

Morgan Sindall

Islington Wharf Phase 4

Construction Management Plan

Rev 3 – 16 Dec 2020 – Further update by Savills
Rev 2 – 16 Dec 2020 – Updated with Savills Comments
Rev 1 – 11 Dec 2020 – Updated with Muse Comments

Construction Management Plan

Introduction

This construction management plan has been produced to satisfy conditions of the planning approval issued from Manchester City Council following the consultation period as part of the planning approval process in relation to development at Land Bound by Old Mill Street & Great Ancoats Street, Manchester, M4 6EE.

The proposed development is for a 16-storey residential tower, with a commercial unit at ground floor and external parking provision.

The planning condition is as follows:

6. Prior to the commencement of the development, a detailed construction management plan outlining working practices during construction shall be submitted for approval in writing by the City Council, as local planning authority, which for the avoidance of doubt should include:

- Display of an emergency contact number;
- Details of Wheel Washing;
- Dust Management Plan;
- Compound locations where relevant;
- Location, removal and recycling of waste;
- Routing strategy, vehicular access point, vehicular activity associated with construction and swept path analysis; and,
- Parking of construction vehicles and staff.
- A highway dilapidation survey including photographs and commentary on the condition of carriageway/footways on construction vehicle routes surrounding the site.

The development shall be carried out in accordance with the approved construction management plan.

Reason - To safeguard the amenities of nearby residents and businesses, highway safety and air quality, pursuant to policies SP1, EN16, EN19 and DM1 of the Manchester Core Strategy (July 2012).

Construction Management Plan

Scope of Works

For the purpose of this site management plan, focus will be on the key impacts that the construction will have on the surrounding environment, in terms of the adjacent populated areas.

With this in mind, particular attention will be paid to the site set up, traffic management, logistical issues and environmental control measures to demonstrate our approach throughout the construction period. Detailed methodologies for the substructure and drainage, and the structural frame will be included to further demonstrate the control of heavy vehicle access and major lifting operations. Detailed methodologies for the internal trades will therefore be produced at a later stage as the works progress.

The scope of works to be covered by this site management plan are;

- 1.) Site set up
 - a. Site Boundary, Compound & Temporary Accommodation
 - b. Removal of Contaminated Soil & Asbestos Removal
- 2.) Site Logistics & Traffic Management
 - a. Traffic Management & Logistics Plan
- 3.) Environmental Control Measures
 - a. Initial Project Assessment
 - b. Water Pollution Prevention Control
 - c. Construction Phase Drainage Solutions
 - d. Control of debris on the highway
 - e. Control of Dust & Other Air Quality Impacts
 - f. Control of Noise
 - g. Complaints Procedure
- 4.) Waste Control Measures
 - a. SWMP
 - b. Contaminated Land
- 5.) Construction
 - a. Programme
 - b. Substructure & Drainage
 - c. Superstructure (including Lifting Plan)

Construction Management Plan

1.0 Site Set-up

The proposed Islington Wharf 4 scheme is a standalone scheme which requires consideration of a full site set-up system including all welfare requirements to suit current regulations. Whilst this is key to ensuring the wellbeing of the operatives carrying out the works is precedent during all of our activities, Morgan Sindall fully recognise the impact a site set-up can adversely affect the local population. With this in mind we look to introduce several access & egress routes with adequate manoeuvring areas within the project boundary. This is to prevent disruption along adjoining highways and to prevent congestion along an already heavily trafficked route on Great Ancoats Street.

With this in mind we believe it is essential that a coordinated and considered approach to site establishment involving all key stakeholders is adopted and all decisions relating to establishment must also be developed with the needs of the existing surrounding area use firmly in mind.

Making the right decisions at this stage will inform the entire construction period and will have a direct impact on traffic movements including driver environment, car parking arrangements, and pedestrian routes for both construction and the local population alike.

1a). Site Boundary, Compound & Temporary Accommodation

The site boundaries are dictated by the extent of works covered under the planning application. These will be established prior to any main works commencing on site and will provide both protection to the public and provide security to the site operatives & equipment. Figure 1 below highlights the site compound area highlighted in red, and the site area in yellow. Primary vehicular interfaces are down Old Mill Street and Lockgate Mews which are key for our construction management plan. Figure 2 provides more detail showing proposed site boundary including access & egress points.

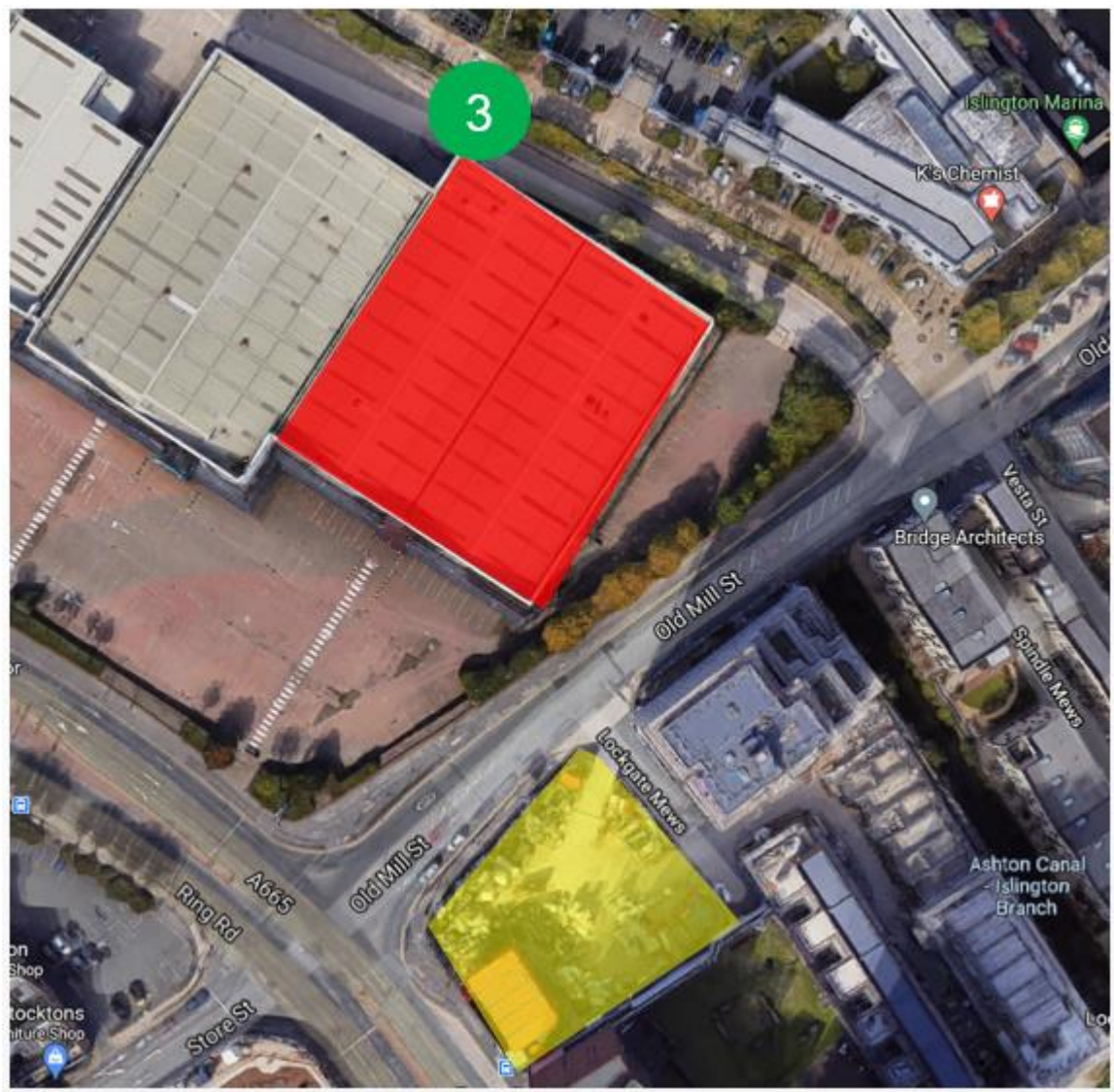


Figure 1: Site area & compound locations

Construction Management Plan

In order to safely and efficiently service the site, the following areas will be required as part of the site establishment.

Vehicle access & egress

will be required for deliveries, lay down of materials and concrete deliveries. A two way access/egress could be introduced within the wider boundary to allow for safe vehicle movement & unloading.

A secondary access route

has been highlighted for access to a proposed 'pit lane' drop off area.

Perimeter access zone

of approximately 4m safe working space for façade construction using scaffolding or mast climbers will be required to the building.

Material storage & laydown

are highlighted for the building.

Tower crane / hoist locations

the use of a tower crane will be required and material hoist for vertical material movement.

Site Accommodation

Due to a restricted external area, a remote site accommodation is proposed.



Figure 2: Site Area Proposed Access

As the site compound and welfare area is separate from the main build area, we have shown 2no access points.

- Access point 1 – in figure 2: this is a secondary access and egress route for smaller vehicles accessing the site area off Lockgate Mews. This will be kept clear at all times.
- Access point 2 – in figure 2: This is the primary access and egress for larger HGV Deliveries. An access gate will be used to marshal traffic into & out from this area formed as a 'Pit Lane' on Old Mills St.
- Access point 3 - in figure 1: This is the primary access and egress route into the site compound & welfare area. This will be utilised by operatives and staff for gaining access to parking areas and site cabins that will be located here.

One major benefit of setting the site up in this manner is that all standing traffic is removed from the public highway and we will utilise the remote site compound for parking throughout the works. Site signage will advise delivery vehicles of no waiting on the public highways. We will monitor and police this to ensure minimum impact to local highway users during working hours.

Construction Management Plan



Figure 3: Hoarding Lines

As can be seen in figure 3 we are proposing a mix of water filled barriers with solid Heras fencing along with timber hoarding to the extents of the site. The 2.4m timber hoarding will be presented as per figure 4 below.



Figure 4: 2.4m hoarding example

Site access gates will be constructed using a steel mesh material to decrease the issues relating to wind loading and increase visibility when entering and leaving site. It is important that the demarcation between the site and non-controlled areas is easily identified to allow secure areas for both operatives and pedestrians.

Construction Management Plan

1b). Enabling Works

Within this package the following elements will be covered as shown within figure 6:

- Connection to services – connections to electrical, water and sewer services will be made for both the site areas and the office and welfare facilities to safely allow the main build works to commence.
- Site set-up – in order to ensure suitable segregation of the construction site and office facilities, the temporary hoardings will be erected to the perimeter of both areas shown on fig 1.
- We note the possible presence of asbestos materials within the site area, as well as contaminated ground. The removal of these areas will be carried out initially within the groundworks.
- Site Strip – Once contaminated materials are removed; the excavation works to underside of piling mat will be progressed.

Construction Management Plan

2.0 Site Logistics & Traffic Management

Morgan Sindall's history of working within Manchester area has allowed us to gain an understanding of the logistical controls and sympathetic traffic management solutions that need to be adopted to ensure our works have no adverse effect on the daily operations of the local population.

2a). Traffic Management & Logistics Plan

The construction traffic management and logistics layout developed has taken into account the local traffic flows and consideration of our impact on the surrounding area. In order to ensure minimal impact is realised from our works.

The route which will be enforced for majority of major deliveries is as follows:

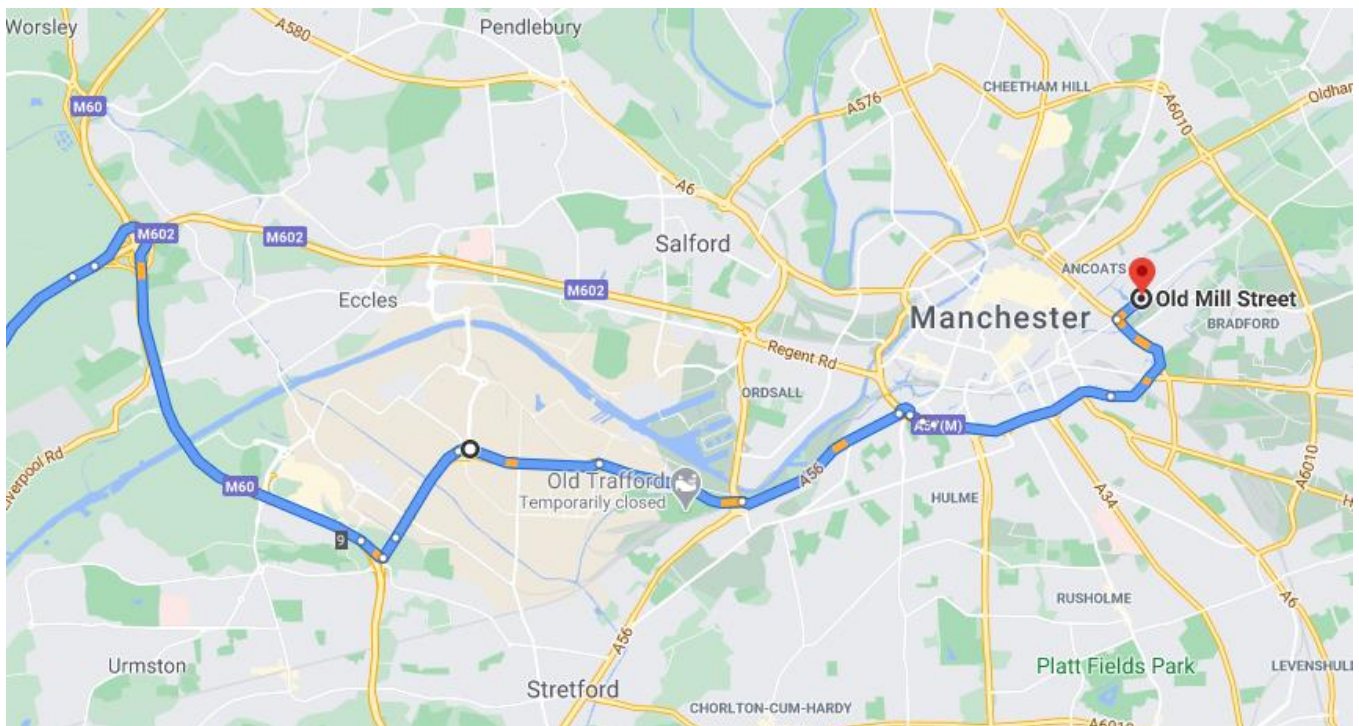


Figure 7: Traffic route from Sale/Liverpool & Chester

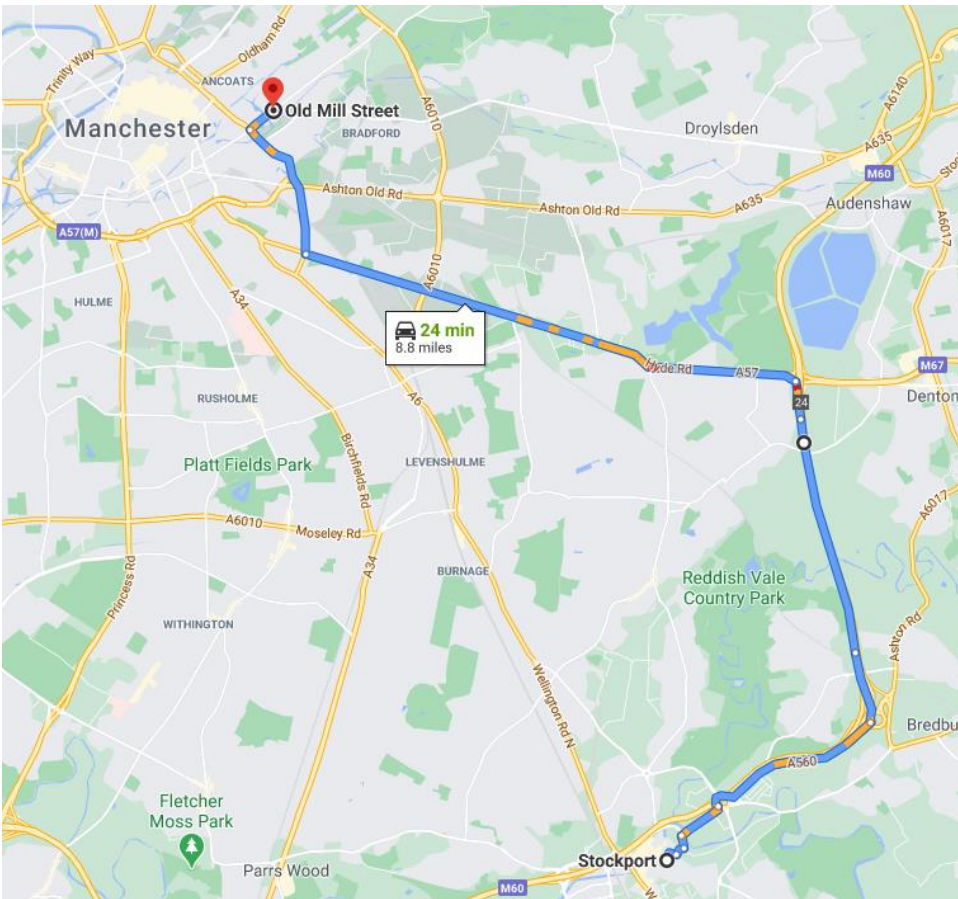


Figure 8: Traffic route from Stockport & Hyde

Construction Management Plan

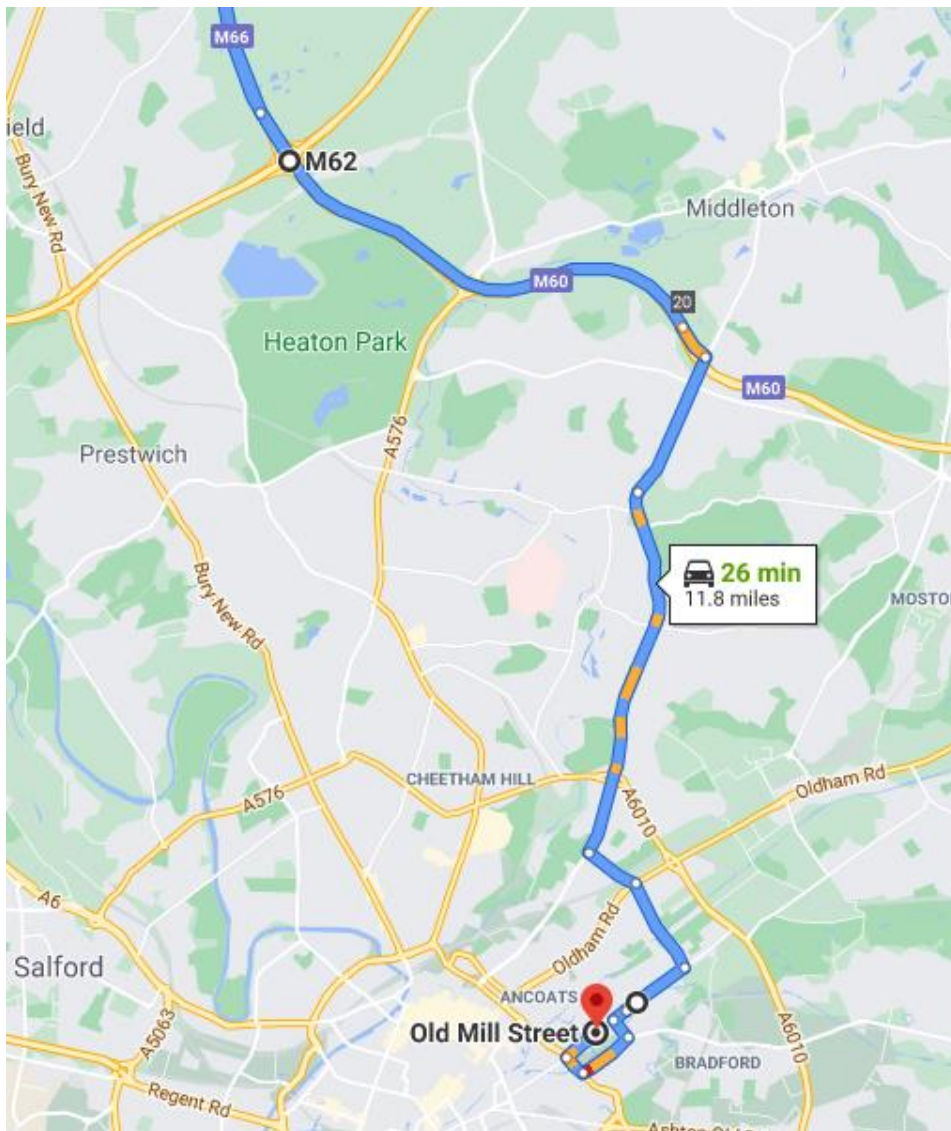


Figure 9: Traffic route from M62 East

The project benefits from several main transport links including train station & bus routes. A list and map of these car parks will be provided to each of the sub-contractors/site operatives prior to them commencing on site.

Train station location

- Piccadilly Train station – 0.5 miles

Tram station location

- New Islington – 0.3 miles

Bus from Central Manchester: Bus routes (Taken from Manchester Piccadilly Bus Station)

- Bus 216, 230, 231 – Great Ancoats St - Every 7 minutes

Construction Management Plan

In line with Manchester City Council prior consent on noise from construction sites guidance, site working hours of 07:30 to 18:00 Mon-Fri, 08:30 to 14:00 Sat, no working Sunday will be followed. Works outside these hours to be agreed with MCC.

- Private vehicles – as some private vehicles will be travelling from outside of the area, we are proposing to utilise the red site compound shown in fig 1 as a car park/ laydown area. This will allow the operatives to park their vehicles off the main highways to reduce disruption to the highway / main bus routes and traffic zones.
- Delivery vehicles – deliveries will be controlled via a logistics manager and must be booked into site a minimum of 24 hours ahead of delivery, all delivery vehicles will be given a timeslot for their delivery to ensure that the site can safely unload the vehicle and also allow control of delivery times to be restricted to outside peak flows, we are also aware that some deliveries will be outside of the immediate area, given this we expect these to be leaving distributors and warehouses at 07:00 arriving at site after 09:00, due to congestion. For deliveries which have arrived before 08:00, site opening hours, they will be held onsite within the pit lane access gates. All sub-contractors will be informed of these restrictions ahead of their contract placement.

As per previous figure 1 & 2 the site compound and welfare area are separate from the main build area, we have shown 1 no access point into the welfare zone & 2 no onto the site area.

- Access point 3 (fig 1) This is the primary access and egress route into the compound area. This will be utilised by operatives and staff for gaining access to parking areas and site cabins. HGV's will utilise this entrance for deliveries to support the compound area (cabin deliveries etc) and for laydown of materials for storage.
- Access point 1 (fig 2) This is the primary access and egress route into the main build area, this will be for the use of smaller rigid vehicles, this is due to the use of Lockgate Mews being required as being accessible at all times for local residents.
- Access point 2 (fig 2) This being a specific facility for larger HGV deliveries via a pit lane taken from one of the filter lanes on Old Mill St. This area will be managed by our Logistics Manager and all deliveries being marshalled into and out from this secure gated area.

One major benefit of setting the site up in this manner is that any standing traffic is removed from the public highway, all gates and access points will be clearly signed. There will also be site signage advising delivery vehicles of no waiting on the public highway, we will monitor and police this to ensure minimum impact to local highway users during working hours.

Bearing all these procedures in mind, it is still vitally important that all significant plant movements, lifting operations and material deliveries are planned, communicated and executed in a controlled and logistical method.

Construction Management Plan

A key aspect of our approach is to have a Manager who will be responsible for delivering the site wide logistics plan. This manager will undertake full responsibility for logistics management during all works and ensure all traffic movement is correctly co-ordinated. The traffic management information will be passed to all subcontractors during the procurement stage to ensure all parties associated with the scheme will be fully aware of delivery routes and restrictions.

Construction Management Plan

3.0 Environmental Considerations

The Morgan Sindall Group Environmental Process defines in detail how environmental management is applied throughout the group and will be the key guidance tool used to inform the Environmental Management Plan which will be in place on the training centre.

Each of these projects will have a dedicated Environmental Coordinator, appointed by the Project Leader, to identify and implement the appropriate control measures required to ensure our construction operations have no adverse effect on the surrounding environment. The Morgan Sindall Environmental Coordinator will have the overriding responsibility for all environmental impacts arising from all work faces.

3a). Initial Project Assessment

The initial project assessment has been carried out by the appointed Environmental Coordinator and will both identify and classify the key environmental impacts that have the potential to have an adverse effect on the surrounding environment. This assessment will then inform a detailed Aspects & Impacts Control Register for the project. This register will provide a detailed overview of all environmental impacts, to include but not limited to noise, vibration, dust, ecology (flora & fauna), energy usage, fumes, leisure & amenity, lighting, security, spillage control, traffic, waste reduction & control, oil storage and protection of watercourses.

Such documents will be produced to form part of the Construction Phase Health & Safety Plan and will be held and controlled by the Project Leader. This document will remain 'live' throughout the construction phase and will be amended in line with developing site conditions.

However, for the purpose of this document, the following key considerations, along with their proposed mitigation measures, have been identified;

3b). Water Pollution Prevention Control

It is vital that we manage water properly on site. If water courses are polluted or unacceptable wastes are disposed of into the sewerage system, the local environment and associated ecology could be heavily affected. We do not need to be working close to a river or ditch to cause pollution – any pollutants getting into the surface water drains or ground water can end up in a watercourse which may feed a water supply. The main causes of water pollution include silty water, spillages of oil, fuels or chemicals due to poor storage or handling of materials, and washout from concrete operations.

The following will be put in place to manage water and pollution waste on site:

- Oils and chemicals will be stored in impermeable bunded areas away from drains and watercourses, and from areas of vehicular movement to prevent accidental damage.
- Site operatives and managers are to be made aware of any potentially damaging activities / materials and any sensitive locations such as rivers and drains.
- Drip trays are to be used under all static plant and during refuelling from mobile plant.
- Chemicals are to be stored according to COSHH requirements and stored oil is to be in a bunded area with 110% capacity.
- All necessary legal consents are to be place for any discharge to a watercourse, ditch or drain.
- All incidents not matter how small are to be reported to the project manager.

Construction Management Plan

- All site personal are to keep their eyes open for any signs of pollution.
- All site personnel are to be made aware of the nearest pollution spill kit and how to use it.
-

All existing surface water drain gullies are to be cleaned and protected with single way membrane before with this effective management of water and pollutants the site should be protected from an environmental incident. If a spill occurs the following will be followed:

- any works commence
- Wear the appropriate PPE
- Follow the procedure
 1. STOP -Identify the source and stem the flow
 2. CONTAIN -Prevent spreading
 3. NOTIFY -Report to site management

3c). Construction Phase Drainage Solutions

The project is being carried out on a Brownfield site,

The permanent drainage solution for the scheme is through the use of a Sustainable Drainage Systems (SuDS) in the form of underground attenuation tanks. The installation of the perimeter drainage, including attenuation tank, is scheduled to be complete within the first 20 weeks of our start on site date, providing us with the permanent drainage solution from an early stage.

However, a number of temporary measures will be installed to ensure the surrounding drainage gullies are not adversely affected during the drainage installation and ongoing construction activities. This will include using self-contained units while completing the earthworks and concrete frame construction.

Dedicated fuel storage and re-fuelling points will be established on site. Fuels will be stored in bunded tanks and any refuelling to plant and machinery will be done so in a bunded area with the appropriate spill kit emergency provisions in place. Maintenance of such areas is crucial to their success, so a designated Manager will have the responsibility for checking that bunded areas don't become full or un-sound in any way. Any pumping of spilled fuel will be done so by an approved hazardous waste haulier.

3d). Control of debris on the highway

Given that Old Mill St & its junction with Great Ancoats St being a main thoroughfare into & out of Manchester, consideration has been given to the control of debris on the highway. The current site is a combination of soft & hardstanding build up however as we are proposing to reduce the current levels with loading taking place within the site boundary, this will reduce the possibility of tracked debris to the public highway. We are aiming to create our main haul road into the site area to allow for vehicle access.

It is envisaged that because of this plant washing requirements on site will be minimal. However there will be an allowance for a road sweeper to be in attendance during the excavation if required in order to keep the surrounding roads free from potential construction debris.

Construction Management Plan

3e). Control of dust & other air quality impacts

The control of dust from construction sites is key to ensure a good working & surrounding environment is sustained during our operations. Dust and fine particle generation from activities can be substantially reduced through carefully selected mitigation techniques and effective management. Once particles are airborne, it is very difficult to prevent them from dispersing into the surrounding area. The most effective technique is to control dust at source and prevent it from becoming airborne, since suppression is virtually impossible once it has become airborne.

All asbestos survey works are to be undertaken in line with current HSE & Government legislation, specifically,

- The control of Asbestos Regulations (2012)
- Analytical works are to be undertaken UKAS and ISO /IEC 17025 Accredited testing houses
- Survey works are to be undertaken by HSG264 certified practices

This is to reduce the risk of asbestos becoming airborne.

We will also be installing a 2.4m high timber hoarding system to reduce the risk of dust getting onto the main highways.

Dust from Roads

As the new road installation into the site demise is favoured for control of dust, we would propose this is formed early in the works, being a management action during the construction works. This will include control of surface dust via a road sweeper and a weekly inspection and maintenance regime if required on the hard standings within the site compound area.

Dust from Excavations

The management of dust from excavations & earthworks will be key to ensuring a safe and habitual environment for workers & local population. We propose to introduce industry standard damping down techniques during dry periods where there is the risk of dust particles from our works becoming airborne.

The whole site area will be inspected daily by Morgan Sindall management and if seen that the ground conditions could allow for dust particles to become airborne, a spray damping down will be utilised to ensure the site is controlled. If damping down is required a road sweeper will be in attendance to ensure any mud generated from the damping down does not adversely impact on local highways.

Dust from cutting

Wherever possible all elements requiring on site cutting will first be examined to see if off-site cutting can be utilised prior to delivery. This is also a fundamental H&S challenge as cuts from abrasive wheels on site can be extremely damaging. Given this we would propose to challenge all elements of the build to ensure what can be carried out off site is carried out off site.

Construction Management Plan

Where elements like reinforcement bars are to be cut on site, suppression techniques utilised for this material will be employed. Where external paving slabs are to be cut on site, suppression techniques such as a diamond bladed floor saw with water feed will be used. If any other element requires cutting on site, a specific risk assessment will be carried out and will ensure any dust bags required will be utilised.

Exhaust Emissions

Engine exhaust emissions, especially from those operating on diesel fuel, can be a significant source of fine particle generation from construction sites. As the particles are small, they can easily be transported to beyond the site boundary and affect the local environmental air quality and health.

In order to control any excess emissions from the exhaust systems on construction site plant, a stringent check on all plant will be carried out when they are delivered to site. Management will work to a low emission policy that all plant should be regularly serviced prior to being brought to site (evidence will be required to allow delivery), wherever possible plant will have modern exhaust & baffle systems installed, plant will not be left idling.

3f). Control of noise

Morgan Sindall follow the Considerate Constructors scheme as part of every project we undertake, as part of this scheme the impact to neighbours is key to ensure the site runs correctly and has a low impact during our time on site.

To reduce our impact, control of noise is a top element that requires careful consideration and planning for all aspects of works. We introduce a planning risk assessment which is held within our health & safety plan and covers all aspects of noise from excavation works through to final cleaning of the building in preparation for handover.

We have listed below the key items we will introduce for control of noise:

- Installation of solid timber hoarding
- Construction work shall in general will be Monday to Friday 7.30am–6pm, Saturday 8.30am–2pm (No working allowed on Bank Holidays and Sundays). Works outside of these hours are to be approved in writing by the Local Planning Authority.
- During excavation works all the equipment utilised will be suppressed wherever possible to reduce noise pollution.
- We will adhere to the planning application approved times for working unless authorised in writing from the local authority in advance of any workings outside of these times.
- We will strive to erect the envelope system as soon as possible so all noise generating activities in the finishes are enclosed within our building and not impacting on the neighbours
- All operatives will be inducted to the site procedures which includes being a good neighbour and not creating undue noise either during works or after.
- We will be introducing a newsletter for the local residents to advise them of works coming up

Construction Management Plan

- Any cutting zones which require specialist ear defenders for the works will be carefully planned as part of the H&S plan and we will ensure this is not adjacent to any properties close to the site.

Civils & Utilities Case Study

Providing Real Benefits

RVT are proud to have played their part in keeping noise and disturbance to an absolute minimum whilst a 'world-class railway' was being built in one of the busiest cities in the world. Our approach meant contractors were able to keep to schedule and budget with noise solutions that were effective, practical and affordable whilst sales of famous designer brands were not affected by works going on outside their flagship stores in Bond Street.



NOISE CONTROL SOLUTIONS SOUNDEX™

SOUNDEX™ noise barriers completely enclosed the works and reduced the impact noise levels had on shoppers.



NOISE CONTROL SOLUTIONS SOUNDEX™

Bespoke SOUNDEX Mobile enclosures could be moved along with the noise source, or be used as a work station for cutting paving slabs etc. The roof helped to reduce the impact noise had on those located on 2nd floor properties and above.



NOISE MONITORING SERVICE

Constant monitoring was carried out at key locations and submitted to the council to prove their works were not exceeding the limits imposed on them.

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Figure 10: Vibration & Noise Monitoring plan

3g). Complaints Procedure

Morgan Sindall take complaints extremely seriously, not only do we want to address the problem urgently in order to ensure the person / persons effected are satisfied we also want to learn from any possible mistakes so that the site and company can utilise the knowledge going forward.

In order to define further our procedure upon handling complaints we need to separate the complaint received route as below:

Contact received via site.

We are fully expecting the majority of people wishing to contact the site management team to contact the site directly. In order to ensure that there are no barriers in being able to contact the site management we will be setting up multiple routes to the site as follows:

- Telephone number for project manager on Considerate Contractors posters around site
- Telephone number for project manager on monthly newsletter

Construction Management Plan

- Dedicated email address on monthly newsletter
- Open door policy that any person could enter site reception to make official contact.

Once the initial contact has been made by the public the matter will be presented to the senior project manager who will personally deal with the issue at hand. This will follow a structured approach to control of complaints as per the below flow chart in figure 11:

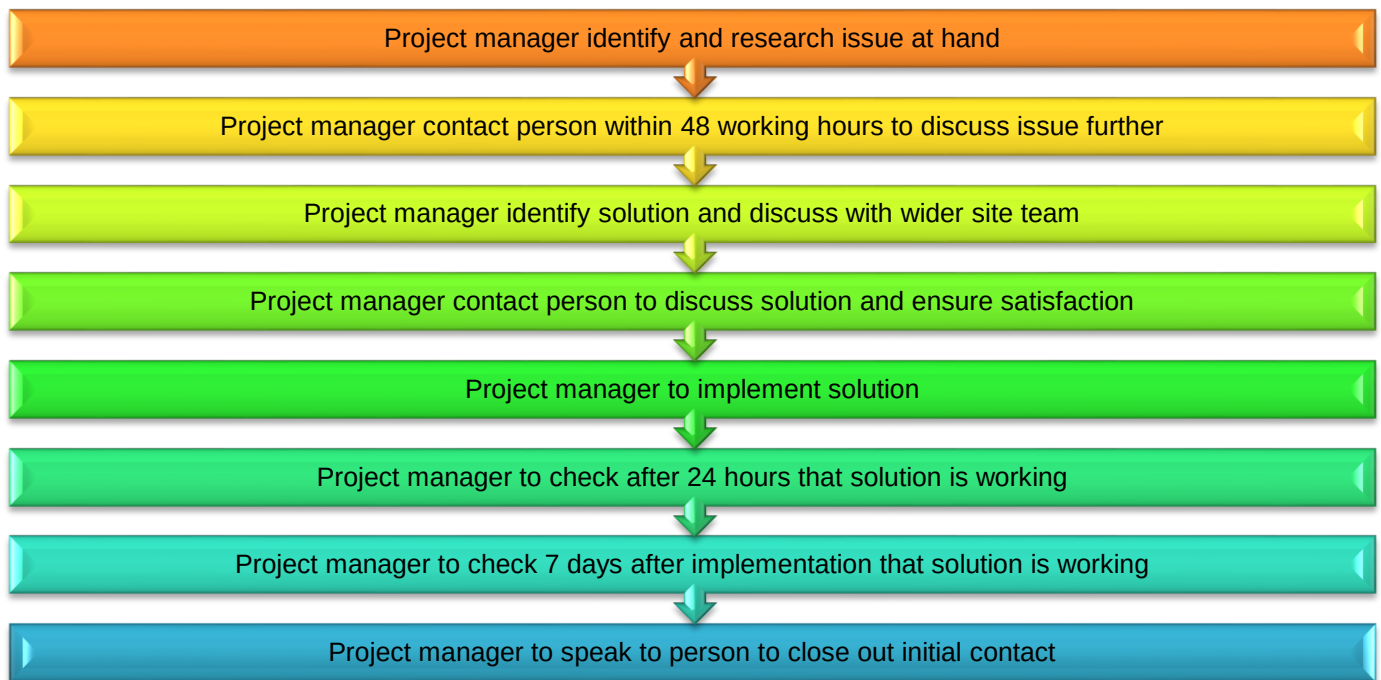


Figure 11: Complaints Procedure flowchart

Contact received via head office.

If a complaint regarding either site activities or transport activities surrounding the site is received via head office or through Morgan Sindall communications portal this will then be passed directly to the Senior Project Manager on site to directly deal with.

The purpose of dealing with complaints directly at site level is to ensure that the complaint is given the full consideration of the team directly involved and ensure that any solutions requiring implementation are carried out to the satisfaction of the person making contact. The process for contacts via head offices will be the same as the site contact.

Once the process map has been followed and the solution implemented, the resulting information will then be passed to head office for wider group information. This will ensure that any lessons learnt from the process can be passed onto other sites within the business to ensure knowledge is shared.

Construction Management Plan

4.0 Waste Control Measures

4a). SWMP

Morgan Sindall adhere in all instances with the Site Waste Management Plans Regulations 2008. All sites carrying the Morgan Sindall Logo will have a fully up to date and “live” site waste management plan available.

The site will be registered as a hazardous waste producer with the Environment Agency. This allows us to remove hazardous waste such as COSHH off site within suitable containment for correct disposal with our waste removal company. We will employ a singular waste removal company upon the scheme, so we have continuity of waste transfer notes and correct tracking abilities for all waste which has been removed from the site.

All the waste management licences for our waste removal company will be collected prior to any orders being placed with them, this will be held within the site waste management file along with every waste transfer note that the site produces.

4b). Contamination

Failure to identify, manage or dispose of contaminated land correctly may lead to cross contamination of clean materials, costly clean-up costs and potentially prosecution. Therefore, it is important to understand the risks of contaminated material being encountered on a project and to ensure appropriate mitigation is put in place at the earliest opportunity.

This project will have a detailed quantitative risk assessment (DQRA) carried out, an associated remediation strategy and a validation report at the conclusion of the work; all of which will be issued as part of the Health & Safety file for the project.

Site Location	Old Mill St, Manchester
Development Proposals	It is understood that the current proposed redevelopment relates to the construction of a multi-story residential building with retail unit at ground floor.
Site History	A review of historical maps indicates that as early as 1851 the site was completely covered by buildings and associated yards, with a road, Back Mill Street, running northwest-southeast close to the approximate centre of the site. Land uses to the west of Back Mill Street included a public house, a timber yard, a smithy and a number of houses. The area to the east of Back Mill Street was occupied by a building and yard associated with Moore's cotton mill, which extended off-site towards the north and east, with houses in the southeast of the site.

Construction Management Plan

Ground Conditions	The natural geology of the site consists of Glacial Till overlying strata of the Chester Formation, predominantly sandstones with subordinate siltstones and mudstones. A variable thickness of Made Ground will underlie the entire site associated with the site's historical use. There are no faults shown to run beneath, or within influencing distance of, the site.
Site Preparation	The site is Brownfield with a range of contaminants present. Excavated Made Ground in the vicinity of BH02, BH04 and TP02 are likely to be classed as hazardous waste (should it require off-site disposal). The remainder of the Made Ground is likely to be classed as non-hazardous. Excavated natural soils to be disposed of as waste, are likely to be classed as non-hazardous. The mitigation measures proposed to remove unacceptable risks include: • hotspot delineation through trial pitting and additional sampling to determine a volume of material impacted by PAH contamination; • Possible hotspot removal and replacement (to be verified after delineation) at the area impacted by PAH contamination; • Introduction of a simple cover system (450mm thick) in areas of soft landscaping comprising 300mm of subsoil and 150mm topsoil; • A piling works risk assessment to establish the risk to controlled waters from contaminated Made Ground and shallow groundwater;
Earthworks	Earthworks should be carried out in accordance with recommendations and guidance provided in BS6031:2009, Code of Practice for Earthworks. We will be required to excavate down to such a level that the use of trench sheeting adjacent to the public pavement will be required. The drainage connection will require adequate earthwork support.
Slope Stability	We don't intend on having issues with any slope stability on the surface. However, we will require to form a ramp down into the site for piling rig access.
Foundations and Floor Slabs	It's anticipated that the foundations will be piled with pile caps and slab structures to a suitable level.
Excavations and Groundwater	Excavations at the site, should be feasible using an appropriate scale of hydraulic plant.

Construction Management Plan

	No significant volumes of groundwater are anticipated within excavations with conventional 'sump and pump' dewatering methods considered adequate to keep excavations dry.
Existing Pavements	Pavement design should be based on a CBR value suitably engineered for granular fill and to be reviewed and confirmed by site inspection and suitable in-situ testing at formation levels following earthwork operations and prior to pavement construction.
Ground Gas	In conclusion, the low gas flows, low ground gas concentrations and the computed GSV for carbon dioxide and methane, characteristically indicate a CS1 classification. Based on the data to date no gas mitigation measures are required. The ground gas risk assessment will be updated on completion of the 6 visits, and the may Characteristic Situation may be subject to change.
Contamination Assessment	Based on the site history, WAC testing and the HazWasteOnline™ assessment it is considered that: • the natural soils are likely to be classified as non-hazardous and may be able to be disposed of at an inert landfill; • The Made Ground at BH02, BH04 and TP02 is likely to be classified as hazardous waste due to the presence of petroleum hydrocarbons at BH02 and BH04, and significant lead concentrations at TP02. • The remainder of the Made Ground is likely to be classified as non-hazardous waste and may be able to be disposed of at an inert landfill. • Any soils containing > 0.1% asbestos or visible asbestos containing materials would be considered as hazardous.
Waste Disposal	Excavated Made Ground in the vicinity of BH02, BH04 and TP02 are likely to be classed as hazardous waste (should it require off-site disposal). The remainder of the Made Ground is likely to be classed as non-hazardous. Excavated natural soils to be disposed of as waste, are likely to be classed as non-hazardous.

Construction Management Plan

5.0 Construction

5a). Programme

The provisional programme information for the Construction Period is 96 weeks from a start of onsite enabling works of 15 February 2021. Construction on this scale can be subject to some slippage owing to the complexity of processes involved. However, it should be noted that the measures outlined in this Construction Management Plan remain valid in the event of start on site being delayed or should the construction duration be extended.

Construction work shall in general will be Monday to Friday 7.30am–6pm, Saturday 8.30am–2pm (No working allowed on Bank Holidays and Sundays). Works outside of these hours are to be approved in writing by the Local Planning Authority.

5b). Removing Drainage & Sub-Structure

A “Permit to dig” will be issued by Morgan Sindall for all works that require an excavation to be carried out either via mechanical or non-mechanical means. All excavations will be CAT scanned and where necessary trial holes hand-dug prior to any excavation works commencing to locate any potential buried hazard.

It should be noted however that service location drawings are often un-reliable in the context of live or safe apparatus. Contact will be made where appropriate with the Utility Companies to confirm that any exposed or unexpected services are verified as being “Live” or “Dead”

Operatives will wear full PPE at all times. Mandatory items are safety boots, hi-visibility vest, hard hat, gloves and glasses. In excavations overalls and rubber boots will be considered as part of the method statement.

In the event of inclement weather an assessment of the area must be made to ensure that a safe system of work remains in place. De-watering equipment must be used when necessary and excavations must be protected.

Method of Working

Excavation

The site engineer will set out the positions of piled locations, foundations, manholes and drainage runs by using techniques covered in the Setting Out Method Statement and as illustrated within the document, “The Guidelines for Field Engineers”. Trenches will not be excavated too far in advance of the pipe laying activity and must be kept to the specified design width. (O/D of pipe + 300mm)

We will ensure that trenches are kept free from excess water, where necessary utilise pumps to control any ingress as per the control of water section 3 above.

Construction Management Plan

We will ensure that excavations are never to be surcharged by excavated materials, drainage materials or plant at any time during the excavation.

Ladders are to be installed and properly secured whenever possible as a means of access into trenches. This is particularly important when trench support or drag boxes are used. In these situations, operatives should never go outside of the protected area and don't use trench support struts as a climbing frame or makeshift access.

Shoring systems will be used as per manufacturer's guidelines and those set by the Temporary Works Co-ordinator (appointed in writing by the Project Leader. The designs will be certified by the temporary works specialist) during the use of drag boxes or shoring system, we will ensure that they will be kept a minimum of 1m above the ground level or have purpose made guard rails installed.

Arisings will not be stored adjacent to any excavation where it may add a surcharge load to the excavation. Similarly plant and equipment is to be kept away from the immediate vicinity of the excavation. Where it is necessary for a dumper or similar piece of plant to tip material into a trench, a suitable bulk timber stop block will be used to prevent an overturning accident.

All excavations will be suitably cordoned off using crowd control barriers with attached "danger deep excavation" signs where necessary.

Trench preparation

To ensure uniform support for the drainage pipeline, it will be necessary to remove all hard or soft spots that may cause settlement differentials. These will be replaced with compacted, selected backfill from the trench arisings.

When this been satisfactorily completed an inspection may be required by 'Building Control' prior to the pipe bedding material being laid. If this is not the case and inspection should be requested when the pipe is laid, pipe bedding material at half barrel and the air test will be set up, prior to pipe surround and backfill.

The important points we will ensure are considered for the Risk Assessment and Method statement when forming and stabilising trenches are:

- The nature of the ground, weather conditions, the depth of the trench / excavation.
- The depth of the water table and the permeability of the soil.
- The method of trench support and the equipment necessary / available for its construction or handling. (Drag boxes will require a large excavator)
- The proximity of any services, structures or highways. When excavating in the highway, operatives and supervisors must be qualified as required by the Roads & Street-works act.
- The type of excavation plant, its capacity and excavator bucket size.
- Working space in the trench particularly in consideration of any support works.
- The finished trench must be true to line and gradient, free from soft / hard spots.

Construction Management Plan

Working with Live Sewers

When working with live sewers it is important that operatives are protected from the risk of disease by the use of proper PPE. Disposable overalls and full-face masks will also be available when working with live sewers. All operatives will be made aware of the symptoms of possible diseases relating to working in live sewers. Below is a summary of the primary disease risks;

- Weil's disease, a flu-like illness with persistent and severe headache, transmitted by rat urine. Damage to liver, kidneys and blood may occur and the condition can be fatal.
- Hepatitis, characterised by inflammation of the liver, and jaundice.
- Gastroenteritis, characterised by cramping stomach pains, diarrhea and vomiting.

Operatives will be made aware of these conditions during method statement sign off and induction processes and will take every precaution to protect themselves.

Sub-Structure

The Site Engineer will set out the levels using co-ordinated points from the established main control and from the primary control physically marked on site to establish the correct line and level of the works. The engineer will establish the correct level of the works by means of a rotating laser and staff.

Where the excavated materials are to be load into a dumper or 'muck-away' wagon stop blocks (sleepers, heaped soil) must be in placed at a safe location to reduce the risk of sliding/ collapsing. If stop blocks are not practicable, the dumper is to be loaded at the back of the excavator, so the excavator acts as a physical barrier. All excavations are to have a guard rail in place around the perimeter during and on completion of the excavation. This will be in the form of a linked crowd barrier fence.

Access to the excavation will be via a ladder (footed, tied and or held by a second competent operative) or steps cut into the sides of the excavation. The sides of this excavation will also be made safe be the methods above. Access to any excavation is to be kept to a minimum.

Superstructure

Following on from the construction of the substructure & floor slab, initially the core will be cast using a slip form method that will progressively cast the core structure in its entirety. The construction of the floors will be formed using specialist formwork system that will be again progressively erected, propped, reinforcement installed, and concrete pumped into place using a concrete tremie pipe. This sequence will repeat working up the building. To assist with the frame construction the use of a tower crane will be required for the lifting of the various formwork equipment. As the frame is progressively constructed, the addition of perimeter mast climbers will be utilised to commence the perimeter facades initially with SFS and windows, with cladding and brickwork following. A material and operative hoist will also be installed to move materials vertically to feed the working areas.

Construction Management Plan

Fig 12 below is the site logistics plan showing the various plant locations.

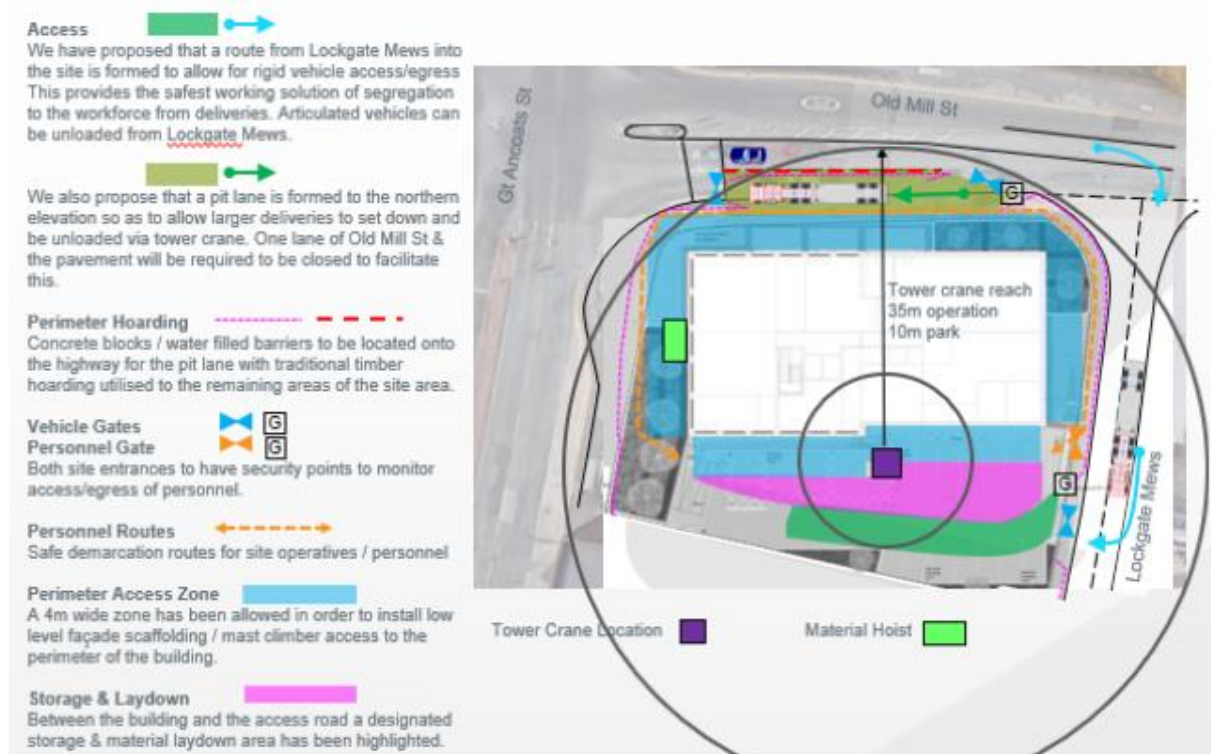


Figure 12: Site Logistics Plan