

Chapter 5: Enabling and Construction Works

INTRODUCTION

- 5.1** This chapter of the Environmental Statement (ES) describes the proposed programme of the enabling and construction works and the expected enabling and construction works and associated key activities that will be undertaken prior to the completion and operation of the Proposed Development. Impacts arising during the enabling and construction processes are temporary, generally short-term and intermittent. Nevertheless, they can be sources of potentially significant effects on environmental resources and sensitive receptors, such as residential dwellings. This chapter of the ES provides a description of the enabling and construction works (and relevant management controls) for the purposes of identifying and assessing the potential environmental impacts and likely environmental effects of the Proposed Development in the technical assessments of **ES Volume 1, Chapters 6 - 13** and **ES Volume 2**.
- 5.2** Planning for enabling works and construction is necessarily broad at this stage (as specific enabling work and construction specifications have not yet been prepared and a contractor not yet appointed) and so may be subject to modification during any future detailed construction planning. The information presented within this ES chapter is therefore based on reasonable assumptions made by the Applicant and the wider planning and design team, for similar projects and will enable each technical chapter to consider the reasonable worst case scenario.
- 5.3** Although the detailed construction method statements, programmes and specifications have not yet been prepared and lead construction contractor (Main Contractor), sub-contractors and trade contractors not yet appointed to undertake the works required, it is possible to establish the potential broad environmental impacts associated with the works. This ES chapter (and **ES Volume 1, Chapter 16: Mitigation and Monitoring**) therefore describes the management controls and framework that would be implemented to avoid or minimise potential environmental impacts, which would form the basis for a Construction Environmental Management Plan (CEMP). A detailed CEMP would be secured by means of an appropriately worded planning condition.
- 5.4** The CEMP would be prepared in accordance with standard best practice and regulatory requirements, as well as the LBTH's Code of Practice for Construction¹. The CEMP will include a Construction Traffic Management Plan (CTMP), which would include a Construction Logistics Plan (CLP), as well as a Site Waste Management Plan (SWMP) and would be secured through a planning condition. More specifically, the CEMP would define relevant policies, legislative requirements, thresholds/limits, procedures, roles and responsibilities for the implementation of environmental and management controls throughout the duration of the works. The CEMP would be discussed and agreed with the LBTH in advance of works commencing on-site.
- 5.5** An outline of all the anticipated environmental issues and necessary management controls that would be covered within the CEMP is provided within this ES chapter.
- 5.6** It is standard practice to allow the appointed contractor's substantial input into documents such as the CEMP, CTMP and SWMP when they are appointed. Nevertheless, the likely content of such documents can be predicted with a reasonable degree of certainty having regard to the standard requirements of the LBTH and the

experience of the Applicant and project team in developments of this scale. As such it is considered that the likely environmental effects are still capable of assessment in this ES.

- 5.7** It is important to note that this ES chapter does not assess the magnitude of potential impacts, nor the significance of likely effects during the enabling and construction works, as this is addressed within individual technical assessments within **ES Volume 1, Chapters 6 - 13** and **ES Volume 2**. The information, control measures and framework set out in this ES chapter form the basis of enabling and construction assessments for this EIA (reported upon in each technical ES chapter)
- 5.8** The information presented within this ES chapter has been supplied by Canary Wharf Contractors Ltd (CWCL), and based on their considerable experience in the construction industry.

BASIS OF ENABLING AND CONSTRUCTION INFORMATION

- 5.9** To enable the assessment of the likely significant environmental effects associated with the construction of the Proposed Development within this ES, an indicative, but feasible, enabling and construction programme and strategy has been developed by the Applicant and CWCL based on the Indicative Scheme (as presented as part of the outline planning application (OPA)) and a number of assumptions. These assumptions have been informed by an understanding of current and future projected market conditions, logistical arrangements, technical considerations and professional experience, all of which are considered to be reliable.
- 5.10** Given the outline nature of the planning application, basing the enabling and construction information on the Indicative Scheme allows for a reasonable assessment of these works, as the information is based on a scheme that could be brought forward. It should be noted that whilst the Indicative Scheme represents a reasonable basis of assessment, it also reflects a reasonable worst-case assessment for this EIA, as the Indicative Scheme has been specifically developed to present a design and build option which optimises the principles of the development (i.e. maximum floorspace² within the permissible heights and massing parameters) within the limits of the OPA's Control Documents, and would be a phased build programme (so that sensitive uses could be introduced on site whilst adjacent construction works are ongoing). Further information on the Indicative Scheme is provided in **ES Volume 1, Chapter 4: Proposed Development**, and the appropriateness of using the Indicative Scheme as a basis of this EIA is further discussed below.
- 5.11** The information presented within this Chapter therefore refers to the Indicative Scheme throughout.
- 5.12** Using the Indicative Scheme, professional judgment and experience from the project team in developments of this scale and nature, CWCL were able to develop information on the enabling and construction works to allow for appropriate assessment within this ES. The anticipated construction programme, with approximate durations of the major elements of the enabling and construction works associated with the Indicative Scheme, is presented in Figure 5.1.
- 5.13** Certain elements of enabling and construction information such as: details on piling methodology; hours of work; access routes; and likely construction activities; and likely equipment used, would not alter or materially change as a result of the final scheme which would be built-out under the OPP and associated RMAs.

¹ London Borough of Tower Hamlets (2005) Code of Construction Practice. LBTH.

² The total floorspace proposed is within 100 m² Gross Internal Area (GIA) of the maximum permissible floorspace (355,000 m² GIA) set out with the Development Specification. This 100 m² difference would not materially alter the information presented within this ES chapter.

- 5.14** In order to be confident that the Indicative Scheme also represented a reasonable worst case in terms of predicted HGV movement and peak numbers; and likely construction and waste volumes, a sensitivity test of the Indicative Scheme against the Maximum Parameters (including the maximum permitted floorspace) was undertaken. There showed no significant or material difference between the two scenarios for this enabling and construction data.
- 5.15** In addition, an indicative phasing plan based on the Indicative Scheme is presented in Figure 5.2 to show one way in which construction of the Proposed Development could come forward, as well as allowing for the assessment of how sensitive existing and proposed receptors could be affected if construction works directly adjacent were ongoing. Where relevant in **ES Volume 1, Chapters 6 – 13 and ES Volume 2** reasonable worst-case effects relating to the construction phasing have been identified and assessed (i.e. peak impacts on neighbours and phased introduction of sensitive receptors on site).

SCOPE AND PROGRAMME OF WORKS

- 5.16** The proposed enabling works would comprise a small amount of demolition with the removal of all existing temporary buildings, false quay and areas of hardstanding; the excavation of basements; followed by the construction of buildings, a new false quay and a mix of public and private spaces at ground and building roof levels.
- 5.17** The indicative development programme is shown in Figure 5.1 and is based on the assumption that enabling works could begin by the end of 2021.
- 5.18** For the purpose of this EIA, based on commencement of works in Q4 2021, the development works are anticipated to be undertaken in a number of phases between 2021 and 2029.
- 5.19** The current programme assumes that construction of the basements and buildings will be phased from the west to the east side of the Site. This delivery strategy may be revised subject to market conditions.
- 5.20** Phase 1 would deliver buildings NQ.A1 and NQ.A4 at the western end of the Site. The works would include the enabling works which consists of: initial site preparation; the demolition and removal of the existing temporary buildings; and demolition of the existing false quay structure followed by construction of a new marine deck structure supported on new marine piles. The piling for the basement perimeter wall and excavation of the basements for NQ.A1, NQ.A4 and NQ.A5 is planned to be undertaken concurrently with the marine deck works. Once the construction of the basement beneath NQ.A1 and NQ.A4 are complete, the construction of the superstructure of the buildings would commence. Infrastructure and public realm works beneath the DLR 'Delta Junction' and at site entrance to Hertsmere Road would also commence. On completion of buildings NQ.A1 and NQ.A4 the initial route to service the buildings would be from Hertsmere Road. The primary access for the construction traffic during later phases would be from Upper Bank Street/Aspen Way.
- 5.21** Phase 2 would deliver buildings NQ.A5, NQ.D3 and NQ.D4 on the southern side of the Site closest to the North Dock and Crossrail Station. The basement structure beneath NQ.A5 would be delivered as part of Phase 1 works. During Phase 2 the basement adjacent to the North Dock would be extended eastwards to accommodate NQ.D3 and NQ.D4. This phase would also see the completion of the central spine road through the Site as part of the basement works for these buildings. On completion of buildings NQ.A5, NQ.D3 and NQ.D4 the spine road linking Upper Bank Street to Hertsmere Road would be opened to the public.
- 5.22** Phase 3 would deliver the basement, superstructure and public realm for building NQ.B1. Phase 4 would deliver the basement, superstructure and public realm for building NQ.D1.
- 5.23** For the calculation of peak construction traffic flows, a likely reasonable worst case has been assessed where construction/fit out works for the first 5 buildings (NQ.A1 / NQ.A4 / NQ.A5 / NQ.D3 / NQ.D4) overlap with the basement excavation and substructure works for the final 2 buildings (NQ.B1 and NQ.D1).

Figure 5.1 Anticipated Indicative Construction Programme

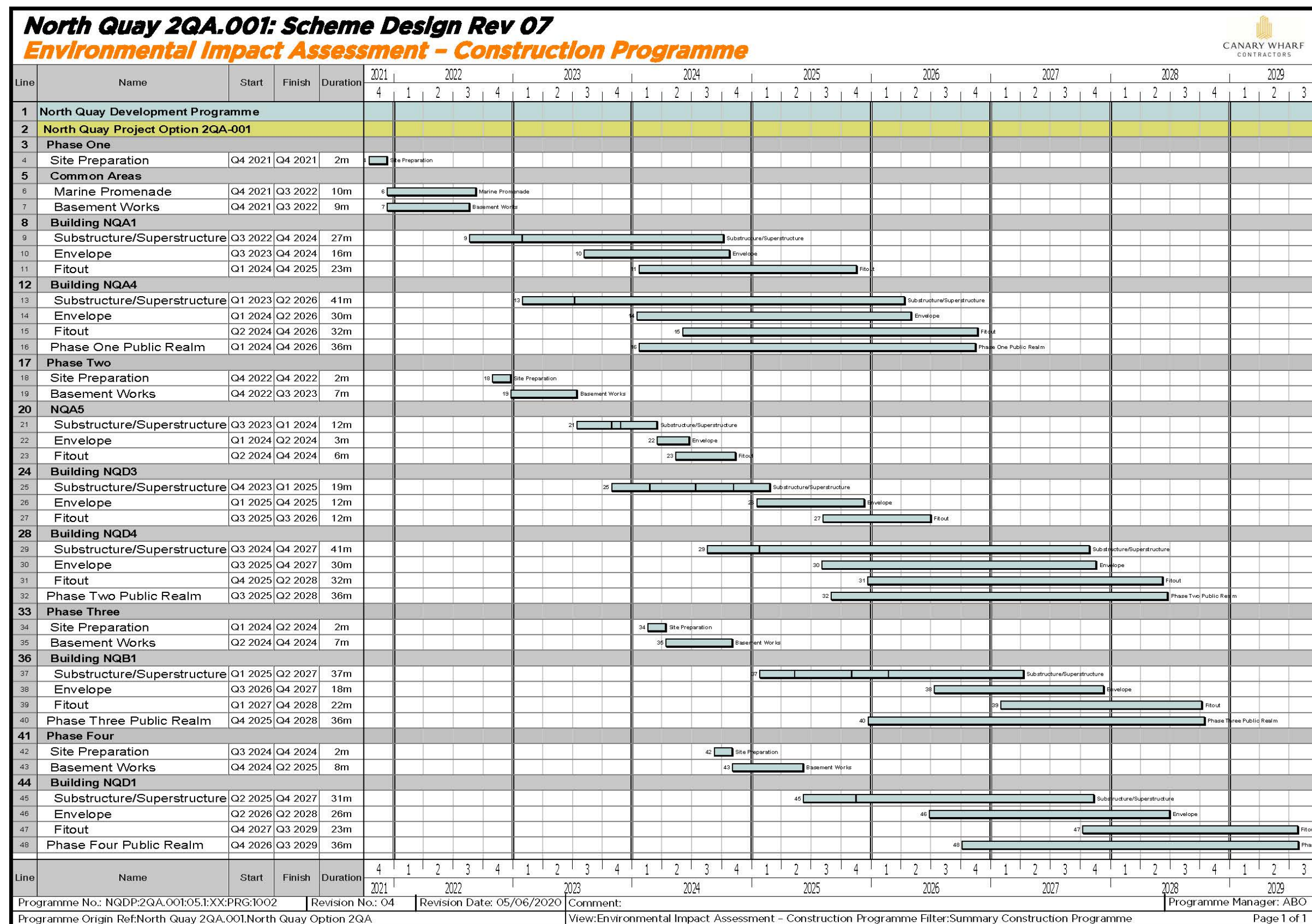
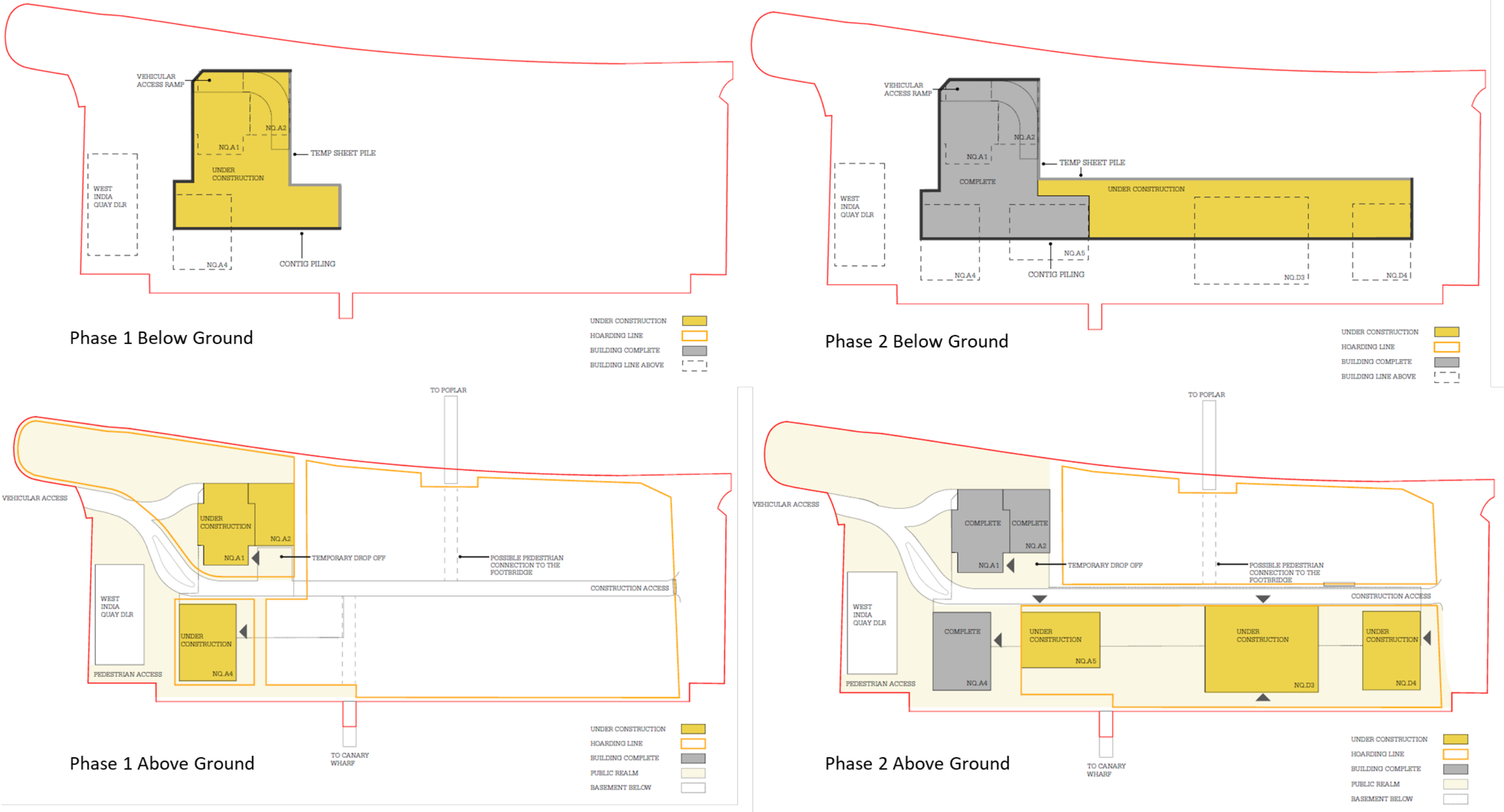
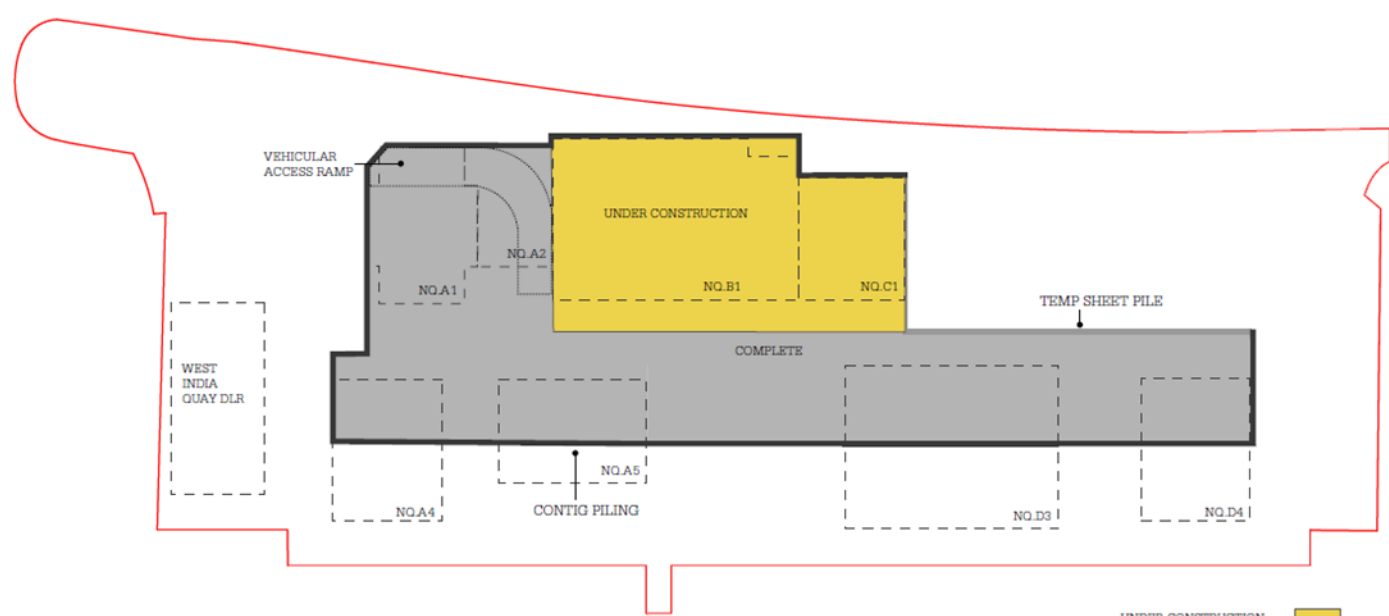
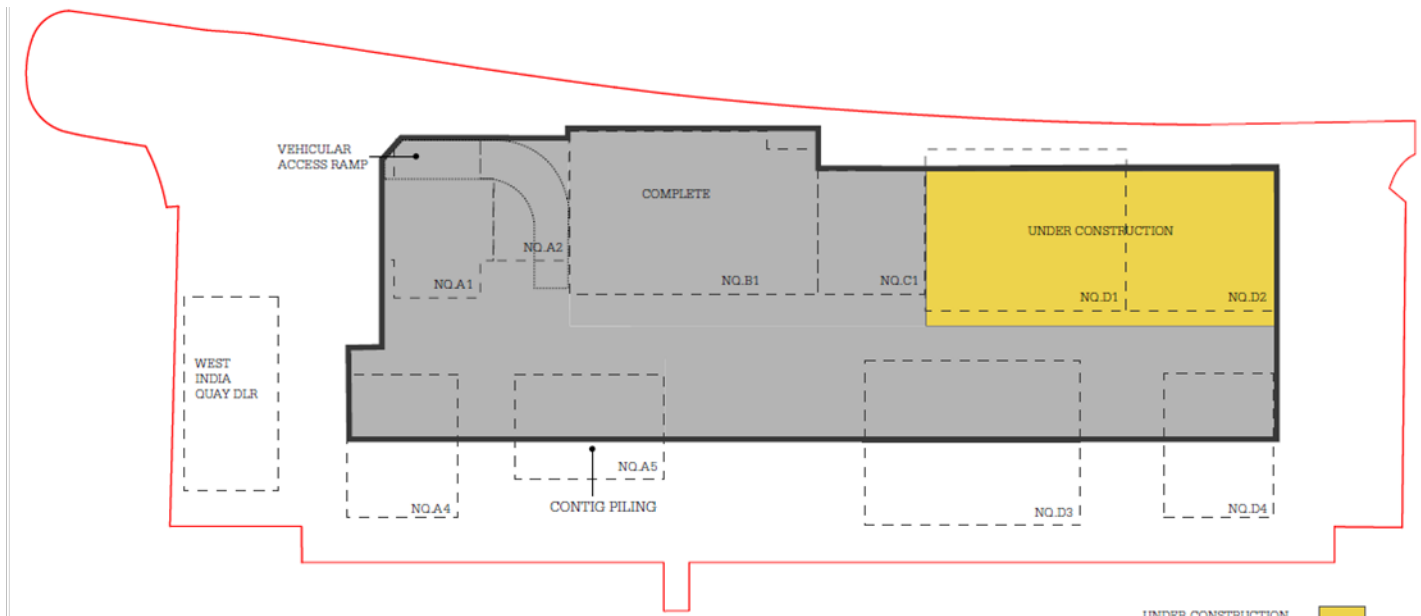


Figure 5.2 Indicative Phasing Plan

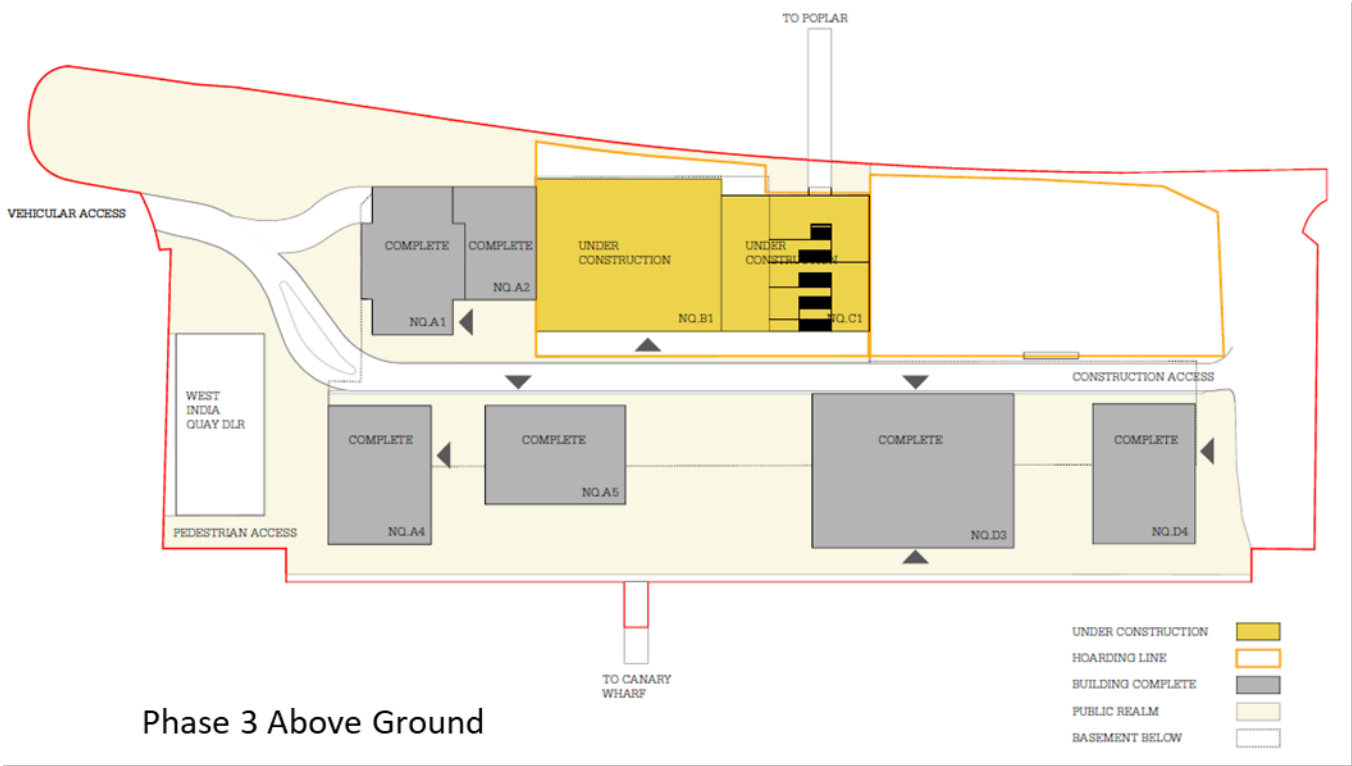




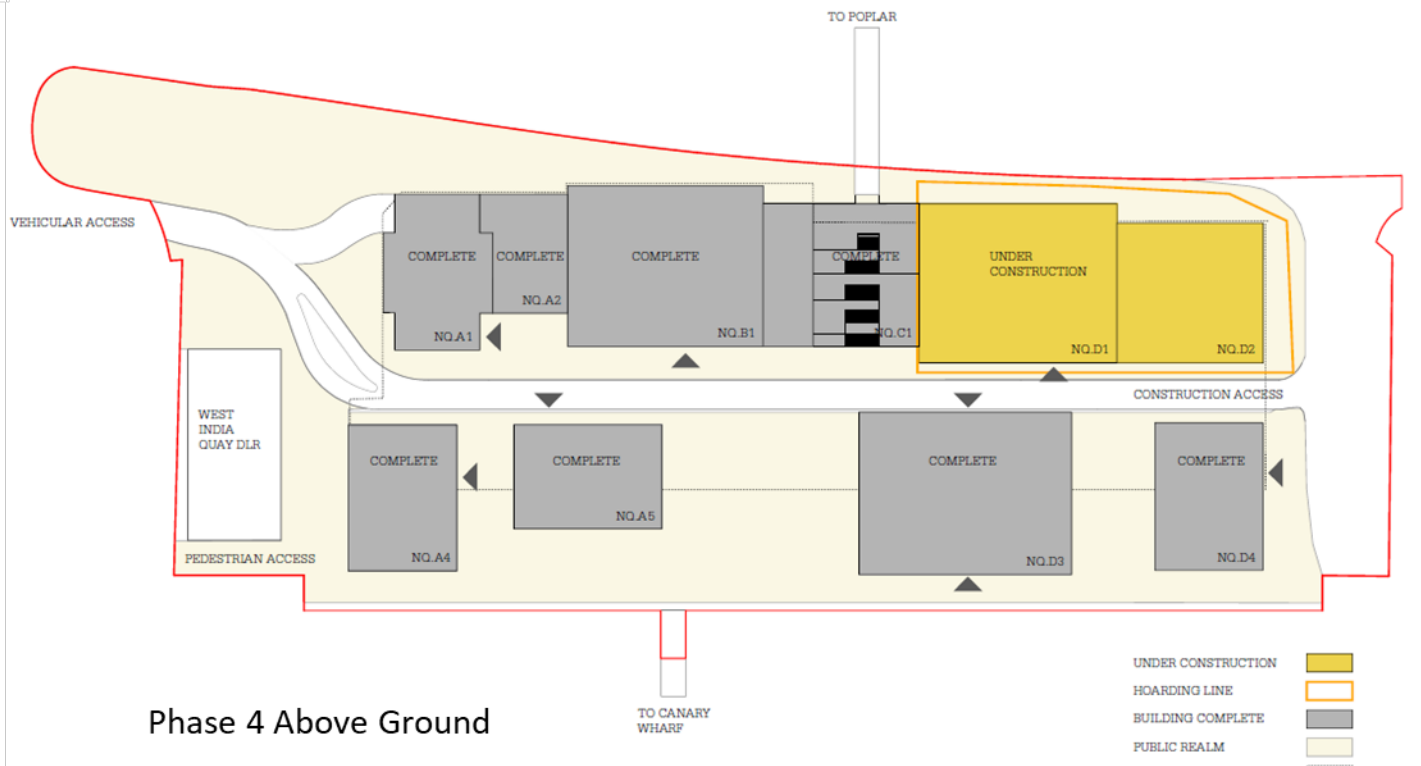
Phase 3 Below Ground



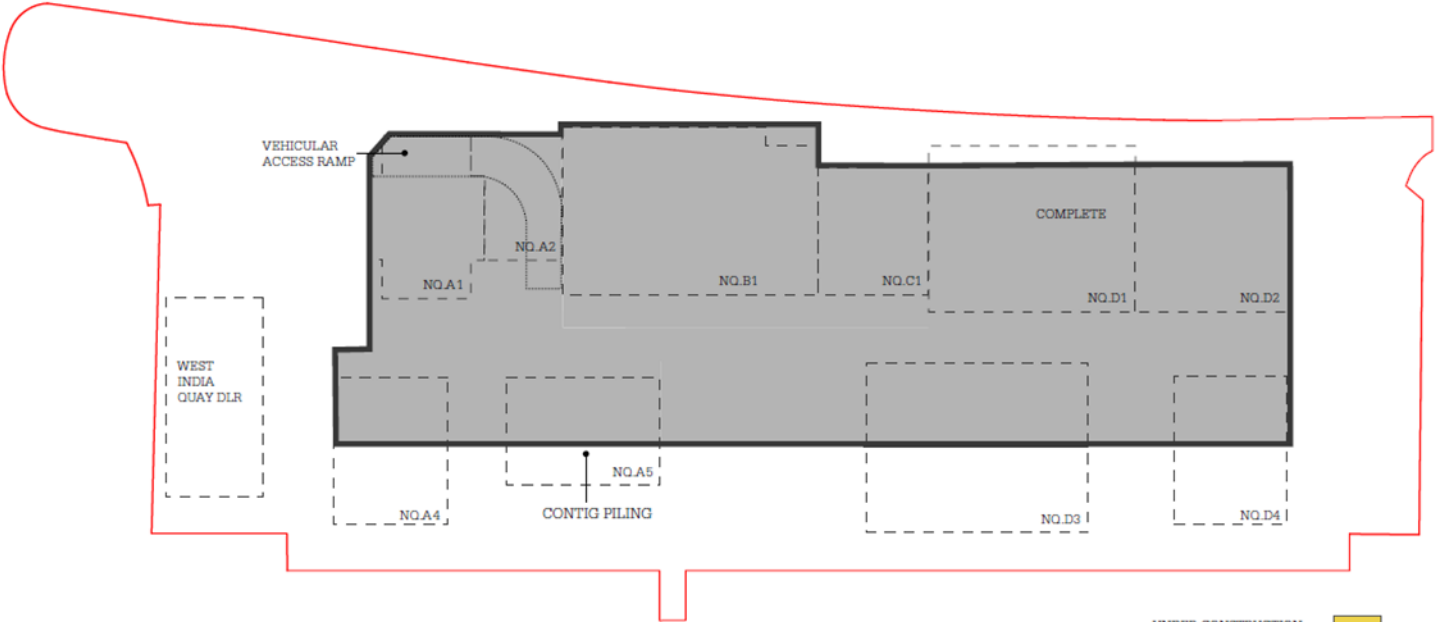
Phase 4 Below Ground



Phase 3 Above Ground

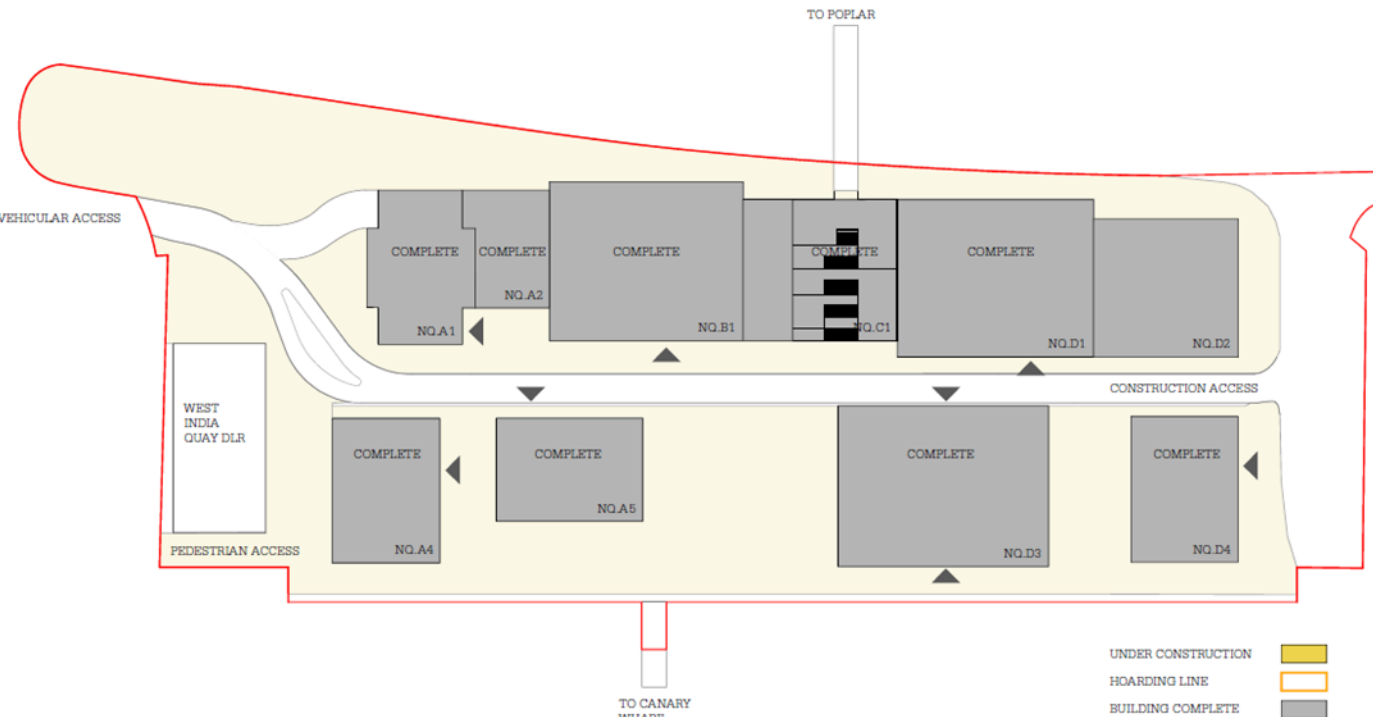


Phase 4 Above Ground



Phase 5 Below Ground

- UNDER CONSTRUCTION
- HOARDING LINE
- BUILDING COMPLETE
- BUILDING LINE ABOVE



Phase 5 Above Ground

- UNDER CONSTRUCTION
- HOARDING LINE
- BUILDING COMPLETE
- PUBLIC REALM
- BASEMENT BELOW

DESCRIPTION OF WORKS

Background

- 5.24** Early discussions would be held with the LBTH and other relevant statutory consultees, such as TfL, DLR, Road Maintenance Services (RMS (A13)), UK Power Networks (UKPN), the Canal and River Trust (CRT), Billingsgate Market, Crossrail, London City Airport and Thames Water Utilities Limited (TWUL). These discussions would include site logistics, management, access and egress and hoarding arrangements.
- 5.25** A draft of the CEMP would be submitted for agreement with and approval by the LBTH before the commencement of enabling and construction works. This would be secured through a planning condition. The CEMP would be prepared with due consideration of LBTH's 'Code of Construction Practice' and any relevant guidance from the Canal & River Trust. The contents of the CEMP would be agreed with the LBTH before the CEMP is finalised and construction commences. The purpose would be to highlight potential adverse environmental issues, to specify measurable limits and targets, to detail the mitigation measures to be undertaken and the management tools and procedures required. Stringent contractual procedural and performance obligations would be placed on trade contractors and a clear management structure and a description of the authority of the Project Environmental Manager (PEM) would be included.
- 5.26** In addition to liaison with the LBTH, TfL and other statutory consultees, a key aspect of the successful management of the Proposed Development would be the maintenance of good relations with the Site neighbours and the general public. The Applicant would consider other developments that may proceed at the same time and ensure close liaison with the other parties to co-ordinate and minimise potential impacts from the enabling and construction works.

Site Preparation

- 5.27** A 2.4m high solid hoarding has been erected around the Site boundary and will continue to be in use around the construction site at all times as relevant. At certain locations around the Site, covered walkways would be constructed. The hoardings would be well lit and maintained throughout the construction period to maintain public safety.
- 5.28** At the dock edge in the south of the Site, a full height hoarding is not and would not be erected but temporary handrails with netting would be put in place to mitigate the risk of material entering the North Dock.
- 5.29** At times during the works, diversions of the existing pedestrian footpaths around the perimeter of the Site may be required in order to complete the works safely. When relevant, temporary barriers would be employed to create safe segregated walkways for the public.
- 5.30** The detailed design of the foundations and the excavation's temporary stability would include an assessment to ascertain the requirements for monitoring of the adjacent structures during the construction period. Appropriate monitoring, as specified in the assessment, of the adjacent structures would be implemented with agreement of the relevant owners.
- 5.31** Prior to commencement of piling work any existing utilities on the Site would be diverted or terminated in consultation and agreement with relevant statutory authorities. Probing for obstructions within the ground would also be undertaken.

- 5.32** Noise and dust monitoring would be put in place and baseline readings taken prior to commencement of significant works on-site.

Site Offices/Welfare Facilities and General Site Access

- 5.33** Temporary site accommodation and welfare facilities would be established within the Site. The facilities would be extended and re-positioned as necessary to accommodate the changing requirements of the construction phasing and site labour force.
- 5.34** There are a number of existing temporary offices and welfare facilities on the Site which have previously been used for the construction of the Canary Wharf Crossrail Station. The existing Site offices and welfare facilities at the western end of the Site are situated within the first phase of the basement and marine deck works.
- 5.35** Prior to the commencement of the Site enabling works the condition of these existing buildings will be surveyed and their suitability for re-use investigated. If re-use on-site is viable then the buildings would be relocated onto new strip footings located on the plots of buildings for phase 3 and 4. If re-use is deemed not possible then the temporary buildings will be dismantled for re-use elsewhere or demolished and recycled. New temporary modular site accommodation would then be installed to a maximum height of 4 storeys to serve phase 1 basement and superstructure works and phase 2 basement works.
- 5.36** Prior to the commencement of the phase 3 and 4 basements these welfare facilities will need to be dismantled. Welfare and site offices for the phase 1 fit out works and phase 2 superstructure works will then be provided either within the basement areas of the developments or in temporary modular buildings adjacent to each building.
- 5.37** The phase 3 and 4 welfare and site offices will be temporary modular buildings located adjacent to each building. During these final phases the site logistics will be more constrained and the temporary site offices may be elevated above construction site compounds or completed public realm.
- 5.38** Construction traffic would approach the Site from Aspen Way (A1261) using entrances to the Site located off Upper Bank Street and Hertsmere Road.

Demolition Works: Existing On-Site Uses

- 5.39** The existing structures on the Site are temporary cabins and are designed to be dismantled and removed from site for re-use elsewhere. The cabins will be dismantled using mobile cranes and access platforms. The shallow foundations for these temporary structures will be removed prior to the installation of the piling platform.

Demolition Works: Existing False Quay

- 5.40** The existing false quay at the south of the Site is a reinforced concrete structure supported on marine piles within the North Dock (shown in Figure 5.3 as the hatched out shaded area). The structure was constructed in the 1930's and is in poor condition and cannot be incorporated into the Proposed Development. It is also not feasible to re-use the existing marine piles to support the new permanent works. During removal of the existing false quay if any elements can be retained then this would be considered, but as a worst case it is assumed for this OPA that the existing false quay on-site would need to be demolished and removed.
- 5.41** The existing false quay deck would be removed. The deck would be removed in sections using non-percussive demolition methods wherever feasible. The method will ensure the limitation as far as reasonably practicable

of any inert material from entering the North Dock, in addition to limiting impacts to the Banana Wall. Specific method statements for the demolition and removal of the existing false quay will be developed with the specialist Trade Contractor and be agreed with the Canal and River Trust prior to the works being carried out.

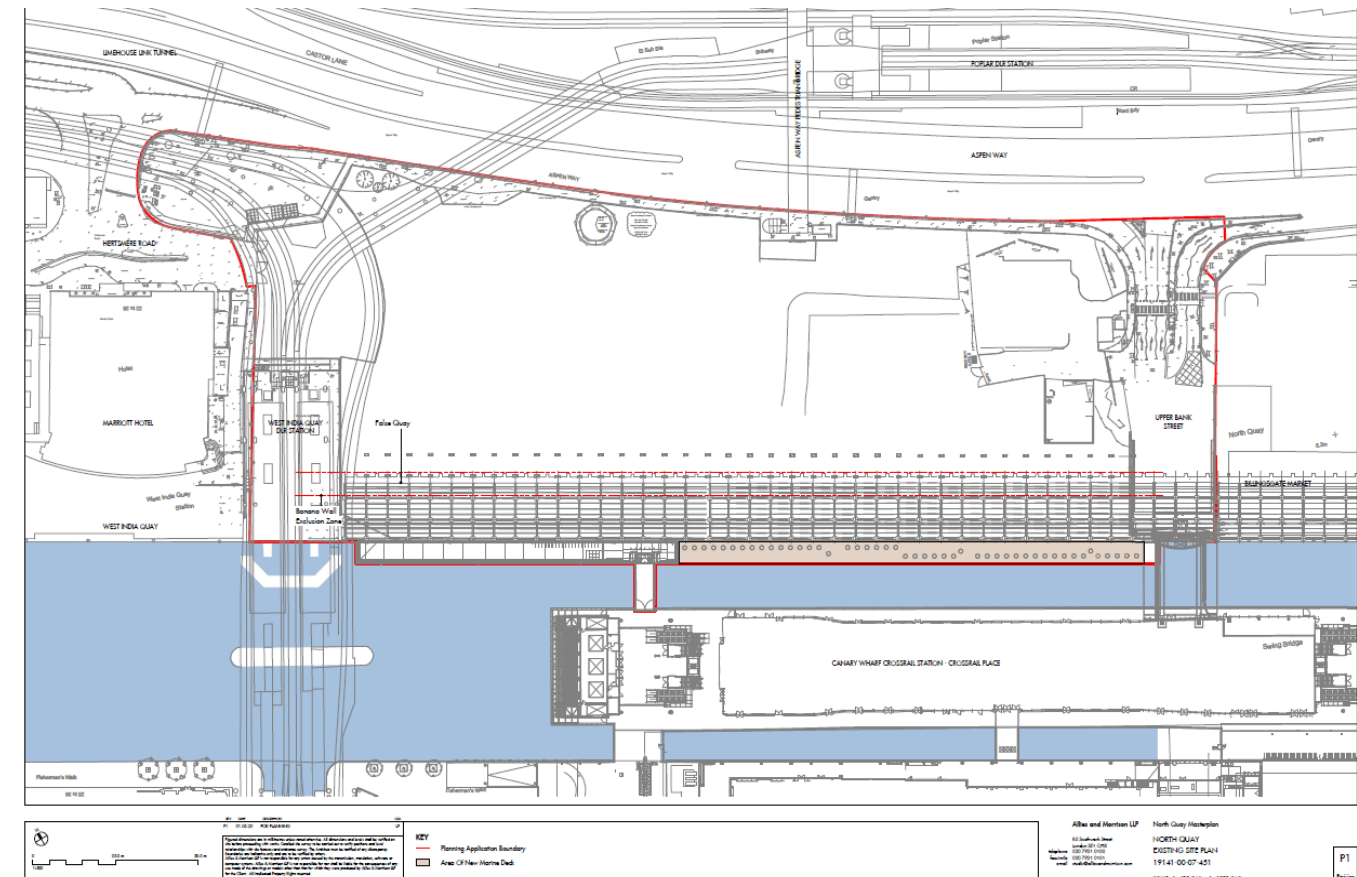
False Quay and Marine Deck Construction

- 5.42** Where feasible, the new false quay, marine deck and supporting marine piles would be designed around the existing marine piles to minimise any requirement to remove existing marine piles and reduce the construction waste from the development. The new marine deck would be located to the south of the proposed new false quay structure (shown highlighted in orange in Figure 5.3).
- 5.43** If possible, the existing marine piles would be used in combination with a temporary works scheme to support the piling equipment to install the new marine piles within the North Dock. Where this is not possible the piling equipment will be mobilised onto pontoons in the North Dock.
- 5.44** The new piles to support the marine deck would be constructed by installing a steel casing into the North Dock bed to a depth of approximately 6 to 8m below the dock bed level. The pile would then be drilled using a rotary piling rig to the design depth. In the temporary condition the pile bore would be supported with a polymer drilling fluid. A steel reinforcement cage would be placed inside the pile and the pile would then be concreted.
- 5.45** The new marine deck would be constructed using a mixture of pre-cast and insitu concrete elements to suit the final design and construction logistics. Pre-cast elements of the deck would be lifted into position using a crawler crane.

Secant Pile Wall Construction

- 5.46** The Proposed Development consists of a two level basement which covers a significant portion of the Site and in the indicative construction programme would be excavated in phases as shown in Figure 5.2. The perimeter wall of the basement would be formed from a secant pile wall (phased as necessary) which would be constructed from a piling platform at the existing ground level.

Figure 5.3 Banana Wall Exclusion Zone, Location of False Quay and Marine Deck



Substructure Works

- 5.47** The indicative development programme includes the basement being excavated in a number of separate phases (shown in Figure 5.2). In this scenario temporary retaining walls and/or berms would be required to the outline of the basements for the earlier phases. Excavation of the basements for the later phases would then be deferred to a later stage of the development programme.
- 5.48** In general, site wide substructure works include: basement excavation; bearing piling; capping beam construction and basement raft construction.
- 5.49** Following the construction of the perimeter capping beam on top of the secant pile wall, the excavation of the basement would be able to commence progressively across the Site, and as shown in Figure 5.2 can be phased along with above ground development of plots from west to east.
- 5.50** For the excavation of the deeper sections of the basement, temporary internal raking props or ground anchors may be required to support the secant pile wall for a temporary period. Discharge consents would be obtained from the relevant statutory authority for any discharges to the sewers or North Dock.
- 5.51** The majority of the piles to support the buildings would be installed from within basement excavation. A piling platform for the piling rigs would be installed within the excavation. The piles would be a mixture of continuous flight auger (CFA) piles and large diameter bored piles ranging from 20m to 35m in length. Where large diameter bored piles are used a suitable temporary support fluid would be required to support the pile bore in the underlying Thanet Sands.

- 5.52** A small number of large diameter bearing piles would be required within the North Dock to support the buildings to the south of the Site. Once the piles are completed a reinforced concrete raft would be constructed at the lower basement level to support the buildings above.
- 5.53** The substructure concrete works would progress across the Site relevant to each building and would be phased to suit the Site logistics and the construction programme for each of the buildings above ground. Works would include the construction of the basement slab and the ground floor slab.
- 5.54** The Banana Wall Grade Listed structure lies directly beneath the Site. During all substructure works relevant care will be given to the Banana Wall which will be left in situ (exclusion zone for the Banana Wall shown in Figure 5.3). Relevant structural, engineering and monitoring procedures will be undertaken to make sure that no impacts will occur to the Banana Wall to effect land stability and integrity, and these will be outlined in a CEMP. The presence of the Banana Wall has, and will be, a key consideration in the detailed methods of enabling and construction activities.

Superstructure Works

- 5.55** The superstructure construction would also be phased across the Site to follow the completion of the substructure works and the construction programme for each of the buildings above ground.
- 5.56** The superstructure of the commercial buildings would consist of a concrete core and steel frame. The concrete core would be constructed ahead of the steel frame. The core would be constructed using either a slipform or jumpform method of construction with tower cranes and hoists provided to supply materials to the core construction. The steel frame would be erected using a number of tower cranes which will climb as the steel frame progresses.
- 5.57** The residential buildings would be constructed of reinforced concrete frame. If these buildings came forward as student accommodation, hotel or retail buildings it would predominately be in the same way with a reinforced concrete frame. Tower cranes would be required for the supply of materials for the concrete core and slab construction. The tower cranes would also aid the installation of the cladding and balconies for the residential buildings.
- 5.58** The final tower crane schemes would be developed with input of specialist trade contractors. The final schemes would be agreed with London City Airport and DLR. For superstructure works it is anticipated that:
- Phase 1 – would require a minimum of 1 No. luffing tower crane (free standing to a height of approximately 75m and would then climb with the concrete frame construction, tied to the permanent structure, to a max height of approximately 180mAOD), a minimum of 1 No. ‘flat top’ tower crane. (free standing to a height of approximately 75m, and would then climb with the concrete frame construction, tied to the permanent structure, to a maximum height of approximately 230mAOD, the detailed design and construction method for the building will be developed to ensure that the maximum crane height is below the London City Airport constraints);
 - Phase 2 - would require minimum 3 No. luffing tower crane with a maximum height of approximately 150mAOD and minimum of 1 No. ‘flat top’ tower crane to a maximum height of approximately 200mAOD;

- Phase 3 – would require a minimum of 3 No. luffing tower cranes with a maximum height of 225mAOD. The detailed design and construction method for the building will be developed to ensure that the maximum crane height is below the London City Airport constraints; and
- Phase 4 - would require a minimum of 3 No. luffing tower cranes with a maximum height of 200mAOD.

- 5.59** Initial meetings have been held with TFL and the concessionaire responsible for the management of Aspen Way and suitable arrangements for the management of site logistics along this elevation during construction would be agreed.
- 5.60** There would be an external construction hoists situated on each of the buildings to provide access for operatives and materials during construction of the superstructure and the internal fit out of the buildings. As the permanent lift installation is completed these hoists would be removed and the building envelope completed.

Envelope and Fit out Works

- 5.61** The cladding of the commercial buildings would be a unitised system wherever possible and would be erected using small floor cranes, or similar, situated on the completed floor slabs. Where the panel sizes and site logistics dictate, mast climbers and tower cranes may be required to complete the cladding installation.
- 5.62** The cladding for the residential buildings of the Indicative Scheme (or for buildings with other potential live / stay uses such as student accommodation and hotels depending on what is built out in line with the OPA) would be installed using either small floor cranes or the tower cranes.
- 5.63** The fit out works would follow the cladding installation of the building. The fit out would be serviced by a goods hoist to transport the relevant equipment, labour and materials to the working level.
- 5.64** The cladding would be completed once the construction hoists have been removed and the permanent lift installation is complete.

Landscaping Works

- 5.65** Given the outline nature of the OPA, landscaping proposals for the Proposed Development including public amenity areas and perimeter public realm are illustrative and only indicative at this stage. The landscaping proposals show one way in which the soft and hard landscaping could come forward, and have been outlined in indicative landscaping plans (specifically associated with the Indicative Scheme) submitted to accompany the OPA, as presented within **ES Volume 1, Chapter 4: Proposed Development**. Landscaping would follow completion of the key construction works, and phased where relevant as shown in Figure 5.2.
- 5.66** The key excavation volumes and construction materials required for the enabling and construction works described are presented in Table 5.1.

Table 5.1 Key Construction Material Volumes

Construction Material	Volume
Marine Deck Demolition Waste	1,500 m³
Bulk Excavation	142,000 m³
Pile Arisings and Pile Matt	40,500 m³
Concrete for piling	25,000 m³

Construction Material	Volume
Concrete Substructure	45,000 m ³
Reinforcement Steel Substructure	5,600 t
Concrete Superstructure	83000 m ³
Reinforcement Steel Superstructure	7,400 t
Superstructure Fabricated Steelwork	2,3000 t
Metal decking to commercial floors	184,000 m ²
Superstructure Façade	152,000 m ²
Internal Walls	126,175 m ²
Ceilings	265,000 m ²
Floor Finishes	265,000 m ²
Roof Finishes	9,100 m ²
Hard and Soft Landscaping	14,400 m ²

UTILITIES AND SERVICE INSTALLATION

5.67 Utility connections for the Proposed Development would be agreed with the statutory utility companies. Works within the footpath or highway would be agreed with the relevant statutory authority and would be planned to minimise impact on the adjacent footpath and highways. Where necessary appropriate diversions would be put in place with advanced notice provided to regular users of these routes.

CONSTRUCTION VEHICLES AND PLANT

Construction HGV Trips

- 5.68 **ES Volume 3, Appendix: Enabling and Construction Works – Annex 1** presents the estimated number of deliveries associated with the enabling works and construction of the Site as advised by CWCL. This delivery schedule has been used as a basis for estimating the number of vehicle movements associated with the enabling and construction works. As a reasonable worst-case assumption, it has been assumed within the ES that all deliveries are by Heavy Goods Vehicles (HGV).
- 5.69 Based on professional judgment and the experience of the Applicant and CWCL on developments of similar scale and nature, the most intensive period of vehicle activity would occur when the superstructure works (i.e. construction of concrete core and steel frames of buildings) are combined with the internal fit out works (such as equipment and materials required to ‘fit out’ the buildings internally) The estimated number of deliveries per quarter has been calculated based on the indicative construction programme as presented in Figure 5.1 and using professional judgement and experience.
- 5.70 The full estimated number of deliveries associated with enabling and construction works is provided in **ES Volume 3, Appendix: Enabling and Construction Works – Annex 1**. The deliveries are expected to peak at 4,000 per month which equates to 8,000 movements per month (i.e. 4,000 vehicles into the Site and 4,000 vehicles out). There is likely to be a maximum of 200 construction vehicles per day, totalling 400 daily

movements, during this peak construction period. The enabling and construction works will generate a maximum of 126 HGV Annual Average Daily Traffic (AADT) flows which is likely to occur in 2024.

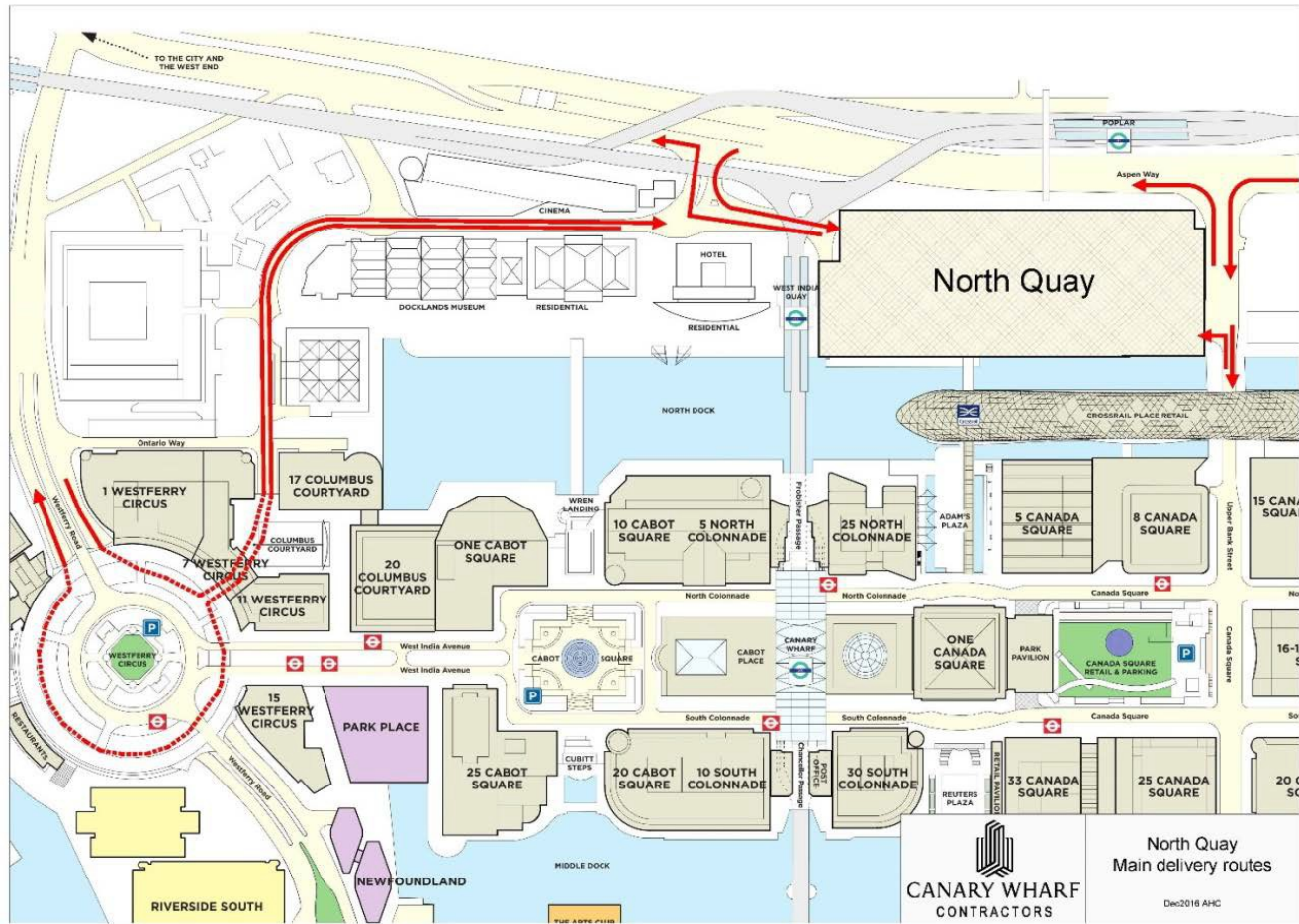
Access Management

- 5.71 The logistical arrangements for the Site are an important consideration for planning the construction works. A dedicated team would be appointed for managing the traffic both on and off the Site.
- 5.72 All traffic would be required to comply with directions given by the Applicant security staff and/or sub contracted security services, the Metropolitan Police and the local highways authority.
- 5.73 Wheel washing facilities and/or manual jet washers would be used at vehicle site exit points to ensure that mud and debris deposits onto the public roads are minimised as much as possible. Road sweepers would be used when necessary to wash/clean the roads during the heavy excavation and substructure works.
- 5.74 A lorry holding park on a main access route to the Site would be sought to minimise unscheduled deliveries and an online delivery management system would be implemented on the Site. The lorry holding park location will be determined post-planning, but best practice control measures will be put in place at the park (such as switching off engines, restrictions on the amount of vehicles that can be accommodated) to ensure that no significant air quality or noise effects would occur, and all vehicle movements would be regulated. These measures will be secured through a management plan, which would be committed to through a suitably worded planning condition. Therefore, the lorry holding park is not considered any further in this ES.

Construction Traffic Routing

- 5.75 The main route for deliveries to the Site would be via Aspen Way (A1261) using site entrances located off Upper Bank Street and Hertsmere Road, as shown in Figure 5.3. A secondary route via the lower roundabout of Westferry Circus would enable access to the Site in the event that for any reason access to the Site from Aspen Way was not possible.
- 5.76 Construction traffic exiting the Site onto Aspen Way via either Upper Bank Street or Hertsmere Road would then be distributed onto the major London transport road network. It is assumed that vehicle movements, along the westbound/eastbound axis of Aspen Way, are distributed with a 3:1 ratio (which has taken into account the anticipated forms of construction material and their source locations, as well the relative location of the Site to the Strategic Road Network (SRN) and the Transport for London Road Network (TLRN) which are suitable for heavy vehicle movements.
- 5.77 In the event of an emergency situation, the emergency services would be notified via Canary Wharf’s Estate Control Centre (ECC) which deals with such emergencies within the Estate, and would enter the Site from either Aspen Way Westbound via Upper Bank Street, or Eastbound via Hertsmere Road and the Westferry Circus lower roundabout.
- 5.78 If in the unlikely event that any temporary traffic management or stopping-up order are required on the surrounding roads, specific applications to the LBTH Highways and/or TfL relating to any road closures would be implemented by the Applicant in accordance with all statutory notice periods.
- 5.79 A CLP and CTMP will be produced to manage access and construction vehicles.

Figure 5.4 Primary Construction Traffic Routing



Typical Construction Plant and Machinery

5.80 The types of plant and machinery that are likely to be used on-site per development works activity are listed in Table 5.2.

Table 5.2 Likely Plant Machinery

Plant	Site Enabling Works	Site Clearance / Existing Temporary Building Removal	Excavation and Remediation	Substructure	Superstructure	Fit-out	Roads and Landscaping
Bulldozers	√						
Compaction Plant	√		√				
Cranes and Hoists	√	√	√	√	√	√	√
Cutters, Drills and Small Tools	√	√	√	√	√	√	√
Crushers	√	√					
360° Excavators	√	√	√				√

Plant	Site Enabling Works	Site Clearance / Existing Temporary Building Removal	Excavation and Remediation	Substructure	Superstructure	Fit-out	Roads and Landscaping
Floodlights	√	√	√	√	√	√	√
Fork Lift Truck	√	√	√	√	√	√	√
Generators	√	√	√	√			√
Hydraulic Benders and Cutters	√	√		√	√		
HGVs/Lorries/Vans	√	√	√	√	√	√	√
Tipper Wagons	√	√	√	√			
Piling Rigs	√			√			
Scaffolding and Mobile Hydraulic Access Platforms	√						
Ready-Mix Concrete Lorry	√		√	√	√		√
Concrete Pump				√	√		√
Mortar Batching Plant						√	
Water Pump	√	√	√	√			
Temporary Supports		√	√	√			

CONSTRUCTION AND CONTRACTORS STRATEGY

5.81 The Applicant and Main Contractor would be responsible for a number of sub-contractors (undertaking piling, concrete, cladding works etc.) and ultimately for environmental management during the construction process. Contractors strategy and measures could be secured by contract obligations between the Applicant and relevant sub-contractors or regulatory provisions in force from time-to-time.

Hours of Work

5.82 Working hours would be agreed with the LBTH, but are expected to be:

- 08:00 to 18:00 hours Monday to Friday (with an additional one hour period of mobilisation / demobilisation (comprising ‘quiet works’ as defined in the section 61 agreements with the LBTH) at the start and end of the day);
- 08:00 to 13:00 hours Saturday (with an additional one hour period of mobilisation / demobilisation at the start and end of the day); and
- No planned working on Sundays or Bank Holidays.

5.83 All work which is intended outside of these hours, excluding emergencies, would be subject to prior agreement, and/or reasonable notice to the LBTH in terms of Section 61 of the Control of Pollution Act 1974³.

³ Secretary of State, 1974. Control of Pollution Act, London: HMSO.

Health and Safety

- 5.84** All works on-site would be undertaken in accordance with the provisions of the Construction (Design and Management) (CDM) Regulations 2015⁴. A CDM Coordinator would be appointed by the Applicant and would work with the Project Team to ensure compliance with these Regulations.
- 5.85** All method statements would incorporate regulatory safety matters and a Health and Safety File would be maintained on-site for inspection by the Health Executive, the LBTH and others as appropriate.

Consultation

- 5.86** The Applicant would engage with and inform the local community and local stakeholders of particular construction tasks and indicative timelines across the individual construction phases and would ensure that both parties were fully involved in any such dialogue.
- 5.87** Matters for public consultation during the enabling, bulk excavation and piling works would be brought to the public's attention through staging drop-in exhibitions and the circulation of bespoke newsletters within the established catchment area. Local stakeholders would be engaged in direct communication with the Applicant, design team and other such consultants as required from time to time through the established Resident's and Community Liaison Groups. These groups would be open to new members as and when required and would be run in accordance with the stipulations of the LBTH.
- 5.88** The Applicant's procedures would allow for:
- A clear point of contact for the public to make enquiries and to submit complaints;
 - Details of how enquiries would be registered and progressed;
 - Advising of the intended timescales for responding to any matters raised;
 - Records of any responses given, and to whom; and
 - Escalation procedures if the Applicant's response was not considered satisfactory.

Materials Management

Selection

- 5.89** Procurement of construction materials would align with Circular Economy principles as defined in UKGBC Circular Economy Guidance for Construction⁵. A Circular Economy Statement has been provided within the Sustainability Statement submitted as part of the OPA.
- 5.90** All construction materials would be procured in line with BS ISO20400 Sustainable Procurement⁶.
- 5.91** Construction materials would be selected following the Building Research Establishment (BRE) 'Green Guide to Specification'⁷. These include:
- Minimising embodied energy content (the energy used in manufacture);
 - Using recyclable materials where they have high embodied energy; and
 - Maximising the recycled content of the material, ease of maintenance, appropriate sourcing of materials and totally excluding deleterious and hazardous materials.

Storage and Handling

- 5.92** The 'sustainability' of raw materials would be considered during the procurement process. All construction materials would be appropriately stored on-site to minimise damage by vehicles, vandals, weather or theft.
- 5.93** Due to the limited space on-site, contractors would be required to operate a 'just in time' policy for delivery of material. This means that materials would be brought to the Site just before their incorporation into the works, thereby minimising the need for on-site storage.
- 5.94** Where possible, prefabricated elements would be lifted directly into position from delivery vehicles. This would assist in reducing on-site storage and labour requirements and construction noise levels, thereby reducing potential nuisances to the surrounding receptors.

ENVIRONMENTAL MANAGEMENT CONTROLS AND MITIGATION

- 5.95** The following mitigation controls would be committed to and delivered pursuant to either planning conditions, or obligations contained in a legal agreement (under Section 106 of the Town and Country Planning Act, 1990⁸) and supported as necessary by contract obligation between the Applicant and relevant sub- contractors or regulatory provisions in force from time-to-time.

Considerate Constructors

- 5.96** All of the Applicant's construction projects participate in the Considerate Constructors Scheme which sets stringent targets for environmental management, neighbourhood liaison and workers' welfare facilities. The Considerate Constructors Scheme carries out regular site audits and awards scores out of 50 marks. The Applicant's objective is to achieve a minimum score of 40 points for each inspection.

Principal Contractor and Management of Sub Contractors

- 5.97** Individual trade contracts would incorporate appropriate requirements in respect of environmental control, based largely on the standard of 'good working practice' outlined in the CEMP (to be agreed with the LBTH) as well as on statutory requirements. Contractors would be required to demonstrate how they would achieve the provisions of the CEMP, how targets would be met and how potential adverse effects would be minimised. Contractors would be encouraged to comply with BS EN ISO 14001 Environmental Management System standard⁹.

Public Liaison

- 5.98** The Applicant would be expected to nominate a manager who would act as the PEM, who would be named at all site entrances, with a contact telephone number. The contact name and details would be provided to all the relevant stakeholders by the Applicant prior to the start of the enabling and construction works.
- 5.99** The CEMP would specify the roles and responsibilities of the PEM and the LBTH, in respect of breaches or complaints from the public. The required actions would respond to specific circumstances and might include monitoring or investigation, alteration of the operation, equipment or location, or application of additional control measures.

⁴ Secretary of State 2015, *Construction (Design and Management) Regulations*. London: HMSO

⁵ UKGCB, 2019. *Circular Economy Guidance for Construction Clients*. UKGCB.

⁶ British Standards Institution, 2017. *BS ISO20400:2017 Sustainable Procurement*. BSI

⁷ Building Research Establishment (BRE) 'Green Guide to Specification'. Online at: <https://www.bregroup.com/greenguide/podpage.jsp?id=2126>

⁸ The Stationary Office, 1990. *Town and Country Planning Act, 1990*. TSO.

⁹ British Standards Institution, 2015. *ISO 14001 Environmental Management System*. BSI.

- 5.100** The PEM would deal with complaints and any enquiries. Complaints would be recorded on-site, and reported to the PEM and the LBTH as soon as practicable.
- 5.101** Where possible, advance notice would be given to the LBTH and to other relevant parties where unusual activities or events are planned.¹⁰

Monitoring, Inspection and Auditing

- 5.102** A procedure would be implemented for audits to be carried out at stages relevant to construction works occurring on-site. These audits would identify any incidents of non-conformance that may have taken place, and identify any corrective measures required.
- 5.103** The PEM would ensure that all site staff are regularly briefed on the environmental control obligations. Training requirements and procedures for monitoring and recording the implementation of the training programme would be identified in the CEMP.

Emergencies and Environmental Incidences

- 5.104** Protocols to be implemented on-site in instances of emergencies and environmental incidences would be set out within the CEMP for approval by the LBTH.

Housekeeping and General Site Management

- 5.105** Hoardings would be erected around the Site to provide a clear and secure demarcation between operational activities and other areas and to provide information regarding the Proposed Development and its progress. Particular attention would be paid to locations supporting higher volumes of pedestrian movement, enabling and construction routes, access gates and security arrangements.
- 5.106** Contractors and their subcontractors would be expected to maintain a tidy site. A street sweeper would be employed as required during the enabling, piling and excavation periods of the construction programme to make sure that the streets around the Site would be kept clean during the works.
- 5.107** Artificial site lighting for the enabling and construction works will be sensitivity positioned and directed, taking into account neighbouring residential buildings and other light sensitive receptors.

Aviation

- 5.108** During the construction works, crane operators would comply with the recommendations of BS 7121:2012¹¹. In addition, medium intensity steady red obstacle lighting would be fitted to the completed tower buildings to provide 360 degree visibility and to the temporary construction craneage when operating above 100mAOD, as agreed with London City Airport before work starts on-site.

Waste Management and Minimisation

- 5.109** Given the limited nature of existing uses on-site, with only the temporary Tower Hamlets Employment and Training Service, Skillsmatch, and advertising structures along with hard standing, anticipated volumes of ‘demolition’ waste to be generated at the Site is minimal relative to the scale of development and size of the Site.

- 5.110** A pre-demolition audit of any existing buildings, structures or hard surfaces will be carried out before demolition. This will be used to determine whether reuse is feasible and maximise the recovery of demolition material. Contractors will be engaged in the process and actual waste will be monitored against the targets and reported via a Site Waste Management Plan.
- 5.111** The existing site will be investigated in detail at the detailed design stages and any materials that can be reused in terms of providing piling platforms or suitable for backfilling, subject to storage space on site, will be used. The concrete and reinforcement from the Quay demolition will be separated to allow steel to be recycled. The crushed concrete will be used for temporary hard standings or assuming it is not contaminated with salts etc. will be re-cycled.
- 5.112** Existing buildings which have already been used as on-site offices for previous construction works are considered for re-use in the context of the Site’s early works. Where possible these structures on the Site will be deconstructed and reused in a similar or more valuable state. Where the existing structures, elements or materials are not suitable for reuse, they will be demolished and recycled.
- 5.113** The project is to comply with the resource efficiency targets of BREEAM for non-residential projects, and Home Quality Mark (HQM) for residential properties. The targets are based on BREEAM 2018 and HQM ONE 2018. The resource efficiency targets correspond with achieving 2 credits in BREEAM and 4 in HQM. The targets are quantifiable metrics that provide businesses with a tool for measurement. The indicators include: m³ of waste/100m² of floor area.

Table 5.3 Resource Efficiency Targets

Project Type	m ³ /100m ²
Residential	8.1
Non-residential	7.5

- 5.114** Based upon the resource efficiency targets of Table 5.3, Table 5.4 provides an estimate of the potential volumes and types of waste arisings during construction of the Proposed Development at the Site.

Table 5.4 An Estimate of the Potential Volumes and Types of Waste Arisings During Construction of the Proposed Development (Indicative Scheme) at the Site.

Use	Maximum Floorspace (GIA)	EPI (m ³ /100m ²)	Waste Arising EPI (m ³)
Ground and above			
Retail (A1-A5)	13,681 m ²	7.5	1,027
Business (B1)	176,004 m ²	7.5	13,200
Hotel (C1)	44,081 m ²	8.1	3,570
Residential (C3)	83,381 m ²	8.1	,754

- 5.115** The project will target of 100% of non-hazardous construction waste diverted from landfill, and achieve a minimum of 98% diversion from landfill.

¹⁰ Secretary of State, 2007. *Construction (Design and Management) Regulations*. London: HMSO.

¹¹ British Standards Institution, 2012 *BS 7121:2012 Code of Practice for Safe Use of Cranes*. BSI.

5.116 All waste and spoil produced during the works, including below ground arisings, construction wastes (such as timber, steel, packaging), hazardous wastes (such as lubricating and hydraulic oils) would be stored and disposed of in accordance with the Environmental Protection (Duty of Care) Regulations 1991 (as amended)¹² and subsequent ancillary regulations. Waste would only be transferred to appropriately licensed waste carriers and waste transfer notes would be completed, including the European Waste Classification (EWC) code for the waste type. The Main Contractor and the PEM would be responsible for ensuring that these requirements are met.

5.117 A SWMP would be produced prior to the commencement of construction works. Although the statutory requirement to produce such a plan (Site Waste Management Plan Regulations 2008)¹³ has now been repealed, the Applicant has committed to prepare such a document on a voluntary basis and the preparation of such a plan remains a good practice requirement under CWCL procedures.

5.118 The SWMP would be designed to ensure that waste production is minimised and that recycling and re-use is maximised through monitoring, recording, sorting and separating construction waste wherever practicable. Strategies including:

- the identification of suitably designated waste storage areas to encourage waste segregation and recycling;
- the arrangement of 'just-in-time' deliveries and suitable storage of materials prior to use to prevent spoiling;
- the re-use of materials where appropriate; and
- the use of licensed waste carriers and logging of all waste transfer notes would be implemented to minimise waste.

5.119 The Main Contractor and PEM would be responsible for maintaining and updating the SWMP.

5.120 It is intended to recycle as many of the materials and waste streams as possible, either on-site (concrete, plasterboard and timber) or off-site (metals, clean soil and inert waste). 'Take-back' schemes would be utilised for the recycling and reuse of packaging.

5.121 The destination of all waste or other materials removed from the Site would be notified by the Main Contractor for approval. Loads would only be deposited at authorised waste treatment and disposal sites. Deposition would be in accordance with the requirements of the EA, the CoPA, Part IIA of the Environmental Protection Act 1990¹⁴, Environment Act 1995¹⁵, Hazardous Waste Regulations 2005 (as amended)¹⁶ and the Environmental Protection (Duty of Care) Regulations 1991 (as amended). The disposal of excavated materials would be carried out in accordance with relevant legislation.

5.122 The following measures are proposed for construction waste:

- Work within the legal requirements of the Environmental Protection (Duty of Care) Regulations 1991 and Hazardous Waste Regulations 2005 as appropriate at all times and only use appropriately licensed waste carriers for the disposal of waste;

- Re-use Site-derived materials on site wherever practicable, and ensure that waste materials leaving the Site are re-used or recycled wherever practicable;
- Develop a SWMP to best practice standards to monitor waste production and promote waste minimisation and recycling;
- Where practicable utilise waste reduction techniques such as off-site manufacture, designing spaces to standard material sizes and re-use of off-cuts;
- Work within the requirements of the CEMP;
- Use sustainable transport methods for waste disposal wherever practicable; and
- Implement 'Design for Deconstruction' principles wherever practicable, such as labelling steel work with its structural properties to facilitate easy re-use.

Environmental Mitigation Measures and Management Controls

5.123 ES Volume 1, Chapter 16: Mitigation and Monitoring Schedule presents the environmental management and mitigation measures that the Applicant is committed to implementing throughout the enabling and construction works, to either eliminate or reduce the scale of any likely environmental effects (as presented within the technical chapters of **ES Volume 1, Chapters 6-13**).

¹² HMSO, 2003; 'The Environmental Protection (Duty of Care) (England) (Amendment) Regulations 2003.

¹³ HMSO, 2008. The Site Waste Management Plans Regulations 2008.

¹⁴ The Stationary Office, 1990. Environmental Protection Act. TSO.

¹⁵ The Stationary Office, 1995. Environmental Act. TSO.

¹⁶ HMSO, 2005. Hazardous Waste Regulations 2005. HMSO and HMSO, 2009; 'Hazardous Waste (England and Wales) (Amendment) Regulations 2009.