

Unite Students and Manchester Metropolitan University

Cambridge Halls, Manchester

Construction Management Plan

Reference: CAM-ARP-ZZ-ZZ-RP-CMP-000001

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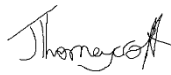
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1. Introduction

1.1 Outline

This Construction Management Plan (CMP) report has been prepared by Ove Arup and Partners Ltd. ('Arup') in support of the detailed planning application being submitted by Unite Students and Manchester Metropolitan University ('the Applicant') to Manchester City Council ('the Council') for the redevelopment of the land at Cambridge Halls of Residence, Cavendish Street, Manchester, M15 6TT ('the site').

The detailed planning application seeks planning permission for the following description of development:

“Demolition of existing halls of residence and erection of two buildings of 30 and 24 storeys above ground, plus basement and rooftop plant levels, comprising purpose-built student accommodation with internal and external rooftop communal amenity space (Sui Generis). Ground floor commercial and community uses (Flexible Use Classes E, F1 or F2). Hard and soft landscaping and associated highway works.”

The proposed development has evolved through an extensive pre-application and wider stakeholder consultation process, which has included collaborative discussions with the Metropolitan University of Manchester, the Council, and key stakeholders.

The proposed development provides the opportunity to regenerate this strategically important site for the University through the demolition of the buildings situated within the site and replacement with a highly sustainable new student accommodation development.

The Programme of works are intended to be phased with 1100+ beds to be delivered by 2029 and a further 1200+ beds by 2030 through a staggered start to best manage the sequencing of the build and minimise maximum resources through construction.

1.2 Objectives of this document

This Construction Management Plan (CMP) provides a comprehensive overview of the management arrangements of the proposed works at the site. This includes the Construction Logistics (sometimes addressed specifically in a Construction Logistics Plan, CLP) and Environmental considerations (sometimes addressed specifically in a Construction Environmental Management Plan, CEMP).

This plan is to become the basis of the Construction Contractors CMP which will be agreed with the Council and implemented immediately upon taking possession of the site.

The CMP is a live document which will be continually updated and improved throughout the duration of the project works. This will ensure the safe execution of the works, adherence to the Council's construction policies, and the effective management of environmental and safety issues relating to the project.

The CMP describes in high-level how the Construction Contractor will manage:

- Local residents and businesses
- Site setup
- Works methodology
- Environmental management

The proposals are also intended to assist and enable third parties to clearly understand the nature of the works related to the site, specifically the construction and the management of the interface between the site and the public.

The CMP and its continual development will assist in creating a good working relationship with local communities, visitors, and occupants of nearby residential and commercial properties to make sure they are kept fully informed of current progress and of contractor key activities. It will also allow third party feedback

to allow activity dates or nature be honed to minimise the risks, and disturbances to the locality as far as is safe, reasonable, and practicable.

1.3 Report structure

The main body of this report includes key information directly relevant to the site including a summary of existing buildings, proposed construction strategy, traffic considerations, construction logistics and potential impacts during works. A series of appendices follow containing information regarding:

- Temporary works design management
- Hoarding
- On Site best practice including:
 - The considerate contractors scheme
 - Health and Safety
 - Working on or near water (river) safety plan
 - Site security and emergency planning
 - Working hours
 - Site accommodation and lighting
 - Waste & site cleanliness and good housekeeping.
 - Third party liaison
- Mitigation measures including:
 - Plant mitigations
 - Noise mitigations
 - Dust
 - Archaeology
 - Bats

1.4 Construction Logistics and Community Safety Scheme (CLOCS)

This CMP report and subsequent detailed contractor CMP's will be aligned with CLOCS. CLOCS is a national Standard that requires all stakeholders in construction to take responsibility for health and safety beyond the hoardings. CLOCS is a construction impact mitigation measure aimed at safeguarding vulnerable road users and pedestrians from the increased threat posed by construction traffic. It demands collaborative action to prevent fatal or serious collisions between vehicles servicing construction projects and vulnerable road users: pedestrians, cyclists, and motorcyclists.

As part of the applicant's wider corporate responsibility, they have a moral obligation to ensure that the traffic servicing the site is correctly managed. This means that drivers have received current, best-practice training, hold the correct licences for their vehicles, and are driving a vehicle that is both road-legal and safe for use on the public highway. The routes which drivers use to service the site will come under the responsibility of the applicant.

2. The site

2.1 Surrounding context

The site, known as Cambridge Halls, is in central Manchester, south of the A57(M) Cambridge Street Junction. The site is bound by Higher Chatham Street and Lower Chatham Street to the east, Boundary Street West to the south and Higher Cambridge Street to the west. Adjacent to the northern boundary is a private service round for the adjacent Manchester Metropolitan University Centre for Enterprise.

Cambridge Halls is currently an existing Manchester Metropolitan University Student accommodation block with approximately 800 rooms.

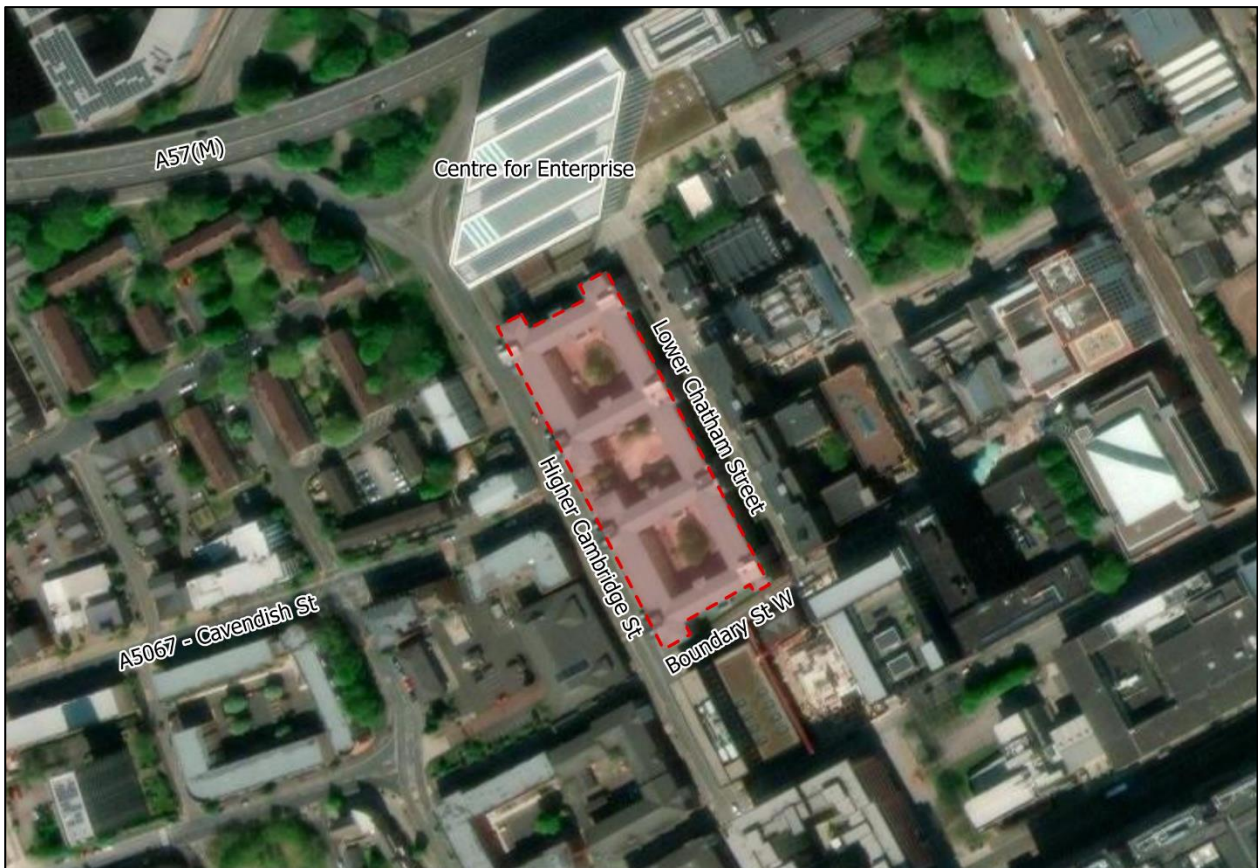


Figure 1: An aerial view of the site

3. Development proposals

The proposals are for approximately 2,300 student bedrooms, 5% of which will be accessible, with ground floor retail and community facilities, expected to accommodate a Community General Practice.

Cycle parking will be provided in secure locations on the ground floor distributed across the floor plan to maximise accessibility and convenience. Figure 2 shows the emerging layout for the ground floor plan.

A central courtyard is proposed to provide amenity uses for occupiers and therefore the existing thoroughfare through the site, which follows the alignment of Cavendish Street, will be removed with pedestrians and cyclists re-routed along the parallel Boundary Street West, adjacent to the Site's southern frontage.

The development is expected to come forward in two phases, the first would deliver approximately 1100 beds in 2029 with an additional 1,200 beds in 2030.

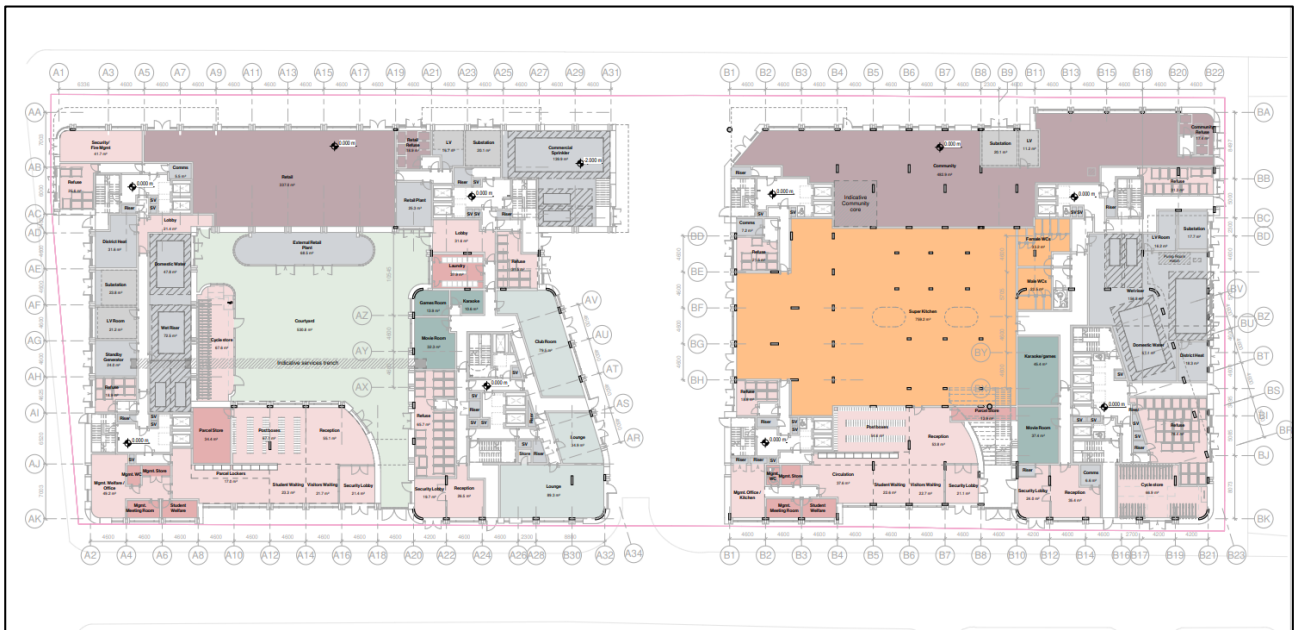


Figure 2: Ground Floor Plan Cartwright Pickard Stage 2 Report



Figure 3: View of Proposed Massing from Cambridge Street Cartwright Pickard Stage 1 Report



Figure 4: A group of people walking in a building
Cartwright Pickard Stage 1 Report

4. Key project members

On contracting of a suitably qualified contractor, the CMP will be updated and reissued and be maintained live until such time that the contractor has formed and agreed the final CMP with the Council.

The project contacts table will be completed and shared with the Council to clarify lines of communication and responsibilities.

Role	Company
Client	Unite Students & Manchester Metropolitan University
CDM Principal Designer	AtkinsRéalis
Building Safety Act Client Advisor	Safer Sphere
Building Safety Act Principal Designer	Project Four
Project Architect	Cartwright Pickard
Structural and Civil Engineers	Ove Arup & Partners
MEP	Waterman Group
PM	Cumming Group
Landscape Architect	Re-form Landscape Architecture
Planning Consultant	Turley

Table 1: Key project contacts

5. Neighbourhood engagement

Prior to the commencement of each stage of works, the applicant will inform local neighbours of forthcoming activity and raise the awareness of the Community Liaison Group (CLG) – the forum for undertaking and providing feedback in relation to works activities.

The applicant aims to ensure that they are a good neighbour throughout the development process and take the potential impacts that development and construction activity can have on our neighbours seriously. Whilst the majority of local receptors are related to the University, all business and residents with an interest in the works will be invited to participate in discussions.

The applicant recognises the importance of local sensitive occupiers, shown in Figure 5, including but not limited to:

1. Manchester Met Faculty of Business and Law
2. St Augustine's Church;
3. Cavendish Halls of Residence;
4. The Salutation Pub;
5. The Union;
6. Victoria Hall;
7. University Barracks;
8. Element/Cambridge House/Manchester House.

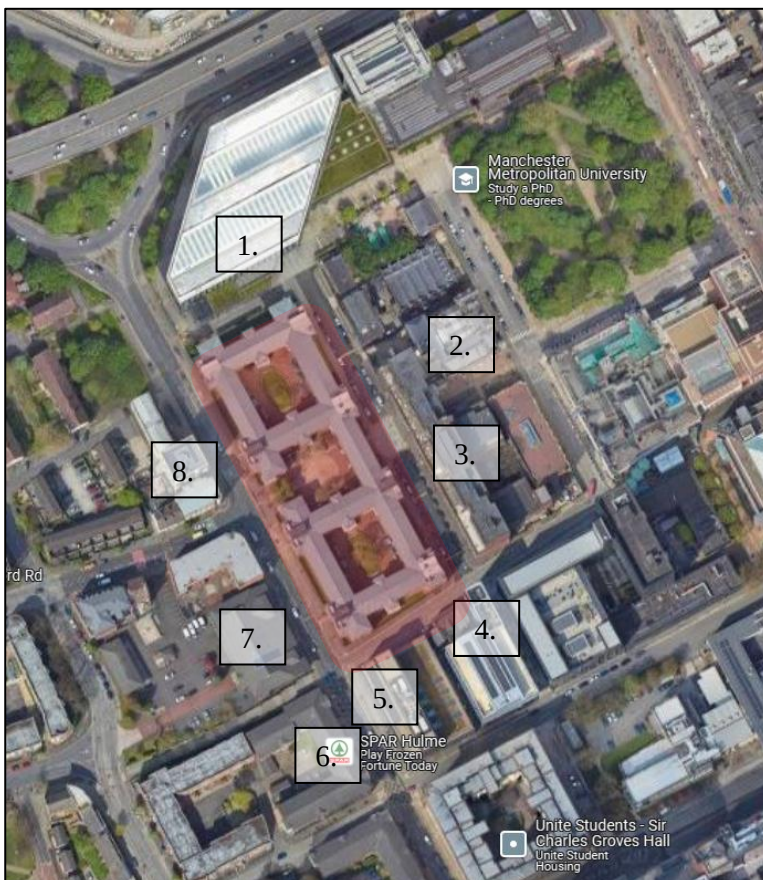


Figure 5: Local sensitive receptors/communities

The applicant's approach will be to seek to work with affected parties to understand, minimise and manage potential impacts where possible; and as such has incorporated the requirement for the contractor to be part

of the Considerate Constructors Scheme and to comply with BREEAM requirements for “Man 02 The Considerate Constructors Scheme”.

The applicant will ensure environmental monitoring, as detailed later in the document, to ensure that the contractor’s methodology for all works aligns with limits for noise, dust and vibration agreed with the Council, and adopting best practice to mitigate impacts on neighbours for relevant work (e.g. ‘watering down’ during any dust-creating activities to reduce airborne dust).

Details of all construction activities will be shared with the Council as part of the evolving detailed CMP. Any cumulative activities and/or adjustments to the build programme to minimise adverse impacts will be communicated through the CLG process.

6. Pre-start works

Prior to commencement on site the Client will ensure that the F10 Notification for the project is submitted to the Council, The Health and Safety Executive and received by the contractor who will post the F10 on the site board.

Prior to commencement of any works on site the Contractor will undertake the development and issue and receive acceptance as necessary for all documentation required for the commencement of the works. These will include:

- Preparation of all Safety and Environmental documentation including the CEMP and all work package method statements and risk assessments.
- Preparation of construction phasing plans.
- Organise a 'meet the contractor' meeting/Community Days to agree a works charter and practicalities such as lighting, security, provision of pathways and protected routes and nuisance issues. And then follow on liaison meetings, consultations and newsletters as required.
- Organisation of sub-contract and consultant work packages, including hoarding, scaffolding, and services.
- Installation/isolation contractors. Drafting of RAMS for approval once scope is agreed.
- Detailed temporary works designs for hoarding, scaffolding for Council approvals.
- Production of drawings, survey reports, licences, agreements etc.
- Establishment of all emergency procedures and the requirements of the Fire / Emergency Plan on site.
- Development of the site traffic and pedestrian management plan.
- Organisation and delivery of initial site plant, and equipment.
- Establishment & commissioning of all environmental monitoring equipment in line with the approved Construction Management Plan (CMP).
- Application for Fire Hydrant License.
- Council approvals and licences to facilitate demolition (Section 80) and the construction works.
- Provide information to the Employer to discharge the applicable Pre-commencement conditions.

6.1 Tree protection

A Tree Survey and Arboricultural Impact Assessment (AIA) has been undertaken in support of this application. The Tree Survey provides a detailed indication of tree location, canopy spread, root protection area and the general health of trees within and surrounding the Site.

For those trees which are to be retained, an Arboricultural Method Statement (AMS) and Tree Protection Plan has been developed to ensure that these trees are not damaged during the demolition works and subsequent construction work.

7. Information, surveys, and reports

The following surveys in Table 2 will be required prior to the commencement of works on site:

Survey	Description	Survey Owner	Notes
Below Ground Services Survey	Radar Surveys / slit trenches of existing below ground services	Applicant (Design Team)	Required
Above Ground Services Survey	Trace existing services within the building back to the meters / heads.	Contractor	Required
Asbestos survey	Survey to establish the presence of asbestos in the existing building and ground.	Applicant	Required
Pre-Construction materials audit (update)	Pre and Post Construction Materials Audit (ICE Construction Protocol).	Contractor	Required
Site Structural Investigations to inform Demolition methodology	Structural investigations into the form and condition of the existing structure to inform the demolition strategy.	Applicant	Required
Site Structural Investigations to inform Construction methodology	Structural investigations into the form and condition of the existing structure.	Applicant	Required
CCTV Drainage Survey	Pre and Post Construction Materials Audit (ICE Construction Protocol).	Contractor	Required
Condition Survey	Pre-start condition photographic survey of the site, adjacent buildings, roads, pavements, and street furniture.	Contractor	Required
Ecological Reports (e.g. Nesting birds, Bats)	Reports and recommendations of environmental constraints and required mitigation / protection measures required.	Applicant	Required
Ordinance Survey (UXO)	Investigations into the presence of unexploded ordinance within the construction area. A detailed risk assessment has identified a medium risk in one portion of the site.	Contractor	Required

Table 2: List of required surveys

8. Construction Phasing & Methodology

8.1 Construction phasing

The proposed Construction programme suggests a sequential approach for the site. The sequencing is set out below.

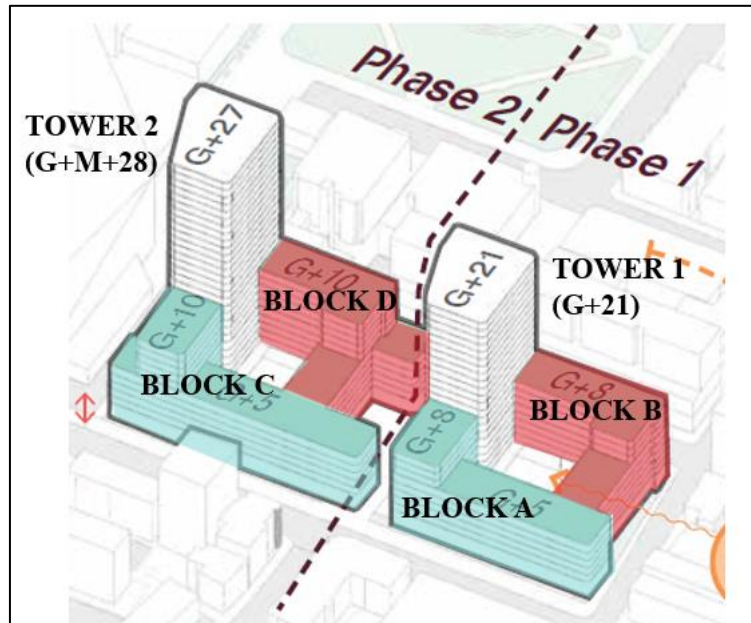


Figure 6: Proposed construction phasing

It has been estimated that the Construction programme will have a duration of approximately 240 weeks including on site mobilisation and site set-up. It has been confirmed that there is an anticipated start on site of Q04 2025 with completion in May 2030.

An indicative works programme is shown in Figure 7.

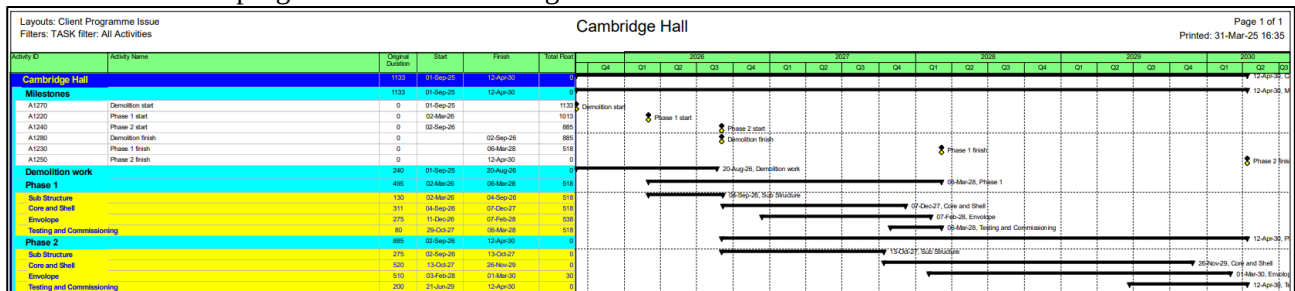


Figure 7: L3 Programme Estimation

The proposed phasing seeks to minimise staff on site, the number of cranes, and disruptions related to the deliveries.

The proposed approach is noted in the subsections below.

Indicative sequence:

- The construction of Phase 1, Blocks A, B and G+21 Tower, will commence using a two to three tower crane strategy. The structure will be built NW to SE or in reverse. Essentially, the build will be undertaken to provide a continuous raising of the super structure to allow connectivity of services through the build without interruption, and potentially a phased start to the MEP and fit out period.
- This stage may be overlapped with subsequent fit out stages, to deliver on the anticipated programme.

- The intent during this initial phase is to minimise the number of cranes however, at the peak construction period there may be six tower cranes on site for a short duration. The crane strategy will be developed further through the design development and may be reduced with the introduction of mobile cranes.
- Mobile cranes may be utilised for assistance with minor works and cladding.
- For Phase 2, this will then require works to create a safe access to the Blocks C, D and Tower G+27 and maintain the safe access from the site entrance to the remainder of the site which will be separated by hoarding.
- This phase will also signal the removal of the last cranes from the Blocks A, B and G+21 tower block and see the site appearing with the completed buildings (as fit out will have commenced).
- The site will then be handed over to the University with pockets for the contractor to work within. These pockets will allow finishing of external and landscaping works (some of which are seasonal) and some final connections to services or formation of new.
- The completion of the works will see the buildings become part of the University estate with the handover of 2,000 beds in 2030.

8.2 Timing and co-ordination

The phasing seeks to achieve a staggered handover across academic years. Initial works will first include the construction of foundations, groundworks, and subsurface services on the initial phase of the site. This will allow an area of the site to be utilised either the completion of demolition, or as a larger organisational area for the initial phases to allow delivery of materials and for a material start of the building structures.

The next phase would be timed to commence on completion of the foundations, groundworks, subsurface services, and floor slabs. This would enhance the construction works on the second phase with the ability to share the laydown of materials.

This phase would also allow early introduction of wind and watertight areas to the lower floors of the initial structures to allow some site accommodation to be placed within the buildings and not on the site, again maximising the build footprint.

This strategy also allows for the maximisation of efficiency of the substructure, groundworks, sub surface services and structural works, minimising operatives on site and making safer working conditions. By enabling a 'follow on' style of construction there may not be a need to have a second build team up to and including building envelope installation.

Only after the envelope is installed is it likely that through the MEP fit out that two teams would be required for that operation, though at this stage all would be located within the structures.

The construction process is set out below.

8.3 Construction statement

To support an efficient build programme, the construction of the development is proposed in overlapping phases. The description describes Phase 1 as indicated in Figure 6, the same process will be followed for Phase 2.

The demolition of the existing building is proposed to happen in a south to north direction. Once the southern portion of the site is cleared, it is proposed that the piles and superstructure of the southern portion of the proposed development will commence whilst the northern building of the existing development is demolished. Once the southern portion is cleared the piling and superstructure of the eastern portion of the development will commence in parallel.

Following the construction of the superstructure and the building envelopes are formed for each building, then the fitout will take place. The installation of ground floor facilities etc. will take place towards the end of the build period when all structures and building envelopes are completed.

This approach to the construction will see a sequenced site handover across the build from demolition to construction contractors. It is proposed that the demolition contractor will work south to north in a defined CDM envelope that they will manage onsite with their own access this may change throughout the works.

As the demolition contractor clears the site, the cleared area will be demarked with temporary on-site fencing to separate them from the construction contractor. This in essence will create two CDM envelopes. The envelopes will be created when sufficient space is provided to facilitate construction activities and when it is safe to do so, and beneficial to both parties. On completion of the demolition, the demolition contractor will hand over the site to the construction contractor and the site will become unified under a single contractor.

Once the northern portion of the site has been cleared, then the ground works for Phase 2 can commence.

Deliveries to the site will predominantly take place from Cambridge Street and vehicles will exit site via Higher Chatham St and Boundary St West back onto Cambridge St. Storage areas will be provided within the site to facilitate stock piling of materials. The ability to stockpile materials will support of an efficient build programme.

In the simple terms each phase of the build will be formed in the following stages:

- Piling/foundations;
- Structure;
- Envelope;
- Fit Out; and
- Handover.

Once the building structures, envelopes and fit out commences then supporting facilities and ground floor podium can be formed. This will be constructed using mobile cranes, heavy goods vehicles for plant equipment and light goods vehicles for materials.

Once installed the plant and facilities are installed this realise one overarching commissioning and testing of the development.

The overarching construction philosophy is shown in Figure 8

Demolition and Construction philosophy

- Demolish southern area, commence piling for Block A.
- Commence superstructure of Block A, whilst demolishing northern area.
- Install piling for Buildings A, B and Tower1.
- Erect super structure of each building.
 - Block A to 8th floor
 - Block B to 8th floor
 - Tower 1 to 21st floor
- Phase 2 Starts after finishing the demolition of the northern part by commencing to pile for block C
 - Block C to 10th floor
 - Block D to 10th floor
 - Tower 2 to 27th floor

Once each block superstructure is complete, install building envelope.

- Construct GF podium and facilities.
- Undertake fitout and finishes
- Undertake fit out and finishes of commercial unit and facilities.
- Commissioning and testing.

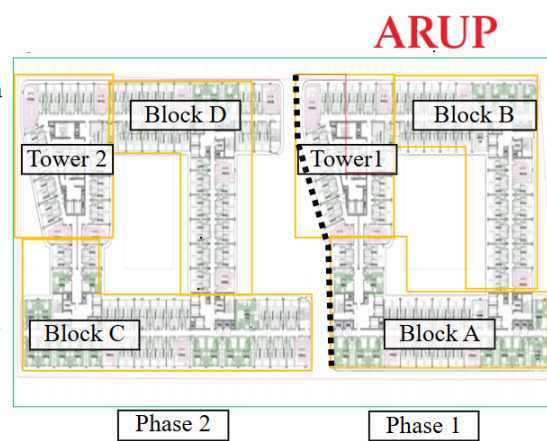


Figure 8: Overarching construction philosophy.

8.3.1 Foundations

The initial work for each building will be excavation and installation of foundation piles once existing buildings have been cleared. The foundations are likely to be continuous flight auger (CFA) piles at the load bearing points. The piles for each building will be drilled (with the final method to be considered further), to minimise vibration in the local area.

The piles will be piled from ground level and include a piling mat to ensure stability.

The piles will be drawn up to ground level and infilled with a reinforced steel cage and then concreted to height. The piles will then be cut and capped by the contractor and ground beams added for the construction of the ground floor and structure stages.

On completion of the piles the area would be handed over to the structural team to carry on construction.

8.3.2 Structure

The concrete frame components will be raised in isolation initially, and then the floors introduced on the cores being raised to approximately the fifth floor. The cores would then be constructed in a jump form manner and would rise by about a floor every two weeks to due to working at height and to enable concrete curing.

It is estimated as 6no. fixed tower cranes will be required for the construction of the structure the buildings. Mast climbers may be installed to help with the installation of facades. It is anticipated the tower cranes will undertake most of the lifting, as the eastern tower is going to be 28 storeys high the tallest crane on site may be up to 90m tall.

It is likely the following information will be required to be provided to local airports.

- The exact location of the centre of the crane, as an OS Grid reference (to at least 6 figures for each of eastings and northings), or marked on a map showing the OS Grid;
- The maximum operating height in metres Above Ordnance Datum (AOD), or the height of crane Above Ground Level (AGL) plus ground level in AOD (see Note below);
- The type of crane/equipment (e.g. Tower Crane, Mobile Crane, etc.);
- The radius of the jib/boom of a fixed crane/the area of operation of a mobile crane;

- The intended dates and times of operation;

At this stage of the CMP process, these precise details cannot be provided until such time the contractor is engaged.

On appointment the contractor will notify local airports with information noted above and timings for the crane operations. It is noted that the following measure may need to be considered to maintain safe operations during the construction period:

- The fitting of obstacle lights;
- Restrictions on crane operating times;
- Crane operations dependant on the runway(s) in use;
- Restrictions on crane operating height;
- Restrictions during poor visibility (whether caused by fog or low cloud)
- A Notice to Airmen (NOTAM)

The crane strategy will be regularly reviewed to is met and to minimise any disruption/impact, whilst seeking to ensure that the programme remains on track.

The strategy for the installation of each building structure will see each raised to about the fourth floor level, at which stage the floor slabs will be introduced. These will be installed to give stabilisation to the structure and will be undertaken in a phased approach, so that construction of higher floor levels is never around works being done at a 'level'. The planning of this will be reviewed constantly, and timings will be refined by the contractor in the final CMP.

On completion of the floor slab and slabs below, the façade works can commence.

The structure will be considered complete on completion of all steel works, slabs, and roof works.

The key method for the movement of materials will be by crane for solid state materials and plant, with all materials being lifted to location. For any wet materials, such as concrete, it is envisaged that a tower pump will be utilised to minimise footprint and allow better management of the site.

Where there is a need to take screeds or concretes to logistically awkward locations, bucket lifts will be considered to maintain supply.

The indicative site layout and indicative crane locations is presented in Figure 9.

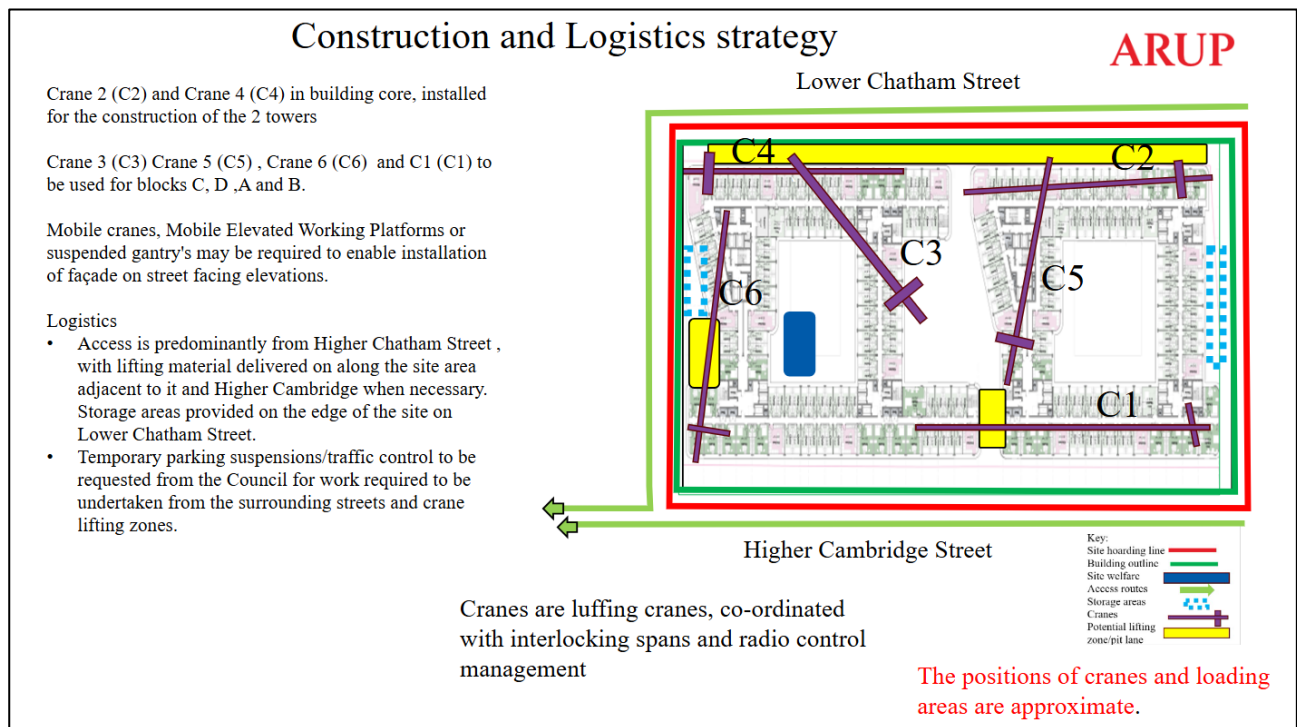


Figure 9: Construction strategy/crane locations

It is proposed that holding/lifting areas are formed within the site or on lower order roads to facilitate the delivery and lifting of structural and façade components.

It is noted that the holding/lifting areas will require appropriate agreements and licences from the highway authority. To facilitate the holding/lifting area pedestrians may need to be diverted to the footway on the opposite side of each location using existing or temporary crossing facilities.

Opportunities to curtail the duration of requiring the footway will be considered in the detailed phasing development.

8.3.3 Envelope

The building envelopes will be installed with delivery of materials direct to the installation location.

Where the façade is installed as a hung façade, the elements will be delivered by 10m rigid or 16.5m articulated vehicle in stills to site and then lifted and placed directly on to the preinstalled brackets or hanging points.

Where a rain screen system is required, a fall arrest fan will be installed below with a working platform at height to allow formation.

At all stages, fall arrest systems will be installed around all perimeters of the open floors to always ensure construction worker protection and of those below.

8.3.4 Fit out

The fit out will be undertaken in approximately six phases:

- Internal structural works;
- First fix MEP;
- Second fix;
- Architectural and final fix;
- Testing and commissioning;

- Finishing and clearance of patent defects.

The proposed delivery areas will be retained for the fit out phases. It is noted that the Council will seek to minimise the duration of the parking and any footway closure/diversion to a short a time as possible. It is anticipated this may be possible after the delivery of the internal structure works, but will be subject to contractor requirements and size of components/equipment.

Internal structural works

This includes all internal structures especially those required for the mounting of MEP or where the MEP installation would prohibit reasonable installation of structure. These works will be commenced as soon as the structure is safe for access and materials used are cured and secured for attachment.

First fix MEP

The MEP first fix involves the installation of the bracket, ducting, hangers and supports required for the Mechanical, Electrical, and Plumbing services, and like the internal structural works can be undertaken once the floor is safe for access (and after wind and weathertightness).

The works will be planned to either follow the structural works or be undertaken in parallel with them, but in areas where they would not affect the installation of structural surfaces.

The MEP could include some pipework, and the installation of each service will be evaluated on a service-by-service item as early 'non weathertight' installation may affect the quality and warranties of the service.

The first fix may include weathertight pods such as that of the toilet / shower pods, which would be lifted to location, and then made safe with the building, and maintained weather tight until ready for connection to services.

Second fix

The second fix can only start when the area for installation is weathertight and would follow the first fix activities. This stage of activity essentially involves the installation of remaining mechanical, electrical, and plumbing facilities and data, alarm systems, and CCTV. The second fix would be co-ordinated with the architectural fit out as walls may be required for cabling and cannot be closed until the MEP is installed.

Architectural and final fix

The architectural works would include the installation of non-structural elements including walls, doors etc. the architectural fit out may be co-ordinated with second fix to allow installation of services within the building. On conclusion of the second fix in an area, the area would then be 'final fixed', essentially the closing of the walling, ceilings etc and this would trigger the integrated testing.

Testing and commissioning

The testing and commissioning phase starts at the materials being produced and then testing prior to leaving the factory. This then runs through the installation of all kit with visual and isolated testing. As such the testing shown in the programme is the integrated testing and commissioning.

The phase essentially tests all services together or under maximum load to ensure all systems work as proposed. Within this phase there will be a black building test (full power outage) to ensure that all emergency systems work as planned, and that safe evacuation can be undertaken. The test also ensures that the building can be brought back online as planned without the building going into secondary failure.

Finishing and clearance of patent defects

The finishing is notionally called snagging, and is a low labour stage, where only corrections of errors, or damage is undertaken. The stage often includes final cleans, mastics, and trimming of doors etc, and should be undertaken within the testing and commissioning period. This stage is undertaken only after the building is accepted as 'complete' and ready for inspection.

Finally, landscaping and completing the public realm areas will be installed prior to development handover.

8.4 Number of staff

The number of construction workers on-site at any one time will vary and correlate to the different phases of the development.

The current assumption is that the site could reasonably manage up to 300 staff through the construction period, but that will fluctuate depending on phasing, operations, and the nature of construction activities.

8.5 Plant and equipment

The contractor will take all reasonable precautions to ensure that equipment is operated in a manner so as not to cause nuisance to surrounding residents and occupiers.

Permission will be obtained from the Council by the contractor before any plant, compressor, cement mixer, tar pot or other machinery can be stored or operated on the public highway.

The contractor will ensure all large plant delivery, such as tower cranes, will be planned in accordance with best practice and routes and timings agreed with the Council and prior to transportation to site.

In the early stages of the project there will be a variety of vehicles and plant and equipment requiring access to the site. Some of the vehicles will be coming through the site on a regular turnover basis and some on a “one off” or infrequent basis.

Vehicle Type	Use	Distribution
Rigid Heavy Goods Vehicle	Material removal and levelling mat.	Strategic road network to motorway
Small Articulated Vehicle	Plant, steel bar, bricks, and propping equipment	Strategic road network to motorway
Specialized Articulated HGV	Tower crane erection & dismantle, Mechanical & electrical Plant, facade panels. Roofing materials	Strategic road network to motorway
Specialised Equipment Low loader	Occasional delivery of plant	Strategic road network to motorway
Vans	Plant service, materials, other suppliers.	Distributed to local and strategic network
Cars	Occasional deliveries, Couriers etc.	Distributed to local and strategic road network

Table 3: Typical site delivery vehicles

The above table is not exhaustive but to assist in clarifying the key delivery vehicles.

Table 4 shows the likely plant that will be required on site.

Plant	Sub-structure / Temporary Works	Super-structure	Fit out
360 Excavators	✓	✓	Not included in stage
Mini piling rigs	✓	Not included in stage	Not included in stage
Mini Excavators	✓	Not included in stage	Not included in stage
Compressors	✓	✓	Not included in stage
Muck away and skip lorries	✓	Not included in stage	Not included in stage
Concrete Pump Rigid	Not included in stage	✓	Not included in stage
Concrete Pump Mobile	✓	✓	Not included in stage
Goods hoist	Not included in stage	✓	Not included in stage
Tower crane	Not included in stage	✓	Not included in stage
General waste skips	✓	✓	✓

Skid Steer Loaders (Various)			✓
Power tools (General)	✓	✓	✓
Diamond Cutting Drilling Rigs	Not included in stage	Not included in stage	✓
Delivery vehicles	✓	✓	✓
Forklifts	✓	✓	✓
Scaffold access platforms	Not included in stage	✓	Not included in stage
Mobile towers	Not included in stage	✓	✓
Pallet Trucks	✓	✓	✓
Concrete Lorries	✓	✓	Not included in stage
Roll on & off waste Skip Waggon	✓	✓	✓
Dust Suppression bowers and mist equipment	✓	✓	Not included in stage
Double Skin fuel bowers	✓	✓	Not included in stage
Delivery vehicles (all types)	✓	✓	✓

Table 4: Generalised plant requirements for the works

This is not exhaustive and will be developed with the contractor to ensure that the Council is reviewed during the works. All plant and equipment will be operated and maintained in accordance with manufacturers / supplier's instructions.

The method of construction may vary for each element, but the formation of the programme will follow the main plan of construction as broken down below.

8.6 Early works

- The contractor will ensure that all permissions have been sought to allow a material start on site, including hoarding licences etc;
- All site services that are to become redundant will be terminated at the site boundary (or as close to as in practicably possible);
- All services to be maintained will be clearly marked in position and be laid on a drawing to be maintained through the works and amended through discovery;
- All remaining services are to be protected where considered necessary in line with utility provider recommendations;
- All trees that are to be removed from site are to be removed prior to construction by a suitably qualified arboriculturist;
- All trees that are to remain in position are to be protected by a suitably qualified arboriculturist, or a contractor under arboricultural supervision due to the risk of disruption of species of ecological interest;
- Discharge of planning pre-commencement conditions as set upon the application in separation to those set upon the contractor; and
- Building Safety Act gateway approvals in place.

8.7 Pre-site construction stage

During the early works, the construction contractor will:

- Issue pre demolition Section 80 notice and contractor Demolition Management Plan;
- Principal Designer to issue F10 notice;
- Issue of Final (Contractors) Construction Management Plan (including phasing plans);
- Will discharge any pre-commencement planning conditions set upon the contractor prior to commencement.

8.8 Construction site set-up

The site will be already hoarded and as such, the contractor will take possession of the hoarding and review, and make repair as required. As the new owner, the contractor will then issue a 24-hour contact number for the site.

The site will then be set up, to include:

- Clear demarcation between any demolition and construction activities;
- Installation of site security protocols as discussed within this document;
- Installation of the cabins to site for welfare;
- Provision of shaded refuges and potable water supplies to address climate change adaptation and measures to reduce risks to human health from such as overheating during works;
- All communication lines and ‘facilities’ required for the running of the site would be connected. These may include some drainage but principally temporary water, power, and data/ fibre.
- The period of set up may be prolonged and involve the installation of cabins over a protracted period to reflect the changing resource profile as the site moves from the start phase to peak.
- The site offices and welfare facilities will be provided on site in accordance with Schedule 2 of CDM 2015 and the Company Safety.
- Standard ‘Site Welfare Facilities’ consisting of:
 - Suitable and sufficient toilets shall be provided which are easily accessible and adequate for the maximum number of persons on site and which shall be mains water operated. Where determined satellite toilet facilities will be located at another appropriate location on site. Separate welfare facilities will be provided on site for all anticipated female site employees.
 - Adequate and suitable washing facilities shall be provided at a readily accessible place, adequate for the maximum number of persons on site with an adequate supply of continuous hot/warm and cold running water, soap, and towels available at all times, sinks with plugs large enough to immerse the forearms.
 - Facilities for the changing, storing, and drying of site and domestic clothing and storing PPE all in provided lockers. These facilities shall only be used for the storage of clothing and NOT tools and materials etc. and shall not be part of any other facility.
 - Suitable facilities shall be provided as a canteen, which shall be fully furnished, and contain the means of preparing and eating hot and cold meals, making of hot drinks and storage facilities for food. An adequate supply of wholesome drinking water shall be provided at all times which shall be clearly labelled as such.
 - All site welfare facilities shall be smoke free which shall be clearly defined by installed ‘No Smoking’ signs. A designated area for smokers shall be clearly identified on site.
- A Community Room may be provided for use by the Council for meetings and will be situated if required near the site entrance to allow safe unhindered access by the public.

- Notice boards and signage will be provided around the perimeter of the site in advance of and throughout the course of the works.

8.9 Temporary works

Prior to commencing Construction on the buildings, the Temporary Works Designer (TWD) will perform an assessment of the needs of the site to ensure that the building can be built and serviced during construction in a safe manner, this will include a review of:

- Construction methodology;
- Any scaffold tie loads;
- Build-up of any construction debris on the floors;
- Loading from construction plant and equipment on the floors;
- Method of temporary support such as back propping;
- Method of installation to ensure safe working for operatives;
- Agree method of supervision and management of temporary works;
- Add temporary works to the temporary works register;
- Include all new temporary works in daily team briefings and ensure that all previously accepted RAMS are reviewed if local to the temporary works and are still therefore acceptable as read.

8.10 General method statement – Construction

Construction works can only commence once the following controls and safety measures are in place:

- Council approval on CMP and associated designs;
- All site temporary services are re-located;
- All live electrical, gas and water services are isolated at their respective heads and the heads protected with ply closet boxes;
- Temporary water points for dust suppression are in place;
- Fire strategy is instigated;
- Fire blankets and extinguishers in place;
- Fire sounders in place;
- Fire marshals trained and on site; and
- Emergency access points are clearly identified (either by utilisation of existing or formation of a temporary secondary route).

9. Overarching transport and vehicle access strategy

The Applicant will ensure that the works are designed and carried out in such a way as to minimise disruptions to traffic flows causing inconvenience to the public or undermining the safety of road users.

Any disruptive effects of construction traffic on designated routes are to be minimised by the consideration mitigation proposals in advance of construction works, that will be agreed with the Council.

The Applicant and the contractor will ensure that their planning advisors and design engineers are familiar with the Highways Act 1980 (particularly Part IX also ss.79-82 regarding nuisance/148-151 highway spoil) and the New Roads and Street Works Act 1991 (particularly S.50) where project works are on, intrusive or adjacent to the public highway.

The contractor will seek to ensuring all existing public access routes will be maintained or protected during construction. Where this cannot be achieved the applicant will agree mitigations, including alternative routes and signage solutions.

Through the creation of a 'Construction Liaison Group', Where construction activities are planned on a number of sites in proximity to one another, contractors will where possible coordinate their requests for road / lane closures, access routes, lorry movements, etc. in order to reduce the impacts on the surrounding area for residents, businesses and other development projects and contractors.

9.1 Site access

Two access points to the site are currently under consideration:

- East of the site, from Higher Chatham Street, for the Enabling Works
- West of the site, at the junction of the A5067 Cavendish Street and Higher Cambridge Street, for the New Build

If the west option is progressed, alongside appropriate traffic management, this could either be utilised as a left-hand access to site, without formal signals, or as a two-way gated access to and off from the site with the egress being a right-hand turn.

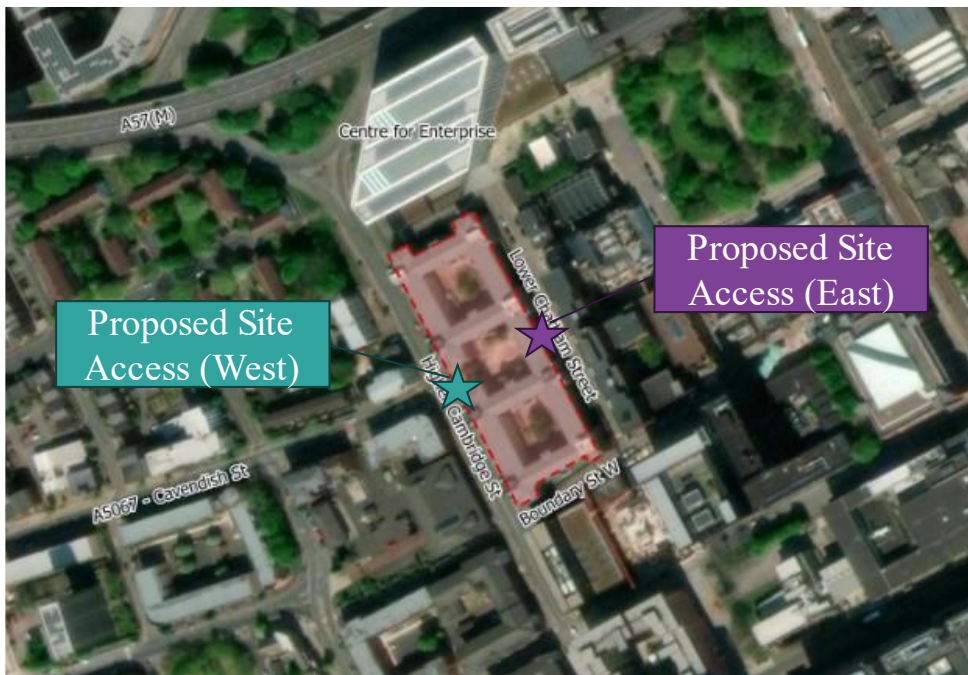


Figure 10: Proposed construction site access

9.2 Ingress and egress from site

At all stages of construction, there will be vehicle segregation on the site in order to ensure that there is a safe distance between site operatives and third parties on foot moving from vehicles on site. A pedestrian gate will be installed at the entrance for a designated and segregate personnel access, protected from vehicles by a suitable barrier to be agreed with the Council.

All vehicles will be met by traffic marshals. All manoeuvring on to site will be directed by the marshals which may include reversing manoeuvring on to the site with the traffic marshals using concertina barriers to stop traffic to maximise safety to both those on site and third parties.

All egress from site will be undertaken in forward motion, with a prohibition on reversing on to the roadway and public highways.

9.3 Management of the site gate(s)

The site gate will be managed by both traffic marshals and site security, the site gate will only be opened just prior to deliveries, and then maintained open until such time that it is safe to close the gate after the delivery has entered the site.

Prior to opening the gate, a visual inspection of the area outside of the site will be made by a competent operative, and concertina barriers will be employed from the boundary to the roadway to allow vehicular travel.

The gate will be marshalled at all times during its being open.

The standard position of the site vehicular gate is closed.

9.4 Electronic booking system

All deliveries to site will be undertaken through an electronic “booking-in” system, with all deliveries being allocated a specific time slot. Typically, failure to adhere to their time slot may result in a sub-contractor’s delivery being denied access to the site. There will be no waiting on street for access to the site.

9.5 Traffic marshals

All marshals will wear full PPE including:

- Helmet
- Safety glasses;
- Hi-visibility visibility coats or vests;
- Hi-visibility trousers;
- Gloves; and
- Protective footwear.

9.6 Schedule of deliveries

A schedule of predicted size and frequency of vehicles will be finalised by the contractors prior to commencement of works.

The site gates will be managed by traffic marshals and site security and that the gate will only be opened just prior to deliveries. All deliveries will be undertaken through an electronic booking system with all deliveries being allocated a time slot and therefore there will be no waiting on the Fountain Row.

It has been confirmed that vehicle movements and deliveries will be reduced during weekday highway peak hours. It is proposed that vehicles will be permitted on-site during the following times, subject to planning permission:

- The operational hours on a weekday will be from 8am to 6pm.
- The operational hours on a Saturday will be from 8am until 1pm.
- There will be no construction activities or vehicle movements on Sundays or Bank Holidays.

These timings have been established to prevent any disruption during peak periods.

University terms times will also be considered across the academic year to minimise impact on learning and student travel.

Any requirement for vehicular movements for site deliveries outside of the normal working hours will be agreed in advance with the Council.

9.7 Vehicle manoeuvring on site

The contractor will endeavour to:

- Maintain safe manoeuvring on site all vehicle paths will be detailed out to provide best practice segregation from the site operatives;
- Ensure all on-road vehicles comply with the requirements and intentions of the Manchester City Council as laid out within the Manchester Clean Air plan, which is in development (<https://cleanairgm.com/clean-air-plan>), and in lieu of formal guidance work in best practice such as utilising Euro 6 Diesel and Euro 4 Petrol Vehicles etc;
- Reversing operations will be minimised as far as is practicable;
- Traffic marshals will be used on site to assist manoeuvring;
- All vehicles will be maintained correctly within the cab to ensure that no objects or personal effects can obscure the driver's vision;
- All vehicular windows and mirrors will be maintained correctly and in a clean state and window wash will be made available on site to ensure compliance;
- For vehicles with generically poor visibility such as straddle carriers and large shovel loaders either mitigation measures such as extra mirrors, radar and CCTV will be installed in the cab, or the vehicle will be accompanied by a suitably trained traffic marshal.
- Where vehicle manoeuvring cameras are used, these will be inspected for cleanliness and drivers will be trained in their usage so as to ensure that changes in lighting areas etc do not confuse the driver.
- Impose and signpost a maximum-speed-limit of 10mph on surfaced haul roads and work areas;
- Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.

9.8 Construction vehicle numbers

This section sets out an estimate of the vehicle numbers that will attend site.

Vehicle journeys will imply the number of journeys that a specific vehicle will make to enable construction or to deliver materials (such that a delivery would include an inbound journey and an outbound journey)

It has been estimated that during the construction phase that:

- At peak a maximum of 25 HGVs will attend site with approximately 50 journeys per day.
- Daily average of 18 HGVs will attend site with approximately 36 journeys per day.

9.8.1 Abnormal loads

Abnormal loads that may need to be considered for large plant Table 5.

The length for any one vehicle is taken from front of cab to most rear section of the combined trailer and plant. The width is the maximum width including load, and height from tarmac to tallest section:

Vehicle	Length	Width	Height
Articulated Vehicle	16.5m	2.5	Various
Excavator	21.08m	3.46m	4.55m
8 Wheel tipper	9.50m	2.50m	3.86m
18 tonnes Articulated	13.5m	2.5	Various

Table 5 Large vehicle sizes

It is assumed that all deliveries of abnormal loads both onto and away from site would be under carried out, out of hours, such as early in the morning so as not to adversely affect the local transport network.

Prior to a full study and the seeking of permissions for abnormal loads all permissions and constraints will be studied, and a logistics forum would be set up to engage both with the Council and third-party stakeholders who may be affected by the routing to ensure compliance with all local, and regional requirements and within the parameters that may affect journey times, and dates.

9.9 Staff journeys to site

In order to support efforts to minimise the effects of construction traffic on the surrounding highway network, there will be no formal car parking provision on site for construction workers. Construction personnel would therefore be encouraged to use other forms of transport to travel to the site.

Given the site's proximity to public transport services, it is envisaged that most construction personnel would travel to the site by active and sustainable modes including:

- Train (via Manchester Oxford Road mainline station with a 800m walk to site);
- Tram (to Deansgate, with a 1.2 km walk to site);
- General bus routes with interconnection to Higher Cambridge Street, Cavendish Street, and the A34 Oxford Road, and
- Walking and cycling (including by Bee Network Cycle Hire from bus and train locations).

Certain trades may require short-term parking for vehicles due to the transportation of specialist equipment/ plant requirements. Limited drop off/ pick up parking will be provided on site, but predominantly for this purpose.

9.10 Car parking on site

There will be no on-site parking. Contractor car parking will be making use of public car parks in the vicinity.

Car parking (circa 4-5 spaces) will be maintained for key operatives and an emergency vehicular in case of an emergency.

All operatives will be encouraged not to use private cars and encouraged to use active and sustainable solutions for travel such as walking, bicycle, and local public transport. As such, to encourage these forms of travel, showers will be made available at parking locations to assist the employees.

General car parking will be directed to public and private parking areas, if required, such as:

- University of Manchester Car Park Higher Cambridge St, Manchester M15 6AR;
- University of Manchester Car Park Booth St W, Manchester M15 6AD;
- University of Manchester Car Park Higher Chatham St, Manchester M15 6AR;
- RNCM (Royal Northern College of Music) Booth St W, Manchester M13 9RD; and
- Birley Fields Car Park, Lovell House, 6 Archway, Hulme, Manchester M15 5RN.

It is noted on street parking is available on:

- Lower Chatham Street (on street parking);
- Higher Chatham Street
- Boundary Street West (on street parking);
- Higher Cambridge Road (on street parking);
- Cavendish Street (on street parking);
- Along with local side streets.

It is acknowledged that parking on local streets is likely to be available for short stay parking only and increased activity may impact on local residents' amenity, therefore construction staff will be instructed not to park in these locations.

9.11 Access by neighbours to their buildings

In line with good neighbour relations, the contractor will conduct full negotiations with the adjacent landlords and tenants to ensure that there is a shared philosophy to deliveries, pickups, and access.

An agreed protocol for timely and effective communication with all parties will be agreed and be responsive, where necessary, for particular needs.

10. Construction logistics and cyclist safety

The contractor will operate with the following established construction schemes, namely:

- Fleet Operator Recognition Scheme (FORS); and
- Construction Logistics and Cyclist Safety (CLOCS) safety, Figure 11.



Figure 11 Clocks Safety Equipment

10.1 Macro and micro traffic routes

The key roads and motorways that should be considered for large vehicle movements, as well as local roads through the project area and surroundings include:

- Manchester Ring Road A57 (M) (Mancunian Way)
- A5067 Cavendish Street;
- Higher Cambridge Street;
- Boundary Street;
- Higher Chatham Street;
- All-Saints Halls access.

10.1.1 Macro Routes

The primary route selected at this stage is via Manchester ring road and A5067 Cavendish Street

- Manchester Ring Road A57 (M) (Mancunian Way)
- Travel South on A5067 Cavendish Street

For egress, following vehicle checks and preparations for off-site travel such as jet wash wheel washing, netting and FORs checks, the vehicle will travel back along the same route, back to Manchester Ring Road, onto the wider local road network.

10.1.2 Micro Routes

There are two site access points under consideration for the site, this section details the access route for each of the access points in turn.

East Access Point

The micro logistics for the eastern access point is highlighted in Figure 12, consisting of:

- Manchester Ring Road A57 (M) (Mancunian Way)
- Travel South on A5067 Cavendish Street;
- Travel South on to Higher Cambridge Street;
- Left turn at junction with Boundary Street;
- Left Turn (North) on to Higher Chatham Street;
- Left Turn on to site at the All-Saints Halls access.

Egress to be a reversal back to the Mancunian way and onward travel from there.

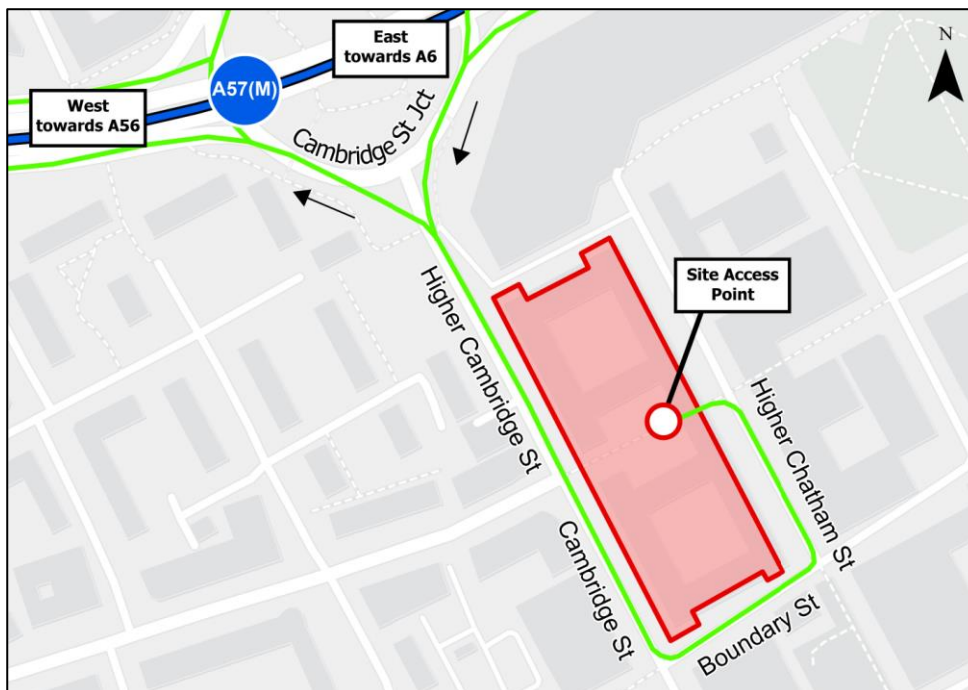


Figure 12: Micro site routes associated with eastern site access point, for the Enabling Works

West Access Point

The micro logistics for the west access point is highlighted in Figure 12, consisting of:

- Manchester Ring Road A57 (M) (Mancunian Way)
- Travel South on A5067 Cavendish Street;
- Left turn into site access at junction with A5067 Cavendish Street and Higher Cambridge Street

Egress would be a back to the Mancunian way and onward travel from there.

To enable this site access, three-way traffic management currently in use could be altered to a four way traffic management system to minimise travel on local minor roads, and potential congestion at junctions.

This would support reducing the risk to pedestrians and vulnerable road users as well as make the site more efficient to ensure construction speed. This option also offers a shortened route which could, in turn, reduce associated construction traffic pollution

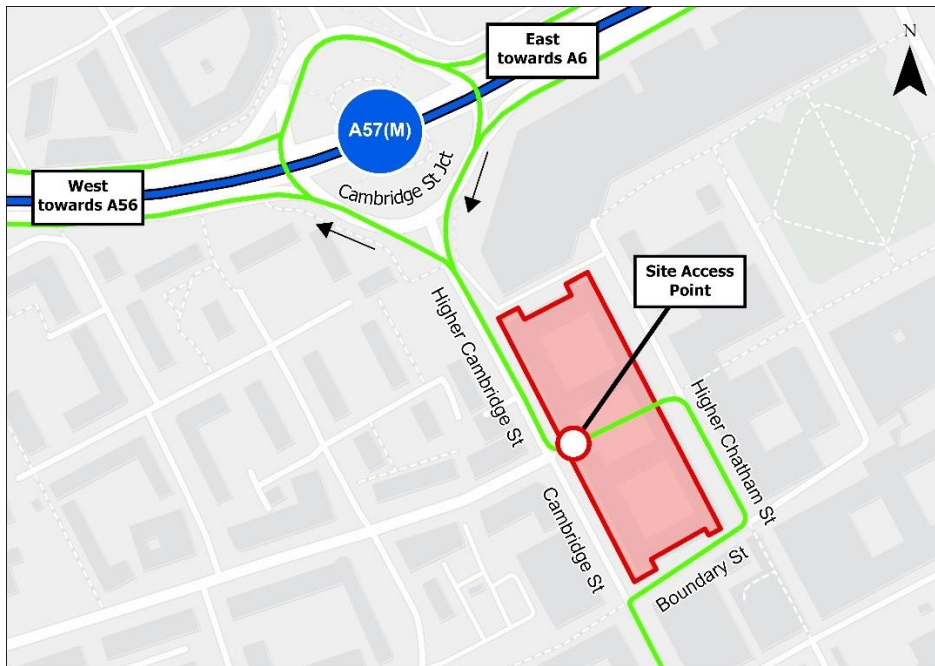


Figure 13: Micro site routes associated with west site access point, for the New Build Phase

10.2 Swept paths

To ensure that the vehicle routing can work, swept path analysis drawings will be provided in the contractors CMP to show access routes with the use of 16.5m articulated vehicles.

One of the key principles for larger vehicle access is that vehicles will enter and leave the site in a forward gear unless there is unmanageable access constraints.

Any reversing in from the highway would be agreed with the Council and an agreeable strategy put in place to minimise any risk to passersby.

10.3 Highway works in principle

As noted there may be works required to widen the site access to facilitate access for larger vehicles. Subject to further study and liaison with the Council, temporary works, such as traffic lights, may be required to ensure safe access along Cavendish Street, Higher Cambridge Road and Higher Chatham Street.

10.3.1 Road and lane closures

Full road closures on the local network are not considered necessary at this stage and will be reviewed throughout the works.

10.3.2 Clearance of off-site temporary works

Upon completion of works in or on third party areas the contractor will clear away and remove from the highway all plant, surplus materials, rubbish and temporary works and structures.

The site will be left clean and in a condition to the satisfaction of the Local Authority and other third parties with an implicit interest to the area.

Any potentially hazardous defects to the highway will be made good, prior to permanent reinstatement by the Council. It is accepted that the provisions of S278 Highways Act 1980, which may require landowners to make financial contributions towards the carrying out of highway works, may also be applicable. This would require agreement of the process and the need for prior inspection to be agreed before works commence.

11. Construction constraints

The buildings are to be constructed within a sensitive location of the city and the developer is aware that high levels of foot traffic may be generated periodically by:

- The local education facilities including Manchester Metropolitan University and other existing student accommodation, and local schools;
- Higher Chatham Street access (though not a constraint, this route is busy at times with student footfall and cycle traffic);
- Activity associated with the Students Union building situated adjacent to access roads on the Higher Chatham;
- Other general Manchester Metropolitan University activities (within the general area)

For further constraints, a full review has been carried out in direct relation to each phase in the following sections.

The key risk to be noted at this point however is related to all of the above is the undertaking of left turns on roads (moving with traffic) to reach the access to site, and due to the type of vehicle, oversailing of the kerbs must be avoided. The principal solution to assist with this may be the addition of pavement railings around the site on the corners of the pavement to hard mitigate this risk.

There are public utilities around the perimeter of the site that must be maintained some with easements. There is also the University fibre network that must be maintained and retained. There is a section that will need to be diverted between the two phases. There are also sewers that have easements; this means that cranes can't be located over them.

12. Potential impacts during Construction

A review has been undertaken of the potential source of adverse impacts, which can be associated with carrying out de-construction and construction works. The results of this are presented in the table below.

Industry accepted practical means of preventing, reducing and minimising noise generation will be adopted in agreement with the Council. Appendix D provides additional detail to the table and will be reviewed and updated throughout design development, and with the contractor to ensure that the best mitigations can be in place prior to commencement on site to look to exceed the standards set by the Council.

Issue	Potential Impacts	Mitigation
Noise	Increased road noise levels from vehicles. Increased noise levels from plant during foundation works, and general works (e.g. from the use of air compressors and diamond cutters).	Defined working hours, baffles to certain plant. Erection of acoustic barriers or temporary screens around the Site perimeter and near sensitive receptors to reduce airborne noise emissions Agreed vehicle routing. Phasing of high-noise activities to minimise their duration and ensure sensitive receptors are not exposed to prolonged periods of intrusive noise. Continuous noise monitoring at key sensitive receptor locations during high-impact activities, such as piling or demolition, to ensure compliance with agreed thresholds Beepers, radios etc. to be silenced. Engines turned off and all measures outlined in the considerate constructor's scheme. Implementation of a Community Liaison Strategy to maintain open communication with residents and stakeholders. This will include advance notifications of noisy activities, complaints management processes, and the establishment of a contact point for concerns
Vibration	Increased vibration levels from vehicles. Increased vibration levels from plant.	Defined working hours. Selection of appropriate plant and work procedures. Phased deliveries of components to minimise numbers of vehicles attending site, Vehicle routing. Continuous vibration monitoring at key sensitive receptor locations during high-impact activities, such as piling or demolition, to ensure compliance with agreed thresholds Engines to be switched off when vehicles are idle or on site Implementation of a Community Liaison Strategy to maintain open communication with residents and stakeholders. This will include advance notifications of noisy /high vibration activities, complaints

		management processes, and the establishment of a contact point for concerns.
Dust / Air Quality	Windblown dust from ground surfaces, stockpiles, vehicles, work faces and cutting and grinding of materials. Exhaust emissions from lorries and plant delivering and removing materials	The implementation of a Dust Management Plan (DMP), which will include dust management measures in line with appropriate guidance and implementation of trigger and action levels. Cover all open backed vehicles. Switch off vehicle engines when parked. Regular and controlled monitoring of air quality. Screening stockpiles of materials, deployment of windbreak netting and dampening exposed soils as appropriate and set out requirements for ongoing monitoring
Waste	Waste generation and its disposal.	The management of waste and potential pollutants used on Site will be controlled through the CEMP, which will detail the required mitigation measures. This will include best practice measures, including (where applicable): bunded storage; designated wheel washing areas; settling basins; covering stockpiles of materials to prevent dust and runoff; dampening exposed soils as appropriate; and set out requirements for ongoing monitoring and liaison (with the local community, the Environment Agency and MCC as appropriate); Risks to human health during construction are required to be managed under the Health and Safety at Work Act (1974)[xvii] and are typically mitigated by applying good working practices set out in a Code of Construction Practice (CoCP)/CEMP and Health and Safety Plan; and The Principal Contractor will ensure all necessary groundworks are implemented in order to provide suitable construction platform(s) (i.e. removal of any compressible/unstable ground encountered) during enabling works and/or construction, in line with relevant standards and building regulations including CIRIA Report C572: Treated ground engineering properties and performance[xviii]; British Research Establishment document FB75: Building on Fill – Geotechnical Aspects[xix] and British Standard 6031:2009: Code of Practice for Earthworks[xx]. This will include the consideration of changing climate on stability of the ground conditions, influencing foundation design as necessary.
Water	Increased sediment loadings to storm water system. Potentially contaminated storm-water runoff.	Temporary drainage system will be installed at the Site during construction to manage the surface water until the operational Drainage Strategy has been implemented. In addition, appropriate measures will be implemented as part of the CMP in line with relevant standards and guidance, including British Standard 8582:2013 – Code of practice for surface water management for development sites and CIRIA C532; Ensure site water is pumped into vessels for removal from site in a safe manner.

Lighting	Light pollution from site floodlights and lighting on machinery.	Lighting will be controlled through a series of best practice measures, in line with lighting industry standards and guidance including the CIE publication ‘Technical Report Document 129[vi] and BS EN 12464-2:2014[vii]; The following measures are proposed in order to control Light Spill, Glare and Sky Glow effects and thus manage light pollution: – Where practicable, construction lighting in the site will be designed to comply with Environmental Zone E4 in accordance with the ILP Guidance Note GN01[viii]; – Illuminance levels arising from temporary lighting to be designed in accordance with BS EN 12464-2: 2014[ix] and CIE 129[x]; – Placement of temporary lighting required to ensure safe working conditions and to maintain security, to have due regard of sensitive receptors (i.e. occupied residential premises); – Lighting to be directed so as avoid unnecessary Light Spill outside of construction areas and to ensure that the light distribution is toward the task area; – Lighting to be switched off when not required for safe working conditions and Site security; – Use of light shields/baffles to control upward light to within the maximum 15% set out in the ILP Guidance Note GN01[xi], where possible; – Lighting to be kept at 0° tilt to avoid Sky Glow, where practicable; and – Light dimming and automatic switch off would be used (where appropriate).
Traffic	Traffic congestion caused by site traffic. Temporary traffic restrictions/diversions may be required for tower crane erection and dismantle and mobile crane lifts. Increased vehicle movements mainly consisting of Heavy Goods Vehicles (HGVs). Nominal levels of transfer of mud and material from vehicles onto the public highway. Disruption from abnormal or hazardous loads. Exhaust emissions. Road Safety impacts.	Management and routing of construction related traffic to be directed as best possible away from sensitive receptors. Details of HGV booking/management systems. Delivery of large, oversized plant/machinery to the Site should take place outside of peak highway hours (where possible). Phased deliveries of construction components to minimise numbers of vehicles attending site, switch off vehicle engines when parked, minimise abnormal loads. Traffic management measures to mitigate the potential for accidents. Provision for suitable signage (where appropriate) for pedestrian and cyclists, to minimise disruption.
Storage of fuels and construction materials	Accidental spills, discharges to drains/storm-water systems. Contamination to ground.	All fuel tanks etc. to be banded, no discharge allowed into the sewerage collection system.
Pedestrian access	Restrictions on pedestrian access to walkways, footpaths and roads.	Provide alternative pedestrian routes with appropriate signage. To be agreed with the highway authority.

Hazardous and contaminated materials	Exposure of the workforce to deleterious / hazardous materials and contaminated land, mobilisation of any source contaminants and creation of pathway from source to groundwater receptor. Invasive/harmful species Asbestos	A specific working method statement for the removal of invasive species will be prepared and submitted to the Council for approval to prevent any spread of wall cotoneaster and specialist advice sought on the removal and destruction of this plant. Site investigation reports to indicate if any contaminated fill is present. COSHH assessments and careful implementation of associated working method statements to ensure that no hazardous materials find a path to groundwater source. The principal contractor (when appointed) will be required to identify appropriate safe working standards and methodologies taking account of Construction (Design and Management) Regulations 2015 and Control of Asbestos Regulations 2012, CIRIA C741 (2015) Environmental Good Practice on Site Guide and C670 (2008) Site Health Handbook,
Ground and earthworks	Ground becoming unstable Pollutants becoming air/waterborne. Material being tracked out of the construction site by poor vehicle management.	The management of waste and potential pollutants used on Site will be controlled through the CEMP, which will detail the required mitigation measures. This will include best practice measures, including (where applicable): bunded storage; designated wheel washing areas; settling basins; covering stockpiles of materials to prevent dust and runoff; dampening exposed soils as appropriate; and set out requirements for ongoing monitoring and liaison (with the local community, the Environment Agency and the Council as appropriate); Risks to human health during construction are required to be managed under the Health and Safety at Work Act (1974)^[xvii] and are typically mitigated by applying good working practices set out in a Code of Construction Practice (CoCP)/CMP and Health and Safety Plan; and The Principal Contractor will ensure all necessary groundworks are implemented in order to provide suitable construction platform(s) (i.e. removal of any compressible/unstable ground encountered) during enabling works and/or construction, in line with relevant standards and building regulations including CIRIA Report C572: Treated ground engineering properties and performance^[xviii]; British Research Establishment document FB75: Building on Fill – Geotechnical Aspects^[xix] and British Standard 6031:2009: Code of Practice for Earthworks^[xx]. This will include the consideration of changing climate on stability of the ground conditions, influencing foundation design as necessary.
Ecology	Impact on species	Inspections prior to demolition and/or as a result in any change in conditions or delay beyond 12 months and supervision by Ecological Clerk of Works as appropriate will be implemented.

Flood risk and Drainage	Water / mud run off into the drains.	Do not allow direct discharge of water into sewerage collection system, utilise interceptors where necessary. A Surface Water Management Plan (in accordance with best practice guidance such as The SuDS Manual (C753)^[xxi] and BS8582:2013 Code of practice for surface water management for development sites^[xxii]) will be required to be established on Site by the contractor to control and manage surface water run-off; and A temporary drainage strategy will be in place as part of the Contractors Site Management Plan, and the appropriate control measures will be addressed as part of the responsibilities under CDM 2015.
Energy usage	Indirect impacts associated with energy consumption such as CO2 emissions, depletion of natural resources, air pollution etc.	Implement site environmental plan.
Views	Views impacted and/ or impeded from construction equipment, particularly cranes.	Tower cranes to be positioned to have minimal impact upon adjacent views

Table 6: Typical site mitigation measures considered

Appendix A

Temporary works design management

A.1 Design requirements

The design and detailing for all temporary works and other required designs to facilitate the works will be carried out by qualified and experienced temporary works engineers.

All design management will be undertaken in accordance with BS5975 and established company procedures using QA systems SMS020 for Temporary Works.

To deliver the Construction works successfully with the highest level of safety considered, early site investigations are critical to verify the existing site conditions under the guidance of our in-house structural engineering department. Proceeding onsite findings, calculations, calculation checks and drawings will be prepared to substantiate the conclusions provided ahead of works commencing.

In line with our procedures, when designing due cognisance is given to:

- The proximity of third-party assets, public footways, and roads;
- The protection of adjacent third-party assets and structures;
- Obtaining agreements for any oversailing scaffold;
- Management of traffic on external and internal roads;
- Services and utilities that are to remain in place.
- The temporary works requirements for the site will include designs for –
- Construction of hoardings;
- Construction of protective decks / screens & debris fans etc.
- Construction scaffolding to the perimeter facades, to include fans and Monarflex type safety systems and materials;
- Pedestrian walkway scaffold if required both on and off site;
- Back-propping and or strengthening of the floors and walls facilitate the plant and machinery required for the upper-level Construction;
- Mobile crane out-rigger pads to facilitate lifting Construction plant and other materials and equipment;
- Suitable temporary welfare structure for the project.
- Manhole and access chamber's steel plate covers to enable the movement of heavier vehicles for the project.

The list is not exhaustive, but representative of the typical temporary works required for the site.

A.2 Design risk management

All designers' risks will be rated and recorded on a standard risk matrix proforma using a scale of impact and severity. Remaining risks that are not able to be eliminated through design shall be clearly marked on drawings.

Method statements with risk assessments and designs for the installation of the temporary works will be produced prior to the works commencing for comment and approval by the applicant's design team. To ensure only up to date design information is in use all issued design information will be controlled by that information being recorded in the site drawing register.

A.3 Design installation management

All design management will be undertaken in accordance with the contractors Safety Management System procedures and best practice for Temporary Works and all associated design documentation.

An appointed Temporary Works Coordinator (TWC) will have overall responsibility for managing the installation of temporary works and this will be managed on site by an appointed Temporary Works Supervisor (TWS). The role of the TWC and the TWS may be combined depending on works.

Works progress will be checked regularly by the structural engineer against the Temporary Works Register.

A.4 Exchange of design information

The names and contact details of all participants in the design process will be placed on a Temporary Works (TW) Directory so that all of the relevant parties are invited and included in all TW communications or at least receive the minutes of each meeting.

The exchange of design information will be accomplished by holding regular design information exchange and approval meetings at predetermined times with the applicant's design team and other interested parties such as the Temporary Works Coordinator and Temporary Works Supervisor and the Temporary Works Designer. The outcome of the meetings will be emailed to all relevant parties, through email or other electronic data transfer systems as agreed (such as 'DropBox', OneDrive' etc.).

Appendix B

Hoarding

B.1 Standard hoarding

- The site will be hoarded from the demolition stage and as such the below will follow the DEMP hoarding plan and the contractor will take on the existing hoarding.
- All work sites will be completely fenced to prevent public access with lockable gates. All hoarding will comply or better BS476 part 6 and 7 with class 0 certification for fire rating.
- The standard hoarding will be 2.44m minimum height, plywood faced, timber framed boundary hoarding, of a surface density of not less than 7kg/m² for normal security and noise limitation requirements.
- Nonstandard height hoarding may be required for the surrounding of stockpiles and or high-level Construction works that are not easily scaffolded and or dust is a high risk. Where hoarding is to raise above the 2.44m height prior agreement will be sought with the Council to ensure compliance with guidance on over height hoarding is maintained.
- Through discussion with the Council, the contractor may at the behest of the authority move to recycled (and recyclable) PVC hoarding in a 2.44m height, fire rated to BS476 part 6 and 7 with class 0 certification.
- Where local terrain or structures would allow the fence to be scaled by potential intruders, the height will be increased reasonably to protect the site.
- All hoarding will be designed to minimise opportunities for anti-social behaviour and rough sleeping.
- The Contractor will ensure that all hoardings are painted in a plain uniform manner but will have contrasting markings at projecting angles (to assist the visually impaired) to the satisfaction of the Council. Where the Contractor / Developer requires specially designed exterior decorations they will request the council's approval and, where necessary seek consent under the Control of Advertisements Regulations.
- Signage will be displayed on the hoarding for health and safety purposes, Considerate Contractors, and general site signage. All signage will be agreed with the Council in advance of installation.
- The Developer will design a commercial brand signage for use on the hoarding and agree the signage with the Council prior to instigating its installation.
- All solid-state hoarding and site fencing and barriers will be maintained using controlled wet methods for cleansing and avoiding water runoff from the activity.

B.2 Acoustic hoarding

Through the construction it is accepted that there may be high levels of noisy works. As such the use of acoustic hoarding to the boundaries that are most affected through the transmission of noise will be considered.

B.3 Hoarding gates

Gates in the fencing or hoarding will be, as far as is practicable, be positioned and constructed to minimise the noise transmitted to nearby noise-sensitive buildings. This will take account of noise emerging directly from the construction site direct and noise from plant entering or leaving the site.

- All gates will be designed such that they open inwards onto the site or slide within the site lines.
- All access gates are to be located at least 10 m from receptors where possible.

- All gates will be of a suitable standard and size for vehicles accessing and egressing the site.

B.4 Hoarding lighting

All hoarding will be reviewed for lighting requirements at onset and throughout the seasons with the Council (at their behest) and where and when it is reasonably deemed that additional lighting is required, this will be provided by the contractor.

At a minimum, all hoarding on all roadside areas will be lit with an unobtrusive red/ orange marker light.



Figure 14: Typical red-light hoarding light

Generally lighting to site boundaries will be provided as standard. Illumination will be designed to meet the minimum sufficient to ensure the safety of the passing public, including those with disabilities and security, when on the nearby footpaths, roads, and amenity areas.

Appendix C

On site practice

C.1 The Considerate Constructors Scheme

The contractor will be chosen based on their ability to undertake the works in a collaborative manner, both with the Client and their design team, and the Council.

The contractor will uphold all best practices and demonstrate this by enrolment within the Considerate Constructors Scheme. This will ensure that they are up held to a third party standards supervision to meet the goals set by the CCS:

Care about ***Appearance***

- Respect the ***Community***
- Protect the ***Environment***
- Secure Everyone's ***Safety***
- Value the ***Workforce***



C.2 Health and Safety

The following table contains the address of the pertinent H&S bodies including the local hospital are shown in Table 7.

Body	Address	Postcode	Telephone No. & Web Page
HSE	Bootle Headquarters Redgrave Court, Merton Road, Bootle, Merseyside,	L20 7HS	0300 003 1747 https://www.hse.gov.uk/contact/maps/northwest.htm
Local Hospital A&E	Manchester Royal Infirmary Oxford Road Manchester	M13 9WL	0161 276 4147

Table 7: Local health facilities

All persons employed on or visiting site will be subject to a health and safety induction so that they are aware of the hazards present on the site and the restrictions imposed under the Principal Contractor's health and safety management procedures.

All visitors will be accompanied around the site by a representative of the employer (generally the contractor) unless previously agreed otherwise. All health and safety inductions will be recorded on a site-specific register that will be available for the Council to review by appointment.

C.2.1 Health and Safety: General

All site work must be carried out in accordance with the provisions of the Health and Safety at Work Act 1974 to the satisfaction of the HSE or its local officer.

The Principal Contractor will ensure that mechanisms are in place to ensure that the employers, employees and the self-employed, are not exposed to risks to their health and safety. And that every employee while at work will take reasonable care of the health and safety of themselves and of other persons, and to cooperate with their employer or any other person about any duty or other statutory requirement.

The Principal Contractor will ensure that all statutory regulations made under the 1974 Act e.g. provision of personal protective equipment, ladders, lighting, signs, electrical equipment, manual handling are complied with during all construction works.

The developer's nominated representative will ensure that appropriate industry standards for health and safety are applied, and that continuous improvement in safety performance is sought, in accordance with the principles of HSG65 "Successful health and safety management", published by the Health & Safety Executive.

The Principal Contractor will abide with the below Summary of Duties Under Construction (Design Management Regulations 2015 (CDM 2015)

Principal contractor – A contractor appointed by the client to coordinate the construction phase of a project where it involves one or, more than one contractor.

Plan, manage, monitor, and coordinate health and safety in the construction phase of a project. This includes:

- liaising with the client and principal designer;
- preparing the construction phase plan; and
- organising cooperation between contractors and coordinating their work.

Make sure:

- suitable site inductions are provided;
- reasonable steps are taken to prevent unauthorised access;
- workers are consulted and engaged in securing their health and safety; and
- welfare facilities are provided.

Contractors – Those who carry out, plan, manage and monitor construction work under their control, so it is carried out without risks to health and safety.

For projects involving more than one contractor, coordinate their activities with others in the project team – in particular, comply with directions given to them by the principal designer or principal contractor.

For single contractor projects, prepare a construction phase plan

Workers – Those working for or under the control of contractors on a construction site.

Workers must:

- be consulted about matters which affect their health, safety and welfare
- take care of their own health and safety, and of others who might be affected by their actions
- report anything, they see which is likely to endanger either their own or others' health and safety
- cooperate with their employer, fellow workers, contractors, and other duty-holders

Note this section is directly related to the HSE web site, source:

<http://www.hse.gov.uk/cdm/2015/summary.htm>

C.2.2 Health and safety management system

The contractor will produce a health and safety management system in accordance with the principles of the Occupational Health and Safety Advisory Service's 18001 "Occupational health and safety management systems". This system will include documentation defining the nominated undertaker's internal arrangements for managing health and safety on the project and the specific requirements for health and safety applying to all designers, contractors and sub-contractors appointed to work on the project.

The arrangements for health and safety will include a system for management of risks. This will include all hazards being identified, and suitable and sufficient assessments made of the risk, followed by adoption of appropriate measures to eliminate the risk or to control the risk, so far as is reasonably practicable.

Where risks to the public are involved, these will be reduced to as low as reasonably practicable and will be managed in accordance with the guidance in HSG151 "Protecting the Public" published by the Health and Safety Executive.

The developer's nominated representative will continuously monitor the work of contractors and sub-contractors and will conduct a programme of audits and inspections to ensure compliance with the requirements of this Code and other project health and safety requirements.

C.2.3 Safety objectives for the project

This project involves Construction & construction works adjacent to a number of public interfaces and 3rd party assets, and it is the aim of the project team to eliminate or minimise risk and to prevent ill health and injury to all the site employees, subcontractors, site visitors, site neighbours and the general public.

To meet these objectives the contractors will work diligently towards:

- Maintain zero notifiable accidents and incidents.
- Maintain and improve lost time accident record.

- Move away from safety legislation governance to a safety behavioural culture promoted via communication, coordination, and training.
- To comply with the procedures detailed within this document to achieve and maintain a safe working environment for everyone on site.
- Evaluate and measure performance against this plan through regular safety and environmental inspections and audits.
- To eliminate or minimise risk and control the residual risks.
- Prevent ill health to all those on site through health surveillance.
- Promote proactive safety management and reduce reliance on reactive safety management.

The Principal Contractor will regard the above as principal objectives and these objectives can only be achieved by the cooperation of the company employees, subcontractors, the Client and his representatives. Cooperation shall be at all levels within these organisations through the structures established under the Construction (Design and Management) Regulations. The Principal Contractor will collaborate with all parties to provide the organisation, advice and resources to meet this commitment so far as is reasonably practicable.

C.2.4 Principles of prevention:

The general principles of prevention as per the Management of Health and Safety at Work Regulations 1999 shall be adopted in addition to the above that will be to:

- avoid risks;
- evaluate the risks which cannot be avoided;
- combat the risks at source;
- adapt the work to the individual especially regarding the design of workplaces, the choice of work equipment and the choice
- of working and production methods, with a view, in particular, to alleviating monotonous work, work at a predetermined work rate and to reducing their effect on health;
- adapt to technical progress;
- develop a coherent overall prevention policy which covers technology, organisation of work, working conditions, social
- relationships and the influence of factors relating to the working environment;
- give collective protective measures priority over individual protective measures; and
- give appropriate instructions to employees.

C.2.5 Management procedures

The Safety Advisor will visit site on a weekly basis, or more frequently if deemed necessary, to carry out site inspections and produce the safety audit.

In addition to the safety audits, the following techniques will be used for monitoring compliance with:

- Legal requirements – Inspection and reporting arrangements as laid down in Principal Contractors Site Management Systems (SMS).
- The health and safety requirements contained within this plan.
- The health and safety site rules.

- Regular safety advisors' inspection / directors' safety tours / quarterly safety reviews / sub-contractors meeting.
- Special requirements for public interfaces.
- Principal Contractor's Engineering Safety Management System.

C.2.6 Work-place inspections

Workplace inspections will be carried out by the Principal Contractor's supervisor in control of the specific workplace, or subcontractor supervisor. Inspections will be recorded on the standard SMS Inspection Form provided within the Safety Management System and filed in the site office.

Where subcontractors are required to carry out such inspections, the responsible Principal Contractor's manager will have a system in place to ensure the adequacy of the inspection process involving random inspection checks.

Inspections of temporary works will be carried out and recorded within a temporary works register that will be provided for review by the Council at their behest in a timely manner:

- Welfare Facilities
- Site Perimeter/Public interface areas for trip hazards, rubbish and clear routes
- Site hoardings and lighting
- Scaffolding and alarm systems
- UKPN Substation protection
- Exclusion and Restriction zones
- Site temporary services i.e. water and electricity and any relevant meter readings
- Floor loadings and back-propping
- Temporary works structural retention systems

This list is not exhaustive

The Temporary Works Co-ordinator (TWC) will maintain a list of personnel involved in the Temporary Works Process within the Temporary Works Register.

The Principal Contractor's supervisor will record, and file inspections carried out by the Temporary Works Team.

C.2.7 Compliance monitoring

Compliance monitoring will be carried out to verify that agreed procedures and methods are being implemented and are producing the required results.

- Compliance monitoring will be carried out by:
- The Principal Contractor's Project Manager
- The Principal Contractor's manager/supervisor controlling the area in which work takes place.
- Visiting personnel, including the allocated Safety Manager, Operations Manager and Directors.

Observations and actions arising from monitoring will be tabled at the weekly planning meetings, minutes written and filed, and actions allocated to the responsible persons.

C.2.8 Ensuring safe places and systems of work

The CMP will ensure that the project achieves and maintains Safe Places of Work and Safe Systems of Work through following the below guidance:

- 45001: 2018 Occupational Health & Safety Management Standard
- ISO 14001:2015 Environmental Management Standard
- ISO 9001:20015 Quality Assurance Management Standard.

This CMP details the perceived safety risks and relevant control measures particular to this project and is also intended to meet or exceed the requirements of the CDM Regulations 2015, local authority standards and Applicants expectations.

C.2.9 Site rules

The site rules may vary from contractor to contractor on site, which is reasonable, however a base line set of rules will be agreed as below:

- All personnel shall undergo safety induction training;
- Appropriate Personal Protection Equipment shall be worn at all times;
- Every accident and near miss event must be reported to the site manager immediately;
- Any person found to be interfering with or misusing fixtures, fittings or equipment provided in the interest of health, safety and welfare shall be excluded from site;
- Smoking will only be permitted in designated areas;
- Visitors must report to Security and will be allowed entry at site manager's entrance. Whilst on site visitors must wear the appropriate PPE;
- Vehicle drivers must wear the appropriate PPE (when outside vehicle). Vehicles are not to be reversed on site unless under the control of an authorised site operative;
- Vehicle drivers must remain with their vehicle during loading / unloading;
- Safety signs and notices must be followed;
- The public must be protected from hazards associated with this work;
- No alcohol or illegal drugs are to be brought onto the site;
- No person who is under the influence of alcohol or drugs is allowed on site;
- Offensive or inappropriate language and provocative gestures are not allowed;
- No gambling, threatening or violent behaviour;
- No personnel shall indulge in fighting, horseplay or practical jokes within the site or its perimeter;
- Toilets and washrooms must be kept in a clean and hygienic state after use;
- Refuse must not be allowed to accumulate; work areas are to be kept tidy;
- Combustible materials are to be removed on a regular basis and disposed of in an appropriate manner;
- Transistor radios or personal audio devices are not to be used;
- Permission must be obtained from the Site Manager prior to any work on site on site;
- All site personnel, for their own safety and for the safety of others, are required to fully comply with their employer's statement of safe working method;
- Site fire and emergency alarms, equipment and instructions are designed to protect life.

C.2.10 Mobile phone usage

Mobile phone usage is generally banned on site, except for designated areas that will be protected to allow safe usage.

C.2.11 Smoking and vaping

Smoking and vaping are generally banned on site, except for designated areas that will be separate and protected to allow the relevant activities. The smoking area will have a fire point located adjacent to the area, and suitable cigarette bins for stubs and discarded cigarettes.

C.2.12 On site fuel management

All fuel will be stored in bunded tanks away from any surface water drains or gullies. Emergency spill kits will also be available on site. The Council will be notified of any dangerous materials that may be necessary on site to complete the works, and correct signage will be employed on all storage areas.

C.2.13 Flammable or explosive materials

Flammable and explosive materials will be managed off site generally and only brought to site on an as required basis. Where storage is necessary all materials will be held in suitable containers and stored in designated areas with the correct identifying markings to ensure the safety of all.

C.3 Site security and emergency planning

C.3.1 Security general

There will be security in operation from the outset of the project on the site. Initially the site will be manned during the working hours and extend either side of the working day by approximately 1 hour (aligned with the fire inspection policy).

It is anticipated that during the construction works the site will need to be provided with 24-hour, 7 days a week security by either a mix of static or mobile security personnel and CCTV backup covering all aspects of the site hoarding will be required.

Where required, site security cameras, will be situated in locations which will not cause nuisance or offence to local residents and will be placed locations that are acceptable to the applicant, Police and the Council.

Hoardings and temporary structures will be designed to minimise opportunities for rough sleeping and the behaviours associated with this, as well as anti-social behaviour. Where such issues do arise, the contractor aligned with the Local Authority guidance will review and revise the hoarding alignment in a timely manner.

C.3.2 Rough sleepers

Where rough sleepers are encountered, the developer's, nominated representative will refer the rough sleeper(s) to the Council's Street Homeless Prevention Team.

The contractor will ensure that the nominated representative is suitably trained (in line with guidance) to work with the Council and charities to enhance reaction to, what is, the issues faced both locally by the rough sleepers, but also by the individuals who are often in a poor physical and mental health.

C.3.3 Emergency planning and response

The contractor's nominated representative will ensure that emergency procedures are developed, implemented, and updated where necessary. The emergency procedure will include emergency pollution control measures that will consider current relevant Environment Agency and government guidance relating to pollution. The emergency procedures will be produced in consultation with the emergency services.

The emergency procedure will contain emergency phone numbers and the method of notifying the Council and other statutory authorities. Copies of the procedures will be issued to the Local Authority, Hampshire & Isle of Wight Fire and Rescue Service, the police, the ambulance services, and other relevant authorities etc. Emergency telephone numbers for developer's/contractor's key personnel will also be included.

C.3.4 Emergency access

The contractor will ensure that the requirements of the Greater Manchester Fire and Rescue Service will be followed for the provision of site access.

Where appropriate, the accesses to the site will be designed to the requirements of the "London Fire Brigade Note 'Access for Fire Appliances'" which addresses the road widths required for fire apparatus as a minimum, and will seek further guidance from the Greater Manchester Fire and Rescue Service. The accesses may vary over time, though at no time will the access be created to a lower standard. All access points will be suitable for ambulances and police vehicles.

C.3.5 Fire prevention and control

The contractor will ensure that all work areas and associated accommodation or welfare facilities will have in place appropriate plans and management controls to prevent fires. The site fire plans will be prepared and will have due regard to the following documents:

- Fire Safety in Construction (HSG 168);
- Fire Prevention on Construction Sites (CFPA Europe).

C.3.6 Fire precautions

All fire precautions will be taken, and fire checks made at the end of each working day before personnel leave the site. Fire points will be set up within easy reach of the work areas, storage points and hot works locations. Throughout the works, “hot works permits” will be required as standard for all hot works. The process will be managed by the contractor.

C.3.7 Fire alarm

Each building will be temporarily “fire alarmed” back to separate security monitoring areas on site. The contractors on all phases will co-operate to agree fire communication, evacuation strategies, drills for both themselves, and relevant third parties.

C.3.8 Fire assembly points

Due to the no. of phases and the changing anatomy of the site, a fire assembly strategy will be drawn up to reflect the special dynamics of the site and may need to look to offsite locating.

If the area allocated assembly is off site, the contractor(s) will initiate discussions prior to the phase of works commencing with the University and the Local Authority after consultation with the Greater Manchester Fire and Rescue Service.

C.4 General site working hours

C.4.1 General site working hours

The general site working hours will be in line with the requirements of the Control of Pollution Act 1974, Section 61, and will obtain a consent (which will include noise limits and vibration limits where relevant for noisy out of hours work).

Noisy works associated with a development (e.g. construction, piling and earthworks) will generally be limited to weekdays from 0800 to 1800 hours, unless otherwise agreed.

The developer will ensure that the contractor adheres to these working hours unless otherwise agreed with the Council. As far as reasonably practicable and where feasible, operations anticipated to cause disturbance would be limited to these hours, except in the case of an emergency.

The developer or contractor will apply for consents from the Council under the Control of Pollution Act 1974, Section 61, and will obtain a consent (which will include noise limits and vibration limits where relevant) and noisy out of hours work. The applications for consent will include details of the work to be undertaken, including proposed hours of work.

All construction related traffic will abide by the agreed hours of working for each site unless otherwise agreed with the Council.

C.4.2 Hours of work

Monday to Friday 08:00 to 18:00

Saturday 08:00 to 13:00

Sunday and Bank Holidays (normally) No working

C.4.3 Out of hour works

Out of hours work applications for will include details of the work to be undertaken, including proposed hours of work.

Where working is required outside of the above hours due to unforeseen circumstances or planned work that can only occur outside of the core hours e.g. road closure requirements, mobile crane lifts, then these will be undertaken following communication with the Council and residents /businesses advising the reasons for the work, likely impact, if any, and estimated time to start and complete the work.

C.4.4 Site accommodations

The contractor will endeavour to maintain all accommodation within the curtilage of the site. Where there is a need to explore external accommodation either over the highway, pavement or public open space, the developer will consult fully with the Council to ensure that suitable solutions are formulated and acceptable to all parties. The developer will ensure that all appropriate licences are in place prior to installation of external accommodation.

The principal location for site accommodation will be on the public footpath along Cambridge Street. The area will be utilised for all “main” welfare facilities, however mobile units will be used throughout the site to assist in minimising distances from the working face to the toilets and potentially some welfare. This will be reviewed through the design development prior to construction.

The waste management location will be transient through the works, commencing in the unrequired area of the site through the initial construction in the west, and then gradually moved to location as required to act as ‘localised’ collection. Compacting will not be considered on the site as the use of consolidation should minimise general waste.

It is also the intent of the developer, that all welfare will move into the buildings ground floor areas post weather tightening, to allow for the excess of workers on site through the MEP (Mechanical, Electrical and Plumbing stage).

The contractor will ensure that full topographic survey is undertaken and skips, or heavy equipment will be situated away from vaults and basements, or that suitable supportive works are undertaken to accept the proposed load.

The strategy outlined will provide, in line with the general guidelines and best practice:

- Contractor management offices
- Meeting rooms
- Client and design team office space, if required.
- Welfare facilities including canteen and kitchen, changing and drying rooms, toilets and showers.
- Induction room.
- Security office
- Sub-contractor offices (these may be located elsewhere within the building during construction)

Amendments to the strategy will be ongoing through the Construction where the contractor feels that there is a safer location for the contractor to situate their welfare zones. Any material changes to the contractor’s strategy will be agreed with the Council in advance of the change occurring.

C.4.5 Living accommodation

No living accommodation for contractors or sub-contractors will be permitted on site during the works, and any overnight occupation of the site will be through the use of security personnel only. This may mean that lighting and movement within the site may be seen 24 hours a day for the duration of the project.

C.5 Site lighting

Site lighting will be positioned and directed so as not to unnecessarily intrude on adjacent buildings, wildlife sites and other land uses, or to cause distraction or confusion to traffic passing on adjoining public and private highways.

The design will ensure that any artificial light emitted from premises will not be prejudicial to health or be a nuisance as required by the Environmental Protection Act 1990.

The lighting will be designed to comply with the provisions of BS5489, Code of Practice for the Design of Road Lighting, and Guidance Notes for the Reduction of Light Pollution, GN01, 2005, or later revisions published by the Institute of Lighting Engineers.

The contractor will discuss any lighting issues or concerns with the Council's, including where a hoarding, scaffold or temporary structure is to be installed upon the highway in close proximity to a lighting column or illuminated street signage (less than 2m).

C.6 Good housekeeping

The contractor will ensure that all those working on site follow a 'good housekeeping' policy at all times. This will include, but not necessarily be limited to the following:

- Ensuring considerate site behaviour of all those working on a site;
- Ensuring that all operatives are in a medically fit state to conduct their works, and maintain an auditable alcohol and drugs policy;
- Prohibiting open fires;
- Ensuring that appropriate provisions for dust control and road cleanliness are implemented;
- Removal of rubbish at frequent intervals;
- Maintaining a clean and tidy site;
- Frequent inspection, repair, and maintenance of site hoardings;
- Removal of illegal all flyposting;
- Removal of graffiti to the site;
- Maintenance of site facilities and cabin areas;
- Removal of food waste from site;
- Frequent cleansing of wheel washing facilities; and
- Prevention of vermin and other infestations (and prompt and effective action to deal with any that do arise);
- Undertaking all loading and unloading of vehicles off the highway wherever this is practicable and;
- Ensuring that any tunnels created beneath gantries are always well lit.

C.7 Waste and site cleanliness

The following points on waste strategy will become the basis for the site waste management plan and are included prior to the formation of the plan that to ensure intent is understood.

C.7.1 Waste general principals

The contractor will be encouraged to propose solutions that reduce waste e.g. to have materials delivered with reduced packaging and/or delivery companies take their packaging away with them.

Due to the risk of dust and debris being drawn on to the public highway, wheel wash facilities will be included at all exits from the site. All wagons will be netted and screened to avoid building detritus falling from the wagon on to the highway.

The contractor will be required to provide a Waste Management Control Plan for the works and submit to all relevant parties for comment and information.

The efficient clearance of site waste will be key to a successful construction project and to portray the image to the surrounding neighbours and passing public of a well-controlled site especially in this high-profile location.

The use of skips will be the primary way of removing waste from the site.

Regularly rotating skips to ensure no overspill will be important. The site has limited areas to consistently provide a consistent skip location, however the creation of a planned skip strategy is yet to be formulated and will be covered in the temporary works strategy.

C.7.2 Food waste

All site food waste and consumables will be deposited in closed bins and removed from site at regular intervals of no more than a week to minimise rodent and insect infestation on site. Generally, food is prohibited on site except within designated areas.

C.7.3 Battery waste

All batteries will be gathered to a central area and removed from site for disposal / recycling at a suitable facility. Batteries will not be mixed with general waste. In accordance with UK Government guidance all batteries will be separated into appropriate type and disposed of in accordance with the suitable Approved Battery Treatment Operator (ABTO):

- Automotive (ignition battery)
- Industrial (specifically designed power bank over 4kg)
- Portable (Traditional sealed power pack under 4kg / domestic)

C.7.4 Contaminated waste

Waste is generally considered hazardous if it (or the material or substances it contains) are harmful to humans or the environment. Examples of hazardous waste include:

- Asbestos.
- Chemicals, such as brake fluid or print toner.
- Batteries.
- Solvents.
- Pesticides.

- Oils (except edible ones), such as car oil.
- Equipment containing ozone depleting substances, like fridges.
- Hazardous waste containers.

Contaminated waste will be removed by specialist contractors and disposed of off-site by them to a licensed location in suitably designed and managed vehicles.

In accordance with UK Environment Agency Guidance note (4 April 2014), hazardous waste must be treated separately from all other waste including other contaminated materials.

C.7.5 Construction waste

Construction arisings will generally be through piling and the removal of spoil and concrete pile cropping.

The general construction waste through construction will generally be a mixture of building materials and packaging.

Waste will not be centralised but collected at source (piling area) and this will minimise double handling and also free up areas post piling for works to be undertaken. All waste will be lifted to a muck away wagon (4 axel) for removal within about 72 hours of excavation to both maintain a clean and safe site, but also to allow all vehicles to traverse away from site “full” to minimise part loads and unnecessary journeys.

In line with this policy a DuMP (dust management plan) will be instigated to ensure that localised damping is available. This may require a bowser and generator, and a plan will be developed in line with the programme detailing and geographic and seasonal needs of the site.

Masonry and concrete type spoil will be locally stockpiled on site temporarily (say 72 hours) in line with the policy on arisings to minimise part load removal, and or un-necessary journeys. The spoil will be drawn from site in muck away type vehicles (3-4 axel).

All stockpiles will be managed in line with the Dust Management Plan and removed from site on where not required as quickly as is practicable to mitigate the risk of dust transmission (this should equate to a 72-hour maximum delay from instigation to removal of any one load).

C.7.6 Prohibition of incineration

The developer will prohibit the use of bonfires or other methods of incineration of waste on site.

C.7.7 Stockpiles

Stockpiles will be utilised as a last resort, to manage either waste or imported construction materials such as piling mat fill (often called 6F2).

Stockpiles will be maintained only as necessary and will not be encouraged for durations exceeding 1 week due to the locality of the site and risk of dust transmission. The policy will also maintain clear space on site without areas being which encourages a better working environment.

The developer will:

- Suitably hoard the stockpiles and agree hoarding height in advance with the Council as appropriate;
- Suitably cover the stockpiles with appropriate coverings;
- Use hessian, mulches or tackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable;
- Only remove the cover in small areas during work and not all at once;
- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable;

- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.

C.7.8 Dust management

The contractor will develop and implement a Dust Management Plan (DuMP), which will include measures to control other emissions, approved by the Council. The level of detail will depend on the risk and should include as a minimum the highly recommended measures in the appended DuMP.

The desirable measures should be included as appropriate for the site. In Manchester additional measures may be required to ensure compliance with the City's environmental policies and these will be enacted throughout the project to maintain compliance.

The DuMP will identify the requirement for the monitoring of dust deposition, dust flux, real-time PM₁₀ continuous monitoring and/or visual inspections.

C.7.9 Site monitoring (in relation to dust)

The site monitoring will be undertaken on a daily on-site and off-site inspection basis, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars, and windowsills within 100m of site boundary, with cleaning to be provided if necessary.

Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an "inspection log" available to the local authority when asked.

Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

Agree dust deposition, dust flux, or real-time PM₁₀ continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences.

Further guidance is provided by IAQM on monitoring during Construction and construction and the Dust Management Plan and monitoring methodology will be developed in line with the development design.

C.7.10 General basics of site and surrounding area dust and air management

The contractor will record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken in an agreed format within a formal complaints and issues log for provision to the Local Authority in a timely basis, and on demand within 48 hours of instigation of request. Any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation will be recorded in the logbook.

The site manager will hold regular liaison meetings with other high-risk construction sites within local area if relevant to the site boundary or access points, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.

C.7.11 Rodents and vermin

The contractor will ensure that the risk of infestation by pests or vermin is minimised. Adequate arrangements for disposing of food waste or other material attractive to pests will be implemented.

If infestation occurs the contractor will ensure that such action to deal with it as required by the City Council's Environmental Health Officer is taken.

To minimise the potential of infestation, the site post demolition will be assessed for the presence of rodents and vermin prior to Construction. Should any rodent or vermin issues be present, an external contractor will be appointed to eradicate these.

The contractor will ensure that periodic reviews of the site are undertaken by a specialist contractor to ensure that rodent infestations are minimised and can be removed quickly to avoid the associated health issues affection the workforce and the neighbouring properties and occupants.

To minimise the adverse impacts from pests and rodents the following control measures will be implemented on site in the following order:

- All drainage systems and access points will be kept secure to prevent rodent access;
- All generated rubbish particularly food waste will be cleared as it is generated and placed into secure containers and removed off site for disposal on a continuous basis;
- A high level of good housekeeping will be maintained on site and in all facilities;
- Site rules will be implemented to prevent the feeding of such pests as pigeons and seagulls;
- All food stuffs brought on site will be within storage containers; and
- Where all other control measures have been actioned then pest control management will be implemented on site by a reputable pest control company.

C.7.12 Pigeon waste

As the site will be levelled pigeon waste within enclosed environments will not be considered until the buildings are erected, and where a delay to the completion of a section is required. In this instance a mitigation plan to stop avian ingress into the new buildings will be implemented with netting or formal barrier.

C.7.13 Road cleansing

A water assisted road-sweeping machine will be periodically employed as required to either brush clean the roads around the site or in periods of dry weather wet down the highway to control the dust. The frequency and nature will be agreed in advance with the Council and if necessary, third-party stakeholders. The timing of the cleansing will be managed to avoid peak times except by exception, such as a spill or on request of the Council.

Dry sweeping will be avoided in sensitive and or large areas where dust and particulate pollution could cause an issue both on and off site.

Road cleansing may also require water-assisted cleansing plant on the access and local roads, to remove, as necessary, any material tracked out of the site. Where this is required, the developer will ensure that surplus water is collected and contained for removal from site by appropriate measures.

C.7.14 Wheel wash management

The site will have designated hard standing loading areas which will also serve as wheel wash areas for vehicles leaving the site.

All access and egress points will be monitored and cleaned as required to prevent site materials tracking on to the road.

All vehicles will be inspected before leaving the site for cleanliness.

Where possible the contractor will ensure that there is an adequate area of hard surfaced road between the wheel wash facility and the site exit.

The contractor may implement a wheel washing system with rumble grids to dislodge accumulated dust and mud prior to leaving the site where it is reasonably practicable.

Prior to instigation of the cleansing policy, the contractor will agree the standards and methodologies with the Council prior to commencement of vehicle movements.

All ground or surface water run-off will be strictly controlled in line with environmental legislation and best practice to prevent pollution of drains and watercourses.

C.8 Third Party Liaison

C.8.1 Public information

The site hoarding will display up to date information on the construction schedule (as a minimum these will include start and estimated time periods such as “summer and year”). The signage will also display telephone contacts for within and out of hours usage for the developers nominated representative (s) and other key personnel for reporting of issues and incidents.

The contractor will also affix a sign board to hold all necessary certification, statutory notices, safety information and HSE details.

C.8.2 Community Liaison Group (CLG)

To assist in communication, and a more formal approach, the contractor’s liaison officer (this is appointed on site and may be the Site Assistant Manager) will set up a Community Liaison Group (CLG) with a set agenda to work with the local community to be agreed (See Appendix B for further information).

C.8.3 Construction forum

To assist in communication, and a more formal approach, the contractor’s liaison officer will set up a Construction Forum Group (CFG) with a set agenda to work with the adjacent and nearby construction sites that are affected or affect the project works.

Key Items on the agenda will include:

- Environmental issues:
 - Dust;
 - Noise; and
 - Vibration.
- Transport Logistics:
 - Outsized deliveries;
 - Crane deliveries;
 - Cycle safety initiatives;
 - Vehicle delivery no’s actual and envisaged; and
 - Site worker transport preferences.
- Security:
 - Fire management / site evacuation policy;
 - Fire escape areas; and
 - High-Cost items / security risks as appropriate.

C.9 Mitigation Measures

Industry accepted practical means of preventing, reducing and minimising noise generation will be adopted in agreement with the Council. It will include measures in line with all relevant government and industry standards, codes of practice and best practice measures, inclusive of but not limited to:

- The Construction (Design and Management) Regulations 2015. Statutory Instruments 2015 No. 51);
- Control of Pollution Act 1974;
- CIRIA C741 Environmental Good Practice on Site Guide (2015);
- CIRIA C670 Site Health Handbook (2008);
- B.S. 5228 1:2009 'Code of practice for noise and vibration control on construction and open sites';
- ILP Guidance Note 01/21 for the reduction of obtrusive light 2021;
- British Standard 8582:2013 – Code of practice for surface water management for development sites⁵¹;
- CIRIA C532;
- IAQM Guidance on the Assessment of Dust from Demolition and Construction (2016); and
- Guidance for Pollution Prevention (GPPs).

Appropriate procedures need to be followed in order to mitigate noise, vibration and air pollution (e.g. through dust and fume generation) impacts.

C.9.1 General mitigations

No works will be undertaken outside the specified working hours; except in cases of emergency, where safety is an issue, or where conditions of dispensation apply.

C.9.2 Plant mitigations

The contractor will comply with the requirements of the COPA 1974, with reference to Part III of the Environmental Protection Act 1990, The Control of Noise at Work Regulations 2005 and the Health and Safety at Work Act 1974;

Ensure all vehicles switch off engines when stationary - no idling vehicles.

Avoid the use of diesel or petrol-powered generators and use mains electricity or battery powered equipment where practicable.

Ensure all on-road vehicles comply with the requirements of the Manchester Clean Air Zone;

All plant and equipment to be used for the works will be properly maintained, silenced where appropriate to prevent excessive noise and switched off when not in use and where practical;

Hydraulic machinery and plant will be used in preference to percussive techniques where practical;

Plant will be certified to meet relevant current legislation and Noise and Vibration Control on Construction and Open Sites (BS 5228). All subcontractors will be made familiar with current noise legislation and the guidance in BS 5228 (Parts 1 and 2), and this C MP which will form a pre-requisite of their appointment.

C.9.3 Noise mitigations

- Noise levels will need to be controlled by the constant monitoring in line with Council guidelines and best practice;

- Agreed trigger action levels for noise will be agreed with the Council;
- Noisy planet will be maintained away from the site perimeter as far as is practical;
- Noise complaints, or exceeding of agreed levels will be reported to the contractor and immediately investigated;
- To avoid site contamination of surrounding areas, site runoff of water or mud should be avoided by use of both physical and mechanical measures including bunds and pumps;
- Loading and unloading of vehicles, dismantling of equipment such as scaffolding or moving equipment or materials around the site will be conducted in such a manner as to minimise noise generation

C.9.4 Dust (and other particulate) mitigations

Specific dust measures should be considered as:

- Dust levels be controlled by the constant monitoring of air quality levels;
- Positioning of monitoring equipment will be agreed with the Local Authority prior to installation;
- All vehicles entering and leaving sites will be covered to prevent escape of materials during transport;
- Agreed trigger levels for dust and other particulates will be agreed with the Council in advance of construction;
- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible;
- The contractor will erect and maintain throughout the construction period temporary hoarding around all working areas to assist in the screening of noise and dust generation from low-level sources;
- Vehicles transporting materials capable of generating dust to and from site will be suitably sheeted on each journey to prevent the release of materials and particulate matter;
- All solid-state hoarding and site fencing and barriers will be maintained using controlled wet methods for cleansing and avoiding water runoff from the activity;
- Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period;
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site;
- Where materials are being re-used on-site, they should be covered and protected according to best practice in a manner agreed previously with the Council;
- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- The contractor will avoid scabbling (roughening of concrete surfaces) if possible, to minimise dust
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.

- Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

[xvii] Health and Safety at Work etc. Act 1974

[xviii] Item Detail

[xix] British Research Establishment (2015). FB75: Building on Fill - Geotechnical Aspects. 3rd Edition.

[xx] British Standard (2009). 6031:2009: Code of Practice for Earthworks.

[xxi] CIRIA (2015). The SuDS Manual (C753).

[xxii] BSI (2013). BS8582:2013 Code of practice for surface water management for development sites.
Available at: BS 8582:2013 | 30 Nov 2013 | BSI Knowledge (bsigroup.com)