VolkerFitzpatrick

Detailed Construction Transport Management Plan

Brent Cross West Station

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1 INTRODUCTION

RSK has been instructed to produce this Detailed Construction Transport Management Plan (DCTMP) to demonstrate that the works associated with the construction of the new station will be delivered in a manner that does not cause undue inconvenience to nearby residents and businesses and minimises the disturbance and congestion on the surrounding highways as far as possible.

This version of the DCTMP has been prepared following the start of the Covid-19 pandemic which will affect working practices and travel to the construction site. BXT will continue to promote sustainable and active travel and transport options wherever possible. However, a flexible approach will be required to how this affects the station project as restrictions are relaxed, at all times complying with Government guidance. Safe working practices will be adopted throughout the works and risks assessed at the time of mobilisation to ensure that aspects, such as social distancing, can be accommodated within working areas.

1.1 Introduction and Planning Context

This document describes how Volker Fitzpatrick intends to manage construction transport for their works to construct Brent Cross West Station as part of the Brent Cross Cricklewood (BXC) Development site.

The new station, located within the Thameslink network, forms part of a wider regeneration project in the Brent Cross area promoted by London Borough of Barnet. The station will serve the BXC site that is creating a new regional economic centre for London with 7,500 homes and up to 19,000 jobs. The station will be located between the existing Cricklewood and Hendon stations and will be a crucial public transport interchange serving the new development and surrounding area.

Planning Permission Ref No. C/17559/08 ("2010 Permission") for the comprehensive redevelopment of Brent Cross Cricklewood ("BXC") was granted in October 2010. A Section 73 planning permission Ref No. F/04687/13 ("2014 Permission") to develop land without complying with conditions attached to the 2010 Permission was granted by London Borough of Barnet ("LBB") on 23 July 2014. A reserved matters planning application (Ref No. 196256/RMA) for the Brent Cross West Station was granted permission by LBB on 2nd July 2020.

Separately, the Brent Cross Station Eastern Entrance will create the gateway to the Brent Cross Cricklewood Regeneration scheme. Planning permission was granted on 30th November 2020, under planning application ref: 20/3845/FUL.

This updated BXT DCTMP has been prepared to discharge condition 3 of 20/3845/FUL, which requires that *"Prior to the commencement of the development hereby permitted a Construction Environmental Management Plan shall be submitted to and approved in writing by the Local Planning Authority."*

The condition includes a list of requirements that shall be included within the Construction Environmental Management Plan (CEMP) which are set out in the following table and where in this document the information is contained.

Table 1.1: Summary of CEMP scope and document content

Station Eastern Entrance CEMP Scope (Condition 3 of 20/3845/FUL)	BXT DCTMP reference (section)
i. details of the routing of construction and service and delivery vehicles to and from the site, hours of access, access and egress arrangements within the site and security procedures	Section 4.3 (site working hours) Section 4.4 (site access arrangements) Section 4.1 (reference to secure fencing) Appendix 2 (HGV routing)
ii. indicative construction programme setting out site preparation and construction stages of the development;	Section 1.1.4
iii. details of provisions for recycling of materials, the provision on site of a storage/delivery area for all plant, site huts, site facilities and materials	(ESMP – Section 3.8) Appendix 1 (site compound layout)
iv. details showing how all vehicles associated with the construction works are properly washed and cleaned to prevent the passage to mud and dirt onto the adjoining highway	Section 4.10
v. the methods to be used and the measures to be undertaken to control the emission of dust, noise and vibration arising from construction works	(ESMP – Section 3.3)
vi. a suitable and efficient means of suppressing dust, including the adequate containment of stored or accumulated material so as to prevent it becoming airborne at any time and giving rise to nuisance	(ESMP – Section 3.4 & Section 3.6.5)
vii. noise mitigation measures for all plant and processors	(ESMP – Section 3.3.5)
viii. details of contractor compound and car parking arrangements	Section 4.2 (parking, loading, unloading) Appendix 1 (site compound layout)
ix. details of a community liaison contact for the duration of all works associated with the development	(ESMP – Section 1.1.5)
x. details and plans of traffic management measures (e.g. temporary lane restrictions/closures/diversions, signage, parking controls, key access and crossing points, emergency vehicle access) including measures	Section 4

Station Eastern Entrance CEMP Scope (Condition 3 of 20/3845/FUL)	BXT DCTMP reference (section)
to protect the free flow of traffic and vulnerable road users	
xi. plans should be to scale and annotated with dimensions showing all points of access (vehicular and pedestrian); position of hoardings, position of nearby trees; location of vehicle standing areas, wheel washing location and details, surrounding properties and their access points; parking bay suspensions	Appendix 1 (site compound layout)

The following approved planning documents were reviewed and taken into account when undertaking the analysis and drafting of the BXT DCTMP.

1.1.1 Construction Impact Assessment 2008

The Construction Impact Assessment was submitted in 2008 as part of the BXC original permission C/17559/08. It was further amended as part of the 2014 S73 amendment, planning ref. F/04687/13.

Under condition 12.1(b), all DCTMPs shall be prepared with regard for the Construction Impact Assessment (2008) and associated amendments as made in 2014.

In order to prepare this DCTMP, a review of the Construction Impact Assessment was undertaken. BXT notes that the proposed phasing and programmes within these documents has since moved on, with a series of rephasing applications and updates to the ICP (as per below). However, insofar that is relevant to the latest programme and construction methodology for the scheme, the BXT DCTMP for the station construction site is fully aligned with the Construction Impact Assessment, in particular:

- *Section 4 Brent Cross and Cricklewood Construction Traffic Flows:* We have taken into account any major infrastructure works that overlap with the station construction programme and have planned our routing and traffic mitigation measures accordingly.
- *Section 5.1 Brent Cross and Cricklewood Development Traffic Management Procedures:* Insofar as is relevant to the station construction works, we have taken regard for the requirements of the traffic management procedures outlined within the CIA, namely:
    - Appointing a Traffic Management Officer and Deputy Traffic Management Officer to be on site during working hours and available on call out of working hours, and who will fulfil the duties as outlined within the CIA, the CoCP, the site-wide CTMP, and the BXT DCTMP.

- Ensuring that prohibited routes are not used, and that residential routes are avoided. All construction traffic analysis, monitoring, and implementation will be discussed with the TAG.
- Establishing and maintaining the TAG with representatives from all relevant bodies, as listed.

1.1.2 Site-Wide Code of Construction Practice

Under condition 12.1(a) of planning permission F/04687/13, all DCTMPs must be prepared in accordance with the parameters and principles defined in section 11 of the Code of Construction Practice (CoCP) (LPA application ref. 18/2380/CON).

This CTMP has been prepared taking into account the parameters and principles of the CoCP, in particular as outlined below.

A Transport Advisory Group (TAG) has been set up that consists of representatives from the Development Partners, LB Barnet, TfL, Highways England, LB Brent, LB Camden, Network Rail, and other members as appropriate. The TAG will be used by BXT to monitor, review, and assess the transport impacts of the station construction, and will be a key source of information regarding construction traffic overlaps with other work packages and surrounding Development Partner works.

As per 11.3.3 of the CoCP, all HGV access routes have been chosen specifically to avoid residential roads and sensitive receptors.

As per 11.3.4 of the CoCP, BXT has submitted a Construction Worker Travel Plan, which outlines allocated parking, active travel measures, and discourages parking outside of allocated compound areas.

Furthermore, BXT will comply with measures set out in section 11.3.6 of the CoCP, and will prevent the deposit of mud, dirt, and dust on public highways and roads outside of our construction site. This will be achieved via the measures as set out in the submitted Air Quality and Dust Mitigation statement submitted for the station construction site (LPA application ref. 20/1571/CON), which outlines a series of measures including spraying, wheel washing, and lorry sheeting to mitigate dust and mud from leaving the construction site.

1.1.3 Site-Wide Construction Traffic Management Plan (CTMP)

Under condition 12.1(b), all DCTMPs shall be prepared in accordance with the scope as outlined in the site-wide CTMP (LPA planning ref. 19/5701/CON), as appropriate. Below is a table demonstrating our DCTMP scope as per the outline contained within the CTMP, and where in this document the information is contained.

Table 1.2: Summary of CTMP scope and document contents

Site-Wide CTMP Recommended Scope, as appropriate	BXT DCTMP reference (section)
Heavy plant movements, i.e. the size and number of construction vehicles and indicative schedule of construction vehicle movements (including during the months of November and December) (including peak and daily flows, as well as types, dimensions and load capacities of vehicles).	Section 6 Appendix 3
Local and strategic highway peaks have been identified as 08:00-09:00 and 17:00-18:00. As far as reasonably practical, these peaks will be avoided;	Section 5.4
Temporary and/or permanent (or changes to existing) crossings for schools affected by construction traffic; Details (including plans, swept path and sightline assessment and available adjacent footway and carriageway widths) of construction access points to the works for personnel and vehicles and proposed methods of control. Plans should be to scale and annotated with dimensions;	None will be implemented by VFL Swept Paths have been provided as part of the submission in Appendix 3
Details of off-loading and storage areas;	Section 1.4 Section 3.2 Section 4.1 Appendix C
Personnel and vehicle segregation within the construction site;	Section 4.5
Temporary barriers and signage for construction traffic;	N/A
Site inductions for construction traffic operatives;	Section 4.2
Permitted routes for construction traffic to and from the site (see further below and Appendix 2);	Section 2.2 Section 4.8
Arrangements for abnormal loads;	Section 4.6
Measures to prevent the deposit of mud and dirt on the public highway;	Section 5.2
Details of measures to maintain access arrangements and routes for the servicing, deliveries and collections to existing businesses where necessary;	N/A
Where appropriate, arrangements for the use of remote tracking technology, electronic booking, delivery management system (DMS) and/or supply chain management measures for deliveries and details of use of out of peak traffic time deliveries where possible;	Section 5.4
Details of holding and vehicle call off areas where necessary and how these will be managed (the locations of which are to be detailed on a plan);	Section 5.4
Details of logistic centres, where necessary, and how they will be managed;	N/A
Smart procurement to help minimise vehicle movement;	N/A
Arrangements for use of CLOCS, FORS and Direct Vision Standards. In relation to construction south of the A406, all construction vehicles over 3.5t will be required to be FORS registered (minimum Silver) and all construction vehicles will	Section 5.2

Site-Wide CTMP Recommended Scope, as appropriate	BXT DCTMP reference (section)
use reasonable endeavours to achieve the Direct Vision3 star or higher, permitting requirements coming into force in October 2020 in the period prior to October 2020;	
Updates to the existing traffic directional distribution model, where necessary;	N/A
Hours of operation;	Section 4.3
Indicative construction programme;	Section 1.1.4
Relevant information on the construction methodology as part of the assessment of Planned Measures, including the nature and likely quantities of materials to be imported/exported and the extent of off-site prefabrication to be employed as relevant to minimising construction traffic.	Section 5
Logistics facilities required	N/A As identified in the BXT CCC, none are required for Phase 2
WHERE TRAFFIC MANAGEMENT NOT REQUIRED / RELEVANT	
Details of any traffic management measures, for example, temporary road closures, diversions for construction traffic, temporary lane restrictions, temporary traffic lights and signage;	Not required as part of the VFL Works
Details of any on-site and/or off-site mitigation measures required to be implemented to minimise the impact of construction activities within the wider LBB road network, including public liaison and communications;	Detailed throughout the document
Details on how any impacts on bus services are to be minimised particularly in terms of HGV routing and minimising construction vehicle conflicts with buses and passengers accessing bus stops; and	Route planning has been provided as part of the submission. This has been considered to minimise impact on bus routes.
TfL's guidance on traffic management (http://content.tfl.gov.uk/temporary-traffic-management-handbook.pdf).	Section 4.7

1.1.4 Indicative Construction Programme

The BXT programme and all vehicle movements for the construction of the New Train Station takes into account the latest approved Indicative Construction Programme (LPA application ref. 19/2070/CON). However, since the ICP was approved in July 2019 there have been subsequent changes to the wider Brent Cross Cricklewood construction phasing and programme, which has necessitated the need for a revised ICP (January 2020, LPA application ref. 20/0243/CON). The revised ICP proposes the following dates for each of the Phase 2 (South)(Thameslink) sub-phase work packages (Plots), shown in the tables below. This highlights the current approved as well as the latest submitted start and end dates for Plot 3 (Thameslink Station and Western Entrance), for which the construction site is the focus of this application. The latest submitted ICP is also contained within Appendix 4 for reference.

Current Approved ICP (March 2019), BXT plots		
Plot	***Start***	***End***
Rail Systems and Sidings	February 2019	January 2020
Plot 3 – Thameslink Station and Western Entrance (Thameslink Station) (BXT)	April 2020	May 2022
Plot 3 - Thameslink Station Eastern Entrance and Interim Transport Interchange (Station Approach) (BXS)	April 2021	October 2021
Plot 3 – Thameslink Station Eastern Entrance Building	October 2021	June 2022
Plot 60 - Rail Freight Facility	February 2019	November 2019
Plot 63 - Waste Transfer Station	February 2019	September 2020

Revised ICP (July 2020), BXT plots		
Plot	***Start***	***End***
New MML Train Stabling Facility	January 2019	October 2020
Plot 3 – Thameslink Station and Western Entrance (Thameslink Station) (BXT)	April 2020	December 2022
Plot 3 - Thameslink Station Eastern Entrance and Interim Transport Interchange (Station Approach) (BXS)	October 2020	May 2022
Plot 3 – Thameslink Station Eastern Entrance Building	October 2020	May 2022
Plot 60 - Rail Freight Facility	January 2019	December 2019
Plot 63 - Waste Transfer Station	January 2019	June 2022

As per the latest revised ICP, the MML Bridge has been assumed to fall within Phase 5, with a projected completion date of March 2026.

Table 1.2 outlines all Plots that have a programme overlap with the construction programme for the New Train Station, as per the latest submitted ICP. It also shows how many months of overlap are expected, based on the ICP. It is important to note that, while multiple phases and plots overlap with the New Train Station construction programme (April 2020 to December 2022), the primary interface between construction vehicles will happen on Brent Terrace North, with vehicles from the New Train Station and from BXS using this road to access various plots and construction sites.

To mitigate the impacts of cumulative construction traffic, analysis has been undertaken to understand the localised impacts of the construction interface between BXT and BXS.

This analysis is shown in Section 6, and measures have been outlined within this DCTMP to demonstrate the mitigations that will be taken where required. Furthermore, multiple working groups have been set up to ensure a collaborative approach is taken to traffic management and mitigation from all development partners. This includes an internal Traffic Management Group between BXT and BXS development partners, specifically focused at reducing the impacts of construction traffic around and leading to Brent Terrace North. More details can be found in Section 1.1.6.

Table 1.3: Summary ICP extracted phases/plots with BXT station construction overlaps

Phase	Phase / Plot	Start Date	End Date	Months of Projected Overlap
P1 S278	K3 - Cricklewood Lane/ Claremont Road Junction Works - Phase 1A (N) Please refer to BXC-ICP-10080 & BXC	20-Jan-20	30-May-20	2
P1 S278	K5 - A5/A407 Cricklewood Lane Junction Improvements - Phase 1A (N) Please refer to BXC-ICP-10080 & BXC	01-Jun-20	02-Apr-21	11
P1 S278	K27/K44 - High Street South "East Works" Phase 1BS	26-May-20	08-Sep-23	31
P1 S278	K8 - Claremont Park Road (Part 1) - Phase 1A (S)	14-Oct-20	21-Dec-22	26
P1 S278	K11 - Claremont Avenue Junction with Tiling Road - Phase 1A (N) (to become CR junction)	17-Jan-22	13-Jan-23	12
P1 S278	K7 - Claremont Road North Junction - Phase 1BS	05-May-22	15-Jun-23	8
P1 S278	K10 - Tilling Road West Alignment Diversion - Phase 1A (N)	11-Mar-22	09-Mar-23	10
P1 S106	K14 - Clarefield Park Temporary Open Space Includes Demoliton - Phase 1B (S)	03-Feb-20	01-Jul-20	7
P1 S106	K26 - Claremont Park Improvements - Phase 1BS	03-Jul-20	25-Apr-23	30
P1 S106	K29 - Community Facilities (Market Quarter) - PHASE 1C	28-Aug-20	27-Oct-23	28
P1 S106	K15 - Clitterhouse Playing Fields (Part 1 / 1st Tranche) - PHASE 1BS	26-May-22	04-Jul-24	7
Phase 1 Plot	Plot 53 - Phase 1A (N)	08-May-20	13-Jan-22	20
Phase 1 Plot	Plot 54 - Phase 1A (N)	08-May-20	13-Jan-22	20
Phase 1 Plot	Construct 47 Units to Relocate Residents from Whitefield Estate	08-May-20	13-Jan-22	20
Phase 1 Plot	Whitefield Estate Replacement Units Part 2 - Phase 1B(S)	02-Mar-20	31-Mar-23	33
Phase 1 Plot	Plot 12 - Residential & Retail - Phase 1BS	02-Mar-20	31-Mar-23	33
Phase 1 Plot	Plot 51 - Pavillion - Phase 1B (S)	01-Jan-21	31-Mar-21	3
Phase 1 Plot	Plot 13 - Residential & Retail - Phase 1C	28-Aug-20	27-Oct-23	28
Phase 1 Plot	K42/K43 – Community Use/Retail/Neighbourhood Police Unit- Phase 1C	28-Aug-20	27-Oct-23	28

Phase	Phase / Plot	Start Date	End Date	Months of Projected Overlap
Phase 1 Plot	Plot 82 - Park Depot - Phase 1B (S)	01-Jul-22	30-Sep-23	6
P2 S278	Waste Handling Facility Rail Sidings with Gantry Crane - Phase 2 (Thameslink Station Phase)	01-Jan-19	30-Sep-20	6
P2 S278	New MML Train Stabling Facility - Phase 2 (Thameslink Station Phase)	01-Jan-19	31-Oct-20	7
P2 S278	Midland Main Line Railway Station (Thameslink Station Phase)	01-Apr-20	01-May-22	25
P2 S278	Claremont Park Road (Part 2) - Phase 2 (S) (Thameslink Station Approach)	01-Jul-20	30-Jun-22	24
P2 S278	High Street South - Phase 2 (S)	01-Jul-20	31-Mar-24	30
P2 S278	Tiling Road East improvements - Phase 2 (S	01-Jul-21	31-Mar-22	9
P2 S106	K43 - Neighbourhood Police Unit - Phase 1C	01-Jan-22	31-Dec-22	12
P2 S106	K25 - School Green Corridors - PHASE 2	01-Apr-22	30-Jun-24	9
P2 Plot	Plot 62 - Office Block - Phase 2 (Thameslink Station Phase)	01-Jan-19	27-Jun-22	27
P2 Plot	Plot 63 - Waste Handling Facility - Phase 2 (Thameslink Station Phase)	01-Jan-19	27-Jun-22	27
P2 Plot	Plot 46 - Claremont Primary School - Phase 2	01-Jul-22	30-Sep-24	6
P4 Plot	Plot 25	01-Jan-22	30-Jun-24	12
P5 S278	Geron Way Pedestrian Bridge (now merged with Thameslink Station Bridge)	01-Apr-20	01-May-22	25
P5 S106	K28 - Brent Terrace Green Corridors	01-Apr-22	30-Jun-24	9
P6 S278	Highfield Avenue Junction Works - Phase 2 (S)	01-Jul-22	31-Mar-23	6
P7 Plot	Plot 45 - Sub station	01-Oct-22	31-Dec-23	3

While the ICP outlines various phases and plots within the Brent Cross Cricklewood regeneration project that overlap with the station construction programme, the phases and plots that are expected to have a direct interface with the station's construction traffic are primarily associated with BXS plots immediately adjacent/in the vicinity of the station construction site.

It should be noted that the primary access point for BXT construction traffic, and where the majority of construction traffic interface with other partners will occur, is located at the Tilling Road/Brent Terrace north junction, and along Brent Terrace north.

In order to predict the impact of these interfaces, analysis has been undertaken to demonstrate the cumulative impacts of both BXT and BXS construction traffic within the primary access point and key interface for these construction vehicles, as outlined below. This analysis is found in Section 6.2 of this document.

Following analysis, it has been identified that both the BXT-specific construction traffic, and the cumulative traffic from BXT, BXS and Plots 53/43, will not have a significant impact on the operation of this junction, due to the removal of circa 350 HGV movements as a result of Walsh's operation ceasing on site and the completion of demolition of the Claremont Way industrial estate.

The combined construction traffic of the above-mentioned development partners, plus the additional HGVs required for the 'road to road' waste transfer equates to less than half of the HGV movements being removed from Brent Terrace north.

1.1.5 CCC Feasibility Study

The approved Construction Consolidation Centre (CCC) Feasibility Study for the Phase 2 (South) (Thameslink Station) sub-phase (approved under application ref. 17/6527/CON) concludes that a CCC would not be feasible for the sub-phase.

The Thameslink project has committed to a target of 50% of materials (by tonnage) being transported by rail. This sub-phase will comply with this target, which will result in removal of a significant number of vehicles off the local road network across the station project, and have a significant benefit in terms of traffic volumes, noise and air quality as well as reduced CO_2 emissions. Rail transportation will be used for bulk rail-related infrastructure such as track and ballast as being an efficient means of handling and laying these materials. Deliveries of track by road would otherwise result in multiple abnormal loads which would typically cause disruption to other road users.

It is also proposed that spoil derived from excavation of existing ballast and arisings from piling will be transported off-site by rail. This will not require any interaction with the site compound or construction of a railhead, with materials being loaded directly into trains using railway lines adjoining the excavation works.

Due to the limited time available for track possession and practicalities around delivering non-bulk supplies to the site for the station, all other deliveries will be by road. If there are other opportunities to transport goods by rail then these will be considered as appropriate.

Further details on rail-specific deliveries and associated tonnage of materials in compliance with the approved CCC is included in Section 5.6 of this document.

1.1.6 Other Approved DCTMPs

This DCTMP follows the DCTMPs prepared for Phase 1A (North) – Infrastructure One (LPA planning ref. 19/6498/CON) and Phase 1A (North) – Infrastructure One (LPA planning ref. 20/2613/CON), and precedes future DCTMPs produced by Brent Cross South and other development partners. This DCTMP takes into account all construction traffic interfaces between the Phase 1A (North) – Infrastructure One DCTMPs, BXT, BXS, Plots 53 & 54, as well as the NLWA current and potential future HGV traffic should they move to a 'road to road' solution on the transfer of waste (discussions pending).

Furthermore, and as per the requirements of the approved site-wide CTMP, this DCTMP has been undertaken in consultation with the various Development Partners of the Brent Cross Cricklewood regeneration project, in particular with Brent Cross South. The CTMP recognises that there are multiple areas of overlap with Brent Cross South, during which alignment between construction works and traffic management will be important. We continue to collaborate with the Transport Strategy Group (TSG), as well as the Transport Advisory Group (TAG) and the internal Traffic Management Group (TMG).

The Traffic Management Group is an internal working group that has been set up separate to the requirements of the S73 permission, to facilitate cooperation and coordination of construction traffic between Development Partners. The primary purpose of this group is to identify construction overlaps and peaks, and to agree mitigations as and where required. Through the TMG, analysis of the upcoming construction traffic movements has been undertaken, which has provided both our DCTMP and following BXS DCTMPs with our predicted schedule of vehicle movements, as well as those of future phases and the interactions between work packages.

It should be noted that, through the TMG, it is agreed that the primary access point for BXT construction traffic, and where the entirety of construction traffic interface with other partners will occur, is located at the Tilling Road/Brent Terrace north junction. It is

concluded at this TMG that the construction traffic will not have any impact on the operation of this junction, due to the removal of circa 350 HGV movements as a result of Walsh's operation ceasing and the demolition of the Claremont Way industrial estate. The combined construction traffic, plus the additional HGVs required for the 'road to road' waste transfer equates to less than half of the HGV movements being removed from Brent Terrace north.

1.2 Objectives of the CTMP

The key objectives of this CTMP are as follows, aligning with the site-wide CTMP for BXC:

- To ensure that the appropriate construction transport management is adopted so as to minimise the impacts that arise from the construction traffic travelling to and from and within the site as far as reasonably practicable and ensure that the Development is carried out in accordance with relevant best practice and guidance which shall include coordination and collaboration between the Development Partners as appropriate.
- To ensure that the Development is carried out in such a way as to maintain, as far as is reasonably practicable, existing public access routes and rights of way during construction and where this cannot be achieved, suitable alternative routeing is to be agreed with LB Barnet and TfL, as appropriate.
- To minimise, as far as is reasonably practicable, the level and impact of road based construction traffic on the surrounding transport network (particularly during peak periods) whilst taking into account the cumulative construction traffic impacts of other approved works within Brent Cross Cricklewood. In seeking to minimise road based construction traffic, the use of rail should also be considered where appropriate and feasible.

1.3 Site context

The new station site is located to the south of the North Circular Road (A406) and south west of the Brent Cross Shopping Centre. It currently comprises a number of railway sidings, a former engine shed on the eastern side served from Brent Terrace and a car park on the western side served from Geron Way.

The London Borough of Barnet will be responsible for planning and highway matters, although the London Mayor, Transport for London and Highways England are also relevant statutory bodies in relation to transport matters, particularly for the North Circular Road and M1 motorway.

1.4 Development proposals

The station footprint is partially occupied by the Jerich Shed. Consent to demolish the Jerich Shed was approved under application 19/4900/FUL and its removal will allow for the construction of the station and the construction compounds needed to undertake the development works. A compound will be laid out with secure fencing and appropriate on-site facilities to support workers and provide car parking, laydown areas and storage of materials and plant. It will be served by the existing access to Brent Terrace, which connects to Tilling Road at its northern end which itself connects to the gyratory between the M1 and North Circular Road. The majority of construction activities will take place from this compound, including foot bridge construction for the future station.

A secondary compound will be required on the western side of the station site where the footbridge will also land to provide access to the area west of the railway. This compound will provide welfare facilities and a small area for unloading.

The new station will provide four platforms, created from the removal of the sidings, with a footbridge that spans the railway with pedestrian access to the east and west sides. A main building will be constructed on the eastern side to provide a ticket office, toilets and retail units.

1.5 Structure of this report

The following chapters describe the work that has been undertaken as part of this study. The report has been structured to align with TfL's guidance on Construction Logistic Plans and follow the principles of the approved BXC documentation as outlined above, as follows:

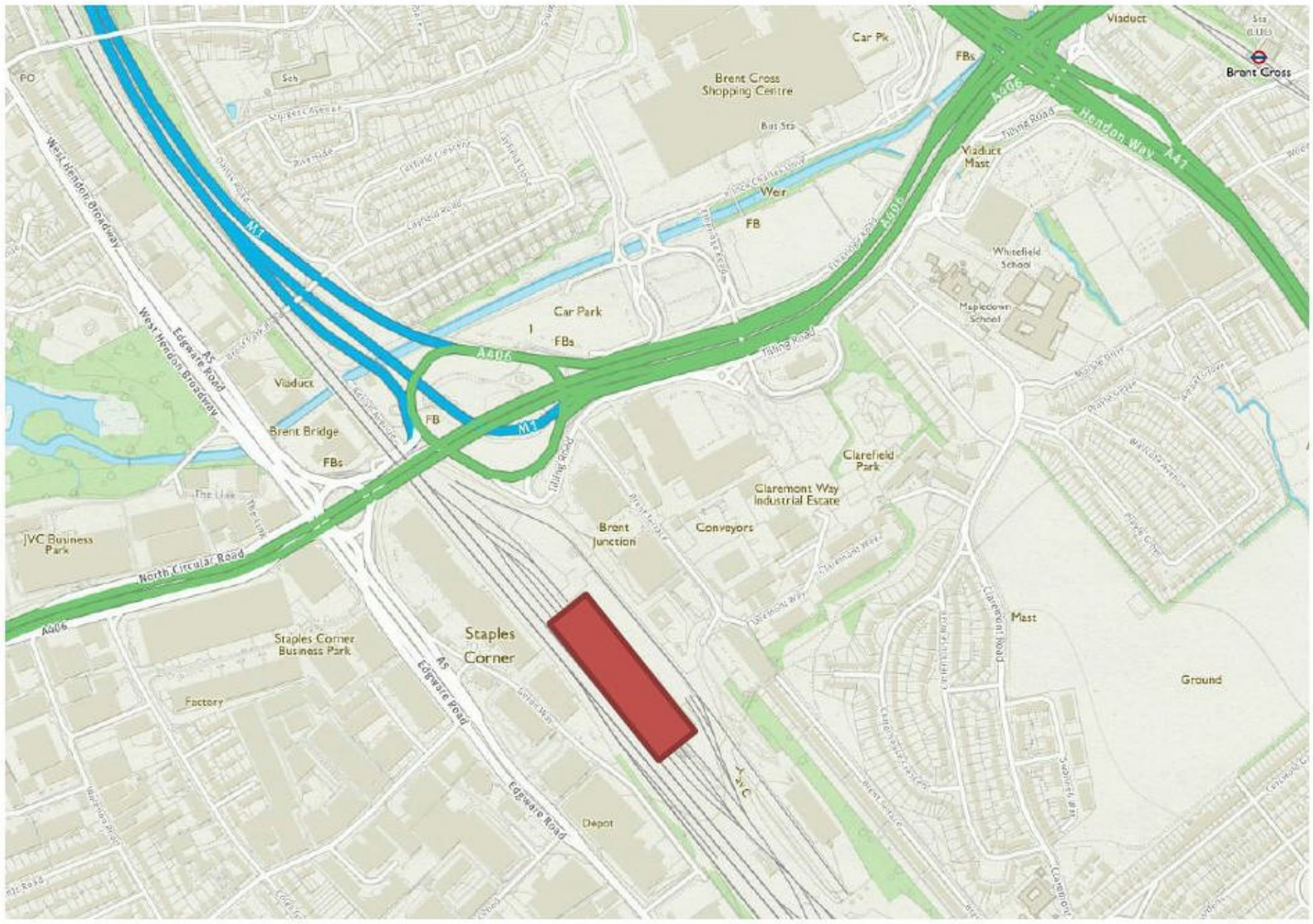
- Chapter 2 describes the site context, its considerations and challenges;
- Chapter 3 provides an outline of the construction programme and methodology;
- Chapter 4 describes the proposed vehicle routing and site layout;
- Chapter 5 explores strategies to reduce impacts;
- Chapter 6 provides an estimate of vehicle movements; and
- Chapter 7 outlines how the CTMP will be implemented and monitored.

2 CONTEXT, CONSIDERATIONS & CHALLENGES

2.1 Site location

The site is located to the south of the North Circular Road where it meets the M1, and close to Brent Cross Shopping Centre, which is in North London. The site is predominantly occupied by railway sidings, which will be removed, with Brent Terrace to the east and Geron Way to the west, as illustrated in Figure 2.1.

Figure 2.1: Station Location



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The surrounding area encompasses a mixture of industrial, retail and residential uses. Brent Terrace primarily serves industrial uses, while retail uses are located further east and then to the west of the sidings. Residential receptors are located a short distance to the east.

Figure 2.2 below illustrates the extents of the main construction compound and the context of the western compound in relation to the works either side of the railway sidings.

Figure 2.2: CGI aerial view of temporary works and compounds

2.2 Local access

2.2.1 Highway network

North Circular Road (A406)

The North Circular Road is a strategic highway that connects multiple arterial routes into London across the north of the city. It provides a dual carriageway connection to motorways, including the M1 locally, along which the majority of construction materials are expected to arrive. The junction with the M1 is a grade-separated layout with roundabouts either side of the railway and connecting slip roads. This provides a dual junction with the A5, which runs parallel to the M1 in this location to the west of the railway.

Tilling Road

Tilling Road provides a local distributor road serving the industrial and retail areas south of the North Circular Road, connection to the M1/A406 gyratory on its southern side. It provides access to a retail park to the east of the construction site and onward connection, beneath the North Circular Road, to the Brent Cross Shopping Centre.

It is a single carriageway road with a speed limit of 30 mph with street-lighting and footways present, though typically on one side of the road in the vicinity of the site.

Brent Terrace

Brent Terrace is a single carriageway road serving a range of industrial uses. It is subject to a 30 mph speed limit with street lighting and footways. There is frequent parking along both sides of the road, including HGVs. At the southern end of this section of Brent Terrace, the road bends to serve the Hendon Waste Transfer Station, which is immediately adjacent to the access to the main construction compound. As the road turns towards the site access, Claremont Way intersects at a priority junction, leading in a north easterly direction.

A5 Edgware Road

The A5 is a strategic road that connects to the North Circular as part of the junction with the M1. It is situated to the west of the railway sidings as a dual carriageway with slip roads connecting it to the M1 / A406 junction. To the south of the western compound, the road reduces to a single carriageway road with at-grade junctions with side roads.

Geron Way

Geron Way provides local access to Staples Corner Retail Park and some industrial premises between the A5 and the railway. Access in a southbound direction is available from the A5 via a left in / left out arrangement onto the southbound slip road from the M1 / A406 junction. Access to/from other directions is via the southern end of Geron Way via a priority junction onto the A5 where it reduces to a single carriageway.

The road is subject to a 30 mph speed limit and provides street lighting and footways, although to the south of the retail park it is subject to some on-street parking.

Stopping Up Orders

Claremont Way will be encompassed by the wider BXC development and will be closed as part of the construction works relevant to that phase of works. Temporary Traffic Regulation Orders for Claremont Way have already been approved as follows:

- TTRO Rech JB 74140 Claremont Way NW2 Road closure; and
- TTRO Rech JB 74139 Claremont Way Public Footpath NW2 Road closure.

A permanent Stopping Up Order will be submitted in due course to facilitate the BXC development.

2.2.2 Bus services

The most convenient bus stop for the main site compound is located on Tilling Road, around 600m to the north east. The closest stop in the alternate direction is located the other side of the carriageway, accessible via a footbridge to the east. Both stops offer seating, shelter and timetable information. Several other services are also accessible from Edgware Road, roughly 200m west of the site, which may be more convenient for users associated with the western compound. The closest stop in the alternate direction is on the opposite side of the road, roughly a 5-minute walk to the south west. Both stops offers shelter, eating and timetable information. Further detail of timetable and routing can be found in the table below.

Table 2.1 Bus services

Service	Route	Operating times & typical weekday frequency
32	Edgware Bus Station – Kilburn Park Station	First Bus: 05:34 Last Bus: 00:25 Every 10 minutes
266	Acton Old Town Hall – Brent Cross Shopping Centre	24 Hours Every 10 minutes
632	Kilburn Park Station – South Mead	Schooldays only Outbound: 07:43 Inbound: 15:10
N16	Edgeware Bus Station – Victoria Bus Station	First Bus: 01:00 Last Bus: 05:59 Every 30 minutes
N266	Hammersmith Bus Station – Brent Cross Shopping Centre	First Bus: 00:10 Last Bus: 05:15 Every 30 minutes
182	Bannister Playing Fields – Brent Cross Shopping Centre	24 Hours Every 10 minutes
232	Mitchell Way – Turnpike Lane Station	24 Hours Every 10 minutes
112	Ealing Broadway Station – Brent Cross Shopping Centre	First Bus: 06:05 Last Bus: 00:10 Every 10 minutes
611	Stonebridge Park Station – East Finchley Cemetery	Schooldays only Outbound: 07:55 Inbound: 15:27
142	Watford Junction Station – Brent Cross Shopping Centre	First Bus: 04:45 Last Bus: 01:02 Every 15 minutes

2.2.3 Underground services

Brent Cross Tube Station is within close proximity, located 1.2km north east of the site. The underground station is positioned on the Northern Line within zone 3. There are regular services northbound to Edgware and Southbound to Morden and Kennington, running between the hours of 5am and 1am on weekdays. The station also offers access to a car park, Payphones and WiFi.

Further afield, around 2.3km to the south of the site, Willesden Green and Kilburn stations are located on the Jubilee Line with regular services to Wembley, central and east London. These stations are accessible by bus (189 to Kilburn, 266 to Willesden Green) from the site.

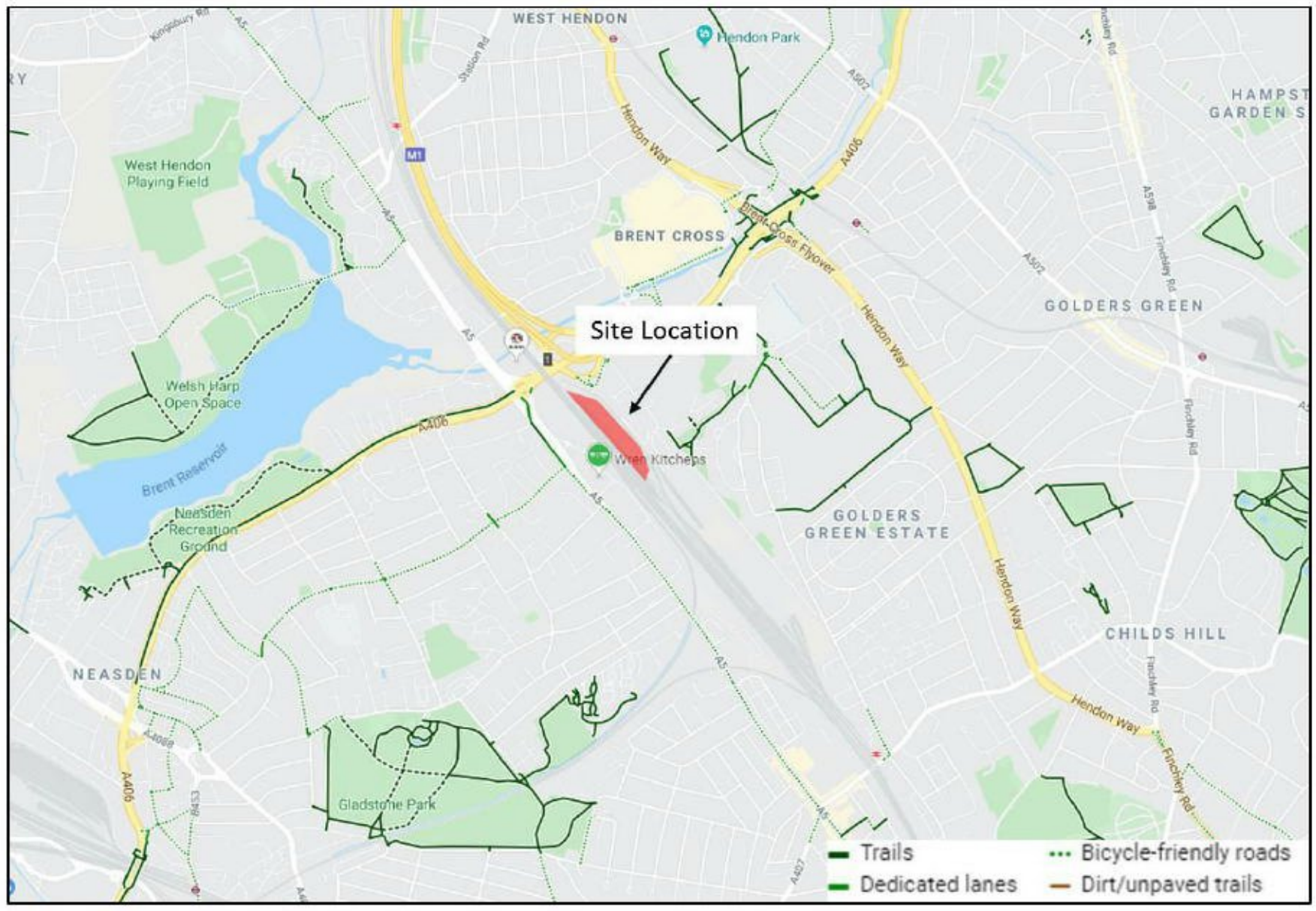
2.2.4 Mainline rail services

If travelling from the north, the most convenient rail station to the site is Hendon, roughly 2.5km to the north. The station offers 6 cycle storage spaces with CCTV as well as a station car park. However, when travelling from the south, Cricklewood station would be more advantageous if combining the last leg of the journey on foot or by cycle or bus. The station provides services to destinations including Luton, Sutton, St Albans and Orpington, with a frequency of around every 10-minutes during peak hours. The line terminates at St Pancras station where connections to national rail services additional Underground services are available.

2.2.5 Cycling

There are a range of trails, dedicated lanes and bicycle friendly roads within the site vicinity. To the west of the site along the A5, a series of bicycle friendly roads, dedicated lanes and trails are available, stretching south to Hyde Park, and offering scenic trails that connect to the River Thames at the east and Kensington to the west. Bicycle routes also stretch north along the A5 near Stanmore Station. A risk assessment of routes local to the site will be carried out using TfL's Quality Criteria Tool, examining existing conditions for cyclists. Advice and guidance will be provided to potential cyclists to use preferred routes identified following the assessment of local roads.

Figure 2.3: Local cycle routes



2.3 Community considerations and challenges

The site is surrounded by a mixture of uses, including a residential area to the east, which presents a potential noise receptor. However, there are also a small number of local businesses located in the vicinity of both compounds which have the potential to be affected by construction vehicles accessing each location. The CTMP needs to consider all types of construction traffic challenges.

It is not expected that the local highway network will see any negative impacts as a result of the works as the surrounding highway network already accommodates HGV movements and the number of construction vehicle trips is not proposed to be significant. Access is provided directly onto the trunk road network, avoiding routing of construction traffic through residential areas. Furthermore, delivery restrictions shall be in place during the AM and PM peak periods to avoid disruption.

3 CONSTRUCTION PROGRAMME AND METHODOLOGY

3.1 Works Programme

The current estimated programme of works is that the site setup will follow demolition of the engine shed in early 2020 with the works anticipated to be completed around May 2022. Both compounds will be in use throughout this period.

Peak periods of construction will occur throughout construction of the station as key elements of the works are phased. The majority of rail infrastructure and ballast will be delivered via rail, however the superstructure for the bridge and station buildings will be timed at different phases of the project as track closure allows.

3.2 Methodology

The works will initially involve the removal of sidings to facilitate the construction of the first pairing of new rail alignments and platforms. The new footbridge will be installed to the first platform island at this stage. Following completion of these works, the second pairing of rail alignment and platforms will be constructed and the footbridge will be extended across to the western side. The station buildings and other infrastructure will be constructed during the final phase of works.

The main construction compound to the east will be used for the majority of works, including platforms and the eastern buildings, site offices, welfare facilities, storage of materials and construction of the eastern footbridge before lifting into place. The western compound will be used for the construction of the western buildings and footbridge section, with a more limited provision for material storage and only welfare facilities for workers.

4 SITE LAYOUT AND VEHICLE ROUTING

4.1 Site layout

The main eastern compound will utilise the footprint of the demolished engine shed and surrounding hardstanding areas. This will be securely fenced to enclose site offices, car parking and storage areas for materials and plant. The western compound will utilise an existing car park to the south of retail units and will provide welfare facilities and an area for deliveries. The indicative layout of each site compound is provided at Appendix 1.

It is acknowledged that the main compound will evolve over the duration of the works and will need to accommodate access to and works for other parts of the wider BXC development. Therefore, the indicative layout is subject to change including through different phases of the station project.

4.2 Parking, Loading and Unloading

The eastern compound will provide 80 car parking spaces, shared with construction staff from the rail sidings construction works, and will include electric vehicle charging and disabled spaces. This will ensure that adequate space is available for peak activities where up to 100 workers may be required on site at a time, particularly during weekend possessions when limited access by rail will be available. The majority of works will only require an average of 40 workers at a time. 10 car parking spaces will be provided at the western compound.

The car parking spaces will be available for site staff, sub-contractors and visitors. All personnel attending the site will be inducted prior to commencing work. The site induction is the primary means of communicating the project travel plan and supporting information. In general, staff will be encouraged to travel to work by mode other than private car. 8 cycle parking spaces will be provided in a secure shelter within the eastern compound and showers will be available to facilitate cycling. Further details are provided in the Construction Worker Travel Plan.

The construction method requires mobile cranes to be used to install footbridges and lift building materials to the platform island from both compounds. Adequate hardstanding areas are already available for these cranes to be positioned and will operate within the restrictions set out by Network Rail including possession of rail lines.

Both compounds will provide adequate areas for delivery of materials by articulated and rigid vehicles without having to reverse on the public highway. This includes the delivery of plant, which will arrive on low-loaders once the site compound has been established.

4.3 Site Working Hours

Site working hours take into account any sensitivities with the surrounding residential areas and sensitive receptors. They generally comprise 08:00 – 18:00 hours Monday to Friday and 08:00 – 13:00 on a Saturday with 1 hour before and after to allow for workers arriving and departing. Current Government advice allows for construction sites to extend site working hours to 21:00 to accommodate Covid-19 restrictions to at least May 2021.

These working hours indicate the maximum hours available while worker shifts will start and finish at staggered times depending on construction activities and to spread the arrival and departure times of workers to accommodate Covid-19 restrictions.

However, there will be occasions when weekend and night-time track possessions will be required to facilitate the construction works and 24 hour working will be adopted in these instances. Any working during non-standard working hours will be subject to approval with the Local Authority and will require a Section 61 consent under the Control of Pollution Act 1974, issued by the Local Authority.

Where works need to take place outside of normal working hours, occupiers of nearby residential properties will be informed in writing, notifying them at least 7 days in advance of the works and their likely duration. Any out of hours working will be discussed with local residents during liaison meetings.

Delivery hours will be restricted, where possible, to 10:00 to 16:00 in order to minimise impacts during peak hours on the surrounding highway network. However, there will be occasions during weekend or night time working that deliveries will need to be made outside of these hours but still remain outside of peak hours for the local road network.

4.4 Site access arrangements

The main compound will be accessed from Brent Terrace for all construction and HGV movement, utilising the existing access at the eastern end of the road. Vehicles will leave Brent Terrace and then turn right alongside the railway to a level crossing where vehicles will turn abruptly left and left again to enter the site compound.

No alterations are required to this access to accommodate the size and type of vehicles anticipated to use it. Access will be maintained to all other businesses served from Brent Terrace. It is not currently proposed to restrict any parking along this road as access is available at all times. However, this will be monitored to ensure that adequate access is available and temporary measures may be required if special loads are transported to the site.

The western compound will be accessed from Geron Way, utilising the existing car park access. No alterations are required to this access to accommodate the size and type of vehicles anticipated to use it. It is proposed that temporary parking restrictions are imposed on the western side of the road, opposite the compound access, to ensure that adequate space is available for large vehicles turning in and out and minimise the risk of collision with parked vehicles in this location.

Traffic management will be used at site accesses, where appropriate, to ensure the safety of all road users. Given the temporary nature of access arrangements, formal road safety audits have not been undertaken. However, all temporary arrangements are designed to comply with highway standards, including provision of visibility splays, and minimise impacts on vulnerable users such as pedestrians and cyclists.

4.5 Pedestrians and cyclists

Protecting pedestrians and cyclists is of paramount importance. Although Brent Terrace is not heavily trafficked by pedestrians, maintaining access for construction workers who wish to arrive on foot or by bike, including from the nearby bus stops, will be important to ensure their safety.

Pedestrian and cycle access will be available to both compounds from the highway network with suitable gated access, separate from vehicle entrances, and protected internal routes to segregate users from vehicle movements. A risk assessment of these routes will be carried out prior to commencement to consider pedestrian and cycle movements interacting with HGV movements. This will include existing users as well as construction workers travelling to and from the site. The risk assessment will follow TfL's Quality Criteria Tool for key routes covering the last mile to the site. Should the risk assessment identify unsuitable roads, potential cyclists will be advised to use preferred routes that do meet the criteria. In addition, cyclists will be able to use the protected walkway (dismounted) alongside the railway from Cricklewood Station.

During construction the presence of parked vehicles and the condition of the footway along Brent Terrace will be monitored to ensure it remains suitable for pedestrians and cyclists. Should remedial work or restrictions be required, these will be pursued as a result. Initially, the footway on the western side of the road may need re-surfacing as it is currently in poor condition which could be a trip hazard for pedestrians.

4.6 Abnormal / Special Loads

It is not expected that any abnormal or special loads will be required during the construction of this project. However, should they be required, the relevant highway authorities would be contacted to discuss such movements.

4.7 Traffic management

It is anticipated that best practice will be applicable on site. Traffic management will be controlled directly by the Project Manager, the Construction Manager and the Site Engineer. The traffic management practice on site will be reviewed weekly. If necessary, safety officers working with the various sub-contractors will be invited to site for meetings and site reviews.

Traffic Management will be undertaken as outlined within this document and with regard to TfL's Traffic Management Handbook (http://content.tfl.gov.uk/temporary-traffic-management-handbook.pdf)

4.8 Vehicle routing

Route options have been appraised to establish the preferred route to the site for construction traffic, including any necessary abnormal loads, taking into account the approved routes on approach to the local area comprising the A406, A5, A41 and M1.

Routes to and from the main compound will be via the gyratory junction between the M1 and A406 via Tilling Road and Brent Terrace. This route is already used by HGVs and therefore daily construction movements are unlikely to result in additional disruption. Traffic marshals shall be made available during deliveries and collections for the largest vehicles to ensure that vehicles can utilise all of the carriageway to manoeuvre, should they require it.

Routes to and from the western compound will be from the A406 / A5 junction and will turn onto Geron Way using the left in arrangement. All exit movements will travel south along Geron Way to meet the A5 at the priority junction where all movements are available, including returning to the North Circular Road.

Reversing manoeuvres shall be avoided wherever possible however, in the event that construction vehicles are required to undertake reversing manoeuvres onto or from Brent Terrace, in the interest of highway safety and in accordance with the Mayor's Vision Zero Initiative, a minimum of three banksmen will be stationed to direct vehicles reversing to ensure the safety of pedestrians, cyclists and other road users.

The site is widely accessible from a number of trunk and classified roads including from the north via the M1 and the A41, from the east and west via the A406, and to the south via the A41 and the A5. All drivers will be briefed prior to making deliveries to ensure they adhere to the permitted routes.

Swept path analysis of these routes local to each compound is provided at Appendix 2. Details of the routes to be used are provided at Appendix 3.

4.9 Temporary road closures

No road closures or diversions are envisaged for the Brent Cross West station works. However, if they are needed, the appropriate application and notice periods will be applied for from London Borough of Barnet and residents will also be informed in advance by letter. There are also no parking bays that will require suspension during these works.

4.10 Wheel wash facilities

The site compounds will be constructed on hard standing areas and there are minimal works involving earthworks such that it is unlikely that mud and other detritus will be picked up on the wheels of vehicles leaving the site. However, a mobile wheel wash will be available in the event of such works taking place that may risk mud being carried onto the public highway. A road sweeper may be used on the public highway, should there be instances where mud is carried out onto the local highway network.

4.11 Highway condition survey

Volker Fitzpatrick will undertake a condition survey of the route been the North Circular Road and the site compounds before construction activities commence in order to record any existing damage to kerbs, carriageway surface and street furniture. Following completion of the works and at intervals to be agreed with the London Borough of Barnet, further conditions surveys will be undertaken to identify any change in the level of damage to highway infrastructure. Should any additional damage be attributed to the construction activities associated with the Brent Cross West station works, remedial repairs will be undertaken to return the infrastructure to an acceptable state. The table below summarises potential clashes identified by the sidings CTMP along with mitigations to be follows, which will also be followed for the Brent Cross West Station works.

Table 4.1 Potential highway infrastructure clashes

Traffic infrastructure clashes identified	Proposed mitigations
Potential clash with kerb on entrance to Tilling road from M1	Photo survey prior to delivery and after to identify any damage. Any damage caused by deliveries will be repaired by Network Rail.
Potential conflict identified with traffic island coming off Tilling road onto Brent Terrace. See Figure 4.1 below.	Photo survey prior to delivery and after to identify any damage. Any damage caused by deliveries will be repaired by Network Rail. Lit bollards to be removed and reinstated by Network Rail to allow delivery vehicles to pass through the area if required. Traffic marshal present near traffic island during delivery to manage any pedestrians.
Potential clash with kerb on exiting off Brent Terrace onto site road.	Photo survey prior to delivery and after to identify any damage. Any damage caused by deliveries will be repaired by Network Rail.
Potential clash with road extents on entering/exiting site concrete road.	Photo survey prior to delivery and after to identify any damage. Any damage caused by deliveries will be repaired by Network Rail.

Figure 4.1: Traffic island coming off Tilling Road onto Brent Terrace

5 STRATEGIES TO REDUCE IMPACTS

5.1 Planned measures

In line with the TfL guidance for CLPs, the planned measures checklist for medium impact schemes has been replicated below to consist of the relevant measures for this site.

Table 5.1 Planned measures checklist

Planned measures checklist	Committed	Proposed	Considered
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	
Measures to encourage sustainable freight			
Freight by rail		X	
Material procurement measures			
Re-use of material on-site	X		
Smart procurement	X		
Other measures			
Implement a construction worker travel plan	X		
Collaboration with other sites in the area	X		

5.2 Safety and environmental standards and programmes

The Contractor, its sub-contractors and suppliers will adhere to the following safety and environmental standards and programmes during construction:

- CLOCS – Construction logistics and Community Safety (Silver standard)
- FORS -Fleet Operator Recognition Scheme (Silver standard)
- HGV Direct Vision Standard (3 star)

- Operational conditions and site standards – to ensure appropriate vehicles for public roads and can be used on site without the need for high chassis vehicles.

Furthermore, the Contractor has committed to air quality and dust mitigation measures as outlined in the submitted Air Quality and Dust Monitoring Strategy (LPA planning ref. 20/1571/CON). These measures will be implemented throughout the construction programme, and will serve to help prevent dust, dirt, mud and particulates from leaving site via construction vehicles.

5.3 Adherence to designated routes

All materials can be transported from local suppliers and along any permitted route. These will be in accordance with the vehicle routing outlined in section 4. This prioritises the use of the strategic Road Network and Transport for London's Road Network, as these are best suited for HGVs.

The restricted routes will be recorded clearly on a map and communicated to all drivers, sub-contractors and suppliers. Any non-compliance of vehicle routing will be encouraged to be reported by local residents through a hotline number and will be raised with the appropriate sub-contractor or supplier.

5.4 Delivery Scheduling

Strict procedures will need to be in place and adhered to, to make the most effective use of the site compound. The access road between Brent Terrace and the site compound will be used to hold HGVs in advance of entering the site in case there are delays to vehicles loading or unloading or as a result of early arrivals. This holding area can accommodate up to 10 HGVs at a time. The unloading area within the compound can comfortably accommodate two HGVs at any one time.

The Site Manager and Project Manager will coordinate deliveries and collections through a Delivery Management System (DMS) – proposed to use Inndex system – to optimise the frequency of deliveries, reduce congestion and make more efficient use of delivery vehicles. Upon arrival at the site, vehicles will be met by a traffic marshal who will check that they have met the allocated time slot and that their paperwork is in line with expectations. Once the unloading area has appropriate space available, vehicles will be allowed to enter.

The Construction Manager will produce a weekly programme of deliveries. A draft of this programme will be presented and discussed at the weekly progress meeting to ensure that the proposed delivery schedule is acceptable for the site conditions.

The Construction Manager will also coordinate with other major works on the wider BXC site to ensure that cumulative peaks of HGVs are avoided where possible and that deliveries are restricted during times of abnormal load movements for other locations.

Should vehicles be unable to reach the western compound due to the limited space available, deliveries will be directed to the main compound first where adequate holding space is available to handle multiple HGVs. The access road between Brent Terrace and the site compound itself provides adequate space to accommodate at least 10 articulated HGVs, as illustrated at Appendix 1.

5.5 Re-timing for out of peak deliveries

Where possible, deliveries will be taken on site early to allow the vehicles to be offloaded during the peak period and then leave site once the peak period has ended. This allows greater efficiency in predicting delivery times and reduces haulage costs.

Deliveries to the site will be scheduled to ensure that the station project complies with the working hours allowed by the planning consent.

5.6 Measures to encourage sustainable freight

The London Plan (2016) Policy 6.14 promotes the uptake of the Fleet Operators Recognition Scheme and construction logistics plans, to be secured in line with the London Freight Plan. Furthermore, it encourages the use of sustainable freight modes such as water and rail along with consolidation centres.

The emerging draft London Plan (currently the Intend to Publish version, December 2019) discusses in Policy T7 about what the CLP should follow in encouraging sustainable freight use. Section 10.7.2 in the policy states that there are many deliveries made of non-urgent goods, in which lorries and vans are made up of less than half capacity. This can lead to repeated trips creating further congestion and emissions. Better consolidation is required when timing delivery trips of materials throughout construction.

Section 10.7.3 is there to ensure that the mayor in London will work with any relevant partner to improve safety and efficiency, offering advice for consolidation. *Where kerbside loading is required it should be designed to minimise the impact on other road users and pedestrians and seek to minimise the transfer distance from vehicle to destination.*

The London Freight Plan (2008) was launched to increase operating efficiency whilst reducing air pollutants from freight movement.

It has been produced to support the sustainable development of London by giving clear guidance to complement freight policies in other regional policies. CLP's will be applied to the design and construction phases of premises, specifically to improve construction freight efficiency by reducing CO_2 emissions, congestion and collisions.

Traffic authorities will be encouraged to review delivery arrangements for construction sites to ensure they reduce lane closures and carriageway restrictions and reduce construction duration. In attaining these goals CLPs should encourage off-peak deliveries and legal deliveries that cause less congestion.

The developer will seek to address these concerns through consultation with London Borough of Barnet and will enact the necessary measures to ensure the delivery of goods is completed in a sustainable manner.

The approved Construction Consolidation Centre (CCC) Feasibility Study for the Phase 2 (South) (Thameslink Station) sub-phase (approved under application ref. 17/6527/CON) concludes that a CCC would not be feasible for the sub-phase.

The Thameslink project has committed to a target of 50% of materials (by tonnage) being transported by rail. This sub-phase will comply with this target, which will result in removal of a significant number of vehicles off the local road network across the station project, and have a significant benefit in terms of traffic volumes, noise and air quality as well as reduced CO_2 emissions. Rail transportation will be used for bulk rail-related infrastructure such as track and ballast as being an efficient means of handling and laying these materials. Deliveries of track by road would otherwise result in multiple abnormal loads which would typically cause disruption to other road users.

It is also proposed that spoil derived from excavation of existing ballast and arisings from piling will be transported off-site by rail. This will not require any interaction with the site compound or construction of a railhead, with materials being loaded directly into trains using railway lines adjoining the excavation works.

Due to the limited time available for track possession and practicalities around delivering non-bulk supplies to the site for the station, all other deliveries will be by road. These will equate to less than 50% of all materials being transported to site (by tonnage), which is aligned with the targets of the approved CCC. If there are other opportunities to transport goods by rail then these will be considered as appropriate.

Table 5.2 outlines some of the key bulk construction materials and their proposed mode of travel to the site, highlighting that spoil represents a significant proportion of material for the sub-phase of the project. This will result in excess of 50% of materials being transport by rail over the duration of the project, meeting the commitment within the CCC Feasibility Study, which will be reported on upon completion of the works.

Table 5.2 Bulk construction materials by freight mode

Material	Estimated tonnage	Mode	Programme
Spoil (ballast, piling arisings)	3,700	Rail	Oct 20 to Oct 21
Steelwork	750	Road	See Section 6 for vehicle movements

5.7 Smart procurement

Where possible, the Contractor will work with sub-contractors and suppliers to encourage collaboration to reduce the number of separate deliveries to the site. Consolidation of deliveries before they reach the site will benefit all parties through reduced transportation costs.

Furthermore, procurement of materials may consider the environmental benefits, such as sourcing of materials, location of freight delivery infrastructure and specification of the safest and most suitable vehicles and equipment.

5.8 Construction worker travel plan

All construction workers will be encouraged to travel to the site via sustainable modes, including rail and Underground services where post-Covid-19 guidance allows. While social distancing guidelines are in place, this may not be possible. Volker Fitzpatrick will encourage workers to use active travel and public transport modes in preference to driving during regular construction hours. However, it is acknowledged that some construction activities will result in start and finish times during unsociable hours where such travel may be more restrictive and/or less attractive.

Full details of how this will be implemented are set out in the accompanying Construction Worker Travel Plan. Travel Plan Coordination will be organised as part of a wider initiative with the BXC development.

5.9 Collaboration with other sites in the area

Volker Fitzpatrick will liaise with the BXC developer and consult with both the London Borough of Barnet and TfL to identify any opportunities for collaboration with other contractors and developers working in the area. This will form part of an ongoing dialogue to minimise disruption and co-ordinate logistics between adjacent sites. The Construction Manager will make contact with other construction sites within proximity of the works and liaise monthly through arranged meetings or email to assess the traffic impact and agree mitigation measures. Peak deliveries for each site will be communicated to ensure works are planned to avoid concurrent peak deliveries where possible.

6 ESTIMATED VEHICLE MOVEMENTS

6.1 Background and context

Schedule 17 of the s106 of the amended s73 permission for the BXC regeneration project includes a spreadsheet called the Transport Matrix that has traffic generation predictions taken from the Transport Assessment carried out for the original outline permission and updated for the s73 planning application. These traffic generation predictions include construction traffic and the figures are based on the updated Construction Impact Assessment Addendum in the s73 application. The extract below is from the Transport Matrix for construction traffic:

T25	**Construction Traffic** Having regard to monitoring information and forecasts for the next proposed stage of development, does the number of construction vehicle movements generated by the development and passing through the gateway junctions conform with that anticipated by the work sheets?	If the number of BXC related construction vehicle movements passing through these junctions is forecast to be more than the maximum peak hour movements predicted in the work sheets, then the issue will be considered and addressed in the PTR or (as appropriate) RMTR and/or detailed engineering design for the S278 Agreement

The Transport matrix is based around the construction traffic generation that will affect certain junctions known as The Gateway Junctions, which are shown in the table below extracted from the Transport Matrix. Table T25 below, shows construction traffic for Phase 1 of the s73 permission only and therefore all other phases would have to add their construction traffic onto the figures shown in the table (or any updated table) and demonstrate that there is no adverse impact on the three gateway junctions.

The figures shown of vehicles movements were for the busiest times for construction traffic, taking into account that the project would have started by June 2016. It breaks down the vehicles by types e.g. larger lorries or HGV's and smaller cars and vans (LG&P) and by numbers that would be passing through the gateway junctions over a month, a day and during the busiest times for the junction known as peak times.

Transport Matrix: Table T25 - Construction Traffic Movements - extracted from BXC21 - Addendum to Construction Impact Assessment

					Vehicle Movements		
Junction	Period	Veh Movements /month	Ave work days/month	Veh Type	Weekday	AM Peak 0800-0900*	PM Peak 1700-1800*
A41/A406 Mid-Level	Q3 2017	655	22	HGV	30	3.5	0.9
		2620	22	LG&P	119	11.5	12.3
	Q3 2020	1418	22	HGV	64	7.5	1.9
		5672	22	LG&P	258	24.9	26.6
M1 Junction	Q3 2017	1833	22	HGV	83	9.7	2.5
		7332	22	LG&P	333	32.2	34.5
	Q3 2020	3971	22	HGV	181	21.1	5.4
		15884	22	LG&P	722	69.8	74.6
Staples Corner	Q3 2017	655	22	HGV	30	3.5	0.9
		2620	22	LG&P	119	11.5	12.3
	Q3 2020	1418	22	HGV	64	7.5	1.9
		5672	22	LG&P	258	25	26.6

6.2 Estimate of Total and Average Vehicle Movements

A detailed breakdown of number of deliveries and collections envisaged during the project will be undertaken by the Project Manager. The average vehicle movements will be calculated on a weekly and monthly basis.

The projected maximum daily vehicle movements per quarter, based on the construction programme for the New Train Station and associated Phase 2 (South)(Thameslink) sub-phase plots, is outlined below in Table 6.1.

Table 6.1 Forecast daily one-way construction HGV movements for Phase 2 (South) (Thameslink Station)

Plot	2020				2021				2022			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
MML Train Stabling	20	20	20	20								
Jerich Shed Demolition	4	4										
Brent Cross West Station		20	20	20	20	20	20	20	10	10	2	2
Rail Freight Facility												
Waste Transfer Station	17	17	17	17	17	17	17	17	17	17		
Sub-phase total												

The above table identifies that the construction stage is forecast to have a maximum average of 20 HGV movements per day over the course of the first 18 months of construction. This reduces to 10 HGV movements per day on average over the next six months of construction, followed by a further reduction to two HGV movements per day for the final six months of construction.

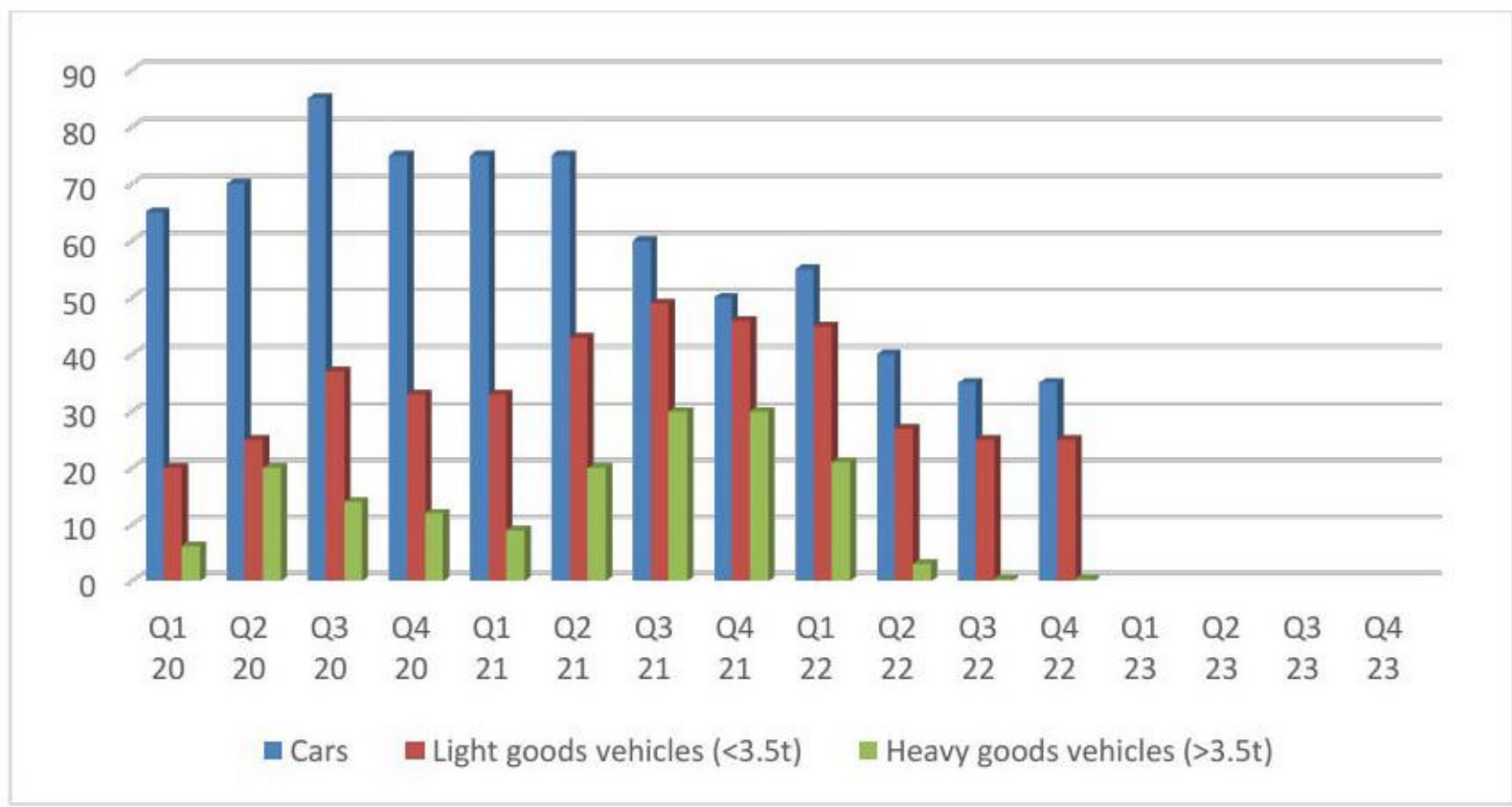
These movements represent very low traffic volumes in the context of existing traffic flows on the local road network, equating to just 2 to 3 HGVs an hour in any given direction during peak construction. Furthermore, these movements will avoid peak hours and therefore the impact of these movements during off-peak hours will not be significant.

These movements, along with estimated peak movements (e.g. during night time and weekend possessions) and movements associated with construction worker travel are summarised in Table 6.2 below.

Table 6.2: Maximum construction vehicle volumes per day for New Train Station

Route to site	Brent Cross West Station Total	
	Average	Peak
Via Tilling Road – HGV deliveries / collections	10 HGVs (20 movements/day	20 HGVs (40 movements/day)
Via Tilling Road – staff cars and vans	20 cars (40 movements/day)	40 cars (80 movements/day)

Figure 6.1 BXT New Train Station two-way daily construction traffic 2020-2023



An assessment has also been undertaken to determine the potential cumulative impact of the Brent Cross West station works, Jerich Shed demolition, BXS demolition works by Argent and the Sidings & Rail Systems works by Amey, as outlined in Table 6.3 to 6.4 below.

Table 6.3 Cumulative construction vehicle volumes

Route to site	Average cumulative number for: • Jerich Shed • Argent BXS demolition works • Amey Sidings & Rail Systems Works	Brent Cross West Station Total	Overall Cumulative Total
Via Tilling Road – HGV deliveries / collections	26 HGVs (52 movements/day	10 HGVs (20 movements/day	36 HGVs (72 movements/day)
Via Tilling Road – staff cars and vans	64 cars (128 movements/day)	20 cars (40 movements/day)	84 cars (168 movements/day)

As demonstrated within Table 6.4, the traffic volumes presented by the Brent Cross West Station represent a small percentage of the cumulative volumes that will be seen within the area during construction, in particular when analysing the interface with BXS development partner, L&Q plots 53 and 54, and North London Waste Authority (NLWA) vehicle movements along Brent Terrace, based on daily averages per quarter.

These volumes fall comfortably below the values expected for Phase 1, as outlined in Section 6.1, as well as equating to a small proportion of the traffic that will be generated by other development partners. The additional traffic generated by these development plots will be included in future DCTMPs and will build on the analysis we have undertaken in support of this DCTMP submission.

It can therefore be concluded that the construction works for the Brent Cross West station and the cumulative traffic for other local construction works taking place at the same time will have an indiscernible impact on Brent Terrace and the surrounding road network. Furthermore, peak times will be avoided, where possible, to minimise effects on congestion.

Table 6.4: Combined Construction Traffic Volumes

	Predicted construction related average daily traffic using Brent Terrace North (Q2-2020 to Q4-2023)																
	Year	2020				2021				2022				2023			
	Quarter	Q1 20	Q2 20	Q3 20	Q4 20	Q1 21	Q2 21	Q3 21	Q4 21	Q1 22	Q2 22	Q3 22	Q4 22	Q1 23	Q2 23	Q3 23	Q4 23
BX Town	Cars	20	20	20	20	20	60	60	60	60	60	60	60	60	60	60	60
	Light goods vehicles (<3.5t)	8	8	8	8	8	20	20	40	40	40	60	60	60	60	40	40
	Heavy goods vehicles (>3.5t)	28	84	154	156	20	70	142	158	214	226	242	230	242	228	244	202
BX West	Cars	65	70	85	75	75	75	60	50	55	40	35	35				
	Light goods vehicles (<3.5t)	20	25	37	33	33	43	49	46	45	27	25	25				
	Heavy goods vehicles (>3.5t)	6.2	20	14	12	9	20	30	30	21	3	0.4	0.4				
L&Q	Cars					8	16	16	16								
	Light goods vehicles (<3.5t)					4	3	4	4								
	Heavy goods vehicles (>3.5t)					6	10	10	10								
Total Construction Traffic	*Cars*	85	90	105	95	103	151	136	126	115	100	95	95	60	60	60	60
	Light goods vehicles (<3.5t)	28	36	49	45	41	63	69	86	85	67	85	85	60	60	40	40
	Heavy goods vehicles (>3.5t)	34.2	114	178	178	29	90	172	188	235	229	242	230	242	228	244	202
NLWA	Cars	20	20	20	20	20											
	Light goods vehicles (<3.5t)	10	10	10	10	10											
	Heavy goods vehicles (>3.5t)	268	268	268	268	268											
Total NLWA plus Construction Traffic	*Cars*	105	110	125	115	123	151	136	126	115	100	95	95	60	60	60	60
	Light goods vehicles (<3.5t)	38	46	59	55	51	63	69	86	85	67	85	85	60	60	40	40
	Heavy goods vehicles (>3.5t)	302	382	446	446	297	90	172	188	235	229	242	230	242	228	244	202

Average daily traffic is based on predicted weekly traffic divided by 5.5 (Mon to Frid & half day Sat)

		2018			
	Quarter	Q1	Q2	Q3	Q4
Existing Brent Terrace Traffic Dec 2018 survey	Cars				1928
	Light goods vehicles (<3.5t)				
	Heavy goods vehicles (>3.5t)				960

7 IMPLEMENTING, MONITORING AND UPDATING

7.1 Implementing

The CTMP will integrate with all other documentation pertaining to the overall construction execution for this project. In accordance with Construction (Design & Management) Regulations 2007, a detailed strategy for managing Health & Safety has been developed by Volker Fitzpatrick.

Management of the CTMP process will be achieved through the identification of a suitable person as the CTMP co-ordinator. The CTMP co-ordinator will provide a key role in delivering a successful CTMP. They will be appointed prior to the commencement of the construction works and will act as the main contact for the CTMP and be responsible for implementing measures and monitoring the effects of implementation.

The CTMP co-ordinator will ensure that all suppliers are fully aware and compliant with the Construction Logistics and Community Safety Standards, the Fleet Operators Recognition Scheme and the application of the HGV Direct Vision Standards.

The CTMP co-ordinator will exchange contact details with the Local Planning Authority and other stakeholders. The CTMP co-ordinator will be the first point of contact in all matters regarding the CTMP. The CTMP co-ordinator will be responsible for setting up and launching the CTMP in accordance with the following schedule, which will be agreed with the Local Planning Authority.

Monthly:

- Monitor construction patterns through daily records and site visits;
- Undertake CTMP review and modify where appropriate; and
- Liaise with Local authorities and other stakeholders where appropriate.

7.2 Monitoring and updating

To establish the success of the CTMP, an effective monitoring and review process must be in place. Monitoring will ensure that that there is compliance with the CTMP and site-wide CTMP as well as the CoCP, it will assess the effectiveness of the measures and provide the opportunity for review.

Monitoring and review of the procedures proposed in this plan will be carried out monthly or as required during the Health and Safety inspection carried out by the Health and Safety manager. The inspection report will identify failures to comply with this plan and, in consultation with the Project Manager, detail actions and responsibilities to ensure ongoing compliance.

The monitoring of the plan is important for the following reasons:

- It will demonstrate to the local authority the effectiveness of the measures implemented and the progress being made towards the aims and objectives of the CTMP;
- It justifies the commitment of the Contractor and of other resources;
- It helps to identify any deficiencies within the CTMP, including any measures that are not effective; and
- The data can be shared with any other stakeholders as well as inform the local authority of logistics patterns and common issues.

7.2.1 Data Monitoring

The following data will be collected to achieve specific targets (in brackets) for this scheme:

- Number of vehicle movements to site (delivery/collection accuracy compared to schedule and calculation of CO_2 quantities)
    - Total, by vehicle type/size;
    - Time spent on site;
    - Origin and destination of vehicles arriving at or leaving site;
- Breaches and complaints
    - Community concerns about construction activities (ensure good relationship with the neighbours);
    - Vehicle routing (100% compliance with agreed vehicle access route);
    - Unacceptable queuing or parking (zero penalty charge notices issued for delivery vehicles on roads adjacent to the site);

  - Compliance with safety and environmental standards and programmes (no complaints from Environmental Health or Health and Safety Executive);
  - Low Emission Zone (LEZ) compliance;
  - Anti-idling;
- Safety
  - Logistics-related incidents;
  - Record of associated fatalities and serious injuries;
  - Methods staff are travelling to site;
  - Vehicles and operators not meeting safety requirements (all suppliers and hauliers registered with the appropriate authorities).

APPENDIX 1
SITE COMPOUND LAYOUT

General Notes:

Key:

- Plot 5 handover to AR October 2022 (end of significant VF-R works, Station Commissioning)
- Plot 8b handover to Argent Related January 2022
- Plot 8c handover to AR April 2022
- Plot 9b handover to Argent Related April 2022
- Plot 9a handover to AR October 2022
- Plot 10c handover to Argent Related January 2022
- Plot 10d (extension into SEEB area) handover to AR April 2022
- Plot 12b handover to Argent Related January 2022
- Railway Street Part 2 - July 2021 handover to VF-Civils (on behalf of AR)
- Railway Street Part 2 - October 2021 handover to VF-Civils (on behalf of AR)
- Railway Street Part 1 - April 2021 handover to VF-Civils (on behalf of AR)

No.	Revision/Issue	Date
020	For Information	17/02/21
019	For Information	03/02/20
018	For Information	16/12/20

Project Name and Address

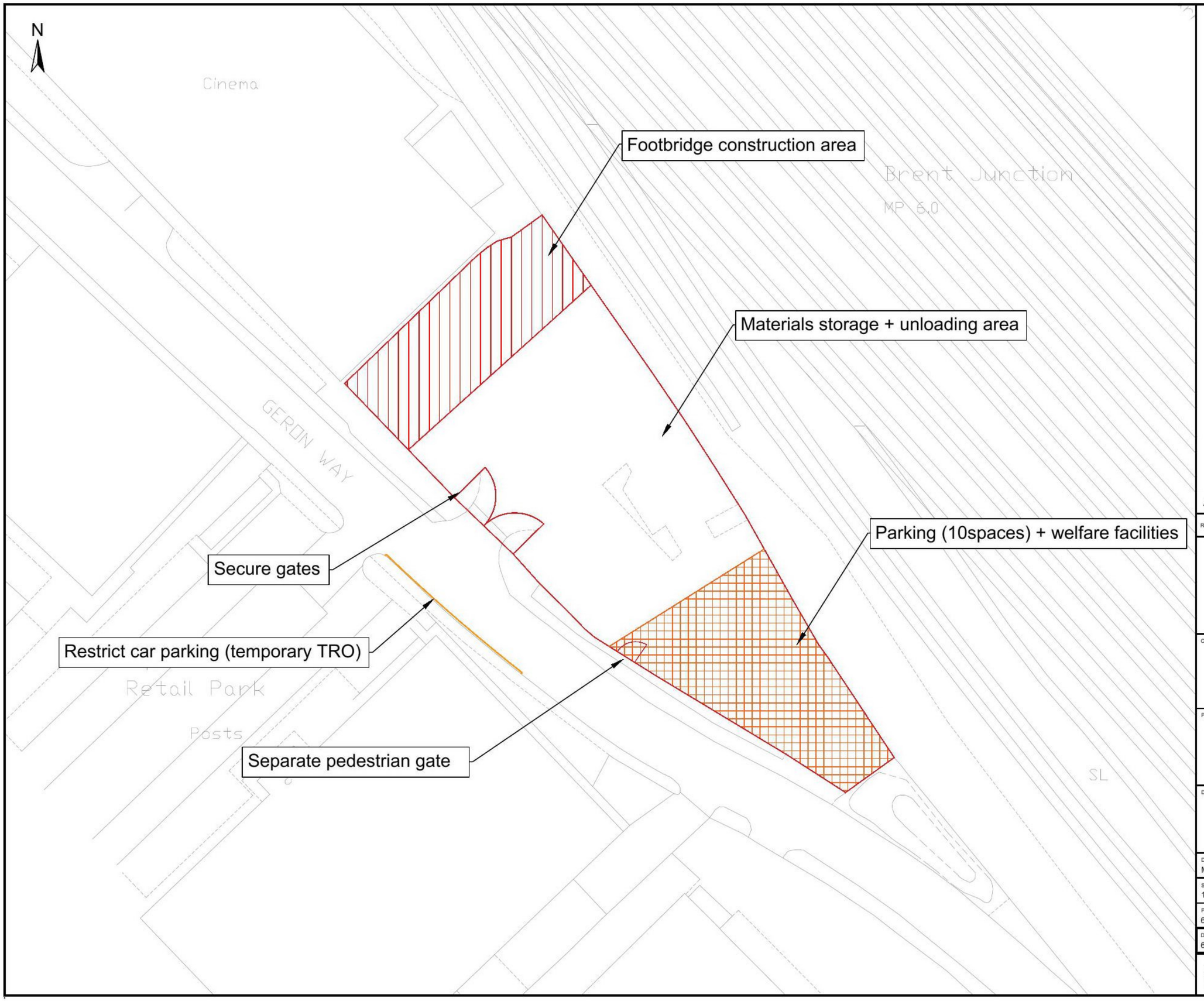
C13791 - Brent Cross Station

Contractor Name

Drawing Reference No.

SK002 - Eastern Compound Area

Revision	Sheet
020	1 of 1
Scale	Date
1:1000 @ A3	17/02/21



Rev.	Date	Amendment	Drawn	Chkd.	Appd.
A	12.06.20	Pedestrian gate added	IW	—	—

RSK
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M1 2EJ
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Web: www.rsk.co.uk

Client
Volker Fitzpatrick

Project Title
Brent Cross West Station

Drawing Title
Western temporary compound layout

Drawn	Date	Checked	Date	Approved	Date
MQ	10/03/20	IW	10/03/20	—	—

Scale	Orig Size	Dimensions
1:500	A3	METRES

Project No.	Drawing File
662837	

Drawing No.	Rev.
662837-10-01	A

Scale
0 5 10 20 30

APPENDIX 2
SWEPT PATH ASSESSMENTS

N

Posts

El Sub Sta

Shelter

GERDIN WAY

El Sub Sta

Cinema

Corner Posts

Park

Posts

Tank

Staples Corner
Retail Park

Posts

Depot

GERDIN WAY

N

GERDIN WAY

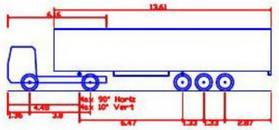
Tank

Restrict car parking
(temporary TRO)

Scale 1:500

Scale 1:1500

Vehicle profile



FTA Design Articulated Vehicle (1998)

Overall Length	16.480m
Overall Width	2.550m
Overall Body Height	3.870m
Min Body Ground Clearance	0.515m
Max Track Width	2.470m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	6.350m

Rev.	Date	Amendment	Drawn	Chkd.	Appd.
—	—	—	—	—	—

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Client

Volker Fitzpatrick

Project Title

Brent Cross West Station

Drawing Title

Swept path analysis -
Western temporary compound layout

Drawn	Date	Checked	Date	Approved	Date
MQ	10/03/20	IW	10/03/20	—	—

Scale	Orig Size	Dimensions
As shown	A3	METRES

Project No.	Drawing File
662837	

Drawing No.	Rev.
662837-10-02	—

N

Cardiff House

Brent Terrace

Works

ESS's

Tank

El Sub Sta

Works

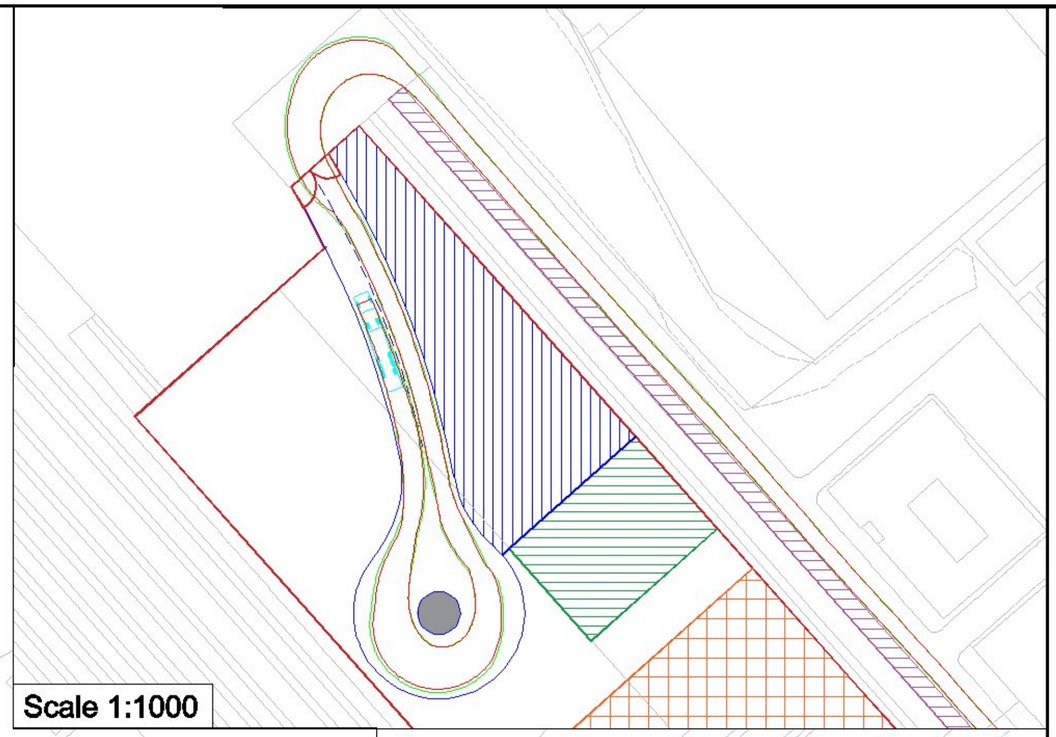
FB

El Sub Sta

L Twr

El Sub Sta

Scale 1:1250



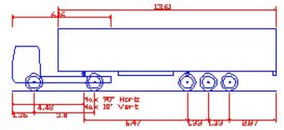
Scale 1:1000

FILLING ROAD

Brent Terrace

Scale 1:500

Vehicle profile



FTA Design Articulated Vehicle (1998)

Overall Length	16.480m
Overall Width	2.550m
Overall Body Height	3.870m
Min Body Ground Clearance	0.515m
Max Track Width	2.470m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	6.550m

Rev.	Date	Amendment	Drawn	Chkd.	Appd.
—	—	—	—	—	—

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Client

Volker Fitzpatrick

Project Title

Brent Cross West Station

Drawing Title

Eastern temporary compound layout

Drawn	Date	Checked	Date	Approved	Date
MQ	10/03/20	IW	10/03/20	—	—

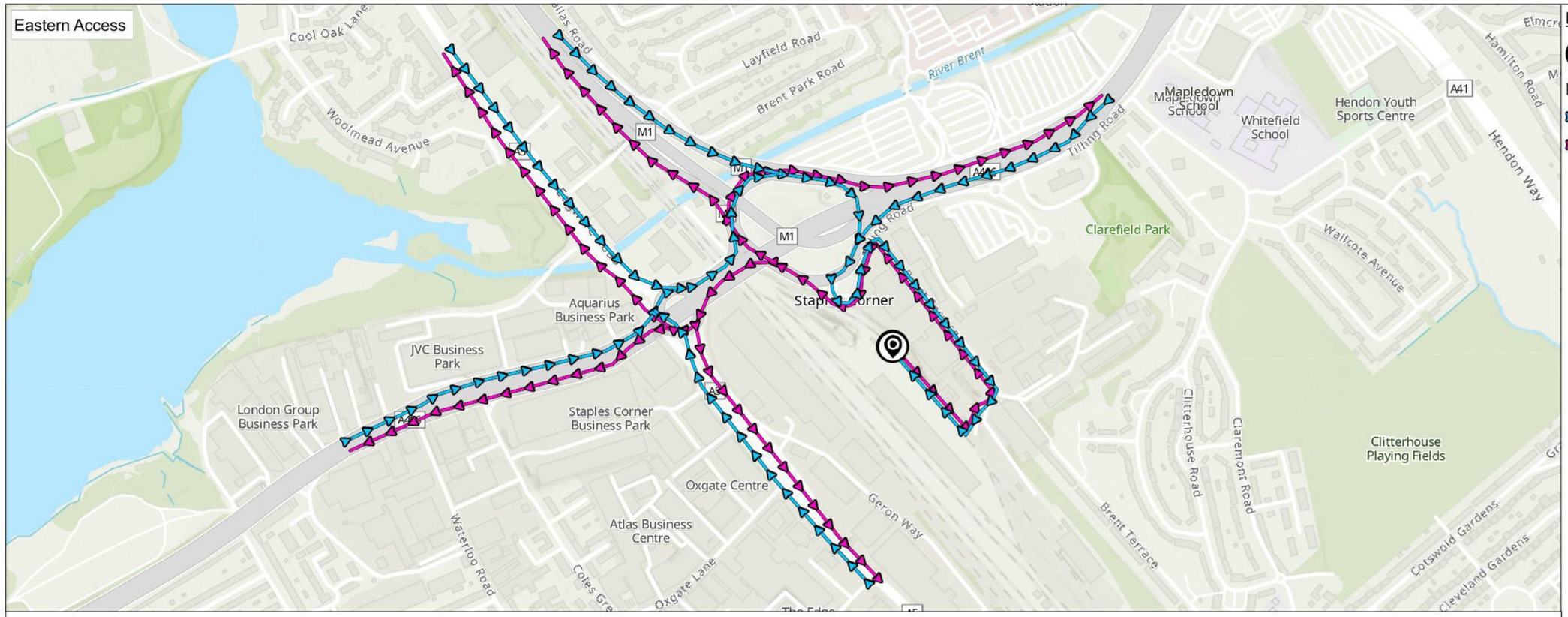
Scale	Orig Size	Dimensions
As shown	A3	METRES

Project No.	Drawing File
682837	

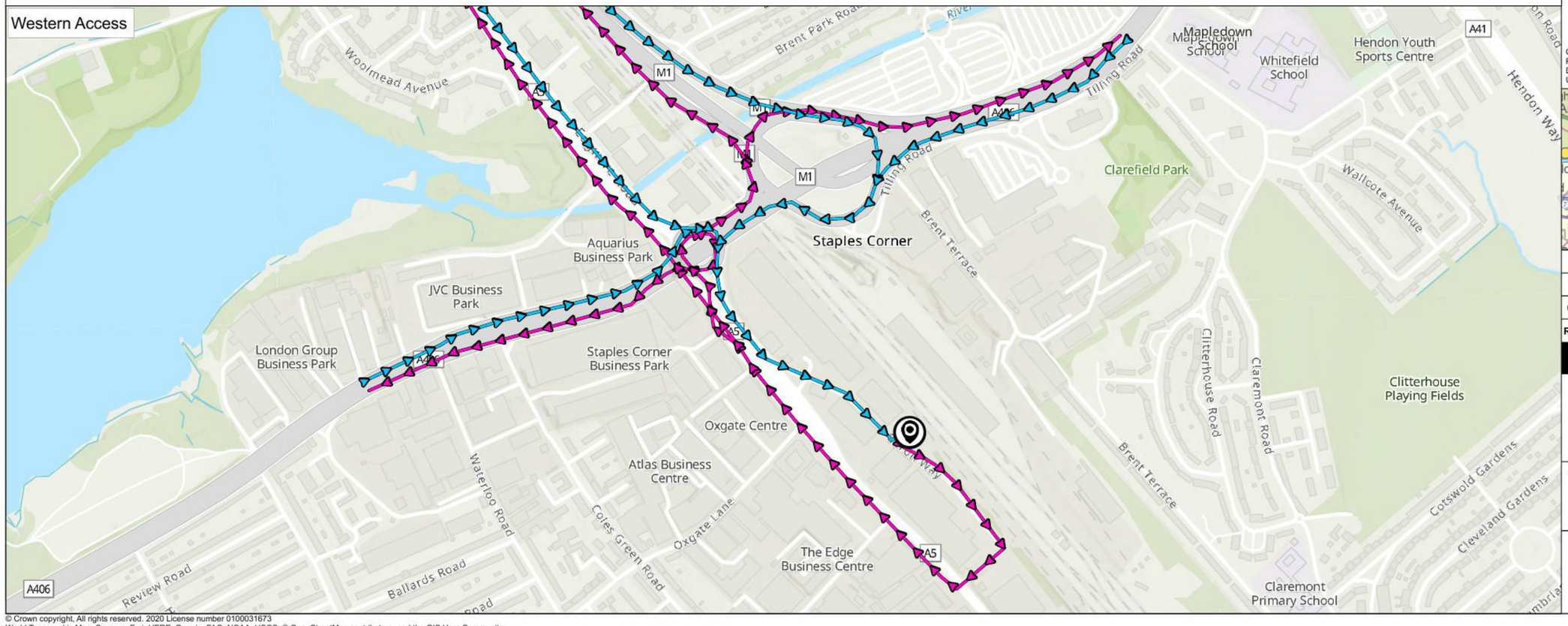
Drawing No.	Rev.
682837-10-04	—

APPENDIX 3
HGV ROUTING

Eastern Access



Western Access



Legend:

Site Location

HGV Routes:

HGV Route - Entering

HGV Route - Leaving

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter

Rev	Date	Description	Drn	Chk	App
00	09/03/2020	First Draft	DR	SF	IW

Brent Cross West Station

RSK

TITLE:
HGV Route Plan

0 100 200
Metres
SCALE: 1:7,500 @ A3

REV 00

Document Path: P:\660000 - EPD Projects\662837 - Brent Cross West Station\01 - GIS\11 - ArcPro\HGV Route Plan.aprx

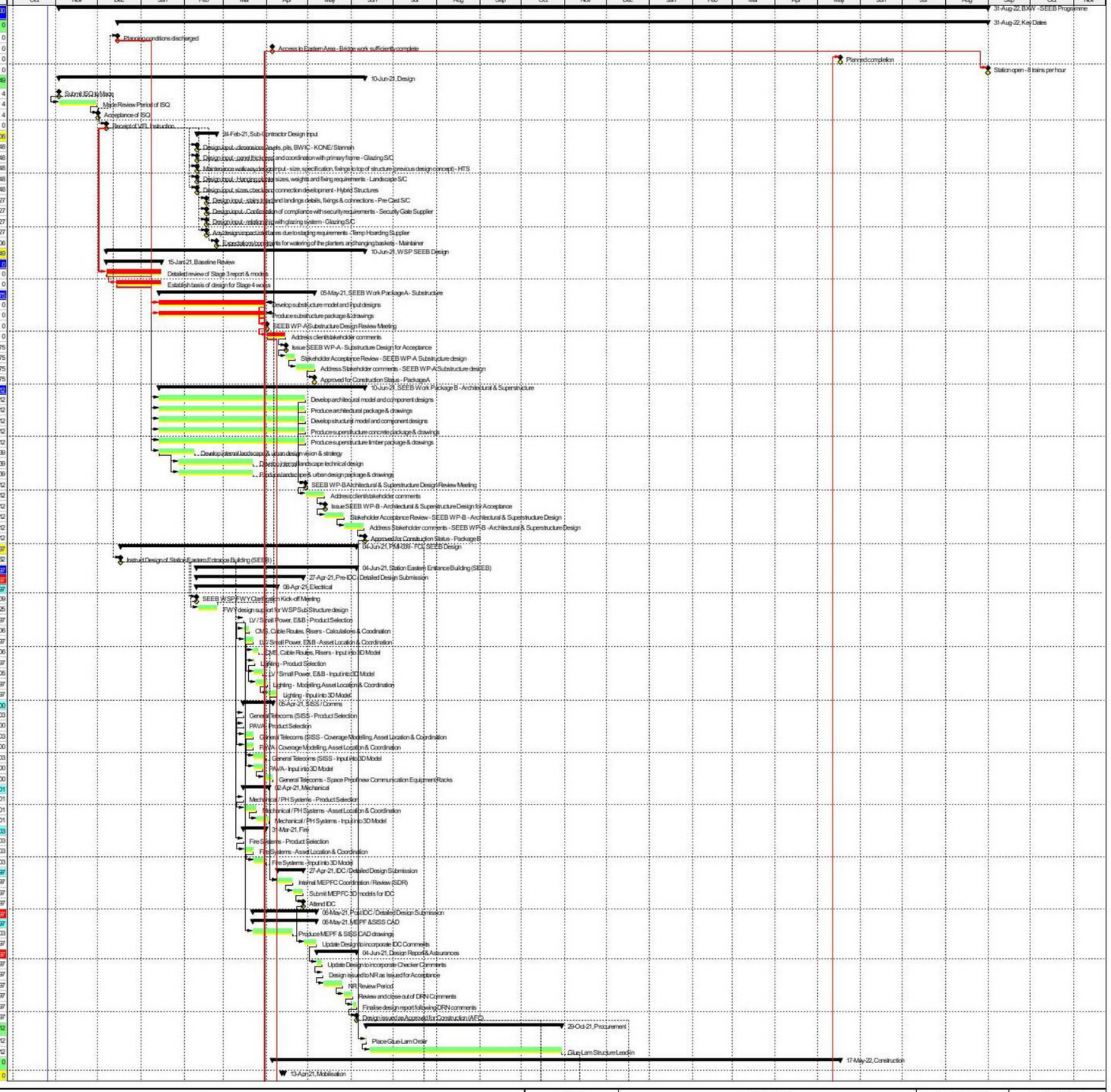
APPENDIX 4
INDICATIVE CONSTRUCTION PROGRAMME

VolkerWessels UK

BXW - SEEB Programme

C13791
12-Feb-21 15:31

Activity ID	Activity Name	Original Duration	Start	Finish	Calendar	Total Float
BXW - SEEB Programme		471	03-Nov-20	31-Aug-22		30
Key Dates		441	15-Dec-20	31-Aug-22	Standard 5 Day Workweek-3	0
A-ISO019-2030	Planning conditions discharged	0		15-Dec-20*	Standard 5 Day Workweek-3	0
A-ISO019-1180	Access to Eastern Area - Bridge work sufficiently complete	0	05-Apr-21*		Standard 5 Day Workweek-3	0
A-ISO019-1540	Planned completion	0		17-May-22	Standard 5 Day Workweek-3	0
A-ISO019-1550	Station open - 8 trains per hour	0		31-Aug-22*	Standard 5 Day Workweek-3	0
Design		152	03-Nov-20	10-Jun-21		349
A-ISO019-2000	Submit ISQ to Mace	0	03-Nov-20*		Standard 5 Day Workweek-3	4
A-ISO019-2010	Mace Review Period of ISQ	20	03-Nov-20	30-Nov-20	Standard 5 Day Workweek-3	4
A-ISO019-2020	Acceptance of ISQ	0	01-Dec-20		Standard 5 Day Workweek-3	4
A-ISO019-1570	Receipt of VFL Instruction	0	07-Dec-20*		Standard 5 Day Workweek-3	0
Sub-Contractor Design Input		42	10-Feb-21	24-Feb-21	#GC - 24 / 7 day Working No Bank	106
JAN21-3215	Design input - dimensions, levels, pits, BWIC - KONE/ Stannah	0	10-Feb-21*		#GC - 24 / 7 day Working No Bank	148
JAN21-3225	Design input - panel thickness and coordination with primary frame - Glazing S/C	0	10-Feb-21*		#GC - 24 / 7 day Working No Bank	148
JAN21-3235	Maintenance walkway design input - size, specification, fixings to top of structure (previous design concept) - HTS	0	10-Feb-21*		#GC - 24 / 7 day Working No Bank	148
JAN21-3245	Design input - Hanging planter sizes, weights and fixing requirements - Landscape S/C	0	10-Feb-21*		#GC - 24 / 7 day Working No Bank	148
JAN21-3265	Design input, sizes check and connection development - Hybrid Structures	0	10-Feb-21*		#GC - 24 / 7 day Working No Bank	148
JAN21-3275	Design input - stairs tread and landings details, fixings & connections - Pre Cast S/C	0	17-Feb-21*		#GC - 24 / 7 day Working No Bank	127
JAN21-3285	Design input - Confirmation of compliance with security requirements - Security Gate Supplier	0	17-Feb-21*		#GC - 24 / 7 day Working No Bank	127
JAN21-3295	Design input - relationship with glazing system - Glazing S/C	0	17-Feb-21*		#GC - 24 / 7 day Working No Bank	127
JAN21-3305	Any design impact interfaces due to staging requirements - Temp Hoarding Supplier	0	17-Feb-21*		#GC - 24 / 7 day Working No Bank	127
JAN21-3255	Expectations/constraints for watering of the planters and hanging baskets - Maintainer	0	24-Feb-21*		#GC - 24 / 7 day Working No Bank	106
WSP SEEB Design		128	07-Dec-20	10-Jun-21	Standard 5 Day Workweek-3	349
Baseline Review		24	07-Dec-20	15-Jan-21	Standard 5 Day Workweek-3	0
A-ISO019-1580	Detailed review of Stage 3 report & models	24	07-Dec-20	15-Jan-21	Standard 5 Day Workweek-3	0
A-ISO019-1590	Establish basis of design for Stage 4 works	19	14-Dec-20	15-Jan-21	Standard 5 Day Workweek-3	0
SEEB Work Package A - Substructure		80	14-Jan-21	05-May-21	Standard 5 Day Workweek-3	375
A-ISO019-1600	Develop substructure model and input designs	55	14-Jan-21	31-Mar-21	Standard 5 Day Workweek-3	0
A-ISO019-1610	Produce substructure package & drawings	55	14-Jan-21	31-Mar-21	Standard 5 Day Workweek-3	0
A-ISO019-1620	SEEB WP-A Substructure Design Review Meeting	0	01-Apr-21		Standard 5 Day Workweek-3	0
A-ISO019-1630	Address client/stakeholder comments	10	01-Apr-21	14-Apr-21	Standard 5 Day Workweek-3	0
A-ISO019-1640	Issue SEEB WP-A - Substructure Design for Acceptance	0	15-Apr-21		Standard 5 Day Workweek-3	375
A-ISO019-1650	Stakeholder Acceptance Review - SEEB WP-A Substructure design	5	15-Apr-21	21-Apr-21	Standard 5 Day Workweek-3	375
A-ISO019-1660	Address Stakeholder comments - SEEB WP-A Substructure design	10	22-Apr-21	05-May-21	Standard 5 Day Workweek-3	375
A-ISO019-1670	Approved for Construction Status - Package A	0		05-May-21	Standard 5 Day Workweek-3	375
SEEB Work Package B - Architectural & Superstructure		106	14-Jan-21	10-Jun-21	Standard 5 Day Workweek-3	12
A-ISO019-1680	Develop architectural model and component designs	75	14-Jan-21	26-Apr-21	Standard 5 Day Workweek-3	12
A-ISO019-1690	Produce architectural package & drawings	75	14-Jan-21	26-Apr-21	Standard 5 Day Workweek-3	12
A-ISO019-1700	Develop structural model and component designs	75	14-Jan-21	26-Apr-21	Standard 5 Day Workweek-3	12
A-ISO019-1710	Produce superstructure concrete package & drawings	75	14-Jan-21	26-Apr-21	Standard 5 Day Workweek-3	12
A-ISO019-1720	Produce superstructure timber package & drawings	75	14-Jan-21	26-Apr-21	Standard 5 Day Workweek-3	12
A-ISO019-1730	Develop internal landscape & urban design vision & strategy	18	14-Jan-21	08-Feb-21	Standard 5 Day Workweek-3	39
A-ISO019-1740	Develop internal landscape technical design	38	28-Jan-21	22-Mar-21	Standard 5 Day Workweek-3	39
A-ISO019-1750	Produce landscape & urban design package & drawings	38	28-Jan-21	22-Mar-21	Standard 5 Day Workweek-3	39
A-ISO019-1760	SEEB WP-B Architectural & Superstructure Design Review Meeting	0	29-Apr-21		Standard 5 Day Workweek-3	12
A-ISO019-1770	Address client/stakeholder comments	10	29-Apr-21	12-May-21	Standard 5 Day Workweek-3	12
A-ISO019-1780	Issue SEEB WP-B - Architectural & Superstructure Design for Acceptance	0	13-May-21		Standard 5 Day Workweek-3	12
A-ISO019-1790	Stakeholder Acceptance Review - SEEB WP-B - Architectural & Superstructure Design	10	13-May-21	26-May-21	Standard 5 Day Workweek-3	12
A-ISO019-1800	Address Stakeholder comments - SEEB WP-B - Architectural & Superstructure Design	10	27-May-21	09-Jun-21	Standard 5 Day Workweek-3	12
A-ISO019-1810	Approved for Construction Status - Package B	0		10-Jun-21	Standard 5 Day Workweek-3	12
PMI-039 - FCL SEEB Design		116	17-Dec-20	04-Jun-21		97
JAN21-1000	Instruct Design of Station Eastern Entrance Building (SEEB)	0		17-Dec-20*	#GC - 5 day Work Week W Bank	62
Station Eastern Entrance Building (SEEB)		83	10-Feb-21	04-Jun-21		97
Pre-IDC / Detailed Design Submission		56	10-Feb-21	27-Apr-21		97
Electrical		42	10-Feb-21	08-Apr-21		97
SEEB1410	SEEB WSP/FWY Clarification Kick-off Meeting	0	10-Feb-21*		#GC - 24 / 7 day Working No Bank	109
SEEB1420	FWY design support for WSP Sub Structure design	10	11-Feb-21	24-Feb-21	#GC - 5 day Work Week W Bank	25
SEEB1240	LV / Small Power, E&B - Product Selection	1	15-Mar-21*	15-Mar-21	#GC - 5 day Work Week W Bank	97
SEEB1270	CMS, Cable Routes, Risers - Calculations & Coodination	5	15-Mar-21*	19-Mar-21	#GC - 5 day Work Week W Bank	106
SEEB1250	LV / Small Power, E&B - Asset Location & Coordination	5	16-Mar-21	22-Mar-21	#GC - 5 day Work Week W Bank	97
SEEB1280	CMS, Cable Routes, Risers - Input into 3D Model	5	22-Mar-21	26-Mar-21	#GC - 5 day Work Week W Bank	106
SEEB1210	Lighting - Product Selection	1	23-Mar-21	23-Mar-21	#GC - 5 day Work Week W Bank	97
SEEB1260	LV / Small Power, E&B - Input into 3D Model	5	23-Mar-21	29-Mar-21	#GC - 5 day Work Week W Bank	105
SEEB1220	Lighting - Modelling, Asset Location & Coordination	7	24-Mar-21	01-Apr-21	#GC - 5 day Work Week W Bank	97
SEEB1230	Lighting - Input into 3D Model	5	02-Apr-21	08-Apr-21	#GC - 5 day Work Week W Bank	97
SISS / Comms		16	15-Mar-21	05-Apr-21	#GC - 5 day Work Week W Bank	100
SEEB1290	General Telecoms (SISS - Product Selection	1	15-Mar-21	15-Mar-21	#GC - 5 day Work Week W Bank	103
SEEB1320	PA/VA - Product Selection	1	15-Mar-21	15-Mar-21	#GC - 5 day Work Week W Bank	100
SEEB1300	General Telecoms (SISS - Coverage Modelling, Asset Location & Coordination	5	16-Mar-21	22-Mar-21	#GC - 5 day Work Week W Bank	103
SEEB1330	PA/VA - Coverage Modelling, Asset Location & Coordination	5	16-Mar-21	22-Mar-21	#GC - 5 day Work Week W Bank	100
SEEB1310	General Telecoms (SISS - Input into 3D Model	7	23-Mar-21	31-Mar-21	#GC - 5 day Work Week W Bank	103
SEEB1340	PA/VA - Input into 3D Model	5	23-Mar-21	29-Mar-21	#GC - 5 day Work Week W Bank	100
SEEB1350	General Telecoms - Space Proof new Communication Equipment Racks	5	30-Mar-21	05-Apr-21	#GC - 5 day Work Week W Bank	100
Mechanical		15	15-Mar-21	02-Apr-21	#GC - 5 day Work Week W Bank	101
SEEB1360	Mechanical / PH Systems - Product Selection	1	15-Mar-21	15-Mar-21	#GC - 5 day Work Week W Bank	101
SEEB1370	Mechanical / PH Systems - Asset Location & Coordination	7	16-Mar-21	24-Mar-21	#GC - 5 day Work Week W Bank	101
SEEB1380	Mechanical / PH Systems - Input into 3D Model	7	25-Mar-21	02-Apr-21	#GC - 5 day Work Week W Bank	101
Fire		13	15-Mar-21	31-Mar-21	#GC - 5 day Work Week W Bank	103
SEEB1790	Fire Systems - Product Selection	1	15-Mar-21	15-Mar-21	#GC - 5 day Work Week W Bank	103
SEEB1800	Fire Systems - Asset Location & Coordination	5	16-Mar-21	22-Mar-21	#GC - 5 day Work Week W Bank	103
SEEB1810	Fire Systems - Input into 3D Model	7	23-Mar-21	31-Mar-21	#GC - 5 day Work Week W Bank	103
IDC / Detailed Design Submission		13	09-Apr-21	27-Apr-21	#GC - 5 day Work Week W Bank	97
SEEB1820	Internal MEPFC Coordination / Review (SDR)	7	09-Apr-21	19-Apr-21	#GC - 5 day Work Week W Bank	97
SEEB1830	Submit MEPFC 3D models for IDC	6	20-Apr-21	27-Apr-21	#GC - 5 day Work Week W Bank	97
SEEB1840	Attend IDC	0		27-Apr-21	#GC - 5 day Work Week W Bank	97
Post IDC / Detailed Design Submission		34	22-Mar-21	06-May-21	#GC - 5 day Work Week W Bank	97
MEPF &SISS CAD		34	22-Mar-21	06-May-21	#GC - 5 day Work Week W Bank	97
SEEB1850	Produce MEPF & SISS CAD drawings	21	22-Mar-21	19-Apr-21	#GC - 5 day Work Week W Bank	103
SEEB1860	Update Design to incorporate IDC Comments	7	28-Apr-21	06-May-21	#GC - 5 day Work Week W Bank	97
Design Report & Assurances		21	07-May-21	04-Jun-21	#GC - 5 day Work Week W Bank	97
SEEB1160	Update Design to incorporate Checker Comments	2	07-May-21	10-May-21	#GC - 5 day Work Week W Bank	97
SEEB1170	Design issued to NR as Issued for Acceptance	1	11-May-21	11-May-21	#GC - 5 day Work Week W Bank	97
SEEB1180	NR Review Period	10	12-May-21	25-May-21	#GC - 5 day Work Week W Bank	97
SEEB1190	Review and close out of DRN Comments	5	26-May-21	01-Jun-21	#GC - 5 day Work Week W Bank	97
SEEB1390	Finalise design report following DRN comments	3	02-Jun-21	04-Jun-21	#GC - 5 day Work Week W Bank	97
SEEB1200	Design issued as Approved for Construction (AFC)	0		04-Jun-21	#GC - 5 day Work Week W Bank	97
Procurement		101	11-Jun-21	29-Oct-21	Standard 5 Day Workweek-3	12
A-ISO019-1160	Place Glue-Lam Order	1	11-Jun-21	11-Jun-21	Standard 5 Day Workweek-3	12
A-ISO019-1170	Glue-Lam Structure Lead-in	100	14-Jun-21	29-Oct-21	Standard 5 Day Workweek-3	12
Construction		292	05-Apr-21	17-May-22	Standard 5 Day Workweek-3	0
Mobilisation		2	12-Apr-21	13-Apr-21	Standard 5 Day Workweek-3	0



Remaining Level of Effort | Actual Work | Critical Remaining ...
Actual Level of Effort | Remaining Work | Milestone

Date	Revision	Checked	Approved
12-Feb-21	BXW - SEEB Programme	NA	IB

VolkerWessels UK

BXW - SEEB Programme

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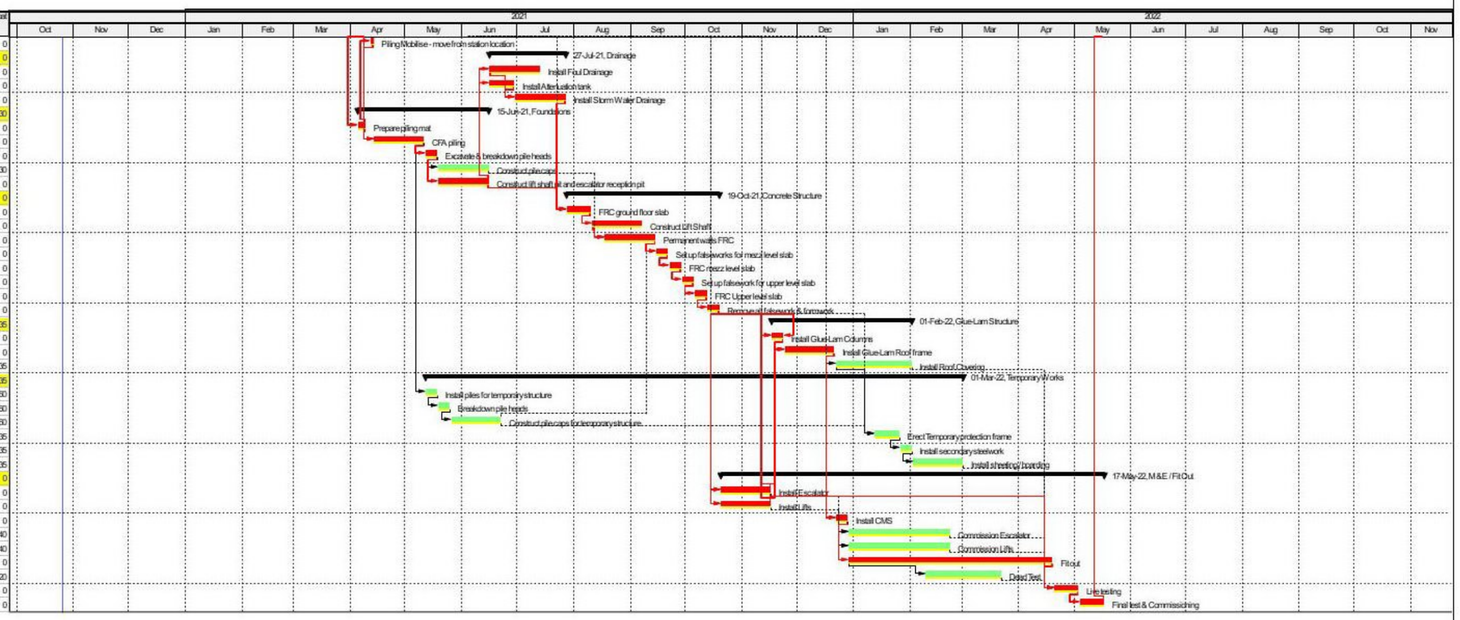
12-Feb-21 15:31

Activity ID	Activity Name	Original Duration	Start	Finish	Calendar	Total Float
A-ISQ019-1230	Piling Mobilise - move from station location	2	12-Apr-21	13-Apr-21	Standard 5 Day Workweek-3	0
Drainage		30	16-Jun-21	27-Jul-21	Standard 5 Day Workweek-3	0
A-ISQ019-1190	Install Foul Drainage	20	16-Jun-21	13-Jul-21	Standard 5 Day Workweek-3	0
A-ISQ019-1200	Install Attenuation tank	10	16-Jun-21	29-Jun-21	Standard 5 Day Workweek-3	0
A-ISQ019-1210	Install Storm Water Drainage	20	30-Jun-21	27-Jul-21	Standard 5 Day Workweek-3	0
Foundations		52	05-Apr-21	15-Jun-21	Standard 5 Day Workweek-3	30
A-ISQ019-1220	Prepare piling mat	5	05-Apr-21	09-Apr-21	Standard 5 Day Workweek-3	0
A-ISQ019-1240	CFA piling	20	14-Apr-21	11-May-21	Standard 5 Day Workweek-3	0
A-ISQ019-1250	Excavate & breakdown pile heads	5	12-May-21	18-May-21	Standard 5 Day Workweek-3	0
A-ISQ019-1270	Construct pile caps	20	19-May-21	15-Jun-21	Standard 5 Day Workweek-3	30
A-ISQ019-1280	Construct lift shaft pit and escalator reception pit	20	19-May-21	15-Jun-21	Standard 5 Day Workweek-3	0
Concrete Structure		60	28-Jul-21	19-Oct-21	Standard 5 Day Workweek-3	0
A-ISQ019-1380	FRC ground floor slab	10	28-Jul-21	10-Aug-21	Standard 5 Day Workweek-3	0
A-ISQ019-1310	Construct Lift Shaft	20	11-Aug-21	07-Sep-21	Standard 5 Day Workweek-3	0
A-ISQ019-1320	Permanent walls FRC	20	18-Aug-21	14-Sep-21	Standard 5 Day Workweek-3	0
A-ISQ019-1330	Set up falseworks for mezz level slab	5	15-Sep-21	21-Sep-21	Standard 5 Day Workweek-3	0
A-ISQ019-1340	FRC mezz level slab	5	22-Sep-21	28-Sep-21	Standard 5 Day Workweek-3	0
A-ISQ019-1350	Set up falsework for upper level slab	5	29-Sep-21	05-Oct-21	Standard 5 Day Workweek-3	0
A-ISQ019-1360	FRC Upper level slab	5	06-Oct-21	12-Oct-21	Standard 5 Day Workweek-3	0
A-ISQ019-1370	Remove all falsework & formwork	5	13-Oct-21	19-Oct-21	Standard 5 Day Workweek-3	0
Glue-Lam Structure		55	17-Nov-21	01-Feb-22	Standard 5 Day Workweek-3	35
A-ISQ019-1410	Install Glue-Lam Columns	5	17-Nov-21	23-Nov-21	Standard 5 Day Workweek-3	0
A-ISQ019-1420	Install Glue-Lam Roof frame	20	24-Nov-21	21-Dec-21	Standard 5 Day Workweek-3	0
A-ISQ019-1430	Install Roof Covering	30	22-Dec-21	01-Feb-22	Standard 5 Day Workweek-3	35
Temporary Works		210	12-May-21	01-Mar-22	Standard 5 Day Workweek-3	35
A-ISQ019-1280	Install piles for temporary structure	5	12-May-21	18-May-21	Standard 5 Day Workweek-3	60
A-ISQ019-1290	Breakdown pile heads	5	19-May-21	25-May-21	Standard 5 Day Workweek-3	60
A-ISQ019-1300	Construct pile caps for temporary structure	20	26-May-21	22-Jun-21	Standard 5 Day Workweek-3	60
A-ISQ019-1480	Erect Temporary protection frame	10	12-Jan-22	25-Jan-22	Standard 5 Day Workweek-3	35
A-ISQ019-1490	Install secondary steelwork	5	26-Jan-22	01-Feb-22	Standard 5 Day Workweek-3	35
A-ISQ019-1500	Install sheeting / boarding	20	02-Feb-22	01-Mar-22	Standard 5 Day Workweek-3	35
M &E / Fit Out		150	20-Oct-21	17-May-22	Standard 5 Day Workweek-3	0
A-ISQ019-1390	Install Escalator	20	20-Oct-21	16-Nov-21	Standard 5 Day Workweek-3	0
A-ISQ019-1400	Install Lifts	20	20-Oct-21	16-Nov-21	Standard 5 Day Workweek-3	0
A-ISQ019-1440	Install CMS	5	22-Dec-21	28-Dec-21	Standard 5 Day Workweek-3	0
A-ISQ019-1450	Commission Escalator	40	29-Dec-21	22-Feb-22	Standard 5 Day Workweek-3	40
A-ISQ019-1460	Commission Lifts	40	29-Dec-21	22-Feb-22	Standard 5 Day Workweek-3	40
A-ISQ019-1470	Fit out	80	29-Dec-21	19-Apr-22	Standard 5 Day Workweek-3	0
A-ISQ019-1510	Dead Test	30	09-Feb-22	22-Mar-22	Standard 5 Day Workweek-3	20
A-ISQ019-1520	Live testing	10	20-Apr-22	03-May-22	Standard 5 Day Workweek-3	0
A-ISQ019-1530	Final test & Commissioning	10	04-May-22	17-May-22	Standard 5 Day Workweek-3	0



Remaining Level of Effort
Actual Level of Effort
Actual Work
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Milestone

Date	Revision	Checked	Approved
12-Feb-21	BXW - SEEB Programme	NA	IB