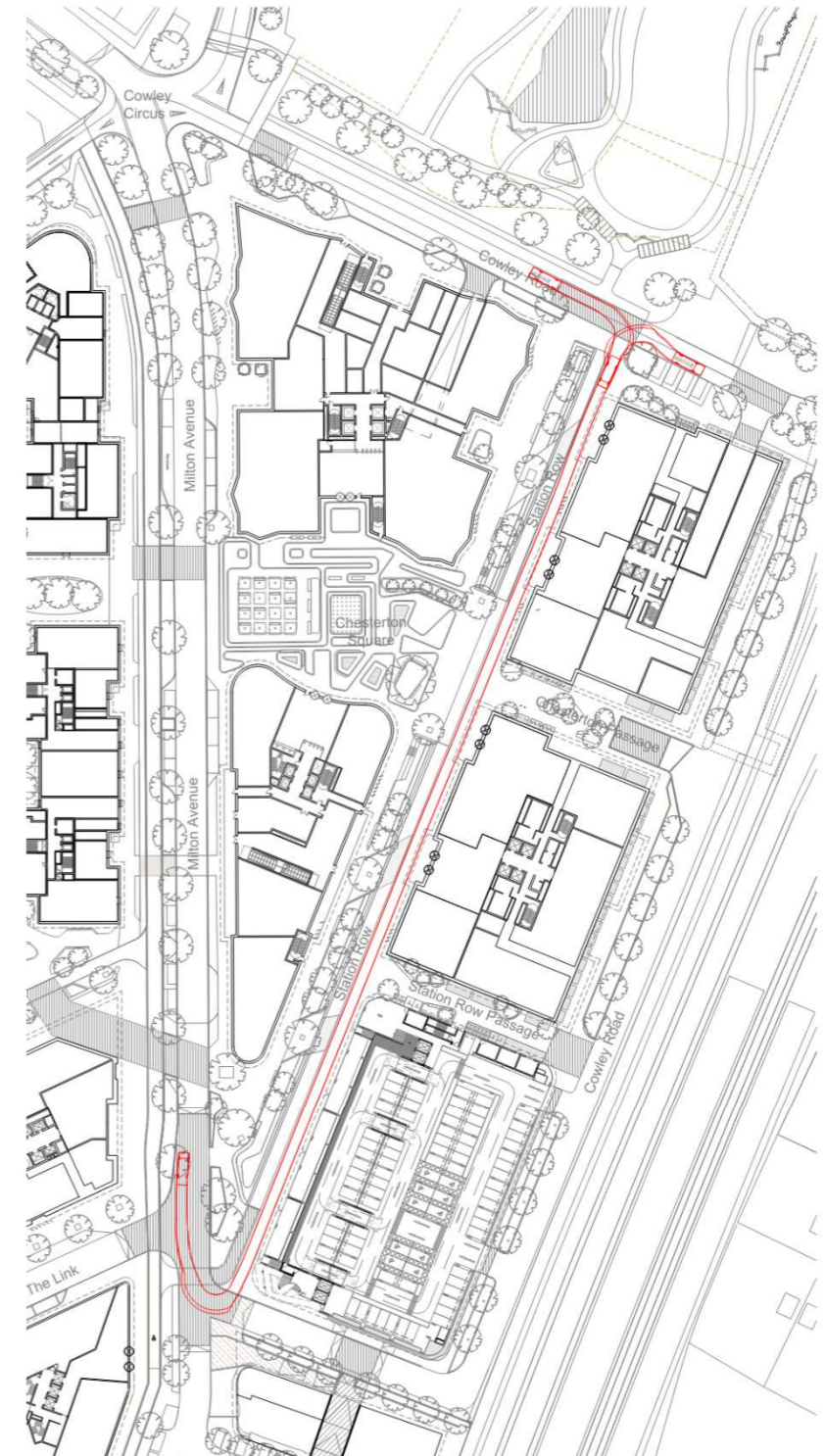
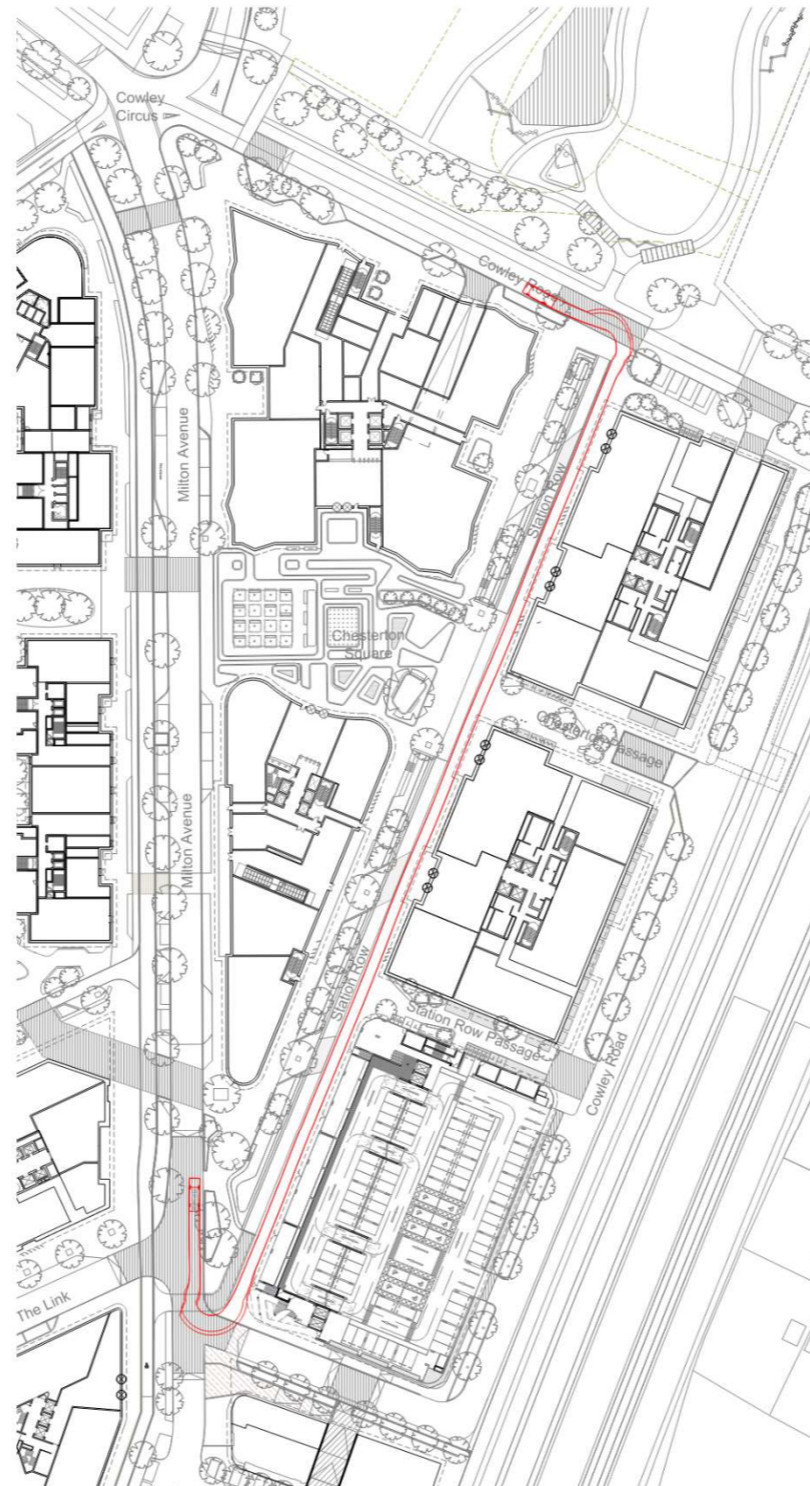
PJA have carried out vehicular tracking for all parts of the masterplan site including emergency road vehicles access the site entrances indicated on the site plan.

In all instances the emergency vehicle tracking route to the siting points for appliances is clear and unobstructed.

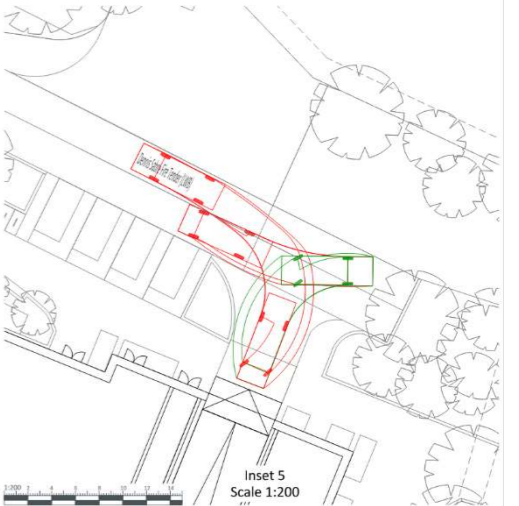
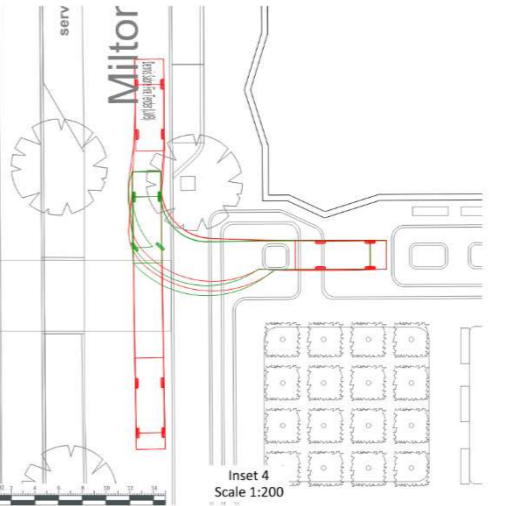
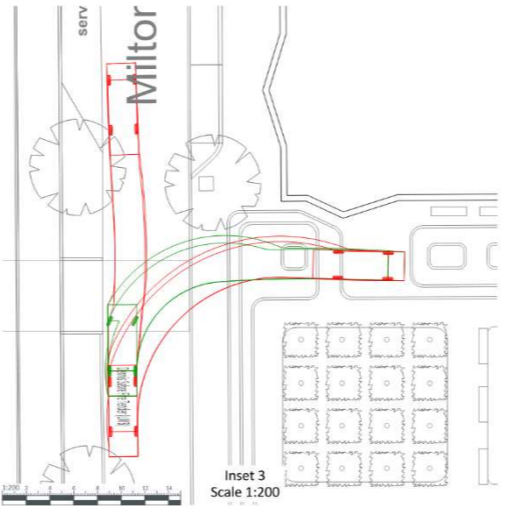
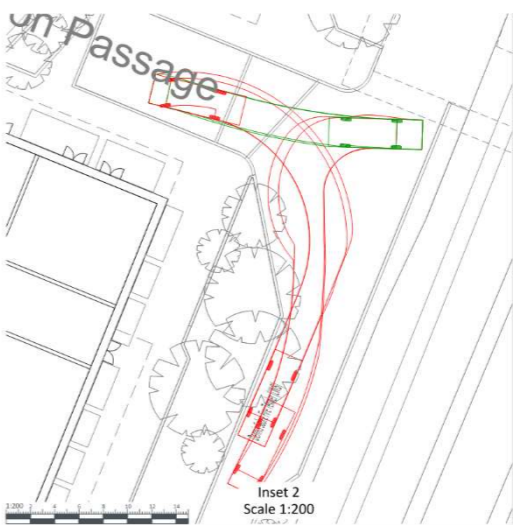
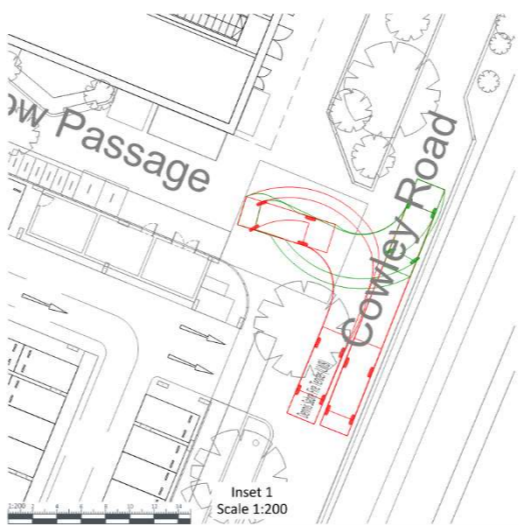
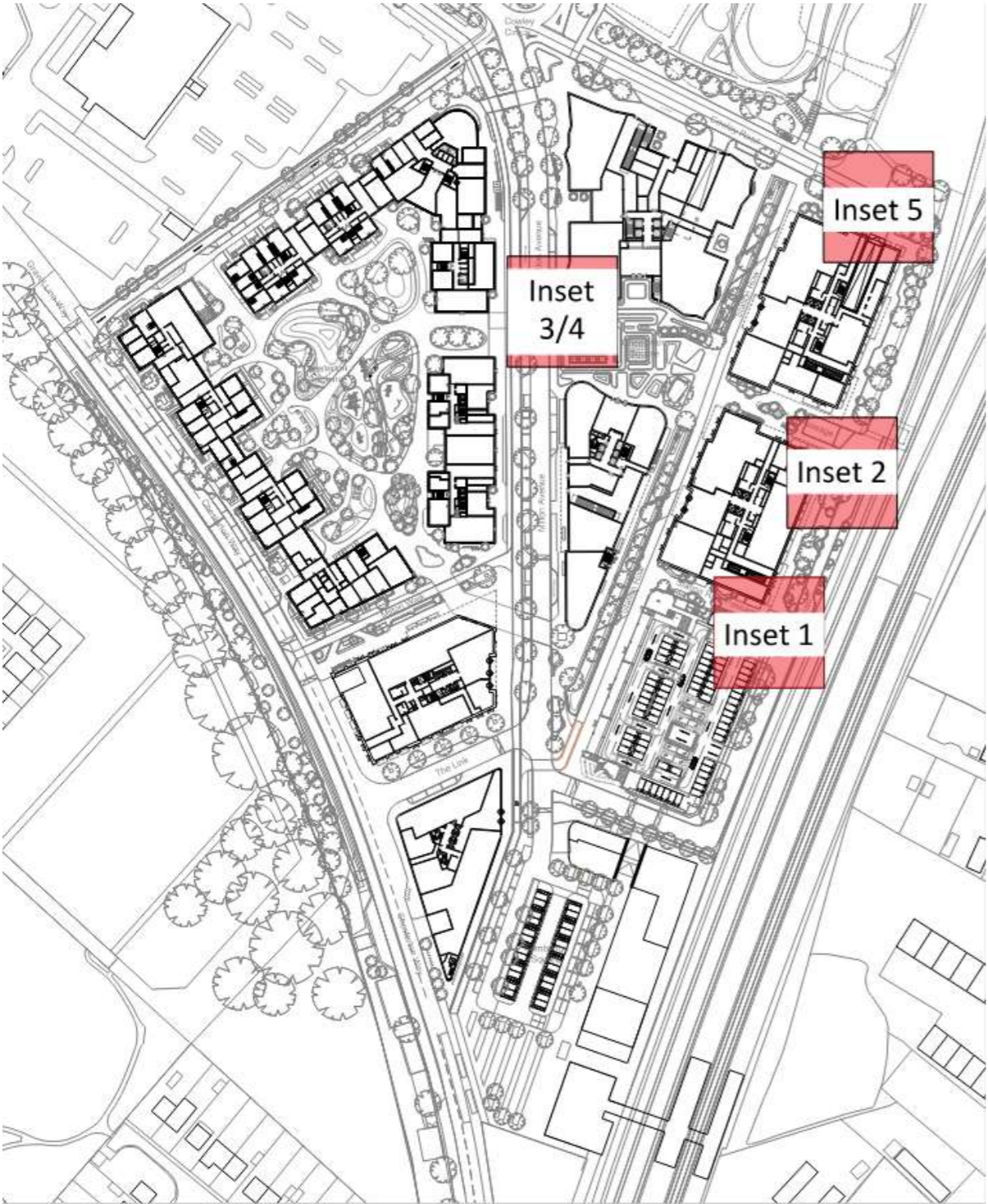
Legend



Dennis Sabre Fire Tender (LWB)	
Overall Length	7.700m
Overall Width	2.430m
Overall Body Height	3.512m
Min Body Ground Clearance	0.397m
Track Width	2.380m
Lock to lock time	5.00s
Kerb to Kerb Turning Radius	7.400m



3.3. Siting of Fire Appliances



3.4. Suitability of Water Supply

The provision of water has been sized based on the requirements of each building, including appropriately sized storage tanks as required.

The water supply will be provided from new infrastructure installed (280mm diameter pipework connecting into Milton Road) under the earlier phase of the project which was sized for the whole site south of Cowley Road and extended down to the Station.

The size of the mains was part of the design by Cambridge Water, the incumbent statutory undertaker, and complies with their standards on security of supply; this also includes the provision for further off-site reinforcement works if they are required beyond this Phase of the development.

The development will be served by a combination of existing fire hydrants adjacent the Cambridge North station and new proposed fire hydrants to ensure coverage as the attached masterplan proposals.



Provision of private hydrants

- 14.8 A building requires additional fire hydrants if both of the following apply.
- It has a compartment with an area of more than 280m².
 - It is being erected more than 100m from an existing fire hydrant.
- 14.9 If additional hydrants are required, these should be provided in accordance with the following.
- For buildings provided with fire mains – within 90m of dry fire main inlets.
 - For buildings not provided with fire mains – hydrants should be both of the following.
 - Within 90m of an entrance to the building.
 - A maximum of 90m apart.
- 14.10 Each fire hydrant should be clearly indicated by a plate, fixed nearby in a conspicuous position, in accordance with BS 3251.
- 14.11 Guidance on aspects of the provision and siting of private fire hydrants is given in BS 9990.

