

Updated Construction Management Plan

Hanger Lane Student Accommodation

13 June 2023

Prepared for
Hanger Lane Investments Ltd.



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23167-MA-IM-XX-DR-C-0100 GA – General Arrangement
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1. Introduction

1.1 Purpose of the CMP

1.1.1 This Construction Management Plan (CMP) has been prepared by Markides Associates in conjunction with Designated Contractors Ltd., on behalf of Hanger Lane Investments Ltd in support of its ongoing development on the Hanger Lane Gyratory, W5 1DL ('the site'). The site falls within the authority area of the London Borough of Ealing (LBE) and lies adjacent to the strategic road network managed by TfL.

1.1.1 Full Planning permission was granted in July 2019 (Planning Reference: 174485FUL, As amended by minor material application ref 195092VAR.) for the demolition of existing structure and erection of part 7, 9 and 13 storey building with double basement for use as student accommodation (use class sui generis) comprising up to 562 (650 bedspaces), ground floor ancillary student facilities and study areas, cycle parking, plant, access and servicing, landscaping and public realm, and basement/ground floor retail/café/restaurant (class A1/A3) and gymnasium (class D2) commercial units. The scheme has been implemented and construction is in progress.

1.1.2 It includes 35 classrooms, 2 lecture halls, a gym, and 2 x café/retail units. The classrooms, lecture halls and gym are located at basement level, with café located at ground floor level. These equate to the following:

- 1,401 sqm gym
- 709 sqm use class E retail
- 1,074 sqm reception area/social space

1.1.3 An additional planning application (Planning reference: 220991FUL) was more recently granted on the 10th of May 2023 for the construction of a three-storey roof extension with roof terrace to the 13-storey building and alterations and two-storey extension to the 7 storey and 9 storey buildings and linking blocks, to accommodate additional resident amenity and additional student accommodation rooms (sui generis) and associate internal alterations. A total of 144 additional rooms have been consented. The grand total number of bedrooms across the site (approved and proposed) will be 706 (or 794 bedspaces).

1.1.4 This Updated CMP therefore covers the remaining construction phasing and works to be undertaken with an updated schedule for delivery, encompassing the additional approved units.

1.2 Document History

1.2.1 A separate Transport Statement, PERS Audit report, and a Framework Residential Travel Plan have been prepared as part of the planning application. Section 7 of the Transport Statement contained a Framework Construction Traffic Management Plan (FCTMP). The framework CTMP was updated in July 2019 to form a standalone document with a revised timescale for development (Document Ref: CMP01)

- 1.1.2 A second iteration of the construction management plan (CMP02) formed an update to CMP01, including to advise of new phasing layouts after works were temporarily mothballed over the months of the COVID-19 pandemic and associated lockdowns.
- 1.1.3 This report (CMP03) supersedes both CMP01 and CMP02 and forms the next iteration of the Plan to be carried forward. As with the former documents, it is a 'live' document and will be subject to monitoring and update as the scheme progresses.
- 1.2.2 This report addresses construction principles that are employed at the site and describes mitigation measures to manage the impact of construction on residents, the surrounding community, and the local highway network. Works should be carried out such that the day-to-day activities of all adjacent residents, businesses and members of the public are maintained and unaffected by the works.
- 1.2.3 This includes:
- Maintaining access for the emergency services
 - Maintaining access for deliveries and servicing of local business and residential premises
 - Progressive removal of all waste materials
 - Consideration to the generation of any nuisance caused by the works
 - Protection of local significant flora and fauna
 - Consideration to the nature, size and timing of deliveries and waste removal
 - Full participation with the Considerate Constructor Scheme
- 1.2.4 This document is also in direct relation to the discharge of Condition 3 of Planning Permission 220991FUL; as follows:

Condition 3: Construction Management Plan

Prior to the commencement of development, a Construction Management and Logistics Plan shall be submitted to the Local Planning Authority for written approval. Details shall include control measures for dust, noise, vibration, lighting, delivery locations, restriction of hours of work and all associated activities audible beyond the site boundary to 0800-1800hrs Mondays to Fridays and 0800 -1300 hrs on Saturdays, advance notification to neighbours and other interested parties of proposed works and public display of contact details including accessible phone contact to persons responsible for the site works for the duration of the works. Approved details shall be implemented throughout the project period.

More specifically, the Plan shall include the following information:

- a) Details of the exclusion areas for the protection of priority and other notable species and other ecological features (based on the recommendations contained within the approved ecological surveys);*
- b) Details of all Non-Road Mobile Machinery (NRMM) to be used on the development site.*

- c) Anticipated route, anticipated number, frequency, and size of construction vehicles entering/exiting the site per day;*
- d) Delivery times and booking system;*
- e) Management of consolidated or re-timed trips;*
- f) Details of noise/vibration mitigation measures and monitoring arrangements for noise, vibration and dust by suitably qualified noise and air quality specialists. Noise/vibration and dust mitigation measures must accord with the Mayor's SPG 'The control of dust and emissions from construction and demolition ' (2014); BS 5228 Parts 1 & 2; the Institute of Air Quality Management 'Guidance on the assessment of dust from demolition and construction';*
- g) Details of site security and the erection and maintenance of security hoarding including decorative displays and facilities for public viewing, where appropriate;*
- h) Secure, off-street loading and drop-off facilities;*
- i) Vehicle manoeuvring and turning, including swept path diagrams to demonstrate how construction vehicles will access the site and be able to turn into and emerge from the site in forward gear and including details of any temporary vehicle access points;*
- j) Procedures for on-site contractors to deal with complaints from members of the public; Planning Committee 20/06/2018 Item No. 01 9 of 77*
- k) Measures to consult cyclists, disabled people, and the local schools with regard to delivery times and necessary diversions;*
- l) Details of all pedestrian and cyclist diversions;*
- m) A commitment to be part of Considerate Constructors Scheme; and*
- n) Confirmation of use of TfL's Freight Operator Recognition Scheme (FORS) or similar.*

The Construction Management and Logistics Plan shall be implemented on commencement of any works on site and the site shall be managed in accordance with the approved plan for the duration of demolition and construction.

1.3 CMP Structure

1.3.1 This CMP is structured as follows:

- **Section 2** provides the details of the relevant parties and persons associated with the implementation of the development, their role, and their contact details;
- **Section 3** outlines the site location, its access by mode of transport, the site constraints and community considerations. It also provides an overview of the ecological surveys undertaken and the findings of that work;
- **Section 4** provides details of the expected construction phasing and methodology, the key sensitive receptors neighbouring the site and liaison undertaken;
- **Section 5** provides details of vehicle types and their access, the proposed routeing to the site during the construction period, and the expected level of construction traffic trips. It also provides details of NRMM management;
- **Section 6** provides a description of the proposed strategies to reduce the impact of construction in terms of noise, vibration, and dust;
- **Section 7** outlines the proposed implementation of the CMP, how the CMP will be monitored and how it will be updated, including details related to Handbooks, FORS and CLOCs compliance;
- **Section 8** provides the examination of strategies to reduce impacts as per TfL guidance;
- **Section 9** summarises and concludes this CMP.

2. Relevant Persons and Contact Details

2.1 Site Reference

2.1.1 The full reference of the site is as follows:

Site Address
Hanger Lane Gyratory, W5 1DL
Full Planning permission was granted in July 2019 (Planning Reference: 174485FUL).

2.2 Roles and Project Team

2.2.1 The following members of the project team are listed alongside their duties to manage or comply with the implementation of the CMP below:

Designated Contractors Ltd.’s Project Manager

- Assist with planning and preparation of the detailed project traffic management strategy and updating where required.
- Ensure a site-specific risk assessment is carried out for all traffic activities (arrival, departure, loading and unloading, movement, and maintenance).
- Ensure a project induction is available to all pedestrians and drivers, identifying prescribed routes and any constraints or traffic restrictions.
- Monitoring and reviewing health and safety performance of all parties.
- Ensure there are adequate emergency procedures in place for all foreseeable events, including traffic issues, spills, medical evacuation, and fire.
- Ensure there is adequate lighting on all access routes and common user areas.

2.2.2 The construction is overseen by Designated Contractors Ltd and the appropriate site contact details are as follows:

CMP and Project Manager
Simon Hikmet Designated Contractors Ltd Site Operations Director +44 7788 780677

2.2.3 The site project manager for day-to-day management of the works and dealing with any complaints from local residents and businesses is the same as the above.

Designated Contractors Ltd.'s Logistics Manager

- Traffic management control.
- Provide segregated pedestrian and vehicle routes.
- Provision of materials / equipment to support the strategy.
- Provision of competent resources.
- Liaise with all sub-contractors regarding production of traffic management strategy.
- Performance measurement / feedback to the team regarding traffic management strategy and contractor compliance.
- Carry out risk assessment for traffic activities.
- Facilitate deliveries and management of delivery / logistics strategy.
- Ensure wheel cleaning facilities and road sweeping arrangements are maintained
- On-going review and updating of this CMP as the project develops and site conditions change.

2.2.4 The Principal Contractor is as follows:

Principal Contractor

Designated Contractors Ltd. (DCL)
46 Great Marlborough Street
London W1F 7JW
+44 7788 780677

Other Roles

2.2.5 Other roles and duties are summarised as follows:

Staff and sub-contractors

- Complying with the CMP
- Ensuring all personnel attend a project induction
- Providing competent workforce and supervision
- Providing plant and equipment which complies with relevant statutory obligations

Drivers and plant operators

- Be competent and trained to the appropriate standard
- Drive with care and comply with the requirement of this CMSMP
- Use the correct equipment for the task, ensuring they are suitable for use, marked with safe working load, properly maintained, inspected, and thoroughly examined regularly

3. The Site and Proposals

3.1 Preamble

- 3.1.1 This section describes the local context and issues identified that need to be considered and addressed during construction.

3.2 The Site and Baseline Conditions

- 3.2.1 The following maps show the area around the development site. **Figure 3.1** shows a regional plan with the location of the site in the context of greater London and the road network. **Figure 3.2** shows the location of the site in relation to the surrounding local area. **Figure 3.3** shows the site boundary plan showing the extent of footways, other buildings, cycle lanes and road markings. All plans are duplicated to scale at the end of this report.

Figure 3.1 Regional Context Plan

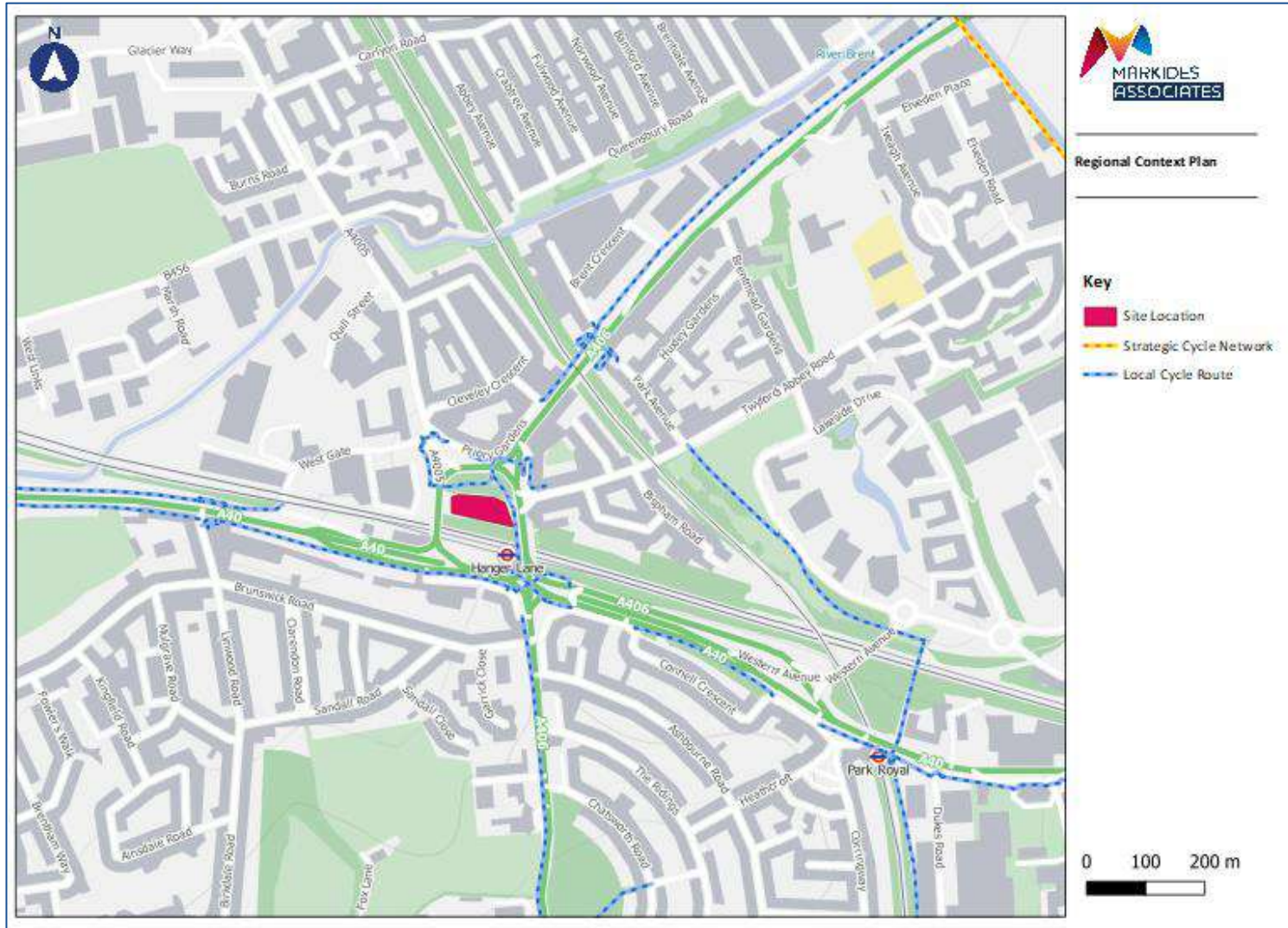


Figure 3.2 Local Context Plan

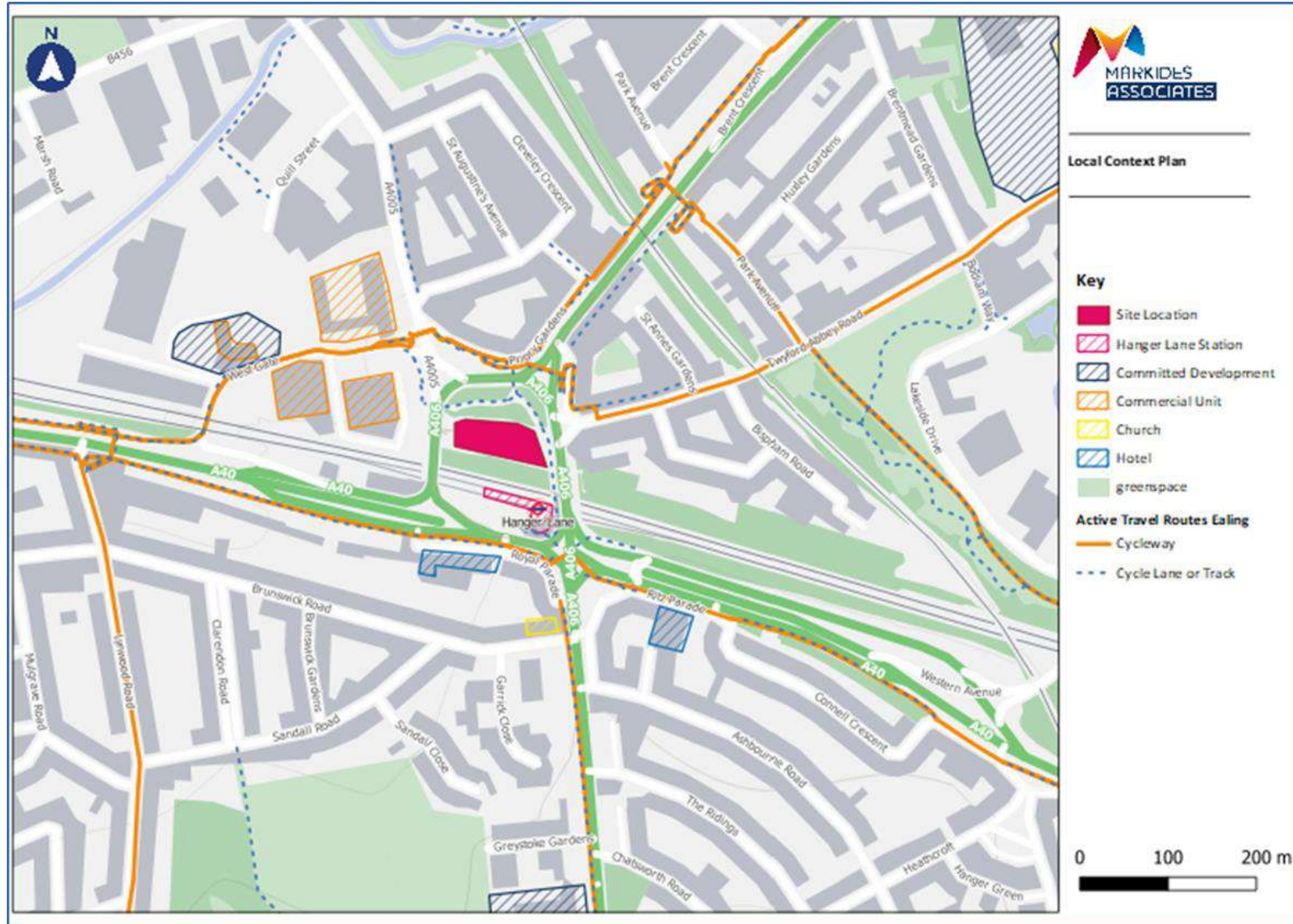
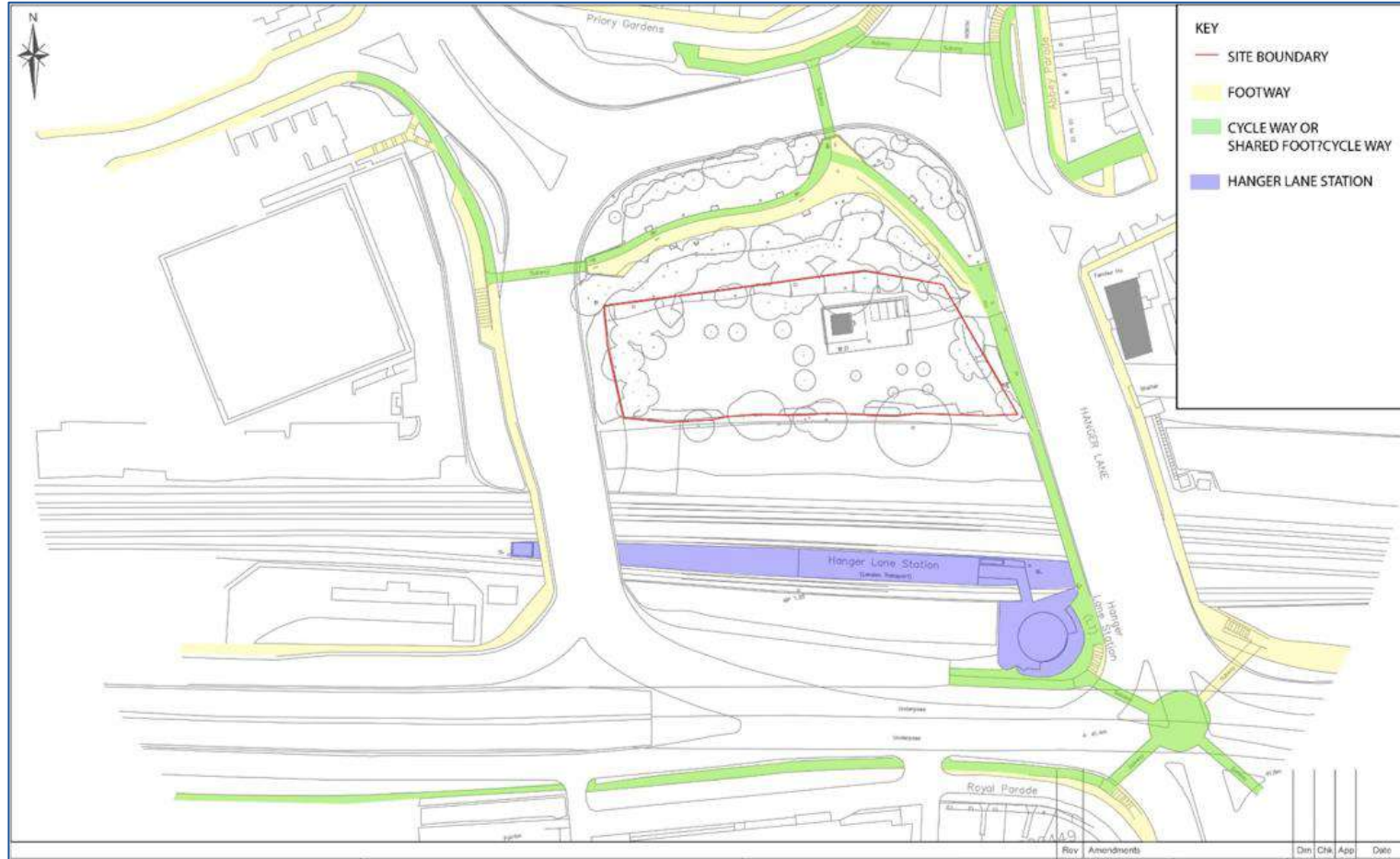


Figure 3.3 Site Boundary Plan



3.3 Approved Development

3.3.1 The original development already under construction consists of 26,478m² of gross external floor area (GEA), of which 24,135m² is student use, 1,552m² is for gym use and 791m² of retail. It consists of two basements, ground floor with mezzanine levels, eleven floors of student accommodation and a top floor of social space. The basement levels are occupied by classrooms, lecture halls, bicycle storage, a fitness centre, plant room and other back-of-house facilities. Other key design features include:

- A new south facing private piazza to be used by the students. The piazza is sheltered from the gyratory by the building which surrounds it.
- New South Facing public piazza to be used by the students and general public. The piazza will have retail units at ground floor, as well as a new pedestrian link to the underpasses on the north and west of the gyratory.
- Vehicular access, for deliveries, servicing and refuse collections will be located to the west of the site.
- New trees are proposed to be planted to the east of the site creating a visual separation between the scheme and the busy gyratory.

3.3.2 The more recently permitted extension will deliver 144 additional student accommodation bedrooms (sui generis) and associated internal alterations. A summary of the proposed changes to elevations is given **Table 3.1**.

Table 3.1 Summary of Proposed Elevations

Floor	Alteration	Notes
5 th floor	Outward extension to align building with lower floors + Associated internal alterations	
6 th floor		
7 th floor		Part of the extension set back to create 'crown'
8 th floor		
9 th floor		Part of the extension set back to create 'crown'
10 th floor	No changes	
11 th floor	Outward extension to align building with lower floors + associated internal alterations	
12 th floor	Upward extension	
13 th floor	Upward extension set back to create 'crown'	
14 th floor		
Roof		

3.3.3 A separate application was made under Section 96a for amendments to the approved layouts at lower and upper basement to reconfigure communal/education amenities and provide an

increase in cycle parking and plant suitable to serve the additional 144 bedrooms, application reference 217214NMA. This was granted 10th of January 2022.

- 3.3.4 The consented number of rooms is 562 (650 bedspaces). There are 144 proposed rooms additional. The total number of bedrooms across the site (approved and proposed) would therefore be 706 (or 794 bedspaces).
- 3.3.5 Vehicle access would be limited to operational and emergency access only. The main access consists of a layby connecting to the west of the site from Hanger Lane. Staff and students would not be permitted to use this layby and the layby would be managed to ensure that unscheduled vehicles did not enter or try to use the layby. The existing vehicle gate to the east of the site, which is accessed from the North Circular Road will be retained for emergency access only, permitting fire service vehicles to enter the site, manoeuvre and leave the site in forward gear.
- 3.3.6 An off-site delivery hub has been identified, which will receive and collate all post and courier deliveries to the site into a single daily delivery, which will be delivered to the site on-foot using a trolley. A separate Delivery and Servicing Management Plan has also been provided.
- 3.3.7 All pedestrian and cycle access would be via the existing shared access from North Circular Road adjacent to Hanger Lane station as per the approved development. Pedestrians and cyclists will both be able to access the site directly from the east. Cyclists travelling on towards Subways 5 and 6 will not need to deviate from the existing route.
- 3.3.8 The site will be car free, with only disabled parking provided on local streets. Space has been identified on Priory Gardens to the north of the gyratory.
- 3.3.9 Cycle parking will be provided as per the London Plan at a ratio of 0.75 spaces per bedroom long-stay and 1 space per 40 bedrooms long-stay. A total of 108 additional long-stay spaces and 4 additional visitor spaces (a total of 112 spaces) will be created at basement level via a separate S96 application. There will be a grand total of 437 cycle spaces.

3.4 Accessibility by Public Transport

- 3.4.1 The PTAL score for the year 2021 indicates that the base year PTAL rating is 5 or 'very good' across the whole of the site.

Rail Access

- 3.4.2 Hanger Lane underground station is located inside the gyratory within 100 metres of the site by foot. This station is served by the Central Line, providing links to national rail stations such as West Ruislip, Shepherd's Bush and Stratford and serves central locations such as Oxford Circus, Tottenham Court Road, and Bank. Consultation and renegotiation on funding for step-free access at Hanger Lane station is ongoing following the hiatus on works in 2020.
- 3.4.3 Services operate every 4-8 minutes Monday to Saturday and 4-10 minutes on Sundays. The Central Line further benefits from a night tube service operating every 20 minutes throughout the night on Fridays and Saturdays.

- 3.4.4 Park Royal underground station is located approximately 800 metres from the site by foot and is served by the Piccadilly Line. This line provides links to the Kings Cross St Pancras station, providing access to national rail and Eurostar services. This line also provides access to a range of other central underground stations and onward connections such as to Earls Court and Green Park as well as Heathrow Airport. Services operate every 5-10 minutes. In due course, Park Royal will become a major transport hub where HS2 will connect to the Elizabeth Line.
- 3.4.5 Under normal circumstances, the Piccadilly Line also benefits from a night tube service operating every 10 minutes throughout the night on Fridays and Saturdays creating a 24-hour service.

Bus Access

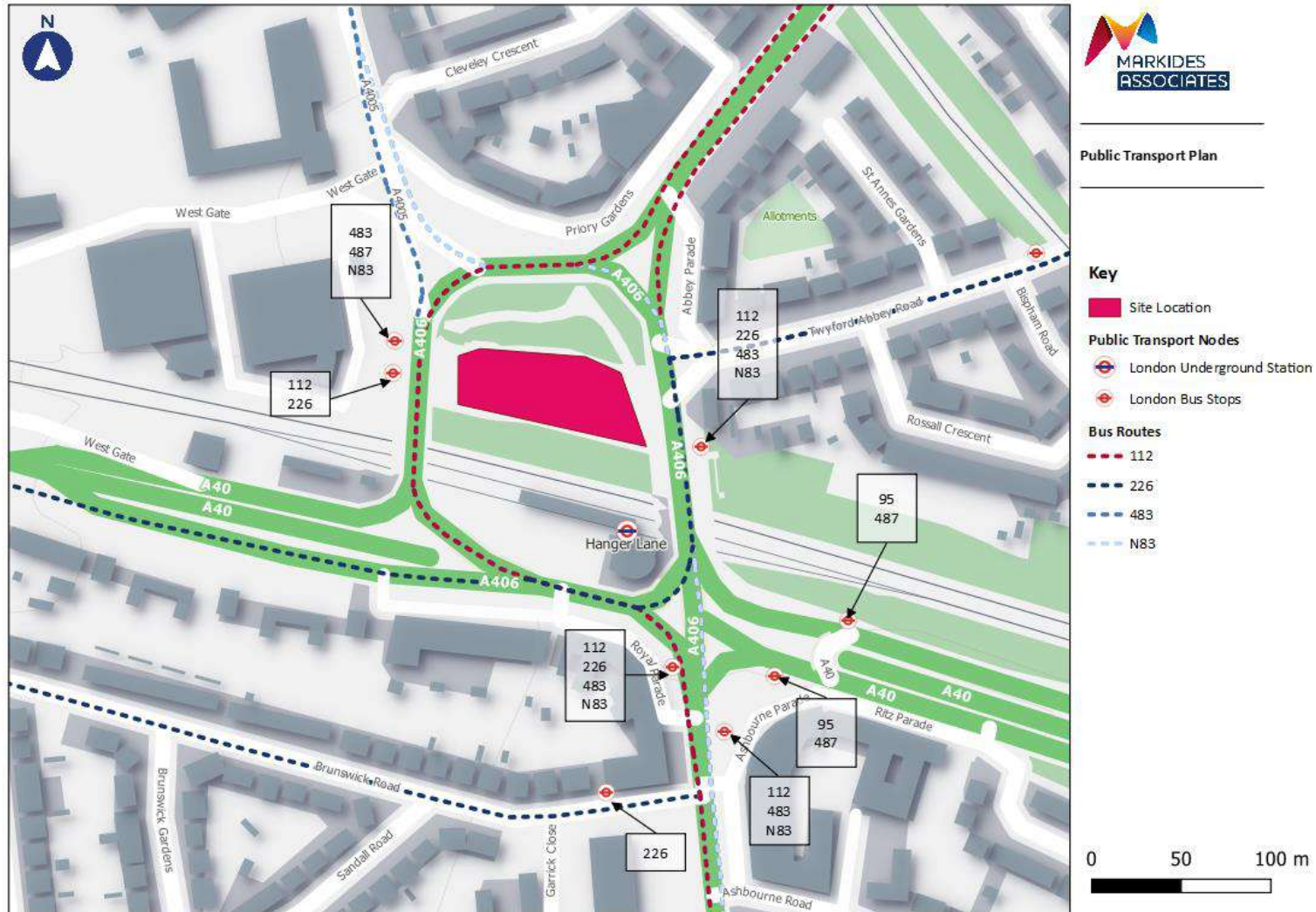
- 3.4.6 The nearest bus stops are located on the western side of the gyratory approximately 100 metres from the site by foot. Additional bus stops are located on the eastern side of the gyratory approximately 200 metres from the site and on Western Avenue approximately 250 metres from the site.
- 3.4.7 The local bus stops create a link to a range of locations including Shepherds Bush, Golders Green and Ealing Hospital, a night bus service also operates from within 250 metres of the site. A summary of the services available at the local stops is shown in **Table 3.4** overleaf. Bus stop and other public transport nodes are shown in **Figure 3.4** immediately following.

Table 3.4 Local Bus Services

Route No.	Route	Frequency		
		Weekdays	Saturday	Sunday
95	Southall Broadway – Hanger Lane – Shepherds Bush Green	Up to 5 per hour	Up to 5 per hour	3 per hour
112	Ealing Broadway Station – Hanger Lane – Brent Cross Shopping Centre	Every 10 – 13 minutes or 3 – 4 per hour	Every 11 – 14 minutes or 3 – 4 per hour	4 per hour
226	Haven Green – Hanger Lane Station – Golders Green	Every 9 – 13 minutes or 3 – 4 per hour	Every 10 – 12 minutes or 3 per hour	3 per hour
483	Ealing Hospital – Hanger Lane – Harrow Bus Station	Every 7 – 10 minutes or every 10 – 12 minutes	Every 6 – 12 minutes	Every 8 – 12 minutes or 3 – 4 per hour
487	South Harrow Bus Station – Hanger Lane – Willesden Junction Station	Every 10 – 12 minutes or up to 4 per hour	Every 12 – 13 minutes or 3 – 5 per hour	2 – 3 per hour
N83	Golders Green Station – Hanger Lane – Ealing Hospital	1 – 2 per hour	1 – 2 per hour	1 – 2 per hour

3.4.8 **Table 3.4** demonstrates that Hanger Lane is served by frequent buses to a wide range of destinations and is easily accessible by modes other than the private car.

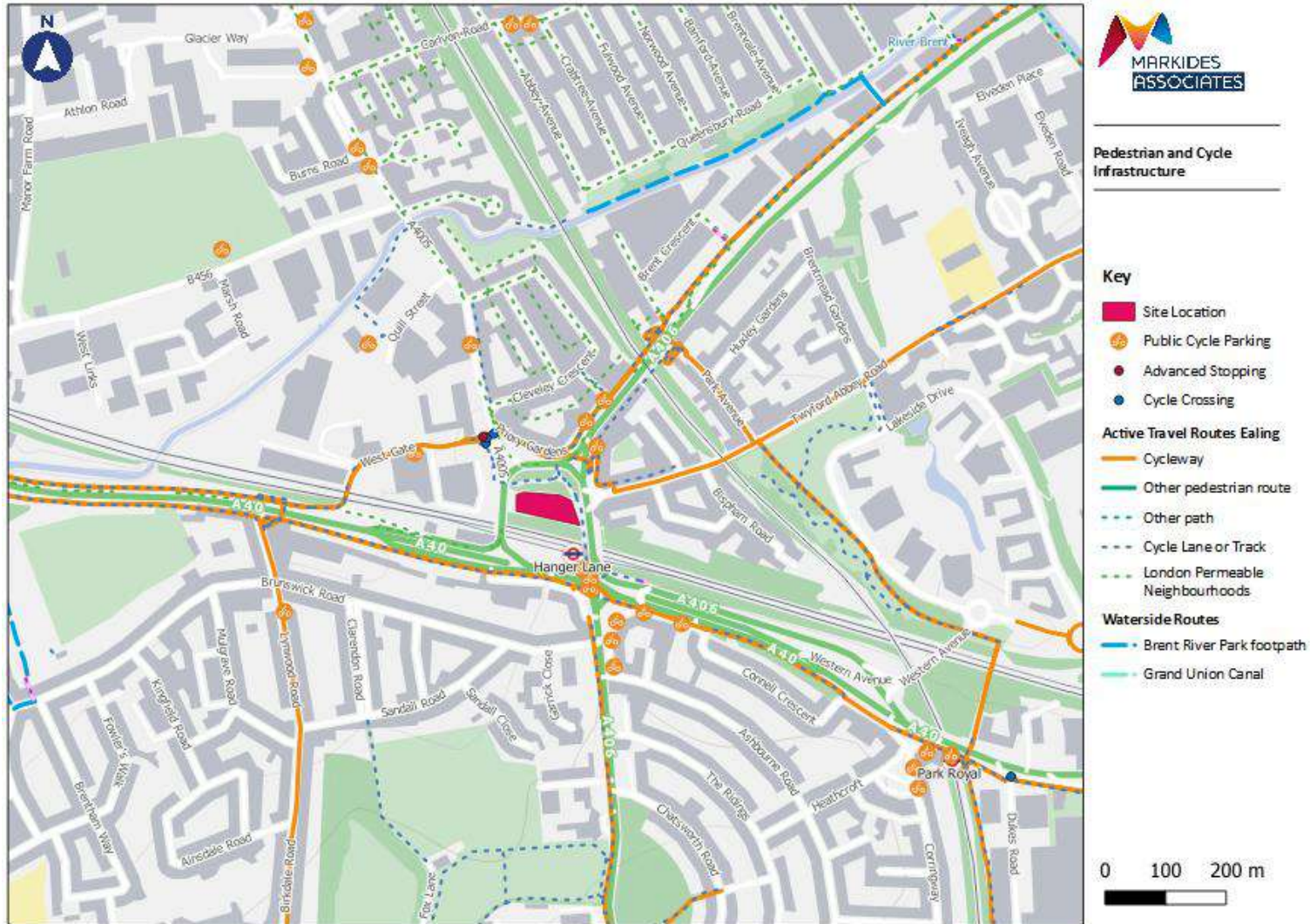
Figure 3.4 Public Transport Plan



3.5 Pedestrian Access

- 3.5.1 The existing pedestrian environment in this location provides convenient access to areas within and around the gyratory. There is a footway on the eastern side of gyratory that provides a convenient link from the site to Hanger Lane underground station. This footway is wide, well-lit and benefits from railings between the footway and carriageway.
- 3.5.2 The area immediately to the north of the site is well-maintained, landscaped and benefits from a shared cycle path/footpath. There are subways at strategic locations, each of which are well-lit and provide step free access, located beneath the Hanger Lane Gyratory. These subways link the site to the wider transport network outside of the gyratory. As such, there is no requirement for pedestrians or cyclists to cross over the gyratory at surface level to enter or depart the site.
- 3.5.3 The subway to the west provides pedestrian and cyclist access to bus stops B and C, located on the western side of the Gyratory, and to the wider pedestrian network on Hanger Lane and Western Avenue. The subway at the north of the gyratory provides pedestrian and cycle access to Priory Gardens and Norbreck Parade, facilitating access to a parade of local shops and the wider pedestrian network to the north of the site. This subway also links to the footways to the east of the gyratory, providing a convenient link to bus stops J and K and to the parade of shops on Abbey Parade.
- 3.5.4 The largest subway is located at the south of the gyratory and provides access to Hanger Lane tube station and to the wider pedestrian network to the south of the site. This subway provides access to bus stop N, located on Western Avenue, and facilitates access to shops located on Ritz Parade and shops located to the west of North Circular Road. The subway also links to the footway on the southern side of Western Avenue to the east of the gyratory, which provides a link to Park Royal Underground Station.
- 3.5.5 A plan showing the walking routes between the site and local bus stops is included as **Figure 3.2**.

Figure 3.5 Pedestrian and Cycle Infrastructure Plan



3.6 Cycle Access

- 3.6.1 As shown in the figure above, there is a network of cycle connections through and around the gyratory.

3.7 Exclusion Areas and Other Ecological Features

- 3.7.1 As part of the application reference 174485FUL, environmental consultants AAE produced an Ecological Report. Conclusions in this report were as follows:

Findings of Ecological Report

“The proposals are to re-develop the site to provide student halls of residence, with associated areas of hard and soft landscaping, requiring the demolition of the existing buildings and clearance of some of the vegetation. The site is dominated by buildings and hard-standing, and the limited species recorded can be described as common or abundant and are found in similar places across much of Britain, with no evidence of protected species recorded.

Overall, the findings of this ecological appraisal would indicate that there are no overriding ecological constraints to the development proposals to preclude planning permission being granted at this stage, subject to the findings of the additional bat surveys. A range of generic mitigation/enhancement measures have been suggested and, if implemented effectively, would reduce the impact of the works on local wildlife and increase the nature conservation value of the site in the long term, in accordance with Government guidance as set out in National Planning Policy Framework.”

- 3.7.2 All recommendations in the report, which include avoidance of tree felling during nesting season, the provision of roosting and nesting opportunities for bats and birds, and the minimising of light pollution, are being carried out.
- 3.7.3 For further information refer to the approved Ecological Report by AAE environmental consultants dated August 2017, included in **Appendix A** at the end of this report.

4. Construction Programme and Methodology

4.1 Phasing

4.1.1 The bulk of the super-structure will be built using prefabricated pods, which will arrive at the site fully completed with interior infrastructure, reducing the demands of the super-structure building phase. The site has been cleared and construction completed up to the initial superstructure. The anticipated remaining build time is now estimated spans the duration between Q1 2023 and Q4 2025.

4.1.2 The phases have been outlined according to TfL guidance, and consist of the following:

- **Site setup and demolition** – Includes establishing welfare accommodation, demolishing, or removing existing structures and clearing the site of debris.
- **Basement excavation and piling** – Typically includes removing excavated material from the site and excavating the basement. As the basement is being dug, piling is required to form the basement walls and structural footings of the building.
- **Sub-structure** – Below ground works include foundations and basement walls. Plant installation can also occur.
- **Super-structure** – Above ground works including the structural elements of the building including the installation of the prefabricated pods.
- **Cladding** – Cladding includes the external elements of the building including the façade, roof, and glazing.
- **Fit-out, testing and commissioning** – This stage includes all mechanical, electrical, and plumbing installation and testing of newly installed systems.

4.1.3 The duration of these phases as advised by the main contractor are detailed in **Table 4.1** below.

Table 4.1 Construction Phases

Construction Phase		Start	End	No. of Months	Total No. of Days
Phase 1	Site set-up and Demolition	Completed			
Phase 2	Basement Excavation and Piling	Completed			
Phase 3	Sub-structure and initial Superstructure	February 2023	June 2024	17	377
Phase 4	Pod Installation	May 2023	April 2024	12	254
Phase 5	Cladding	May 2023	June 2025	24	510
Phases 6 & 7	Fit-out, testing and commission	December 2023	September 2025	22	450

4.1.4 Further details are included in **Section 5** of this report.

4.2 Receptors and other Stakeholders

4.2.1 There are residential units to the north and east of the site; however, they are separated from it by the gyratory and screened from the site by trees.

4.2.2 Hanger Lane Station and the associated railway line are located to the south of the site. Similarly, there are bridges where the gyratory crosses the railway line to both the southwest and southeast of the site.

4.2.3 A foot-cycle path passes to the east and north of the site. This path connects to local highways via subways and provides segregated permeability across the gyratory for pedestrians and cyclists. It also links to Hanger Lane Station at grade along the inside of the eastern side of the gyratory.

4.2.4 Key local receptors have been identified on **Figure 3.2** in the previous section of this report.

4.3 Liaison

4.3.1 A maildrop was undertaken for local residents, businesses, and stakeholders. 200 flyers were distributed on the 24th of July 2019, and contact details have been continuously posted on the site boundary but so far, no comments have been returned.

4.3.2 No other major development is known of within the local area; however, there are several emerging smaller developments. The situation will be monitored.

4.3.3 Discussions with NR and TfL were undertaken regarding asset protection and there has been no issue to date in respect of impact on TfL and NR assets.

4.3.4 The site is registered with Considerate Contractors and the receipt of that registration is included as **Appendix B**.

5. Construction Traffic

5.1 Forecast Vehicle Demand and Type by Phase

5.1.1 Full details of the vehicles required per phase have been acquired from the Principal Contractor and are summarised in **Appendix D** at the end of this report.

NRMMs

5.1.2 Non-road mobile machinery (NRMM) on site with net power between 37kW and 560kW is required to meet the standards set out below. The standards are applicable to both variable and constant speed engines and apply for both PM and NOx emissions.

5.1.3 Standard from 1st September 2015:

- (i) Major Development Sites – NRMM used on the site of any major development will be required to meet Stage IIIA of EU Directive 97/68/EC
- (ii) Any development site within the Central Activity Zone - NRMM used on any site within the Central Activity Zone will be required to meet Stage IIIB of EU Directive 97/68/EC

5.1.4 New Standards from 1st September 2020:

- (iii) Any development site - NRMM used on any site within Greater London will be required to meet Stage IIIB of EU Directive 97/68/EC
- (iv) Any development site within the Central Activity Zone - NRMM used on any site within the Central Activity Zone will be required to meet Stage IV of EU Directive 97/68/EC

5.1.5 The development is not located within the CAZ. NRMM with net power between 37kW and 560kW meet the standards outlined above. An inventory of all NRMM is kept by the contractor and all machinery is regularly serviced and service logs kept for inspection.

5.2 Vehicle Access and Routeing

5.2.1 The origin of the prefabricated pods is Felixstowe and as such, the routeing to the site has taken this into consideration and routes planned accordingly.

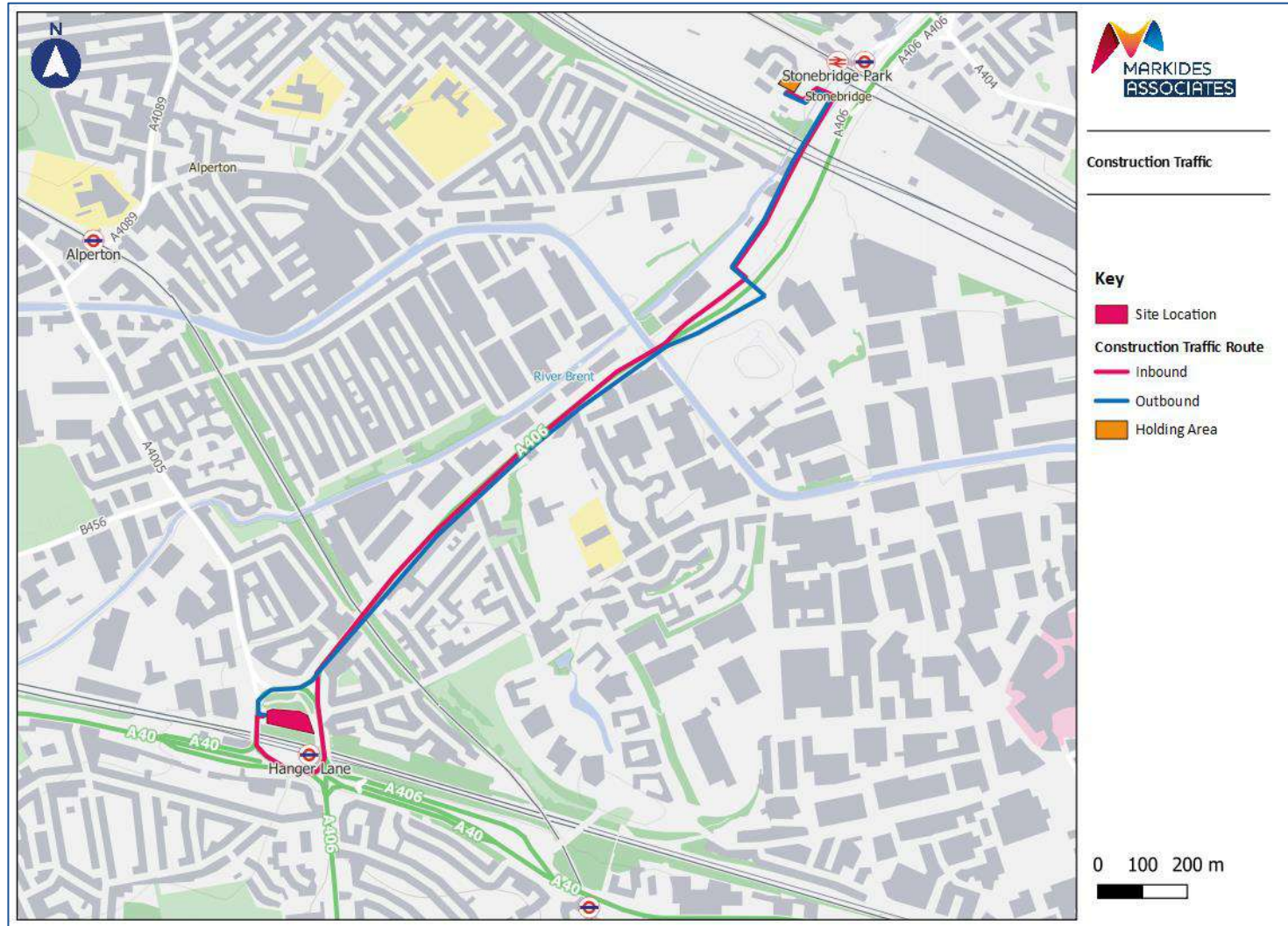
5.2.2 The main strategic routes between Felixstowe and the site are as follows:

- Route A: Felixstowe – A14 south of Ipswich – A12 via Colchester and Brentwood – M25 to Theydon Bois – M11 via Woodford – North Circular Road via Brent Cross; or
- Route B: Felixstowe – A14 south of Ipswich via Bury St Edmunds– A11 – A505 via Royston by-pass – A1 to Barnet– A41 Watford Way via Brent Cross – North Circular Road.

5.2.3 Route A is considerably shorter (158km compared to 202km) but Route B is considered an alternative route should conditions on Route A make it temporarily unviable or more onerous.

5.2.4 Notwithstanding the above, the construction traffic associated with the site is routed via the North Circular Road from the northeast of the site and to egress following the same route. A plan showing the construction traffic routing is included as **Figure 5.1**.

Figure 5.1 Construction Traffic Routeing Plan (Regional Context)



'Last Mile' Routeing and Access

- 5.2.5 The routing within the immediate vicinity of the site is determined by the location of the access and the constraints of the local highway. Hanger Lane Gyrotory by its nature demands a clockwise routeing around the perimeter of the site, with the existing access located to the eastern side of the gyrotory.
- 5.2.6 The western access in its temporary form to enable construction access has been built and is functional and will be used for all remaining phases of construction. The eastern access has been closed excepting for emergency vehicles.
- 5.2.7 No vehicles are held on-site overnight.
- 5.2.8 To summarise, the remaining phases are outlined in **Table 5.1**, which also lists the associated construction layout for each phase.

Table 5.1 Access Arrangements by Phase

Construction Phase		Proposed Access Arrangement	Construction layout	Status
Phase 4	Super-structure	Western access only	A (SO) 011	Current Phase
Phase 5	Cladding		A (SO) 012	Future Phase
Phases 6 & 7	External works, Fit-out, testing and commission		A (SO) 013 A (SO) 014	Future Phase
Completed Development		Eastern Access: emergency access only. Western access: Servicing and Delivery only	23167-MA-IM-XX-DR-C-0100 GA – General Arrangement 23167-MA-IM-XX-DR-C-0101 LAP – Land Ownership Plan 23167-MA-IM-XX-DR-C-4001 SD – Standard Details	Operational Phase

- 5.2.9 Construction traffic is not permitted to travel along any of the retail parades adjacent to the gyrotory or residential roads. The drawings listed in **Table 5.1** are included at the end of this report.

Off-site Holding Area

- 5.2.10 The dedicated holding area is located at Blackmore Drive NW10 0RW. It is some 2km to the northeast of the site, with a journey time of approximately 10 minutes to the site. A Traffic

Marshall is in situ to coordinate vehicles and send them to site as and when required. The holding area communicates with the site by means of two-way radios and mobile phones.

- 5.2.11 For pod delivery, the normal operational hours will allow the contractor to arrive at 07:45 at the holding area to commence loading at 08:00, and the last loads of the driving day should be at around 16:00.
- 5.2.12 The holding area has sufficient capacity to hold the vehicles required. A maximum of 6 lorries are permitted to enter the holding area and wait to load, and this maximum will gradually be reduced as construction progresses.

5.3 Delivery Management

5.3.1 All deliveries to the site operate on a 'just in time' basis. All drivers are obligated to call ahead to the site before arrival and a call off system is in place. The system effectively mitigates the following:

- Queuing outside the site;
- Arrival of unscheduled deliveries;
- Deliveries arriving late due to supplier despatch misunderstandings;
- Deliveries failing to arrive;
- Wrong quantities or materials arriving by mistake, requiring the vehicle to be sent away, or an additional 'part-load' vehicle delivery to make up delivery requirements;
- Delivery vehicles arriving early in the hope that they will be dealt with out of turn; and
- No staff or equipment being available on-site to unload the vehicle.

5.3.2 The delivery booking system is operated by the construction site traffic manager. Banksmen ensure the efficient and safe movement of vehicles into and out of the site. The banksmen are coordinated by the site traffic manager and sufficient banksmen are appointed to ensure the safe access and egress of vehicles and to manage any other access requirements adjacent to the site.

5.4 Estimated Vehicle Movements

5.4.1 The number of trips associated with the construction of the development has been estimated according to construction phase. The phasing has been summarised in **Table 5.2** below. These phases significantly overlap and not all phases represent continuous work through the whole time period shown.

Table 5.2 Phasing

Construction Phase		Start	End	No. of Months	Total No. of Days
Phase 1	Site set-up and Demolition	Completed			
Phase 2	Basement Excavation and Piling	Completed			
Phase 3	Sub-structure and initial Superstructure	February 2023	June 2024	17	377
Phase 4	Pod Installation	May 2023	April 2024	12	254
Phase 5	Cladding	May 2023	June 2025	24	510
Phases 6 & 7	Fit-out, testing and commission	December 2023	September 2025	22	450

5.4.2 The above information has been used in conjunction with the forecast vehicle demand and type information from the Contractor (included in **Appendix D**). A granular assessment has been undertaken which attributes vehicle demand by day and by month. No overlap has been assumed at this stage. The anticipated vehicle numbers and associated trip generation by phase and by month have been subsequently calculated. The results are detailed in **Table 5.3** and the remainder of this section.

It should be noted that the TfL CLP Calculator demands inputs which cover the whole of the construction period from Phase 1 to completion but at the same time some outputs are not able to generate correctly with such an extended construction period (which in total now spans more than 4 years). On that basis, the calculation has sought to replicate the TfL CLP Calculator Outputs as the form was not functional with the parameters needing to be assessed.

Table 5.3 Vehicle Numbers and Trips

Phase	Total days /phase	Total months/ phase	Total veh / day	Total trips per day	Total veh per month	Total trips per month
Phase 3 - RC & Superstructure						
Feb-23	20	1	2	4	40	80
Mar-23	23	1	2	4	46	92
Apr-23	18	1	2	4	36	72
May-23	20	1	1	2	20	40
Jun-23	22	1	0	0	0	0
Jul-23	21	1	0	0	0	0
Aug-23	21	1	0	0	0	0
Sep-23	22	1	0	0	0	0
Oct-23	22	1	0	0	0	0
Nov-23	23	1	0	0	0	0
Dec-23	19	1	0	0	0	0
Jan-24	22	1	0	0	0	0
Feb-24	22	1	0	0	0	0
Mar-24	20	1	0	0	0	0
Apr-24	21	1	0	0	0	0
May-24	21	1	1	2	21	42
Jun-24	20	1	1	2	20	40
Total Phase 3	357	17	9	18	183	366
Phase 4 - Pods						
May-23	20	1	14	28	0	0
Jun-23	22	1	11	22	242	484
Jul-23	21	1	11	22	231	462
Aug-23	21	1	11	22	231	462
Sep-23	22	1	11	22	242	484
Oct-23	22	1	11	22	242	484
Nov-23	23	1	11	22	253	506
Dec-23	19	1	11	22	209	418
Jan-24	22	1	11	22	242	484
Feb-24	22	1	11	22	242	484
Mar-24	20	1	11	22	220	440
Apr-24	20	1	11	22	220	440
Total Phase 4	254	12	135	270	2,574	5,148
Phase 5 - Services and Cladding						
May-23	20	1	11	22	0	0
Jun-23	22	1	16	32	352	704
Jul-23	21	1	13	26	273	546
Aug-23	23	1	18	36	414	828
Sep-23	22	1	16	32	352	704
Oct-23	22	1	12	24	264	528
Nov-23	23	1	12	24	276	552
Dec-23	19	1	11	22	209	418
Jan-24	22	1	11	22	242	484
Feb-24	22	1	21	42	462	924

Phase	Total days /phase	Total months/ phase	Total veh / day	Total trips per day	Total veh per month	Total trips per month
Mar-24	20	1	21	42	420	840
Apr-24	21	1	22	44	462	924
May-24	21	1	16	32	336	672
Jun-24	20	1	16	32	320	640
Jul-24	23	1	18	36	414	828
Aug-24	20	1	16	32	320	640
Sep-24	21	1	15	30	315	630
Oct-24	23	1	13	26	299	598
Nov-24	21	1	3	6	63	126
Dec-24	20	1	3	6	60	120
Jan-25	21	1	1	2	21	42
Feb-25	20	1	1	2	20	40
Mar-25	21	1	1	2	21	42
Apr-25	20	1	1	2	20	40
May-25	20	1	1	2	20	40
Jun-25	2	0	1	2	2	4
Total Phase 5	510	24	279	558	5,957	11,914
Phase 6/7						
Dec-23	19	1	8	16	152	304
Jan-24	22	1	8	16	176	352
Feb-24	22	1	8	16	176	352
Mar-24	20	1	8	16	160	320
Apr-24	21	1	9	18	189	378
May-24	21	1	10	20	210	420
Jun-24	20	1	6	12	120	240
Jul-24	23	1	17	34	391	782
Aug-24	20	1	13	26	260	520
Sep-24	21	1	12	24	252	504
Oct-24	23	1	5	10	115	230
Nov-24	21	1	5	10	105	210
Dec-24	20	1	0	0	0	0
Jan-25	21	1	1	2	21	42
Feb-25	20	1	0	0	0	0
Mar-25	21	1	0	0	0	0
Apr-25	20	1	0	0	0	0
May-25	20	1	0	0	0	0
Jun-25	21	1	0	0	0	0
Jul-25	23	1	0	0	0	0
Aug-25	19	1	0	0	0	0
Sep-25	12	1	1	2	12	24
Total Phase 6/7	450	22	111	222	2,339	4,678

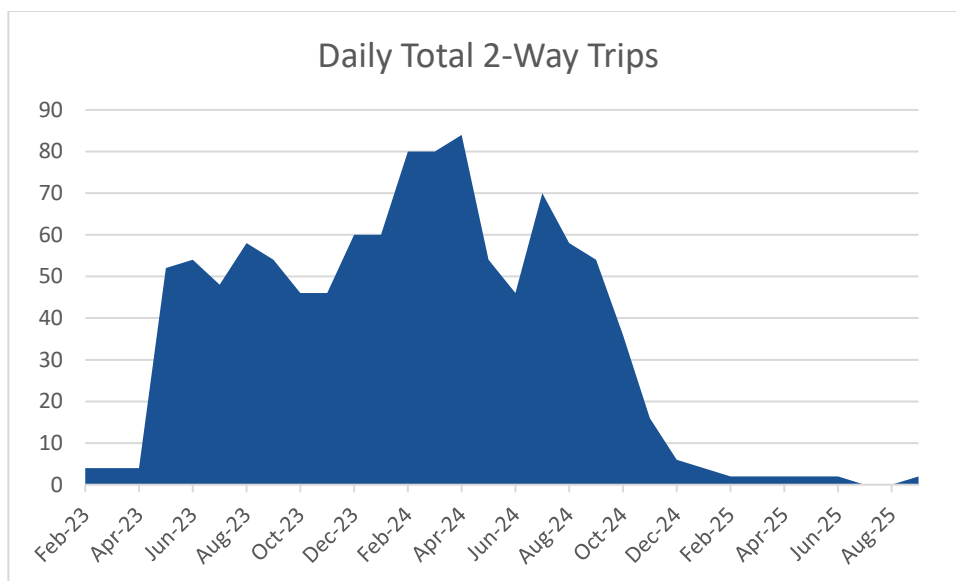
5.4.3 The table above demonstrates that the peak months for construction activity will be February and April 2024 with a total demand of 21-22 vehicles per day or 42-44 two-way trips.

5.4.4 The overlap between phases has also been calculated by month, and subsequently the average daily two-way traffic generation by month. This is summarised in **Table 5.4** and shown diagrammatically in **Figure 5.2** overleaf.

Table 5.4 Total and Daily Two-way Vehicle Trips by Month

Month	Daily Total Vehicles	Daily Total 2-Way Trips	Monthly Total Vehicles	Monthly Total 2-Way Trips
Feb-23	2	4	0	0
Mar-23	2	4	0	0
Apr-23	2	4	0	0
May-23	26	52	0	0
Jun-23	27	54	594	1,188
Jul-23	24	48	504	1,008
Aug-23	29	58	645	1,290
Sep-23	27	54	594	1,188
Oct-23	23	46	506	1,012
Nov-23	23	46	529	1,058
Dec-23	30	60	570	1,140
Jan-24	30	60	660	1,320
Feb-24	40	80	880	1,760
Mar-24	40	80	800	1,600
Apr-24	42	84	871	1,742
May-24	27	54	567	1,134
Jun-24	23	46	460	920
Jul-24	35	70	805	1,610
Aug-24	29	58	580	1,160
Sep-24	27	54	567	1,134
Oct-24	18	36	414	828
Nov-24	8	16	168	336
Dec-24	3	6	60	120
Jan-25	2	4	42	84
Feb-25	1	2	20	40
Mar-25	1	2	21	42
Apr-25	1	2	20	40
May-25	1	2	20	40
Jun-25	1	2	2	4
Jul-25	0	0	0	0
Aug-25	0	0	0	0
Sep-25	1	2	12	24

Figure 5.2 Average Daily Two-Way Vehicle Trips by Month



5.4.5 The figure and table above demonstrate that during the peak month (April 2024) some 84 two-way vehicle trips could be expected across the course of a day.

5.4.6 These trips have been distributed across a potentially typical working day, and the peak daily vehicle trip for July 2019 as the worst-case scenario in **Table 5.4** above has been calculated and the results are summarised in **Table 5.5** below.

Table 5.5 Typical Working Day Trip Distribution

Hour	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	TOTAL
% Daily Traffic	5%	10%	10%	15%	10%	15%	15%	10%	5%	5%	100%
Vehicle Trips	4	8	8	13	8	13	13	8	4	4	84

- 5.4.7 **Table 5.5** demonstrates that in the worst-case scenario at the peak of construction, the busiest hour could generate some 13 two-way vehicle trips per hour at 11:00, 13:00 and 14:00. This equates to a maximum of 7 vehicles per hour.

6. Environment

6.1 Noise and Vibration Management

6.1.1 A Construction Noise and Vibration Management Plan (CNVMP) has been prepared by NJD Environmental Associates separate to this document and is included in full as **Appendix E**. The results and headline mitigation proposed is summarised below.

Noise

6.1.2 The report has been prepared in compliance with British Standard (BS) 5228, which provides recommended limits for noise and vibration from construction sites and the noise levels likely to be generated by the demolition and construction phase of the development have been assessed against significance criteria established using the BS5228-1 ABC Method summarised below in **Table 6.1**.

Table 6.1 CNVMP Methodology

Thresholds of Significant Impact from Construction Noise at Residential Receptors in accordance with the ABC Method of BS5228-1			
Assessment Category and Threshold Value Period (LAeq)	Threshold Value, in decibels (dB)		
	Category A *1	Category B *2	Category C *3
Daytime (0700 to 1900 hours) and Saturdays (0700 to 1300 hours)	65	70	75
*1 Category A: Threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are less than this value. *2 Category B: Threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are the same as Category A values. *3 Category C: Threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are higher than Category A values.			

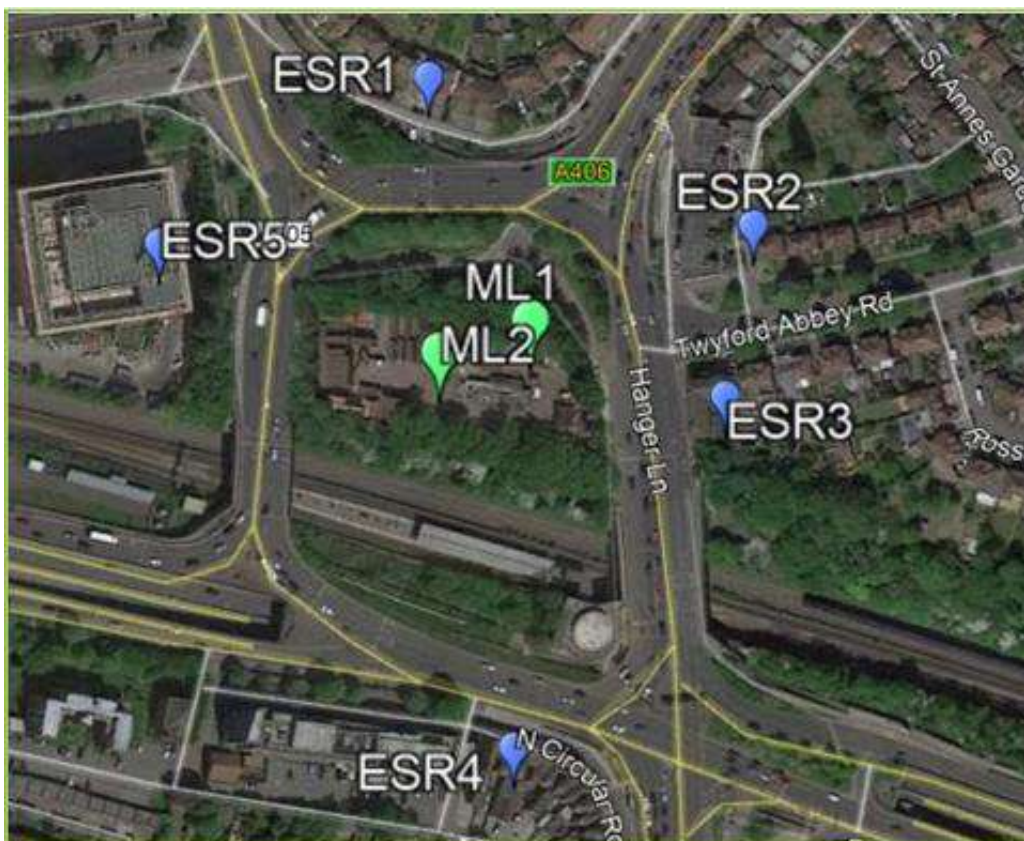
6.1.3 The potential for vibration impacts during the construction phase of the development has been assessed with reference to the best practice as discussed within BS5228-2.

6.1.4 The receptors examined in the CNVMP are summarised below in **Table 6.2** and shown diagrammatically in **Figure 6.1** overleaf.

Table 6.2 CNVMP Sensitive Receptors

Existing Noise Sensitive Receptor Locations					
Receptor	Grid Co-ordinates	Grid Co-ordinates		Bearing from Site	Distance to Site Boundary
		Easting	Northing		
ESR1	Priory Gardens	518433	182822	North	70m
ESR2	Abbey Parade	518542	182760	North-east	70m
ESR3	Twyford Abbey Road	518548	182697	East	50m
ESR4	Royal Parade	518477	182569	South	100m
ESR5	Westgate	518336	182739	West	50m

Figure 6.1 Sensitive Receptor Locations



Source: NJD Environmental Associates

1.1.2 The results of the assessment are summarised in **Table 6.3** below.

Table 6.3 Construction Noise Level Limits

Receptor	Ambient Noise Levels (dB LAeq)	Ambient Noise Level Rounded to the nearest 5dB(A) (dB LAeq)	Appropriate Category Value A, B or C in accordance with BS5228-1	Noise Level above which activities of the Construction Phase may cause a significant impact at the Receptor (dB LAeq)
ESR1	68dB (ML2)	70dB	C	75dB
ESR2	68dB (ML2)	70dB	C	75dB
ESR3	68dB (ML2)	70dB	C	75dB
ESR4	68dB (ML2)	70dB	C	75dB
ESR5	68dB (ML2)	75dB	C	75dB

6.1.5 Based on the above, the report concludes that the limits demonstrate that existing sensitive receptors in the vicinity of the site are already likely to be subject to elevated noise levels primarily associate with the surrounding highway, resulting in the highest standard noise limit (Category C = 75dB LAeq) being applied across each ESR location.

6.1.6 The report also notes the prefabricated pod installation construction methodology and concludes that:

“Given the low impact nature of the selected construction methodology and high existing ambient noise levels in the vicinity of the development, noise impacts during construction phase should not be significant throughout any of the above phases.”

6.1.7 In terms of noise mitigation, best working practice should be implemented during each phase of construction works at the site. The construction works will in general follow the guidelines in BS5228-1 and the Building Research Establishment guidance ‘Controlling construction and demolition pollution’ (BRE).

6.1.8 The following best practice measures will be maintained to minimise noise emissions:

- Noise and vibration will be limited to the core working hours previously defined in the planning condition;
- Contractors must use “best practicable means” (BPM) to minimise the nuisance from noise and vibration;
- Use of most environmentally acceptable and quietly operating plant and equipment appropriate to the works with emission levels limited to relevant EC Directive/UK Statutory Instrument levels and levels quoted in BS5228;
- Site staff should be aware that they are working adjacent to a residential area and avoid all unnecessary noise due to misuse of tools and equipment, unnecessary shouting, and radios;
- All plant and machinery should be regularly maintained to control noise emissions, with particular emphasis on lubrication of bearings and the integrity of silencers;
- When works are taking place within proximity to those sensitive receptors identified, screening of noise sources by temporary screens may be employed;

- Where possible, avoidance of two noisy operations occurring simultaneously near the same receptor;
- Deliveries will be programmed to arrive during daytime hours only. Care will be taken when unloading vehicles to minimise noise. Delivery vehicles would be routed to minimise disturbance to residents. Delivery vehicles will be prohibited from waiting on the highway or within the site with their engines running; and
- Engines are turned off when not in use.

Vibration

6.1.9 The vibration assessment has been prepared in compliance with BS 5228-2: 2009+A1: 2014 'Code of Practice for Noise and Vibration Control on Construction and Open Sites - Vibration' provides data on measured levels of vibration for various construction works, with particular emphasis on piling.

6.1.10 BS5228-2 indicates that the threshold of perception is generally accepted to be between a peak particle velocity (PPV) of 0.14 and 0.3mm/sec, whilst British Standard BS6472: 2008 "Guide to Evaluation of human exposure to vibration in buildings. Part 1: Vibration sources other than blasting" (BS6472-1) suggests that adverse comments or complaints due to continuous vibration are rare in residential situations below a PPV of 0.8mm/sec.

6.1.11 The report concluded:

"... vibration levels from the site will be minimised throughout the construction phase; generally restricted to occasional vehicle movements, deliveries and potentially crane operations.

Given the proximity of the site to busy surrounding transport infrastructure, the impact from vibration is expected to be negligible subject to the implementation of the best practice measures outlined in the following Section."

6.1.12 In terms of mitigation, BS5228 recommends best practice measures that can help ensure the project is well managed and that unnecessary vibration during the works is appropriately managed. The guidance is summarised as follows:

- A project design should be so arranged that the number of operations likely to be particularly disturbing is kept to a minimum.
- When several site operators are working on one site, overall site operations should be coordinated. Preferred routes for off-site movement of vehicles should be established with the local highway authority and the police. Access traffic should be routed away from sensitive premises wherever possible.
- Where processes could potentially give rise to significant levels of vibration, on-site vibration levels should be monitored regularly by a suitably qualified person appointed specifically for the purpose, particularly if changes in machinery or project designs are introduced.

- Limits on vibration can be set in conjunction with the Local Planning Authority requirements, with compliance monitoring programmed where considered necessary.
 - The hours of working should be planned, and account should be taken of the effects of vibration upon persons in areas surrounding site operations.
 - Where reasonably practicable, low vibration working methods should be employed, with any plant and/or methods of work found to be causing significant levels of vibration at sensitive premises replaced by other less intrusive plant and/or methods of working.
 - Stationary plant (e.g., generators, pumps, compressors) should be located away from sensitive receptors, or isolated using vibration resilient mounting if this is not possible.
- 6.1.13 In addition, and in conjunction with the liaison with stakeholders and local sensitive receptors, the following measures are proposed for dealing with complaints.
- 6.1.14 All staff on site should understand the chain-of-command when a complaint is made, and any complaint received in relation to noise and vibration will be investigated by the appropriate worksite personnel.
- 6.1.15 Records of any complaints about noise and/or vibration received by and relating to the site should be recorded and retained. For medium and high sensitivity sites details of any complaints or incidents should be sent to the local authority in a pre-agreed timeframe by telephone and email. Details of the complaint should include:
- Name of complainant
 - Address of affected property
 - Contact phone number
 - Date and time of complaint
 - Method of notification (i.e., complaint line, email, letter)
 - Type of complaint (i.e., noise or vibration)
 - Details of complaint
 - Any previous or related complaints
- 6.1.16 All complaints will be investigated and where appropriate noise and/or vibration measurements taken. Mitigation methods should be reassessed, implemented, or work practices modified to reduce noise and vibration levels where it is reasonably practicable to do so. The results of the investigation, including details of any mitigation methods implemented, work practices that have been modified and how complainants have been kept informed will be recorded and sent to the LA.
- 6.1.17 At the time of writing this update, no complaints have been received.
- ### Monitoring
- 6.1.18 The plan will be amended as necessary, including any changes to the frequency of site inspections and/or additional control measures that may be required.

- 6.1.19 In the event of substantiated complaints, the plan will also be reviewed. Noise and vibration monitoring may be required following receipt of a substantiated complaint to determine the effectiveness of the mitigation measures.
- 6.1.20 The type, scale and locations of noise/vibration monitoring would be agreed with Ealing London Borough Council via the provision of a Monitoring Plan.

6.2 Dust

- 6.2.1 In compliance with the policy, and with the discharge of Condition 21 of the site’s planning permission, a Construction Dust Management Plan (CDMP) has been prepared by NJD Environmental Associates separate to this report and is included as **Appendix F** in full and summarised below.
- 6.2.2 The proposed construction was assessed in accordance with Greater London Authority (GLA) “Control of dust and emissions during construction and demolition SPG” and the Institute of Air Quality Management (IAQM) document “Guidance on the assessment of dust from demolition and construction”. These assessments were included in the submitted air quality assessment undertaken by Air Quality Consultants, dated January 2019.
- 6.2.3 That assessment identified the following risks during each stage of the construction phase, which only apply pre-mitigation:
- Earthworks – Low Risk;
 - Construction – Medium Risk;
 - Track-out – Medium Risk.
- 6.2.4 The assessment procedure within the updated CDMP complies with IAQM guidance and the likely sources of dust emissions are identified in **Table 6.4** overleaf.

Table 6.4 Source-Pathway-Receptor Analysis – Future Phases

Source	Pathway	Receptor
Construction		
Laying concrete	Release of dust into the air from dry concrete surfaces.	Residential receptors adjacent to site boundary
Import/export and storage of materials on site	Release of dust into air during import and export movements. Release of dust into air when stored (wind-whipping)	
Trackout		
Movement of HDV’s from site	Dust tracked out from the site and then re-suspended on the public highway	Residential receptors adjacent to site boundary.
		Residential receptors close to trackout routes.

- 6.2.5 Based on the above, dust management control measures have been identified as summarised in **Table 6.5** below.

Table 6.5 Dust emissions mitigation measures

Aspect	Measure to be implemented
Communication	The name and contact details of person(s) accountable for dust issues will be displayed on the site boundary.
	The head or regional office contact information will also be displayed.
Site Management	All dust complaints will be recorded, the cause identified, and appropriate measures taken to reduce emissions in a timely manner, with a record maintained.
	The complaints log will be made available to the local authority when asked.
	Any exceptional incidents that cause dust and/or air emissions, either on- or off-site will be recorded along with the action taken to resolve the situation in the logbook,
Monitoring	Site inspections will be carried out to monitor compliance with this Construction Management Plan, with inspection results recorded and the inspection log made available to the local authority when asked.
	The frequency of site inspections will be increased by the person accountable for dust issues on the site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
	Following site inspections, if any activities are identified as causing or likely to cause visible emissions across the site boundary, or if abnormal emissions are observed within the site, the Site Manager will immediately modify, reduce, or suspend those activities until either effective remedial action can be taken or the weather conditions improve.
	Exceptional incidents that cause dust and air quality pollutant emissions, either on or off the site, will be recorded and any action taken to resolve the situation will be recorded in the logbook.
Preparation and Maintenance of the Site	The site layout will be arranged so that machinery and dust causing activities are located away from receptors, as far as possible.
	Solid screens or barriers will be erected around dusty activities or the site boundary that are as least as high as any stockpiles on site.
	Specific operations will be fully enclosed where there is a high potential for dust production and the site is active for an extensive period.
	Site runoff of water or mud will be avoided.
	Site fencing, barriers and scaffolding will be kept clean using wet methods.
	Materials that have a potential to produce dust will be removed from site as soon as possible unless being re-used on site. If they are being re-used on site cover, cover as below.
Operations	Stockpiles will be covered, seeded, or fenced to prevent wind whipping.
	Ensure all on-road vehicles comply with the requirements of the London LEZ (and ULEZ)
	Ensure all Non-road Mobile Machinery (NRMM) comply with the standards set within the GLA's Control of Dust and Emissions During Construction and Demolition SPG. This outlines that, from 1 September 2015, all NRMM of net power 37 kW to 560 kW used on the site of a major development in Greater London must meet Stage IIIA of EU Directive 97/68/EC (The European Parliament and the Council of the European Union, 1997) and its subsequent amendments as a minimum. From 1 September 2020 NRMM used on any site within Greater London will be required to meet Stage IIIB of the Directive as a minimum.
	Engines will be switched off when not in use.
	Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery-powered equipment where practicable.
	Only cutting, grinding, or sawing equipment will be used that is fitted with or used with suitable dust suppression techniques such as water sprays or local extraction.
An adequate water supply will be maintained on site for effective dust suppression using non-potable water where possible and appropriate.	

	Enclosed chutes and skips will be used.
	Drop heights will be minimised and water sprays used wherever appropriate.
	Equipment will be readily available on site to clean any dry spillages as soon as reasonably practicable using wet cleaning methods.
Earthworks	Exposed areas/soil stockpiles will be revegetated as soon as practicable.
	Where re-vegetation is not possible, a suitable method will be used to cover exposed areas, i.e., use of hessian or mulches.
	Only small areas of cover will be removed when required during work and not all at once.
Construction	Sand and other aggregates will be stored in bunded areas and not allowed to dry out. If required to be dried out for a particular process, appropriate additional controls will be implemented.
	Bulk cement and other fine powder materials will be delivered in enclosed tankers and stored in silos to prevent escape of material and overfilling during delivery.
Trackout	Water- assisted dust sweepers will be deployed on the access and local roads to remove any material tracked out of the site, when required.
	Vehicles entering and leaving the site will be covered wherever possible to prevent escape of material during transport.
	Visual inspections will include haul routes and any actions required will be recorded in the logbook.

7. Monitoring and Further Implementation

7.1 Monitoring

- 7.1.1 This section outlines how the CMP is monitored, and updated, and the persons responsible for doing so. It includes the relevant descriptions of the contractors' and drivers' handbooks and the data that is collected throughout the construction process.
- 7.1.2 The CMP will continue to be periodically monitored and reviewed. The contracts manager appointed by Hanger Lane Investments Ltd, is responsible for the CMP.

Relevant persons

Contracts Manager:

Simon Hikmet

On-Site Safety Supervisor:

Dylan Williams

- 7.1.3 Monitoring and review of the procedures proposed in this plan is carried out as required during the Health and Safety inspection carried out by the Safety Supervisor.
- 7.1.4 All records are held on-file and available for inspection, including certificates and inspection records for plant, equipment and lifting appliances. All lifting equipment adheres to Lifting Operations and Lifting Equipment Regulations 1998 (LOLER) and all lifting operations involving lifting equipment is properly planned by the Safety Supervisor, appropriately supervised, and carried out in a safe manner.

7.2 FORS and CLOCS

- 7.2.1 Operational vehicle and driver compliance with the CLOCS Standard is checked as per the method set out in the CLOCS Standard V3 (January 2019) under Sections 5 and 6 of that document.
- 7.2.2 This includes the implementation of this CMP in its live form and the completion of a site assessment and rating using the CLOCS Handbook as per Section 7.1 of that document. Drivers and vehicles are checked through general observation and frequent spot checks that they meet the requirements of the CLOCS Standard and that the specified route has been followed. Non-compliance is risk-assessed, appropriately mitigated, and addressed through contract management.
- 7.2.3 All drivers of vehicles over 3.5t have undertaken Safe Urban Driver training, and all vehicles over 3.5t in the construction fleet are expected to be fitted with blind spot minimisation equipment (Fresnel lens/CCTV) and audible left turn alerts. The relevant certificate is included as **Appendix C**.
- 7.2.4 It should be noted that FORS grade silver or gold is already considered CLOCS compliant.

7.3 Good Conduct

7.3.1 The Contractor follows a 'good housekeeping' policy at all times. This includes, but is not necessarily limited to, the following:

- Ensure considerate site behaviour of the Contractor's staff;
- Prohibit open fires;
- Remove rubbish at frequent intervals, leaving the site clean and tidy;
- Frequently inspect, repair and re-paint as necessary all site hoardings to comply with the conditions of the Council's Licence – all flyposting and graffiti is to be removed as soon as reasonably practicable and within 24 hours of notice from the Council;
- Maintain toilet facilities and other welfare facilities for its staff;
- Remove food waste;
- Undertake street cleaning if required;
- Prevent vermin and other infestations; and
- Undertake all loading and unloading of vehicles from the designated area, as identified within the final CTMP.

8. Strategies to Reduce Impacts

8.1 Preamble

8.1.1 This section of the report details the expected impacts of construction associated with the construction traffic and access needs, and the strategies to mitigate the effect on the local area. This is in line with TfL's CMP requirements. Overall, these aims are to reduce the impact of the construction in terms of environmental impact, road risk, congestion and cost relating to construction traffic.

8.1.2 The associated TA for the development included a framework Construction Traffic Management Plan which identified the initial headline mitigation measures which have been agreed in outline. The detail of these measures has subsequently been further defined where possible in the remainder of this section.

8.1.3 The measures outlined in this report are categorised as following:

- **Committed** - indicates a measure that is implemented as part of the CMP and/or has been secured through the Section 106 agreement. It is understood that if the developer's contractors do not comply with these requirements, it will be classified as a material breach of their contract and could lead to them being refused access to the site. It is also understood that it is the developer's responsibility to ensure their requirements are part of the main contractor and subcontractor contracts. The main contractor is responsible for ensuring that all subcontractors conform to these contractual requirements.
- **Proposed** – indicates a measure that is considered feasible and will be studied further to determine its practicality for later phases of construction.
- **Considered** – indicates a measure that is not currently relevant but may be in the future.

8.1.4 A summary of the measures discussed in this section and their relevant categories is included in **Table 8.1** overleaf.

Table 8.1 Summary of Measures

Planned Measures Checklist	Committed	Proposed	Considered	Not Feasible
Measures influencing construction vehicles and deliveries				
Safety and environmental standards and programmes	X			
Adherence to designated routes	X			
Delivery scheduling	X			
Re-timing for out-of-peak deliveries	X			
Re-timing for out-of-hours deliveries	X			
Use of holding areas and vehicle call-off areas	X			
Use of logistics and consolidation centres				X
Measures to encourage sustainable freight				
Freight by Water or Rail				X
Fleet Operator Recognition Scheme (FORS)	X			
Material Procurement Measures				
DfMA and off-site manufacture	X			
Re-use of material on site			X	
Smart procurement				X
Measures to reduce ecological impact				
Site waste management plan and recycling programme			X	
Direct discharge of water into sewerage system to be disallowed/ interceptors to be used where necessary			X	
Wheel washing to be undertaken			X	
Any fuel tanks to be banded	X			
CASHH assessments undertaken where necessary			X	
Site environmental plan			X	
Measures to reduce noise and nuisance				
Acoustic screening and baffling			X	
Phased deliveries			X	
No idling	X			
Open backed vehicles to be covered	X			
Measures to reduce impact on other modes				
Pedestrian and cycle access arrangement strategy; barriers, signage, and safety measures	X			
Other Measures				
Collaboration with other sites in the area			X	

8.2 Committed Measures

Design for Manufacture and Assembly (DfMA) and off-site manufacture

- 8.2.1 The main superstructure of the site is to be constructed off-site and transported to the site in its entirety as a 'pod'. The pod structures are fully prefabricated and largely include the internal fixtures and fittings of a single bedroom dwelling.
- 8.2.2 Each pod requires one delivery movement.
- 8.2.3 Use of the pods reduces the need for materials to be transported to the site and reduces the time, storage space, and labour requirements for installation. As such, the construction

methodology presents a benefit in terms of access demands and a reduction in the potential for noise, vibration, waste, and hazardous materials.

Use of Holding and Vehicle Call-off Areas

- 8.2.4 It has already been determined that construction traffic accessing the site as per the designated route first call at a holding area in Park Royal. From there, drivers (or an intermediary) communicate with site management and vehicles are summoned to the site on a 'just in time' basis.
- 8.2.5 This ensures that deliveries are suitably phased, that the construction access needs can respond to live traffic conditions on Hanger Lane Gyratory and reduce the potential for conflict, and that vehicles do not accumulate either on site or at the accesses where they may cause obstruction to the local highway.
- 8.2.6 No vehicle is permitted to enter without first contacting the site.
- 8.2.7 Accesses to the site are suitably secured, signed, and controlled by staff personnel to prohibit public access. Hoarding is maintained and kept free of graffiti, and the relevant public information posted.

Safety and Environmental Standards and Programmes

- 8.2.8 This CMP provides for the management and control strategy of pedestrians and vehicular movements, both on and off site, to ensure the safety of all members of the general public and workforce at all times throughout the construction work period in accordance with all requisite Acts and Regulations, including, but not exhaustive, the;
- Health and Safety at Work etc Act 1974
 - Management of Health and Safety at Work Regulations 1999
 - Construction (Design and Management) Regulations 2007
 - Supply of Machinery (Safety) Regulations 1992
 - Provision and Use of Work Equipment Regulations 1998

Adherence to Designed Routes

- 8.2.9 A designated route has been determined which utilised TfL freight roads and is acceptable for HGV traffic. No local residential roads are included on this route, and given the nature of the gyratory, it has not been considered necessary to include local 'turn-back' locations as traffic which needs to be diverted back to the holding area can do so using the gyratory itself.
- 8.2.10 The holding area is located at Blackmore Drive NW10 0RW and the potential for diversion is very limited between the holding area and the site. Any instance of deliberate diversion will be recorded in the Contractors' and Drivers' handbooks and dealt with by the Contracts Manager.

Delivery Scheduling

- 8.2.11 Deliveries are scheduled and managed using an off-site holding area so that no more vehicles access the site than can be safely accommodated. Scheduling is designed to have minimum impact on peak hours and the local highway network.
- 8.2.12 All subcontractors are expected to adhere to the agreed scheduling programme.
- 8.2.13 Drivers are required to communicate with site management so that mistimed arrivals to the site or delayed departures from the site can be mitigated and conflicts reduced. This also enables the site management to respond to live traffic conditions on Hanger Lane gyratory.

Fleet Operator Recognition Scheme (FORS)

- 8.2.14 The Contracts Manager gives priority to contractors able to demonstrate FORS compliance or compliance to similar schemes. FORS Compliance has already been outlined in Section 7.2 of this report.

8.3 Proposed Measures

Re-timing for Out-of-Peak Deliveries

- 8.3.1 Deliveries during peak hours are kept to a minimum, representing some 5% of the daily construction traffic at a maximum. The majority of deliveries will be undertaken outside of peak hours.

Re-timing for Out-of-Hours Deliveries

- 8.3.2 Night working will not be required and in any case is not feasible for most of the remaining construction phasing.

Pedestrian and Cycle Access Strategy

- 8.3.3 Staff pedestrian and cycle access are managed from the eastern access. Staff accessing by cycle or on foot access via the hoarding gate at this location, separate to any vehicle access. In any event of vehicles using the eastern access, it will be managed by banksmen to prevent conflict with pedestrians and cyclists.
- 8.3.4 Public pedestrian and cycle access are retained exterior to the hoarding as existing. Banksmen are positioned at the access when vehicles are entering and egressing to control pedestrian and cycle movements on the crossover.
- 8.3.5 The safety of the public and protection of pedestrians is ensured by having the construction area, materials storage areas and waste storage areas hoarded or fenced with lockable access. Relevant signage has been erected to ensure adequate warning/information regarding the health and safety of the public.

Staff Travel

- 8.3.6 Staff travel to the site is undertaken by public transport unless operating construction traffic. No construction vehicles are parked on site overnight, and as such drivers take vehicles away to their appropriate holding area or home depot and continue their personal homeward bound journey from there.
- 8.3.7 The site has good access to public transport by bus and rail, including evening and night services.
- 8.3.8 All staff have access to travel information options by public transport to the site.

Ecological Impact Measures

- 8.3.9 In addition to the environmental standards already committed to, measures to mitigate ecological impact will be in line with the general proposals of the framework CTMP previously submitted. In addition, the overarching Construction Management Plan (which should be read in tandem to this report), provides further details of the environmental issues and associated mitigation measures.
- 8.3.10 To prevent muck being tracked onto Hanger Lane gyratory, wheel washing facilities are installed, and vehicle wheels cleaned prior to egress onto the highway, and pre-exit checks are undertaken by banksmen.
- 8.3.11 To prevent contaminate run-off, any fuel tanks stored on site are bunded and direct discharge of water into the sewerage system is not permitted, with interceptors utilised where and if required. However, at the time of writing, all fuelling takes place off-site.
- 8.3.12 All construction vehicles are required to comply with relevant European standards. Suppliers and drivers are required to:
- Switch off their vehicle's engine when stationary to prevent exhaust emissions
 - Maintain vehicles including engines in tune and catalyts working efficiently
 - All vehicles used by contractors must comply with MOT emission standards at all times

Noise and Nuisance Measures

- 8.3.13 Measures to mitigate for noise, vibration and dust have been discussed in **Section 7** of this report in detail.

8.4 Considered Measures

Use of Logistics and Consolidation Centres

- 8.4.1 A holding area has been determined at Blackmore Drive. A consolidation and/or logistics centre has not been considered necessary but will be considered in due course if required.

Re-use of material on site

- 8.4.2 There is some potential for the re-use of spoil and earth on site for landscaping.

Collaboration with other Sites


- 8.4.3 At the time of writing this report, Hanger Lane Investments Ltd. are not aware of significant developments where cumulative traffic impact will be problematic; the situation will be monitored.

FIGURES


Figure 3.1	Regional Context Plan
Figure 3.2	Local Context Plan
Figure 3.3	Site Boundary Plan
Figure 3.4	Public Transport Plan
Figure 3.5	Pedestrian and Cycle Infrastructure Plan
Figure 5.1	Construction Traffic Routeing Plan (Regional Context)
Figure 5.2	Average Daily Two-Way Vehicle Trips by Month
Figure 6.1	Sensitive Receptor Locations


Construction Traffic

Key

 Site Location

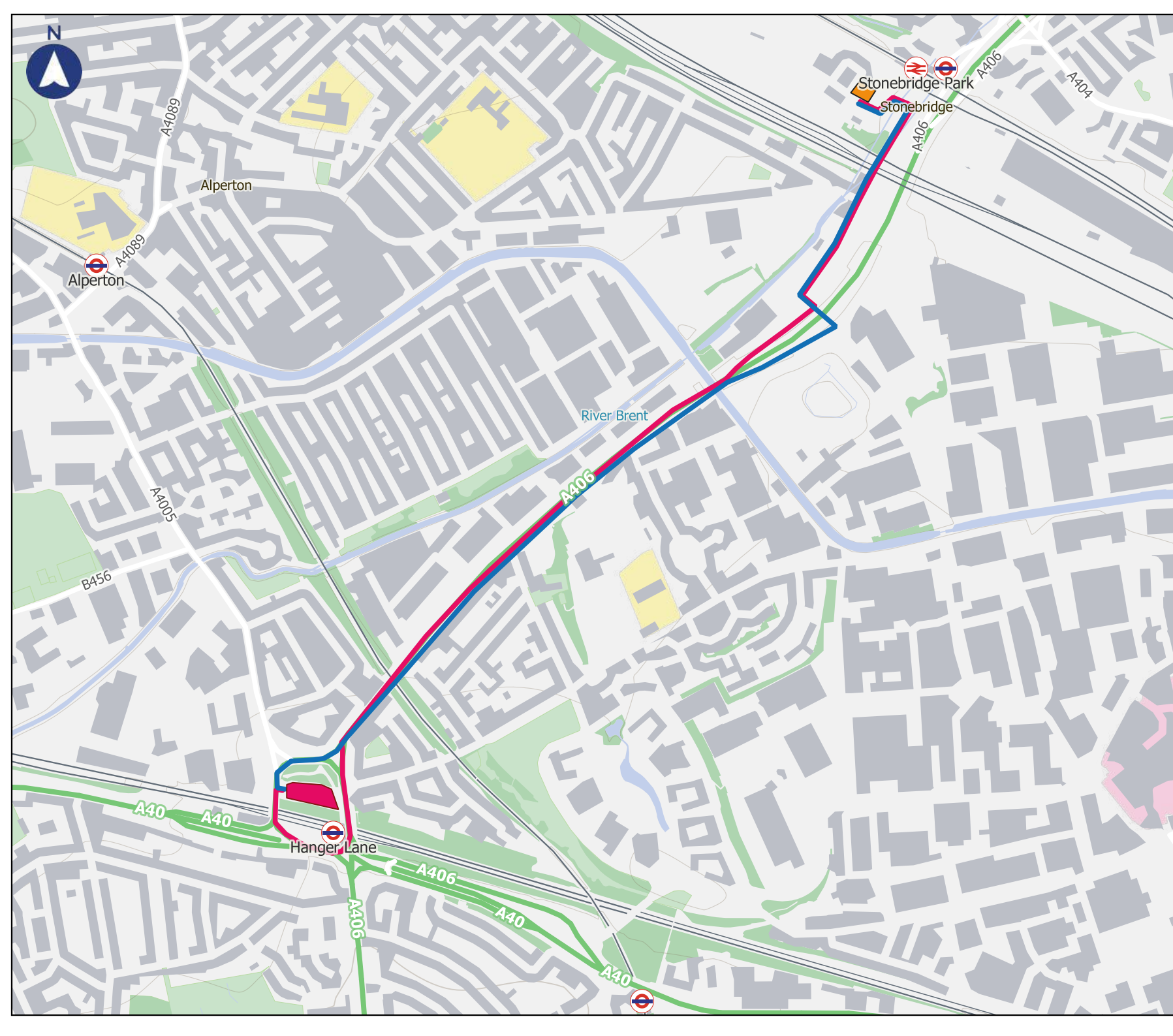
Construction Traffic Route

 Inbound

 Outbound

 Holding Area

0 100 200 m

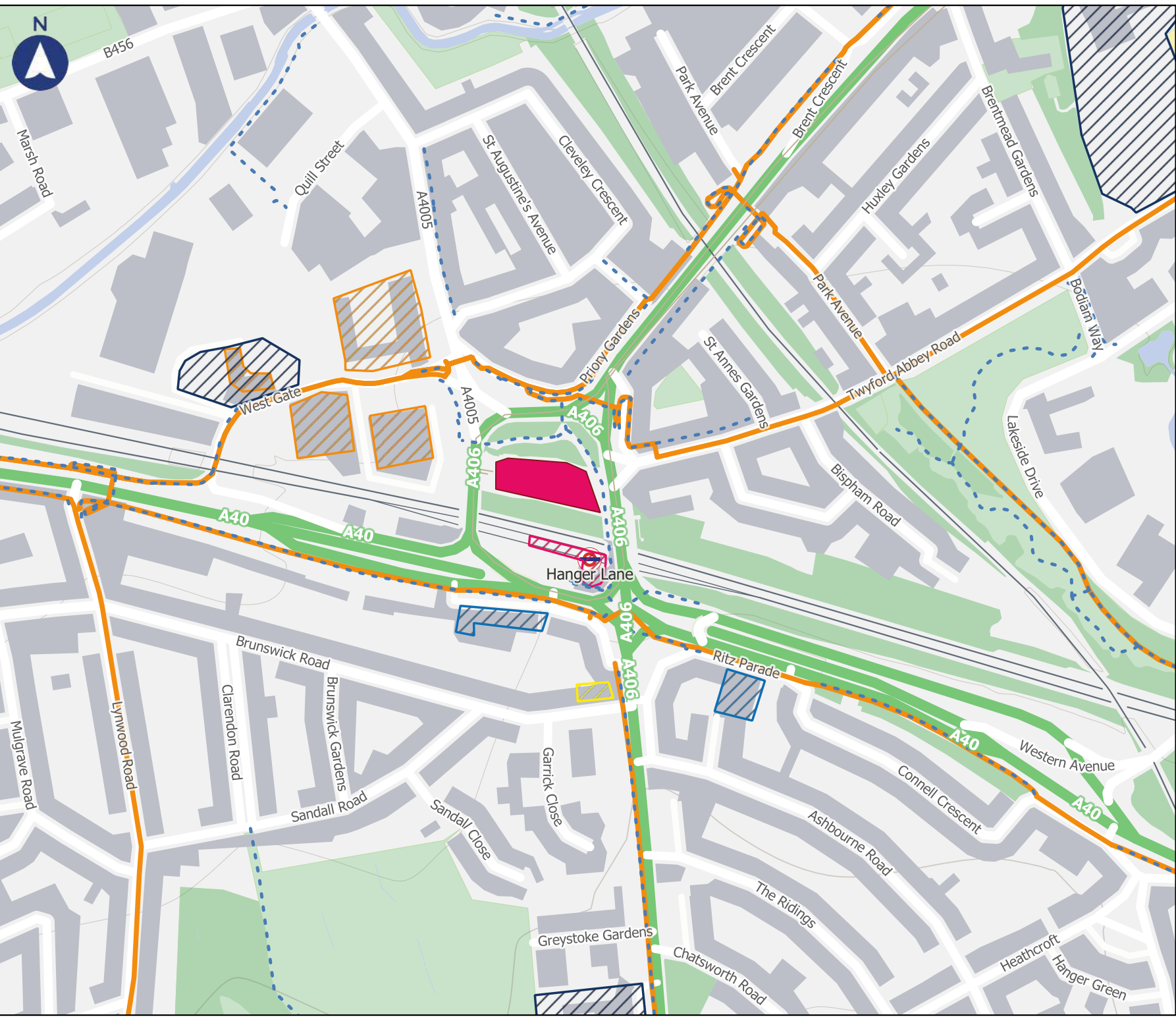
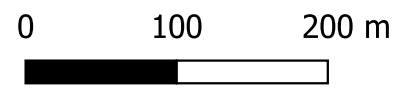




Local Context Plan

Key

-  Site Location
 -  Hanger Lane Station
 -  Committed Development
 -  Commercial Unit
 -  Church
 -  Hotel
 -  greenspace
- Active Travel Routes Ealing**
-  Cycleway
 -  Cycle Lane or Track





Pedestrian and Cycle Infrastructure

Key

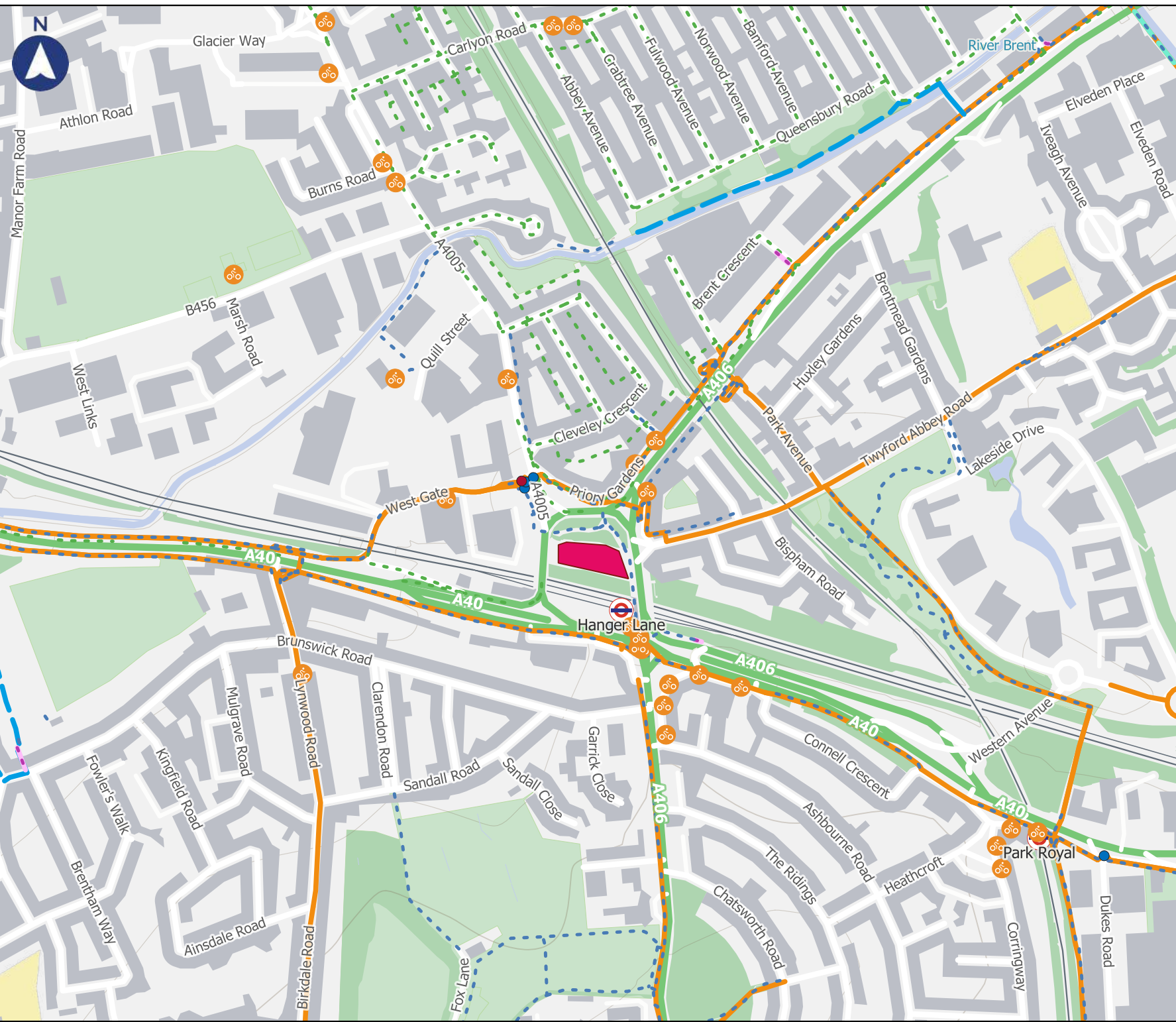
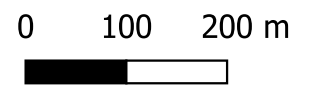
- Site Location
- Public Cycle Parking
- Advanced Stopping
- Cycle Crossing

Active Travel Routes Ealing

- Cycleway
- Other pedestrian route
- Other path
- Cycle Lane or Track
- London Permeable Neighbourhoods

Waterside Routes








- Brent River Park footpath
- Grand Union Canal

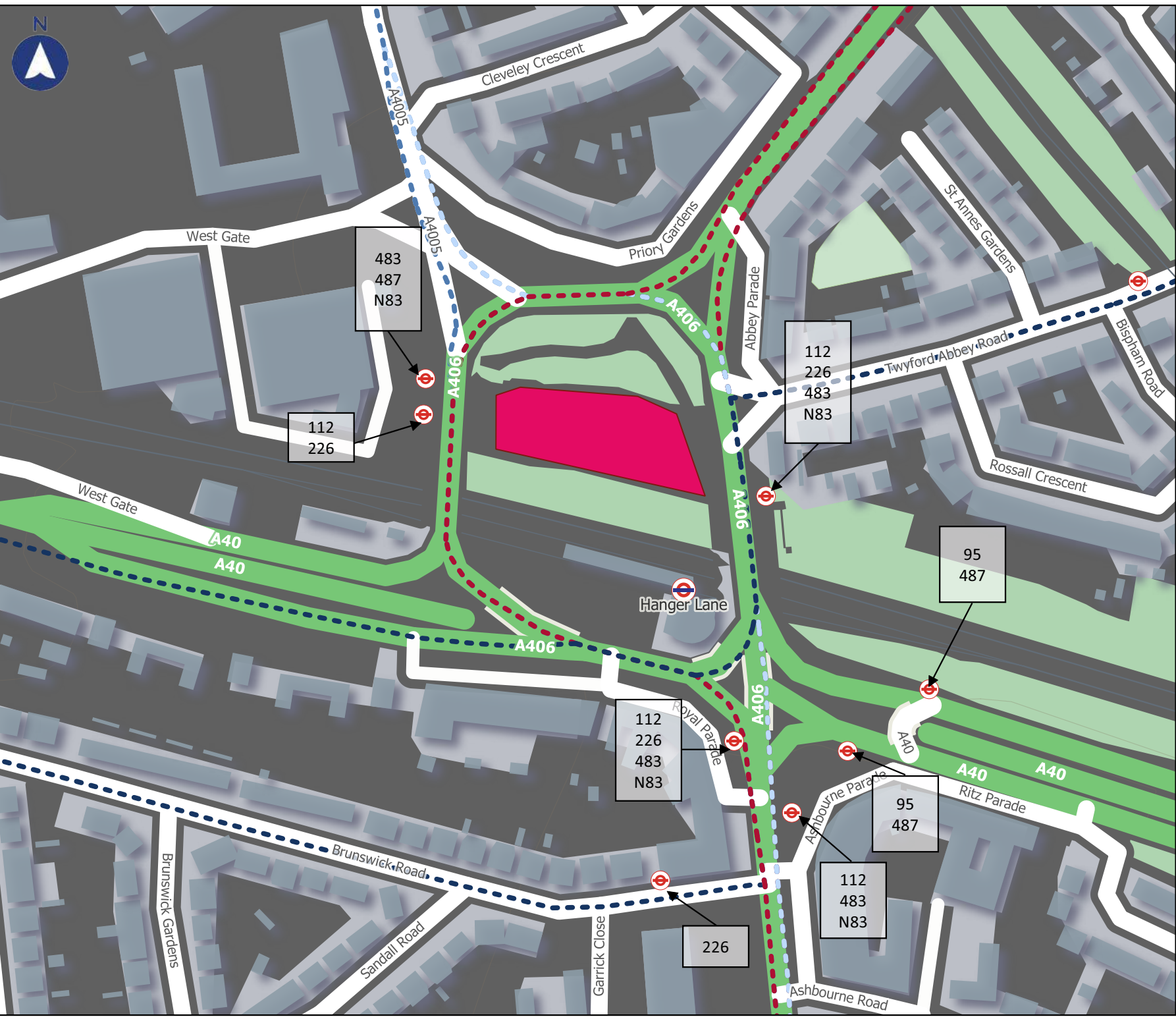
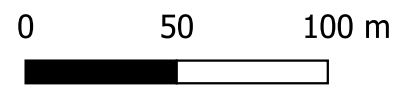




Public Transport Plan

Key

-  Site Location
- Public Transport Nodes**
 -  London Underground Station
 -  London Bus Stops
- Bus Routes**
 -  112
 -  226
 -  483
 -  N83



483
487
N83

112
226

112
226
483
N83

95
487

112
226
483
N83

95
487




112
483
N83

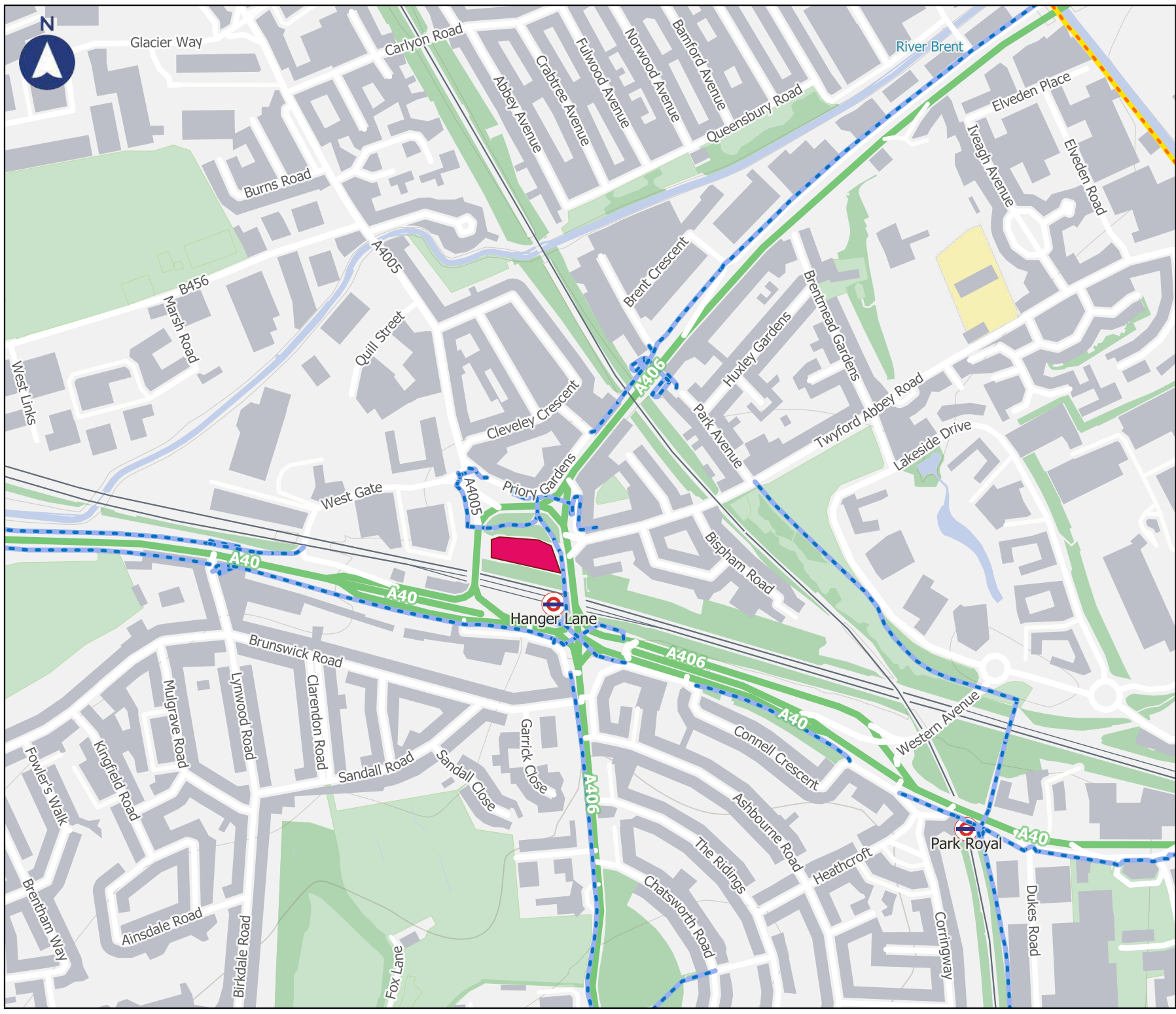
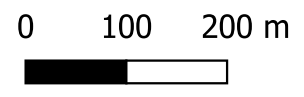
226



Regional Context Plan

Key

-  Site Location
-  Strategic Cycle Network
-  Local Cycle Route



DRAWINGS

A (SO) 011 - Phase 4 Construction Access

A (SO) 012 - Phase 5 Construction Access

A (SO) 013 - Phase 6 Construction Access

A (SO) 014 - Phase 7 Construction Access

23167-MA-IM-XX-DR-C-0100 GA – General Arrangement

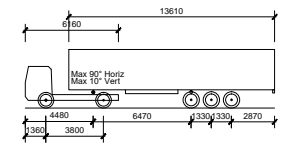
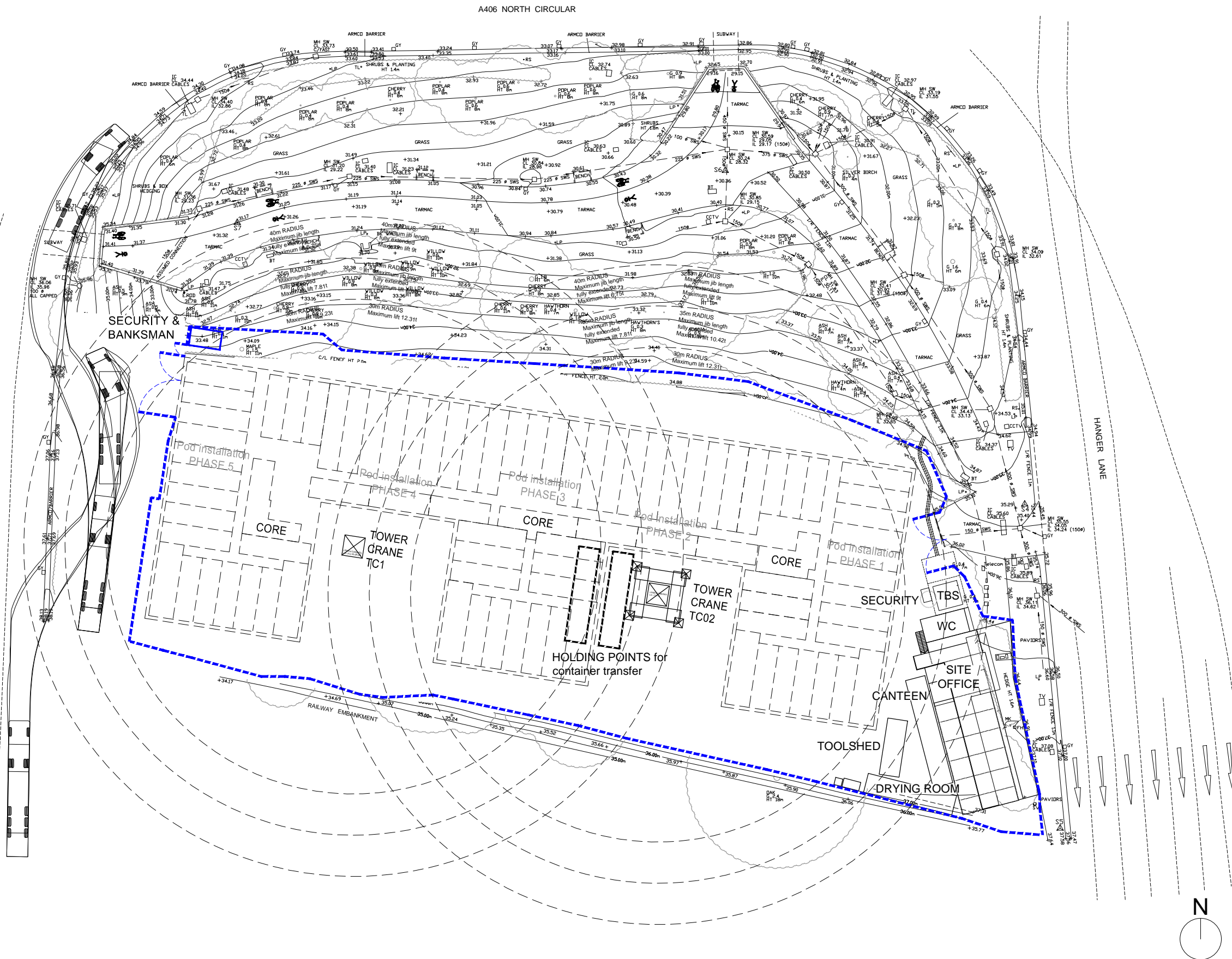
23167-MA-IM-XX-DR-C-0101 LAP – Land Ownership Plan

23167-MA-IM-XX-DR-C-4001 SD – Standard Details

PHASE 4 - POD INSTALLATION

REVISIONS

Rev.	Date	By
A.	06.02.19	OG
B.	05.04.19	OG
C.	25.04.19	OG
D.	26.11.20	FL
E.	03.12.20	OG
F.	31.05.23	TT



FTA DESIGN ARTICULATED VEHICLE

Overall Length	13610mm
Overall Width	2500mm
Overall Body Height	3370mm
Min Body Ground Clearance	0.515m
Track Width	2470mm
Lock to Lock Time	3.00s
Keels to Keels Turning Radius	6.500m

Contemporary Design Solutions



46 Great Marlborough Street
London
W1F 7JW
Telephone: 020 7494 9000 Fax: 020 7494 4944

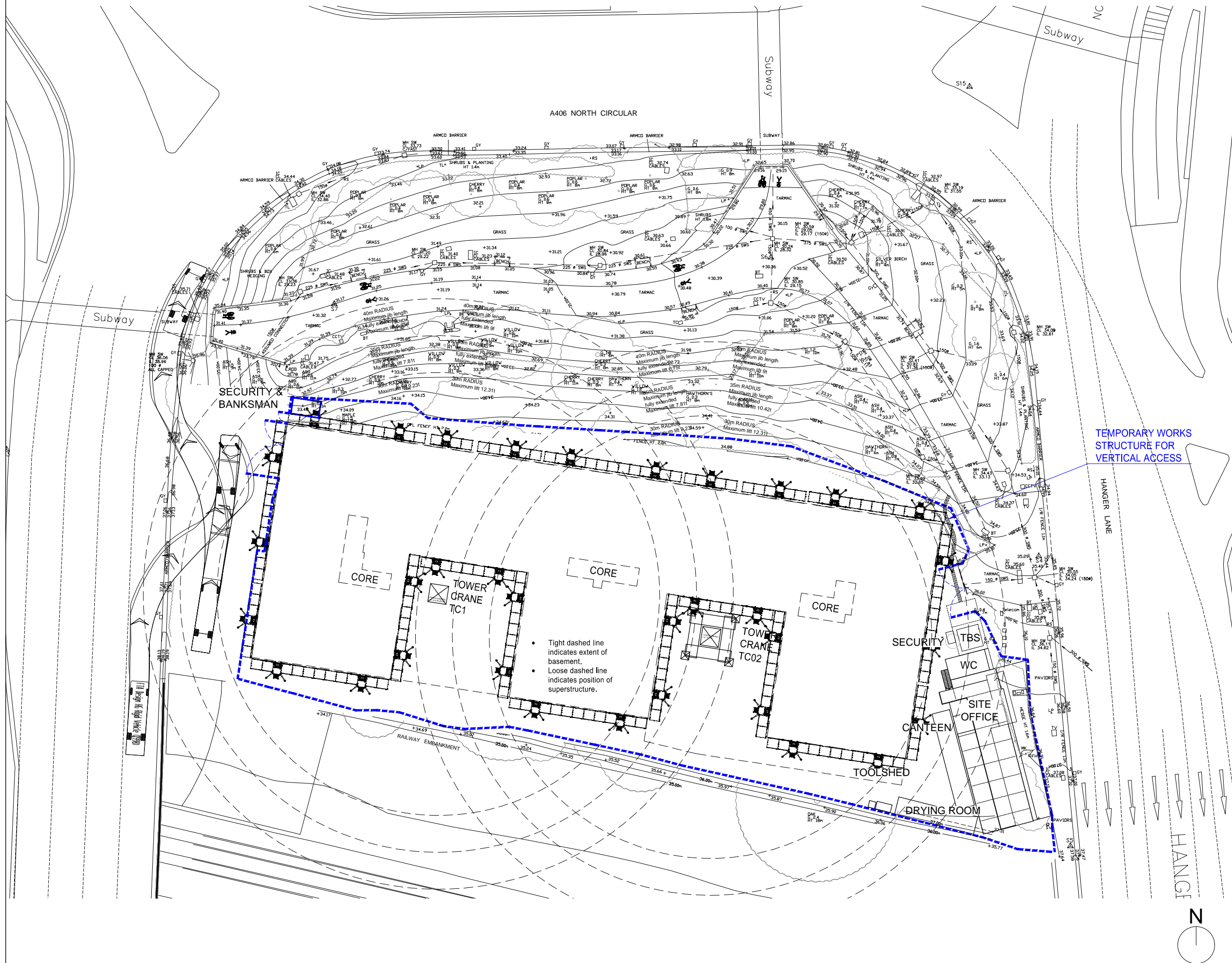
Client
HANGER LANE INVESTMENTS LTD

Project Title
HANGER LANE GYRATORY

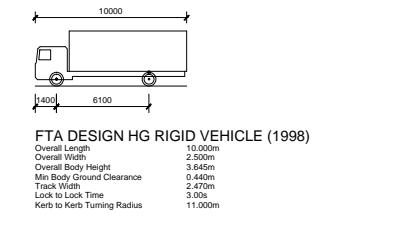
Drawing Title
PHASE 4
POD INSTALLATION

Scale 1: 500 Date MAY 2023
Drawn TT Checked FL
Drawing No. 160701-A(SO)011 Rev. F

PHASE 5 - SERVICES & CLADDING INSTALLATION



REVISIONS		
Rev.	Date	By
A.	06.02.19	OG
B.	05.04.19	OG
C.	25.04.19	OG
D.	26.11.20	FL
E.	31.05.23	TT



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London
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Client
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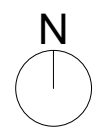
Project Title
HANGER LANE GYRATORY

Drawing Title
**PHASE 5
SERVICES & CLADDING
INSTALLATION**

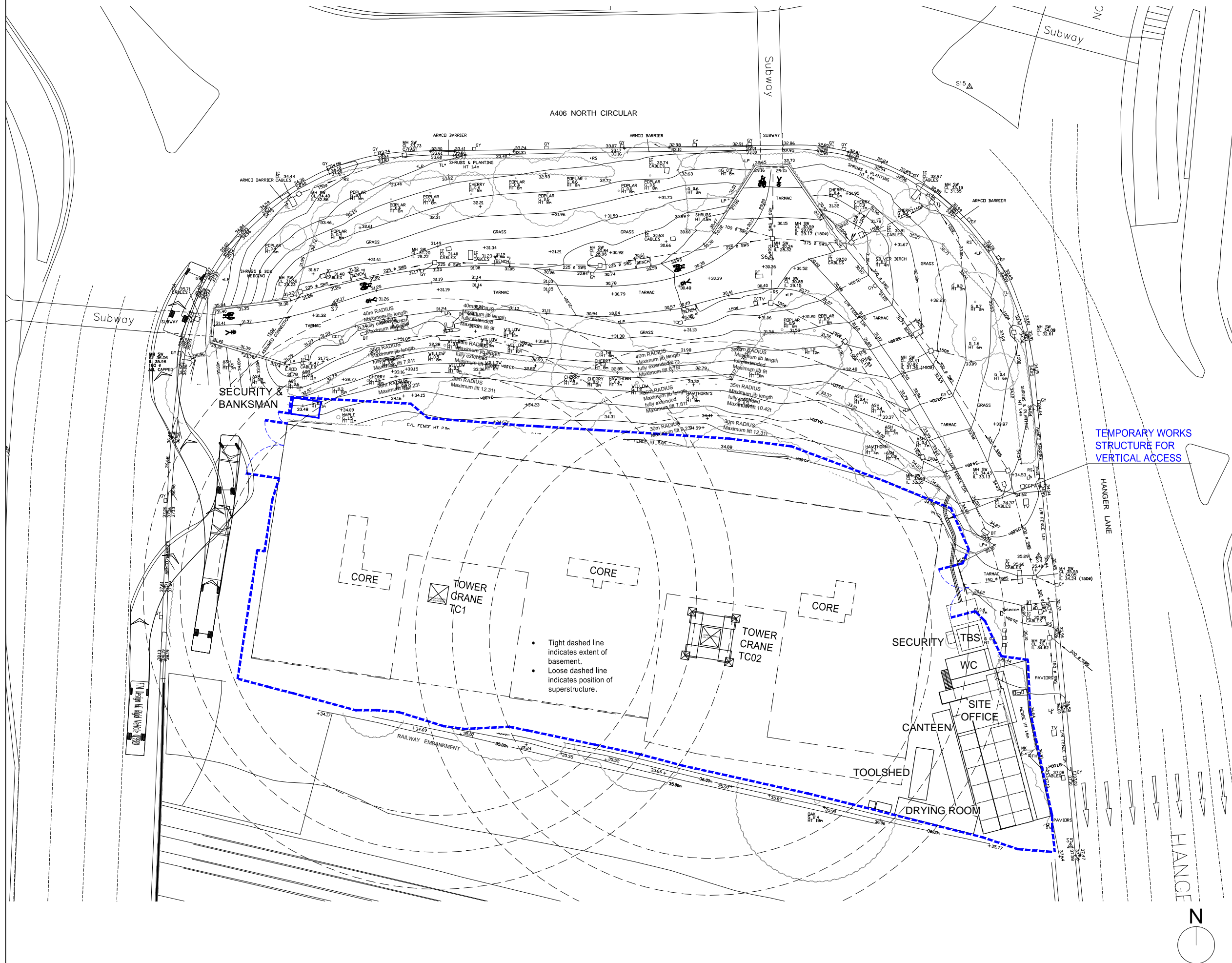
Scale 1: 500 Date MAY 2023
Drawn TT Checked FL
Drawing No. 160701-A(SO)012 Rev. E

- Tight dashed line indicates extent of basement.
- Loose dashed line indicates position of superstructure.

TEMPORARY WORKS
STRUCTURE FOR
VERTICAL ACCESS

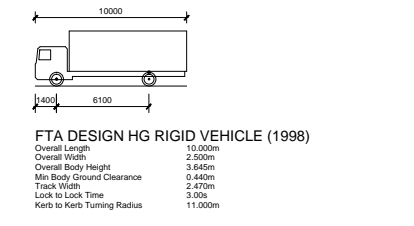


PHASE 6 - INTERNAL & FINAL FINISHES



- Tight dashed line indicates extent of basement.
- Loose dashed line indicates position of superstructure.

REVISIONS		
Rev.	Date	By
A.	06.02.19	OG
B.	05.04.19	OG
C.	25.04.19	OG
D.	26.11.20	FL
E.	31.05.23	TT



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W1F 7JW
Telephone: 020 7494 9000 Fax: 020 7494 4944

Client
HANGER LANE INVESTMENTS LTD

Project Title
HANGER LANE GYRATORY

Drawing Title
**PHASE 6
INTERNAL & FINAL FINISHES**

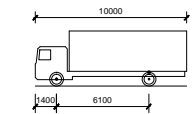
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Drawing No. 160701-A(SO)013 Rev. E

PHASE 7 - EXTERNAL WORKS



REVISIONS

Rev.	Date	By
A.	06.02.19	OG
B.	05.04.19	OG
C.	26.11.20	FL
D.	31.05.23	TT



FTA DESIGN HG RIGID VEHICLE (1998)
 Overall Length 10.000m
 Overall Width 2.500m
 Overall Body Height 3.640m
 Min Body Ground Clearance 0.440m
 Task Width 2.470m
 Lock to Lock Time 3.00s
 Kerb to Kerb Turning Radius 11.000m

Contemporary Design Solutions



46 Great Marlborough Street
 London
 W1F 7JW
 Telephone: 020 7494 9000 Fax: 020 7494 4944

Client
HANGER LANE INVESTMENTS LTD

Project Title
HANGER LANE GYRATORY

Drawing Title
**PHASE 7
 EXTERNAL WORKS**

Scale 1: 500 Date MAY 2023
 Drawn TT Checked FL
 Drawing No. 160701-A(SO)014 Rev. D