9.0 Access & Transport

9.1 Transport Network & Amenities

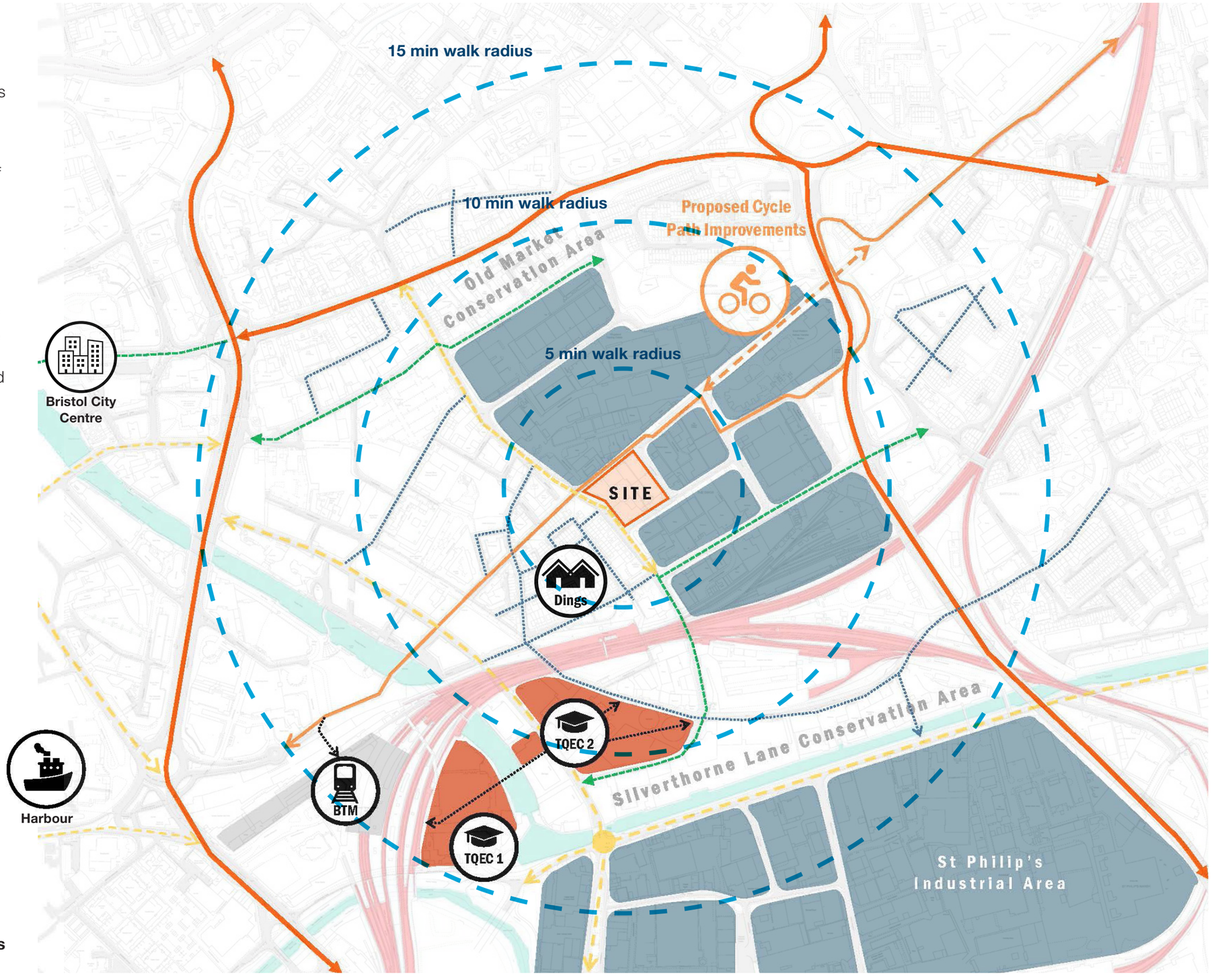
For full information please refer to transport assessment provided by Highgate Transportation.

Transport Connections

The site benefits from good walking and cycle routes as well as access to local bus routes and train travel via Bristol Temple Meads. The site allows for easy access to the Bristol to Bath cycle route and secondary vehicular road of Kingsland Road. Primary Roads in close proximity to the site create easy connections to the rest of the city. The area of the Bristol Enterprise Zone is currently under large regeneration with areas noted here for potential zones to build from this development.

Local Amenities

In the old market area near by there are a variety of retail options, pubs and restaurants. Recently more cafés, bakeries and shops have been established within the Dings area alongside large residential and hotel developments



9.0 Access & Transport

9.2 Access Strategy

For full information please refer to transport assessment provided by Highgate Transportation.

Pedestrian & Cycle Access

The design focuses on a single point of access for all students. Pedestrians and cyclists use the same entrance with the primary routes coming from Kingsland Road and the cycle path.

The scheme provides a secured cycle store with 310 cycle spaces on the GF with level access from the main entrance, together with the 36 external cycle spaces within the landscaped area. These include 1 cycle spaces per 2 bedrooms, meeting BREEAM Excellent requirements and exceeding BCC guidance.

- Primary Pedestrian Route
- Primary Cycle Route
- Student Residential Access
- Student Cycle Access
- Retail / Maker Access
- Community Access
- Internal Bike Store
- External Cycle Hoops

9.0 Access & Transport

9.2 Access Strategy

For full information please refer to transport assessment provided by Highgate Transportation.

Vehicular Access

Vehicular access to the site comes from Kingsland Road, Sussex Street and Alfred Street. Along Kingsland Road is a BCC refuse collection and servicing bay. Along Sussex St there is a delivery and servicing bay to be used by the food shop. A short-term drop off bay is situated on the south of the site further along Sussex St for taxis and short term waiting. On Alfred Street is situated 4 disabled parking bays and another BCC refuse collection bay.

Servicing for the substations are across the north of the site. Access to the service bays will be managed to allow the vehicle to travel along the pedestrian route.

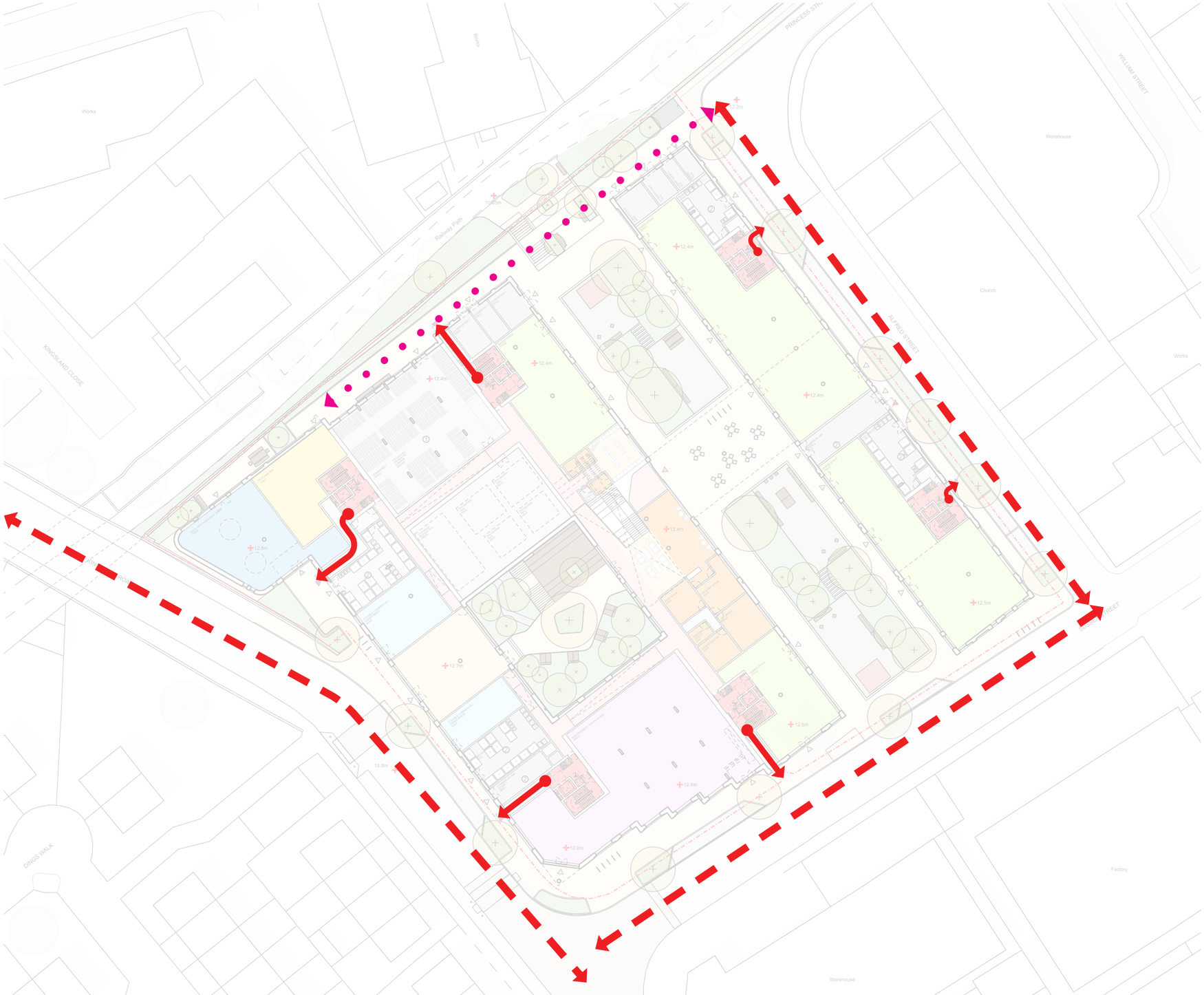
- Servicing Bays & Route
- Delivery Bay
- BCC Refuse Bay
- Blue Badge Parking Bay
- Short Term Bay
- Refuse Store Access
- Secondary Road
- Tertiary Road
- Areas for Roadworks

9.0 Access & Transport

9.3 Fire Tender Access

The majority of the stair cores exit out onto the 3 roads surrounding the site. Vehicular fire access is available from Kingsland Road, Sussex Street and Alfred Street. Access to the North of the site and the two cores that exit out there are accessed without vehicles.

For full information please refer to fire engineers report provided by Jensen & Hughes.



Vehicular Fire Tender Access

Means of Escape

Access to Stairs via none vehicular modes

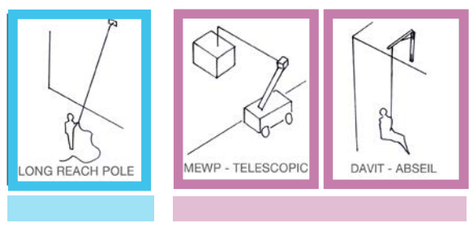
9.4 Cleaning & Maintenance

Pole Cleaning & Abseil

From the ground floor to the third floor, areas of the facade will use long reach pole cleaning as the preferred method. With abseil preferred for the areas of facade on the floors above. This preference will be across all elevations of the buildings around the entirety of the site with some areas of full abseil where pole cleaning is not possible. Access from the roof where applicable.

East Elevation

West Elevation



9.0 Access & Transport

9.5 Accessibility

The proposal and the requirements:

Holistically, the proposals have been designed with a broad approach to accessibility across the development. With a brief to deliver a fully accessible campus building for all.

As part of this brief the proposals have been designed around the Bristol University MDR's – A.1.3 Accessible Bedroom Accommodation guidance.

As part of this guidance the following targets have been established:

- **TOTAL of 2% to be fully adaptable** - with 50% of provision available on opening of building.

The above 2% is broken down as follows:

- **1% adaptable for wheelchair** user and initially meet the requirements for ambulant disabled people
- **0.6% wheelchair accessible**
- **0.4% adaptable rooms for assisted use** (to BS 8300) including ceiling hoist

Note- In addition to the above **ALL accommodation will be suitable for persons with visual impairments** (guidance to follow BS 8300)

Summary of proposed units:

Accessible type:	No. rooms	Compliance standard
Adaptable (1%)	1% = **7**	BS 8300 or Part M - M4(2)
Wheelchair accessible	0.6% = **4**	BS 8300 or Part M - M4(3)
Adaptable for assisted use	0.4% = **3**	BS 8300 2 2018
Total adaptable	**14 (2.2%)**	
Total adaptable at building opening	**7**	

How the requirements are met:

A minimum of 7 studio apartments have been sized and designed to be easily adaptable on opening of the building to conform with the established requirements. All of these 7 units will all meet the requirements for ambulant disabled people upon opening.

Adaptable unit locations for level 01

Adaptable unit location for level 02

10.0 Technical Information

10.1 Structural Engineering

Summary of Structural Engineering Approach:
Text provided by Meinhardt.

The New Henry street structural design consists of two main reinforced concrete frames connected via a level 1 link structure. The reinforced concrete flat slabs are supported on concrete columns and walls. The arrangement of the concrete frame has been coordinated with the architecture to limit/omit transfer structure between the residential grid and retail space below.

The current proposal assumes the buildings are to be founded on reinforced concrete pads, this is based on initial foundation information provided by Jonas Associates. A safe bearing pressure of 220 kPa for pads and 180 kPa for strips has been advised on at this stage. This is to be verified and potentially improved at the next stage via a phase 2 SI report.

The vertical load resisting system consists of reinforced concrete flat slabs spanning between reinforced concrete columns and reinforced concrete walls. These vertical elements carry the loads down to the ground bearing pads which are supported upon a suitable strata.

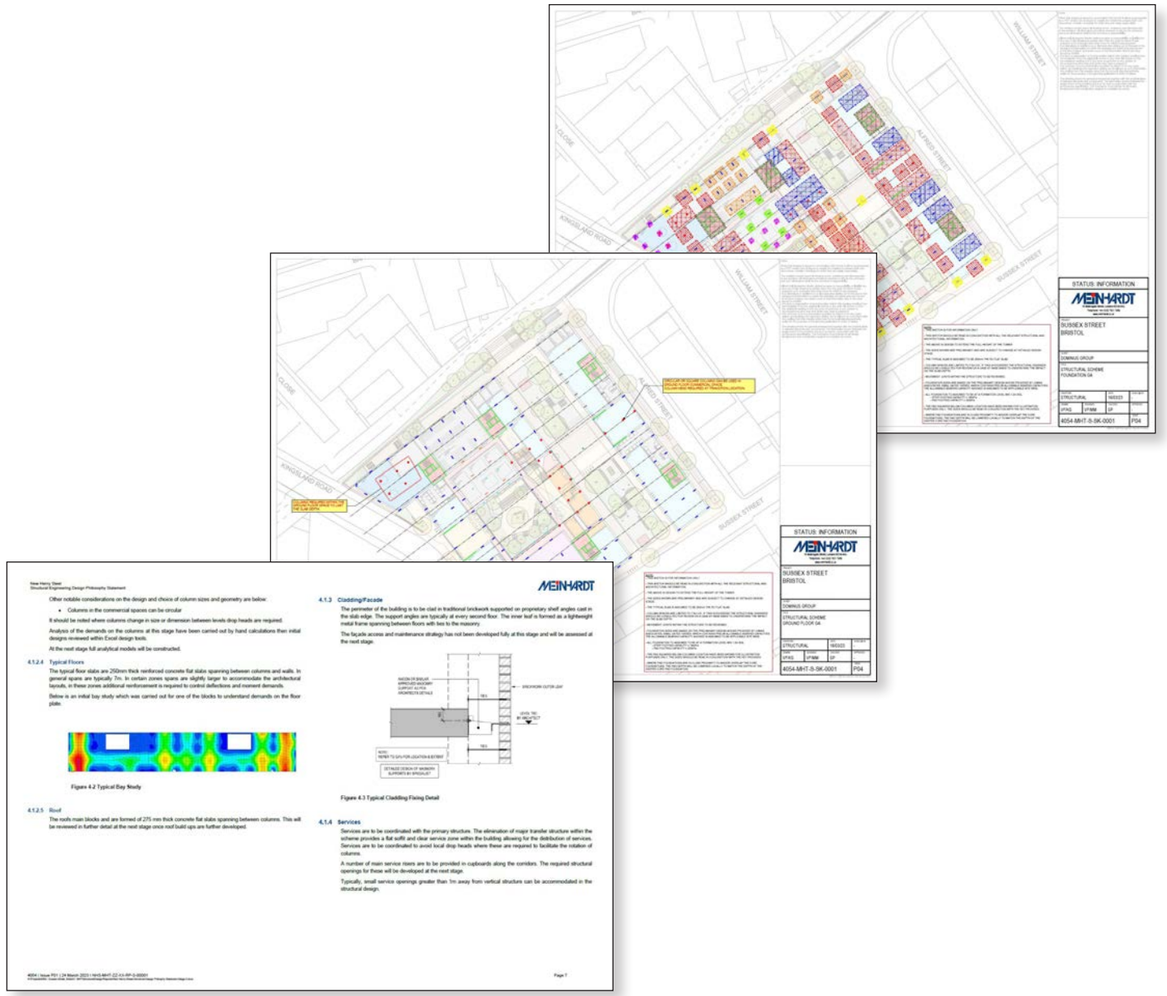
The lateral stability systems comprise of reinforced concrete shear walls located around the lift and stair cores, along with supplementary standalone shear walls. The lateral load resisting system relies on the floor slabs providing diaphragm action to transmit lateral loads to the lateral stability systems. Note that wind loads are applied to the façade and inner leaf which is designed (by others) to span vertically between floors.

The shear walls cantilever from the base carrying the lateral loads in bending and shear down to the ground bearing core cap which exerts the ground bearing pressures upon the ground strata. Openings in the walls, in particular the lifts and stairs has been considered with the link beams being utilised to restrain the walls.

Columns in the upper level are typically 225x900 rectangular columns. Where possible columns have been located in the party walls and coordinated within the apartments in order to avoid impacting architectural layouts.

The typical floor slabs are 250mm thick reinforced concrete flat slabs spanning between columns and walls. In general spans are typically 7m. In certain zones spans are slightly larger to accommodate the architectural layouts, in these zones additional reinforcement is required to control deflections and moment demands.

There is a steel link structure that creates a corridor between the two main blocks. The link structure is 18 m long and 12 m wide. There are two primary options currently being considered, one where a storey deep truss spans between the blocks, the second options incorporate a column to reduce spans.



Structural Engineers Stage 2 Report - *Extract*

10.0 Technical Information

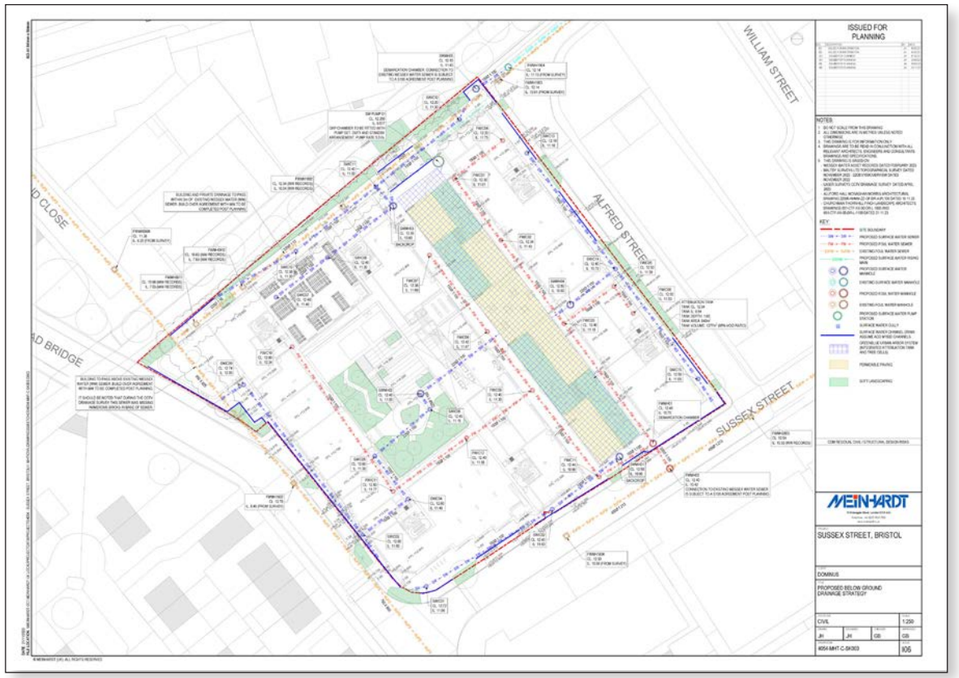
10.2 Civil Engineering & Flood Risk

Summary of Civil Engineering Approach:
Text provided by Meinhardt.

For full information please refer to the Flood Risk Assessment and Drainage Strategy

The Flood Risk Assessment (FRA) investigates flood risk on site and in the area and outlines the mitigation measures proposed to ensure the sustainable and safe development of the Site in line with the requirements of the National Planning Policy Framework (NPPF), Environment Agency's (EA) Climate Change allowances guidance and Standing Advice, and the Flood Risk and Coastal Change Planning Practice Guidance (PPG).
The Site is located in Flood Zone 1 where the probability of river or sea flooding is less than 0.1% (1 in 1000) chance in any given year. Therefore, the probability of tidal or fluvial flooding is assessed as negligible.

Available baseline information indicates that within the Site there are areas which are at high risk of surface water flooding. However, a surface water drainage strategy has been designed in line with the most recent EA Climate Change Guidance to consider and manage the impact of a 1:100 year plus climate change rainfall event and is presented within this report. The surface water drainage strategy considers surface water runoff management: the solutions proposed ensure that for the 100 year plus 45% climate change allowance event, surface water will be accommodated within the Site and therefore prevent potential exceedance flows off-site. Other potential sources of flooding have been investigated and have been deemed insignificant. The proposed drainage strategy incorporates sustainable drainage systems (SuDS) features in the form of green roofs, bio-retention tree pits, and a below ground integrated bio-retention and geo-cellular attenuation tank system. The Site's surface water will be attenuated and reduced to 5.0 l/s before being pumped to the local Wessex Water public surface water sewer network.



Flood Risk Assessment & Drainage Strategy - *Extract: Proposed below ground drainage*

Flood Risk Assessment & Drainage Strategy - *Extract: Proposed roof level layout*

10.0 Technical Information

10.3 MEP & BREEAM

Summary of MEP Engineering Approach:
Text provided by Ridge.

General Requirements

The proposal is to provide 705 bedrooms within the Dominus Real Estate Student brand of which 400 rooms grouped into clusters, 80 No townhouse rooms and 225 Studios to provide a variety of student living options as part of the emerging University district that is forming in this part of Bristol.

It is anticipated that this development will play an important role by providing much needed student bed spaces to the rapidly growing Universities within the vicinity of the site. In turn, this will reduce the reliance on private rented accommodation within the suburbs of Bristol and help provide 'on campus' accommodation that is both convenient and sustainable.

Technical Targets
The following criteria are proposed in the design of the M&E services for the new building.

- A BREEAM 'Excellent" rating.

Building Services Design Philosophy
The mechanical and electrical building services identified for the proposed development shall be designed in full recognition of the clients requirements and shall provide comfortable and light environments whilst being simple, cost effective, efficient and environmentally friendly, utilising best practice sustainable design principles and a flexible approach to the services.

Utility Services
There are existing utility services within the proposed development areas and surrounding areas, a desktop exercise has been carried out to establish the disconnections required to facilitate the new building construction.

The full site area will be required to have a GPRS survey carrying out to verify the asset owners record drawings and to mark out the exact locations of the services present.

Electricity
2No High voltage (HV) supplies to the building will be derived from the HV network to new. The preliminary load assessment for the project is 1,525kVA, and will be delivered via 2 x 1MVA transformers.

At the time of writing the report, we are awaiting the Point of Connection offer from Wales & West.

Telecommunication
An incoming telecommunication room will be provided for the termination of incoming services ducts from 2 diverse locations and will accommodate the services providers equipment.

The development shall be connected to the local telecoms' infrastructure network with the incoming service ducts terminating in the dedicated comms room.

Diverse routes into the building are to be provided with space for multiple services providers, and allowances have been made for incoming ducts, which will directly connect into the telecoms' intake room.

Gas
There is no intent to bring natural gas into the new building.

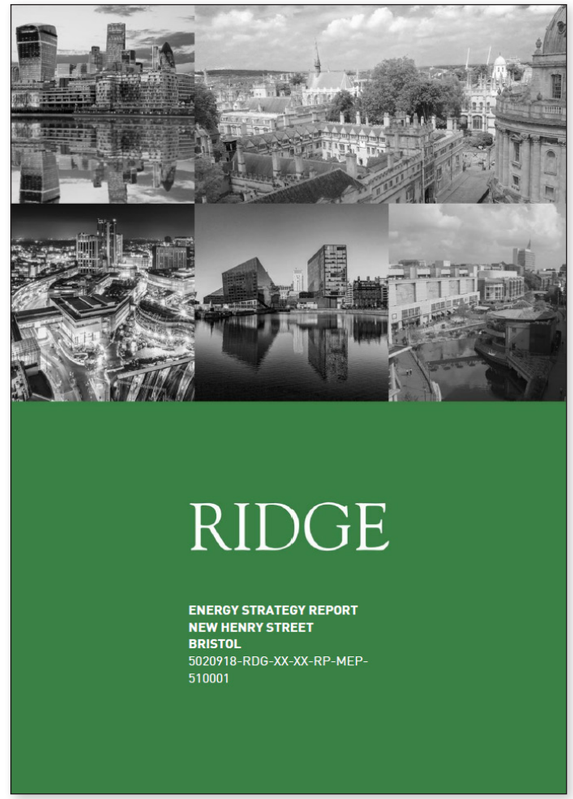
Water
The new cold water supply will enter the building from the public highway and be routed directly into the ground floor tank room. The new supply will be metered and leak detection fitted in accordance with BREEAM requirements.

Final connection arrangements are subject to details discussions with the respective utility suppliers.
The supply will connect to a potable water pre-insulated GRP storage tank, whereby it will then be boosted via a duty/standby, variable speed multi stage boosted cold water pumping set (BCWS) to serve the various appliances within the building.
The cold water system will be installed in accordance with the current water supply (Water Fittings) Regulations.

Fire Fighting
The fire strategy will require dry riser shall be installed in the nominated firefighting/escape stair cores.
At present a residential domestic sprinkler system proposed will be separate to the domestic potable water service. The sprinkler system will be designed and installed by a specialist LPC certified contractor.
A commercial sprinkler tank shall be provided to serve the ground floor commercial / retail units. The design installation, testing and commissioning of the sprinklers system will be in accordance with BS EN 12845:2004 + A2:2009 and LPC Rules

BREEAM
A BREEAM pre-assessment has been produced. The client and design team will work together to ensure that a 'Excellent" rating is achieved.
In order to achieve the ratings it is assumed that:

- The services solution chosen will provide the required energy credits
- The building U values, and G values will be in line with the part L 2021 notional values



Energy Strategy Report

10.4 Highways

Summary of Highways Engineering Approach:
Text provided by Highgate Transportation.

For full Stage 2 information please refer to Civil Engineers Report.

The proposed layout, from a highway and transportation perspective, has been designed from the outset as a car-free development with the creation of pedestrian and cycle linkages playing a key role. Enhancement of the existing environment and infrastructure around and through the site has been a main focus to ensure promotion of non-car travel.

The application site is within a highly sustainable location in transport terms; accessible by walking and cycling, located within 55 metres of the nearest bus stops and around 650 metres from Old Market bus interchange, which offers frequent bus services to a variety of destinations, is within 800 metres of four car club bays, and is around 800 metres from Bristol Temple Meads railway station.

To support the redevelopment proposals, HTp have provided a BREEAM compliant Transport Statement (ref: HTp/22151/TS/01), which includes for a BREEAM Assessment (Technical Note TN/01) and Tra01 Transport Assessment and Travel Plan and Tra02 Sustainable Transport Measures BREEAM checklist (reference HTp/22151/TN/02), as well as a Student Accommodation Travel Plan (ref: HTp/22151/SATP/01) that provides a long-term management strategy and encourages more sustainable travel.

The site is bounded to the north by the shared use walking and cycling path occupying the former railway track, which links to NCN3 to the west, and provides a largely traffic free route towards Temple Meads railway station and beyond. The proposals include pedestrian and cycle links to this route via a stepped access with runnels from New Henry Street and improved facilities at the interface of Alfred Street and Princess Street, just off the ramp to the cycle path immediately east of the site, to encourage travel by these sustainable modes of transport.

Highway Works:
- Provision of footways and footway widening around the site
- Reducing the width of Kingsland Road past the site frontage to reduce vehicle speeds, widen the footway, reduce crossing distances for pedestrians and provide a loading bay
- Engineering works/surfacing treatment at:
  1. Sussex Street junction with Kingsland Bridge, to provide a real sense of place and entrance to the scheme, as well as assist in enforcing the 20mph speed limit on the local roads
  2. Alfred Street interface with Princess Street, to ensure reduce vehicle speeds and driver awareness of other road users
- Footway widening on Princess Street to/from Alfred Street and the ramp to the walking and cycling path on the railway track
- Two build-outs on the western side of Kingsland Road, both of which include a dropped kerb pedestrian crossing point with tactile paving and coloured surfacing, to improve crossing opportunities for pedestrians where none currently exist - these provide a link to and from the site and bus stops as well as The Dings residential area

Cycle parking:
- BREEAM compliant cycle parking with 364 undercover and secure cycle parking spaces (well in excess of the minimum BCC standards)
- Additional cycle parking around the site within the footways and landscaped areas to ensure plenty of provision for the community, retail and employment uses as well as visitor cycle parking for the student accommodation
- An area of Voi scooter parking will also be provided on site

Servicing:
- New loading bays are provided on Kingsland Road, Susses Street, and Alfred Street
- The loading bays are proposed to be provided as continuations of the footway, with no/limited step-change between the bay and the footway behind, to ensure that when the loading bay is not occupied the full 4.5 metre width is available as footway and dwell space
- The primary purpose of the Kingsland Road and Alfred Street loading bays is for refuse and recycling collection by Bristol Waste to service the student accommodation, and the bays are therefore 14 metres long and within 15 metres of the refuse and recycling stores
- The primary purpose of the Sussex Street loading bay is to serve the proposed grocery shop, at 12 metres long it will be limited to 10 metre-long HGVs
- A Delivery and Servicing Management Plan has been prepared (ref: HTp/22151/DSMP/01), that sets out the strategy for access by delivery and service vehicles and includes the strategy for the storage and collection of refuse and recycling
- A drop-off bay is proposed off Sussex Street at the southern end of New Henry Street, to facilitate taxi pick-up and drop-off as well as servicing and deliveries associated with the student accommodation

Provision for people with disabilities:
- Provision of four car parking bays accessed from Alfred Street for blue badge holders
- These parking bays will be managed by Dominus Real Estate and utilised as part of the Move In/ Move Out strategy at the start and end of each academic year (see HTp Premises Management Plan ref: HTp/22151/PMP/01)
- Access along New Henry Street, to and from the main reception and entrance/exit from the student development will be generally level (i.e. non-stepped), with the existing ramped access to the footway/cycleway route along the north of the site reached via the proposed widened footway link connecting to/from the north-east of the site on Alfred Street/Princess Street

10.5 Fire Engineering

Summary of Fire Engineering Principles:
Text provided by Jensen & Hughes.

For more information please refer to full Fire Statement Form and Fire Strategy Review.

The project is the construction of a new Purpose Built Student Accommodation Building in Bristol. The building is to connect up to 7th floor where there is proposed to be up to 705 bed spaces (400 cluster beds, 225 studios and 80 townhouse beds). The building is proposed to be provided with 6 escape cores with 2 stair situations on upper levels above 18m. Ground floor is proposed to consist entirely of student amenity and separate commercial units. Part of the student amenity spaces connects up to first floor via an open void.

Building Regulations Guidance
The primary guidance documents relevant to this project are Building Regulations Approved Document B (ADB) 2019 and BS 9991:2015 for residential accommodation; and (ADB) 2019 and BS 9999:2017 for the non-residential areas.

Sprinklers
As the top storey height of the building exceeds 11m, current code guidance recommends that the building should be provided with a residential sprinkler system in accordance with BS 9251:2021. For parts of the building which our outside of the scope of BS 9251:2021, a commercial sprinkler system will be provided in accordance with BS EN 12485.

Automatic Fire Detection
Residential areas within the building should be provided with an L1 automatic fire detection (AFD) and alarm system in accordance with BS 5839-1 or alternative a category LD1 system in accordance with BS 5839-6 including smoke alarm or alarms within the principle or habitable room and heat alarm or alarms in every kitchen. This system should be programmed to operate based on a ‘stay put’ evacuation.

An automatic fire detection system in accordance with BS 5839-1 should be provided within the common areas to operate then ventilation systems within the residential common areas.

Non-residential areas should evacuate based on a simultaneous evacuation strategy. A Category L1 AFD system in accordance with BS 5839-1 should be provided within the non-residential and ancillary spaces.

Evacuation Alert System
Under the 2022 amendment for Approved Document B, the building should be provided with an evacuation alert system in accordance with BS 8629 to facilitate the full evacuation of the apartments in deemed necessary in an emergency by the Fire Service or Building Management.

Other Fire Safety Measures
Emergency lighting in accordance with BS 5266-1 should be provided throughout common areas and external escape routes to illuminate escape routes in the event of mains failure. Escape stair lighting should be on a separate circuit from the electricity supply to any other part of the escape route.
Signs in accordance with BS 5499 Part 1 and Part 4 / BS ISO 3864-1 should be provided on common escape routes.

Means of Escape:
Where a stair serves a floor with a top storey height greater than 11m and connects an ancillary space, alternative means of escape will be available. Travel distance in common corridors will be short at less than 7.5m in a single direction and 30m where a choice of escape routes is available, therefore they are not required to be smoke ventilated on the basis the stairs will have dedicated smoke vented lobbies which do not connect directly with the apartments as per the recommendations of code guidance. On typical residential levels, alternative means of escape will be available via interconnecting cluster corridors.

The final escape route from each core will be either direct to the external or via a protected corridor leading directly to the external. Final escape routes will be suitable size to be at least as wide as the stair they serve and will take account of contra flow of firefighters entering the building where applicable.

Townhouses will be provided with protected stair enclosures which discharge directly to the external.

For non-residential areas sufficient means of escape provisions will be provided to satisfy travel distance and exit capacity requirements.