Appendix H – Construction Traffic Management Plan

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Provision of Basement Extension & Other Minor Works

Construction Traffic Management Plan (CTMP)

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A report prepared on behalf of Heyne Tillett Steel Ltd

Contents

1 Introduction

1.1 Background

1.1.1 This document sets out the logistics and traffic management arrangements associated with the construction of the project to provide a basement extension and other minor works to the property of 4 Wedderburn Road, Camden, London NW3. The site occupies a plot within a residential road, approximately fifty metres from the junction with Lyndhurst Gardens.

1.1.2 The existing building will be extended to provide a basement under the full footprint of the existing house, with this extension continuing under about half of the rear garden. There will also be a series of minor works within the existing footprint of the house at the other levels, including a minor extension to part of the ground floor level at the rear.

1.1.3 The overall programme for the works has an anticipated duration of around fifteen months, with completion anticipated by late-summer 2016 based on a June 2015 start date.

1.1.4 This programme includes the initial preliminaries and preparation phases, with a corresponding duration of around 1 month; temporary underpinning, piling and excavation of the basement of around 5 months; foundation works and reinforcement of the new structure including steelworks totalling around 2.5 months; removal of the temporary works of around 1.5 months; second fix minor works, fit-out and landscaping of around 5 months.

1.1.5 This document accompanies the planning application for the basement extension and other minor works at 4 Wedderburn Road to provide the Council (London Borough of Camden – LBC) with the level of comfort that the impacts of the construction work have been assessed and as a control mechanism for the Contractor to use as a template to adhere to when constructing the scheme.

1.1.6 It should be noted that no contractor has been appointed at this stage but TPHS and the project team have significant experience and understanding of the logistics issues of this type of construction to be able to provide this initial report, which will be taken on board by the contractor and as necessary updated and enhanced with their own methods when they are appointed to undertake the works.

1.1.7 It is expected that this document is a live document to be updated by the contractor regularly to ensure conformity to good practice and considerable contractor principles to ensure minimum impact of the construction on the local area.

1.1.8 This version of the CTMP has been prepared based upon the information presented in the series of tender drawings prepared by Heyne Tillett Steel, with particular reference to the basement and ground floor plans (Drawing No. 1220/100 Rev. T2 for the proposed basement arrangements and Drawing No. 1220/105 Rev. T2 for the proposed ground floor arrangements) and to the 'front-to-back' section (Drawing No. 1220/150 Rev. T1).

1.2 Structure of the CLP

1.2.1 Following this introductory section of the CLP, there are a further four sections contributing to this 'live' document. These sections are as follow:

- Section 2, '*Objectives and Benefits*', which details the overarching objectives of the implementation of the CTMP, the benefits which the CTMP shall support and the anticipated outputs of having implemented and maintained the CTMP.

- Section 3, '*Construction Programme & Phasing*', which considers the current anticipated different phases of construction, the anticipated vehicle activity and the role of local sourcing and consolidation to maximise efficiencies and reduce vehicle movements.

- Section 4, '*Construction Access Arrangements*', which details the access arrangements, routings and controls for vehicles and non-vehicle groups, as well as presenting an overview risk assessment for the access arrangements.

- Section 5, '*Monitoring & Review*', which outlines the roles and responsibilities of the key parties, both for the site and for the interface with other local bodies, as well as the form of monitoring to be adopted for particular work-related activities.

2 Objectives & Benefits

2.1 Objectives of the CLP

2.1.1 This Construction Traffic Management Plan (CTMP) provides a framework to support better management of all construction-related activity at the Wedderburn Road site, in particular considering how the impacts of the construction activity can be mitigated and lessened as they relate to movements to and from the site. In line with good practice, the overarching objectives of this CTMP are five-fold:

- Demonstrate how construction materials and construction waste will be delivered and removed safely, efficiently and sustainably respectively.

  This objective will be demonstrated by presenting details of the access and delivery layout arrangements for the site, the typical timetabling associated with the movement of materials and waste and the use of local material sourcing.

- Identify those deliveries which could be reduced, re-timed or consolidated, particularly during busy periods.

  This objective will be demonstrated by the use of local sourcing and consolidation, to reduce the number of vehicles likely to be travelling on the local highway network, as well presenting details of the pre-booking system which will seek to ensure that those operations which don't require peak hour travel will not travel at those times.

- Help cut congestion and ease any environmental pressures.

  This objective will be demonstrated by considering the potential reductions in typical vehicle movements that the use of local material sourcing and consolidation will support, of the role of the pre-booking system to maximise non-peak movement where practical to do so and of the staff travel strategy.

- Improve reliability of deliveries to the site.

  This objective will be demonstrated by presenting details of the routing strategy where these routes can be fixed and the pre-booking system which will support non-peak travel where practical to do so and efficiency in terms of access arrangements for the site.

- Reduce the fuel costs of the freight operators.

  This objective will be demonstrated again by considering in particular the role of local sourcing and consolidation in reducing vehicle movements, as well as the types of vehicles which will best support the scope to minimise vehicle movements to and from the site.

2.2 Benefits of the CTMP

2.2.1 This document, whilst working towards supporting the broad objectives, seeks to provide benefits to a number of key groups: the London Borough of Camden and its residents, particularly residents in Wedderburn Road and surrounding streets, the site works contractor and the individual freight operators and suppliers engaged with the contractor.

2.2.2 These benefits will come forward by means of facilitating a well-managed construction site, a managed access strategy and the managed movement of construction materials.

2.2.3 As a result of the measures which will be brought forward to support the broad objectives, it is anticipated that the general public in the local area, residents and businesses, and the local planning and highway authorities, will benefit from:

- less congestion on the local highway network;
- reduced emissions to limit the environmental impacts relating to freight movement;
- reduced risk of collisions (vehicle-vehicle and vehicle-pedestrian);
- no additional traffic and parking enforcement costs;
- sustained quality of life for local residents, workers and visitors.

2.2.4 Similarly, as a result of the measures which will be brought forward to support the objectives, it is anticipated that the site works contractor and the supporting freight operators and suppliers will benefit from:

- reduced vehicle delivery costs, through more reliable deliveries and less disruption to the construction programme;
- time savings by identifying local sources for materials and consolidation, as well as through operating a pre-booking system for vehicle movements;
- avoidance of risk of penalty charges through provision of a defined and dedicated area for the purpose of loading and unloading of goods and materials;
- fuel savings through reduced vehicle movements and timed deliveries;
- increased certainty over delivery times allowing better route and day planning;
- reduced risk of collisions involving vehicle fleet with appropriate specifications.

2.2.5 These benefits will arise from a number of measures, but in particular underpinned by the local sourcing of staff and materials as appropriate, the consolidation of pick-up and deliveries at the site, the use of a pre-booking system to maximise those movements which can be undertaken outside of the peaks, appropriate access and arrangements for the loading and unloading of vehicles, the identification of vehicle routing strategies and the implementation of a staff travel policy.

2.3 Anticipated Outputs of the CTMP

2.3.1 This is a 'live' document. As such, it is anticipated that as a contractor is appointed by the client to undertake the works they will update and refine this document and submit this to the planners at LB Camden to update any specific details that they consider would enhance this plan and update any working methodology to align with the general practices outlined to achieve the program.

2.3.2 Also, as the construction programme progresses this CLP will be regularly reviewed prior to key work stages and updated accordingly if required, to ensure that the measures and strategies put forward for implementation at this stage continue to be those most appropriate to balance the needs of the contractor to deliver the development in a timely and costly manner and the needs to support the local community and the environment in reducing and mitigating the construction impacts.

2.3.3 Specifically, it is anticipated that the CLP will deliver the following:

- maximisation of the number of vehicles to be removed from the highway network as a result of the consolidation of pick-up and/or drop-off of materials and goods;
- maximisation of the number of vehicles to be travelling locally only as a result of sourcing specific materials directly from local suppliers, where consolidation not viable;
- removal of the likelihood of construction vehicles waiting inappropriately on-street as a result of dedicated arrangements for loading / unloading and the pre-booking system;
- maximisation of non-peak movements and minimisation of peak movements, by having those not needing to deliver during the peak hours restricted to the non-peak periods;
- minimisation of staff travel by private vehicle by virtue of the car parking strategy associated with the site and the obligation of contractor staff to use non-car modes.

3 Construction Programme & Phasing

3.1 Summary Programme

3.1.1 The current programme for the construction works is anticipated to run from around June 2015 through to the end of August 2016 inclusive, an overall period of 15 months, based on the delivery of the extension to the basement of the property including underneath both the existing building footprint and part of the rear garden and other minor works.

3.1.2 The main construction works programme comprises four key stages: preparatory and temporary works for excavation, excavation and sub-structure works including steel erection and piling, internal works (with fit-out) and decoration / snagging with sign-off.

3.2 Phasing Details

3.2.1 As referenced in relation to the summary programme, the main construction works at the site will comprise a number of distinct stages.

3.2.2 It is currently planned that the full development will be built over a period of approximately fifteen months through to final fit-out and sign-off. The initial enabling works are planned and anticipated to commence around June 2015.

Phase 1 - Site Set-Up

3.2.3 The initial site set-up to install the contractors' equipment, welfare facilities, erecting of hoardings and general preparation of the site will take approximately 4 weeks. This will also involve deliveries of plant and equipment by smaller HGV vehicles or box vans daily and several trips per vehicle per day.

Phase 2 – Temporary Works and Basement Excavation

3.2.4 The next phase of work would be to underpin and provide support around the ground floor internal to the site, and at the existing basement edges, to ensure that the existing building is protected and that the excavations will not fall in. Piling would also be installed within the extent of the garden area to be subject to the excavation, with secant piling around the perimeter. This work would take approximately 10 weeks (two and a half months) and require, as an estimate, around 200 cubic metres of concrete as well as the secant piling.

3.2.5 Following this there would be the excavation of around 2,100 cubic metres of material to form the main basement area including under part of the existing garden. The excavation would, it is thought, be undertaken by using mini-digging equipment and hand tools. This would take around 10 weeks (two and half months). This may require the transhipment to site of bespoke equipment, which would be undertaken by prior agreement with LBC made at the start of the works period.

Phase 3 – Sub-structure and Reinforcement Works

3.2.6 The next phase of work would be to install concrete and steel beams into the basement areas and tie in with the existing building format, as well as installing steel and concrete supports for the extension under the garden including a roof slab. This would take around 10 weeks (two and half months) to complete. Due to the constraints of site access it is anticipated that the beams would be no more than 7.5 metres in length, although it is considered at this stage that these could be delivered in section and fabricated on site.

3.2.7 Also, it is assumed at this stage that there would be around 760 cubic metres of concrete required for this phase for the tanking and slabs (both floor and ceiling) for the basement under the house and garden. These activities would be spread over the build programme.

3.2.8 The last element of the basement construction works would be to take out the previously installed temporary structural holding works, which would take approximately 6 weeks (a month and a half). This would involve taking out temporary fixings, piling and any wooden stays that have been put in place, with these then being taken off-site.

Phase 4 – Second Fix Minor Works & Fit-out, Decoration, Landscaping and Handover

3.2.9 Following on from the core construction works above there would be the second fix minor works and fit-out stage covering areas such as undertaking the minor extension (of around 20sqm.) to the ground floor at the rear, making good the groundworks, installing damp proof course and internal wood and metal work for the full site.

3.2.10 The works will also include the minor internal works to the other floors, modifications to and installation of the internal services to incorporate the basement extension areas, full fitting-out of the basement floor including walls and ceilings, plastering / decoration of the basement floor and elsewhere where minor works have been undertaken internally and landscaping of the garden, eventually culminating in the handover to the client.

3.2.11 This subsequent minor works and final fit-out, with decoration, phase of work would have an overall duration of around twenty weeks (five months).

Summary

3.2.12 The following table provides an approximate breakdown of the current 15-month construction programme for the site, defining the key work stages in sequence and by approximate duration, again against the current timeframe of preparation and enabling works commencing June 2015 (Week 1) and with final fit-out by the end of August 2016 (Week 60) depending upon the start date. This construction programme is based on the routing and access strategy, as discussed further in later sections of the CTMP.

3.2.13 In summary, the routes for vehicles will be for HGVs and construction material deliveries and removals to access the site via a clockwise route from and to the B511 Fitzjohn's Avenue using Lyndhurst Road, Lyndhurst Gardens, Wedderburn Road running westbound in front of the site and Akenside Road.

3.2.14 This route will access a temporary waste storage area behind the footway within the site hoarding line, with the vehicle utilising the kerbside space / footway directly outside the property for the purpose of loading and unloading. This strategy has been devised in consultation with the professional team at this stage.

Activity	Approx. Works Period (weeks)
Site Set-Up	*Weeks 1-4*
Temporary Works and underpinning to structure	Weeks 5–14
Excavation and Piling	Weeks 15-24
Structural / RC Works to basement and slab	Weeks 25–34
Temporary works removal	Weeks 35-40
Second fix work including DPC	Weeks 41-44
Minor works, fit-out, decoration and landscaping	Weeks 45-56
Snagging and final decoration	Weeks 57-60
Site handover	*Week 61*

Table 3.1: Construction Programme Summary

3.3 Phasing Vehicle Activity

3.3.1 Based on experience of vehicular activity at other comparable and similar sites that TPHS have been involved with, the table overleaf provides details of the week-by-week construction vehicles through to the end of the 15-month programme.

3.3.2 This information has firstly been disaggregated by construction activity, with the vehicles related to each activity being classified as either HGVs or LGVs and then by the typical vehicle being used. For activities using HGVs the largest vehicle regularly used will be a 15-tonne large grab lorry (or a 6 cubic metre concrete lorry), whilst for activities using LGVs the largest vehicle regularly used will be a 7.5t box van.

3.3.3 The table overleaf presents a summary of the predicted construction vehicles associated with the works site. These figures are presented firstly as weekly figures, then the equivalent daily and hourly vehicle numbers (the latter set of figures based on the movement of vehicles being regulated by the pre-booking system and weekday working).

3.3.4 Overall two-way movements for the site will equate to double these figures as for each vehicle there will be an arrival movement and departure movement, though due to the one-way nature of the routing strategy from and to Fitzjohn's Avenue there would not be both an arrival movement and a departure movement on the same stretch of the local network of Lyndhurst Road, Lyndhurst Gardens, Wedderburn Road and Akenside Road.

3.3.5 Details have been provided for the most-intensive periods of construction activity associated with the site, that during the first part of the programme and peaking with the excavation activity, for which information has been available to build more detail for this period, then followed by projections for the second part of the programme which have been based on current known information but which shall be reviewed at a later stage as part of a periodic review of the CTMP as works progress.

3.3.6 The use of the grab vehicle instead of smaller-sized tipper (and equivalent) vehicles is put forward to minimise vehicle numbers and programme duration.

PERIOD	Weekly VEHICLES*		DAILY VEHICLES*		HOURLY VEHICLES*	
	HGVs	LGVs	HGVs	LGVs	HGVs	LGVs
Weeks 1-4	5	15	1	3	<1	<1
Weeks 5- 14	15	15	3	3	<1	<1
Weeks 15-24 (Piling and excav.)	25	15-20	5	3-4	<1	<1
Weeks 25-34 (structural / steel)	25	15-20	5	3-4	<1	<1
Weeks 35-40	10-15	10-15	2-3	2-3	<1	<1
Weeks 41-44	10	5	2	1	<1	<1
Week 45-56	5	20-25	1	4-5	<1	<1
Week 57-60	5	20-25	1	4-5	<1	<1

** Note: These figures equate to the construction vehicles accessing the site, for which each vehicle will have a corresponding arrival movement and departure movement; as such, overall two-way movements for the site will equate to double these figures.*

Table 3.2: Construction Vehicle Activity Summary

3.3.7 Within the 'busy' period, associated with the excavation and concrete delivery during weeks 15 to 34, the peak daily number of vehicles will be typically no more than 9 vehicles (with around 5 HGVs and 3-4 LGVs), which is of a magnitude which has been seen on other sites undertaking similar basement excavation works. These numbers can be managed and controlled such that the bunching of these vehicles when arriving can be limited by means of constant communication with vehicle drivers and a stringent pre-booking system.

3.3.8 Additionally, the requirement to operate the muck away on a timed basis due to the complexity of the dig out will ensure that grab lorries do not overlap. It should be noted that these estimates could be higher than the final requirements.

3.3.9 The majority of vehicles during this period, during which around 2,100 cubic metres (around 3,030 tonnes) of spoil material would be removed as a result of the basement excavation, would be grab lorries, estimated as 4 grab lorries each day (each vehicle having up to 15 tonne capacity) over the course of a 10-week period, based on a five-day working week and thus an overall total of fifty working days.

3.3.10 In addition to the 'busy' period of excavation, the delivery of concrete, which is assumed to be on a daily basis during the underpinning and piling stages (certain weeks within weeks 5 to 14 and within weeks 15 to 24 respectively) and more so during the RC wall supports stage (certain weeks within weeks 25 to 34), will be over a number of days and weeks.

3.3.11 The concrete involved in the underpinning works would be brought to site by 6 cubic metre lorries and could include around 200 cubic metres at this temporary works stage, so over the course of these initial works would entail daily delivery of no more than 2 to 3 lorries per day over the first weeks of this phase typically, with a total of 33 vehicles. There would be similar subsequent concrete deliveries for the piling works, but these would not overlap with the peak activity in relation to the excavation works and the corresponding muckaway.

3.3.12 The concrete involved during the structural works could include around some 760 cubic metres at this stage, so again somewhere in the region of around 2-3 lorries per day typically, with a total of 127 vehicles required over the 10-week period.

3.3.13 In terms of other vehicle types and volumes associated with the distinct construction activity stages at the site, these would comprise:

- during initial site set-up (weeks 1 to 4) and temporary structure works (weeks 5 to 14) deliveries of plant and equipment would be undertaken on a daily basis, several times a day, primarily using LGVs such as box vans but with occasional smaller-sized HGVs;

- during piling installation / excavation (weeks 15 to 24) there would be the delivery of a small piling rig and other bespoke equipment as required, as well as the concrete deliveries by 6 cubic metre lorries as referenced above;

- during installation of concrete and steel beams (weeks 25 to 34), in addition to the above-referenced concrete deliveries, deliveries of steel in particular would be by small HGVs, with the beams delivered in section to avoid use of large low-loader vehicles, being typically no more than two vehicles on any single day and on alternate days to concrete deliveries as much as is practicable;

- during removal of temporary works (weeks 35 to 40) vehicle activity would likely be no more than 2 grab lorries or short flat-bed lorries on a typical day, with occasional corresponding LGVs;

- during second fix fit-out work stage (weeks 41 to 44) and the minor works, final fit-out and landscaping stage (weeks 45 to 60), vehicles would be panel vans and Transit-type vans, of around 4 to 5 per day typically, and with no more than 1 or 2 HGVs per day typically but on occasion potentially for landscaping 3 HGVs per day.

3.3.14 The period of 'peak' activity in terms of HGVs supports manageable demands in terms of entry and exit requirements to the site, with a peak of no more than five HGVs requiring entry onto the site each day and less than about 1 HGV requiring access to the temporary loading area within any hour. During this period there would be a corresponding three to four LGVs requiring access, again considered manageable on a daily basis. Outside of the short 'peak' period, there will be significantly less HGV activity with other activities.

3.3.15 Whilst the profile of HGV activity for the site represents a 'normal' distribution, the overall profile of LGV movements generally reflects a reverse skewed distribution, with an extended and slow rise in vehicle numbers and movements to a later peak during the final weeks of the project of 5 LGVs per day. During this period corresponding HGV activity would be generally a single HGV requiring access. This peak level of LGV activity is reflective of deliveries of materials and equipment associated with fit-out and final decoration

3.3.16 There may be a small number of additional vehicles during certain parts of each stage of work activity, but these will be occasional and managed to be kept at an absolute minimum.

3.3.17 These vehicle volumes associated with the distinct construction activity stages make no allowance for the contribution of the local sourcing of materials, which may result in the trip to / from the site being part of an existing delivery route, or the consolidation of local deliveries in particular to reduce vehicle movements to and from the site.

3.3.18 Based on the average weekly vehicle numbers for each activity, an average daily level of vehicular activity can be identified based on a five-day working week.

3.3.19 Vehicle activity associated with the main stages of construction, firstly the piling and excavation associated with the basement and then the structural and steel works, will likely have the highest individual average weekly flow, with a typical level of activity of 8-9 vehicles per day – 8-9 arrivals and 8-9 departures to the site. However, as the summary programme illustrates, this period of construction activity will not materially overlap with other periods of construction activity.

3.3.20 Based on the outline fifteen-month works programme there is not anticipated to be overlap between the main phases of work for this project, so this figure is representative of the busiest weeks in terms of the overall construction programme.

3.3.21 When allowing for a 25% margin of error, which is a standard adopted by many contractors, the average daily number of vehicles would increase to a maximum of ten to twelve vehicles – thus both twelve vehicle arrivals and twelve vehicle departures.

3.3.22 The site working hours will be restricted generally to between 08:00 and 18:00 Monday to Friday and between 08:00 and 13:00 on Saturday, with no working on either Sundays or bank / public holidays. The restricted hours will be written into all supply chain orders with sub-contractors, but with further consideration of avoiding peak traffic periods.

3.3.23 The site's Logistics Manager will co-ordinate all deliveries to ensure smooth flow of vehicles to and from the site, with all deliveries to and from the site being subject to strict compliance with a pre-booking system which will identify the time slot when the vehicle can arrive at the site. This system is to be in place throughout the construction period to ensure that Wedderburn Road does not become congested at any time as a result of the construction activity at the site and that no vehicles pull-up and wait on the local network.

3.3.24 Given the estimates of typical daily vehicular activity associated with the distinct construction stages at the site, and typical durations at the site of around thirty minutes, there will be the scope to manage the pre-booking system to avoid as much as is practicable construction vehicular activity during the initial working day period of 08:00-09:00 and the final working day period of 15:00-18:00, leaving a window of six hours. Outside of term times, the additional hour of 15:00-16:00 would be considered within the main timeframe.

3.3.25 This will generally avoid conflict with both general peak traffic travelling to and from and through the local area and specific school-related traffic given the proximity of a number of schools to the site at Wedderburn Road, including a school along Lyndhurst Gardens no less than 150m of the site and a further school along Fitzjohn's Avenue.

3.3.26 Whilst there are certain deliveries and vehicle movements which will have to be undertaken during these network peaks, such as early morning concrete pours, a grab lorry coming to site to ensure capacity is left in the waste storage area and/or early morning / late afternoon deliveries to avoid any delays to the start of construction activity on a particular day, these will again be subject to the pre-booking system to ensure that any such movements will be kept to an absolute minimum relating to the specific work activity.

3.3.27 As such, as much as it is practicable to do so, the pre-booking system will take out of the peak periods and/or those periods most-sensitive to key neighbours such as the local schools those deliveries and movements which do not need to be undertaken during these hours and allocate them instead a slot at an alternative time during the remainder of the working day, to ensure that peak period movements are minimised.

3.3.28 The implementation of the construction delivery booking system will ensure that construction traffic travelling to and from the site is effectively co-ordinated and managed, with vehicles not having a pre-arranged booking not being permitted access.

3.4 Role of Local Sourcing & Consolidation

3.4.1 As standard good practice, the site works contractor will be encouraged to source both operatives and materials from local areas whenever possible, the former as a mechanism to maximise the number of staff-based trips which can then be undertaken practically by walking, cycling or public transport, and the latter to work with the local suppliers so as to co-ordinate any site requirements with their general routings and delivery strategies.

3.4.2 During the later stages of each construction phase, when deliveries are likely to be lower than during the main part of the stage, and also in the latter minor works, fit-out and decoration work stages, when smaller-sized vehicles will be more used than larger-sized vehicles, the works contractor will be encouraged to use a single larger-sized vehicle to pick-up materials from suppliers and bring to the site as a single larger delivery, thus removing a number of smaller deliveries into one single larger delivery.

3.4.3 This scope for future consolidation will be investigated further by the site works contractor with the various suppliers as the project proceeds during the various distinct stages. Additionally, the site works contractor will consider employing its own vehicle to undertake multi-collection from suppliers of required equipment and materials, as much of these as are practicable from local suppliers, to reduce both vehicle numbers and travel distances.

3.4.4 Additionally in terms of considering the use of larger-sized vehicles to reduce vehicle movements, during the peak periods of the main construction works the sizes of the majority of vehicles are dictated by the material or equipment being moved into or off of the site. However, the site works contractor will similarly liaise with the suppliers to ensure that the vehicles being used maximise their potential, but remain appropriate to the purpose.

3.4.5 To support the use of appropriate-sized vehicles whilst in parallel seeking to minimise vehicular movements overall, as much as is practicable the main works contractor will seek to ensure that all vehicles bringing materials and equipment to the site as a single-drop trip will be fully-loaded and similarly that all vehicles taking materials and equipment from the site as a single pick-up will be fully-loaded, so as not to waste vehicle capacities.

4 Construction Access Arrangements

4.1 Site Location

4.1.1 The construction site occupies a small plot along Wedderburn Road, with only frontage access to the property and building site. The site has double yellow lines adjacent to the kerb for some of the plot width, whilst also providing off street parking in the form of a dropped kerb and parking area. The building (house) is to be maintained at all times throughout the construction period with no alterations to the frontage of the building.

4.1.2 The plan attached at **Appendix A** identifies the location of the site within the context of the wider area. Further plans will illustrate the location of the site against the background of the local highway network and in terms of both the routing and access strategies.

4.1.3 In terms of the current traffic management and parking arrangements within the vicinity of the site, both Wedderburn Road and adjacent streets are subject to waiting and loading restrictions in the form of a CPZ, which restricts parking outside of marked bays between the hours of 09:00 and 20:00 Monday to Saturday and thus generally covering the works duration. The marked bays are available to residents with permits only.

4.1.4 The construction site is well-served by public transport, with four high-frequency bus routes running within 400m of the site (three along Haverstock Hill to the east and one along Fitzjohn's Avenue to the west), which equates to a typical walk time of five minutes. Additionally, there is access to underground services at Finchley Road station and Belsize Park and access to London Overground services at Hampstead Heath station, all within approximately 960m, which equates to a typical walk of no more than twelve minutes.

4.1.5 The cumulative bus frequency in each direction (based on services 46, 168, 268 and C11) is approaching thirty buses every hour during the daytime period, thus a service every other minute in each direction, whilst the cumulative underground frequency in each direction (based on the Northern, Jubilee and Metropolitan lines) is approaching sixty services every hour during the daytime, thus a service every minute in each direction. The London Overground services complement the bus and underground, with eight services each hour.

4.2 Vehicular & Other Access Arrangements

4.2.1 Drawings TPHS/072/TR/001 and TPHS/072/TR/002, both attached at **Appendix B**, illustrate the general location of the on-street loading / unloading area, the means of access in terms of ingress and egress and the corresponding localised temporary traffic management in terms of these on-street arrangements for the construction works stages, including those arrangements for pedestrians passing in front of the site.

4.2.2 These access arrangements incorporate the principles of storage on site, within the existing off- street parking area, of waste and excavated materials, with a grab lorry collecting this by means of pulling up on-street in front and within the vicinity of the site, temporarily part-mounting the footway in the area by means of the existing dropped kerbs in front of the site, so as to ensure a clear running carriageway width of 3m. These access principles would be applicable to all larger-sized vehicles either collecting or dropping-off materials.

4.2.3 The appropriateness of the general principles of these on-street temporary arrangements for the purpose of construction access during construction has been assessed by means of a series of swept paths of the typical larger-sized vehicles likely to be used on a regular basis during certain periods, namely the six-wheeler grab truck and the standard-sized concrete mixer vehicle which are both between 8m and 8.5m in length and around 2.5m in width.

4.2.4 The corresponding swept paths of these vehicles are illustrated against the background of the proposed access arrangements shown on the drawing series attached at **Appendix B**.

4.2.5 The general principles of the access arrangements would require the formal temporary closure of the stretch of footway running in front of and within the immediate vicinity of the site, solely along the northern side of the carriageway. This is to support the safe working and movement of materials and equipment between the kerbside road area and the construction site. These arrangements are again shown on the drawings at **Appendix B**.

4.2.6 Whilst the temporary footway closure would be sought for the duration of the works programme, in practice the footway would only be closed to the general public during such times that there is construction vehicle activity in front of the site and with banksmen guiding pedestrians along an alternative route.

4.2.7 At all other times during the hours of permitted vehicular access of the site the banksmen would ensure that the footway is kept clear of any obstructions and that it is available for continued use by the general public. The footway, however, will be strengthened as appropriate by means of sheet plating, to ensure that the partial and temporary mounting of the footway area by vehicles accessing the site would not materially damage the footway. The sheet plating would be installed and maintained to avoid trip hazards for the public.

4.2.8 The strategy of using the footway in front and within the immediate vicinity of the site has been developed to ensure that not only can a clear running carriageway width of 3m be retained throughout the works but also to ensure that cars can continue to exit from the private car park access opposite when a vehicle is in-situ and to avoid the need to suspend parking bays within the vicinity of the access arrangements.

4.2.9 As part of the site management it is considered that the storage area will be hoarded to the footway line to ensure that the maximum level of stored material can be managed on site. Additionally, protection measures will be installed around the trees located within the footway at either end of the proposed access arrangements area, to prevent undue damage.

4.2.10 An alternative method, which was to directly fill lorries with spoil, was discounted due to the impracticalities of lorries having to wait for protracted periods in the local roads and then in front of the site, as well as then the footway being unavailable for longer periods of time.

4.2.11 Separate to these proposed access arrangements for the duration of the construction works, there may be instances when bespoke and additional temporary traffic management arrangements may be required, such as the full closure of the road for short periods of time. Such further and fuller closures may be required for the bringing to and removing from the site specialist equipment, such as a small piling rig and small excavation equipment.

4.2.12 At this stage the methodology of bringing to site, and subsequently at a later stage removing from site, the specialist equipment has not been determined. An option could be, as part of the underpinning works to the main house, to form a direct route from front to rear underneath the existing building, which means that the equipment could be brought to and from the off-street storage area and then manoeuvred by site personnel accordingly.

4.2.13 However, it may be that the works contractor will need to crane the equipment from the front to the rear over the house, which by means of the use of the specialist craning equipment would require a temporary road closure, as well as corresponding parking suspensions within the immediate vicinity of the site to facilitate the manoeuvrability and positioning of the craning equipment.

4.2.14 These occasional events, if required, would be typically for a duration of up to a day, thus solely for the small piling rig two day events within the overall 15-month programme. These events would be timetabled, in agreement with LBC, to be undertaken at weekends to minimise the likelihood of disruption to other road users at this time.

4.2.15 Without a contractor engaged, it cannot be confirmed how access of the rig and, if required, other specialist equipment will be facilitated. By means of the CTMP the contractor will be obligated to have fully investigated all alternative means to the craning option and the corresponding temporary road closure and parking suspensions, to ensure that they come forward with the option which has the least impact to local residents and neighbours.

4.2.16 If such temporary short-term road closures, parking suspensions and corresponding bespoke traffic management arrangements are required during the overall construction programme, in tandem with the standard arrangements put forward within this CTMP, these will be kept to an absolute minimum and agreed well in advance with LBC in terms of the vehicle routes and site activity timing, prior to the necessary applications being made and allowing for an eight-week lead-in time between the date of application and the date of approval. A record of these agreements will be monitored as part of the CTMP.

4.2.17 Representatives of the London Borough of Camden will be approached to arrange the necessary licences and orders (as appropriate) to implement the general temporary access and loading / unloading arrangements as defined within this section of the CTMP, which as a minimum will be required to facilitate implementation of the hoarding line along the back of footway and the formal temporary closure of the footway, as well as potentially the formal suspension of the double-yellow line regulations (though loading / unloading is permitted).

4.2.18 The pre-booking system referenced in Section 3 of this CTMP will work under the principle that a vehicle seeking ingress will not be timetabled at a time when a preceding vehicle is likely to be already within the loading / unloading area and not due to egress, thus one vehicle using the area at any one time only being the key objective of pre-booking, with a secondary objective being to distribute the vehicle activity across the working day.

4.2.19 A delivery schedule will be established and co-ordinated by the member of staff who will be appointed by the Site Project Manager to be responsible for the day-to-day organisation and monitoring of construction logistics for the site, in liaison with the Site Project Manager, with all bookings agreed between the site personnel and the supplier / sub-contractor no less than 48-hours in advance. There will be regular communication between site personnel and the suppliers / sub-contractors as to the vehicle numbers needed for distinct activities.

4.2.20 The proposed on-street arrangements have been designed to sufficiently accommodate the typical larger-sized vehicles for the different construction stages, albeit that the vehicles which have determined the design may not be those most frequently used during the latter stages of the construction works in particular when the use of smaller-sized vehicles will be more prevalent. There will, however, be the scope for the larger-sized vehicles to access.

4.2.21 During the internal minor works and fit-out stage the typical vehicles will more likely be smaller-sized rigid vehicles and the range of box vans and panels vans, but again with the occasional use of other larger-sized rigid lorries. During the latter stages of work it may be possible, where these is no excavation and only small amounts of waste material on-site, to allow the manoeuvring into the parking area under supervision from a banksman for some deliveries. This would be part of the pre-booking system and subject to the overall requirements for storage of waste and equipment in the holding area.

4.2.22 All suppliers and site operatives will be notified that no temporary waiting of the vehicles or the loading / unloading of the vehicles is to be permitted at any location along the Wedderburn Road or any location upon the local roads, other than the proposed access arrangements in front of and within the immediate vicinity of the site and accordance with the agreed pre-booking timetabling system. This will be to ensure that the infrastructure and management arrangements brought forward are used appropriately, again so as to not impact upon the operation of the existing highway network.

4.2.23 During site working hours the site access and loading / unloading arrangements will be manned by banksmen (or equivalent personnel) throughout to prevent unauthorised access into the construction site and to assist as required with the management and manoeuvrability of vehicles through the access and the management and manoeuvrability of pedestrians in front of the site. Suitable signage shall be erected at appropriate locations for all user groups, with notices for pedestrians located at either end of the 'works' area.

4.2.24 When the site is closed a security system will be in place and monitored accordingly. Should an intrusion onto the site by means of the hoarded area be attempted or occur outside of working hours, the monitoring personnel will arrange for the site to be visited or for a serious incident alert to be made to the police.

4.2.25 The site will have a single personnel entrance for all operatives and staff, located along the front of the site and incorporated into the hoarding arrangements but separate from the storage area. This will be the access for those travelling on foot, by bicycle and by public transport. This access will be located to best correspond with the location of the project office and welfare facilities, but also to provide separation from the proposed storage area.

4.2.26 Within the vicinity of the personnel access and staff facilities, there will be dedicated facilities provided for cyclists, which will include the provision of cycle stands as well as changing and equipment storage facilities within the staff welfare area. There will be adequate storage space for no less than two cycles for site personnel within a secure space.

4.2.27 The main works contractor will be registered with TfL's Freight Operator Recognition Scheme (FORS) and shall seek that all sub-contractors and suppliers are similarly registered, such that the drivers of all vehicles are suitably trained and that all vehicles are fitted with safety equipment appropriate for the use for which it is intended.

4.2.28 Contractors and suppliers operating vehicles under the FORS should ensure that side guards are fitted to the vehicle, unless it has been demonstrated to the highway authority that the vehicle cannot perform the intended function if fitted, that a proximity sensor and warning system are installed, that the vehicle has a Class VI mirror and that prominent signage is displayed on the vehicle, particularly to warn cyclists of the danger of passing on the inside.

4.3 Vehicle Access Routings & Controls

4.3.1 All subcontractors and suppliers orders will include details with regard to the routes to be used when arriving at and leaving from the site. This will be the principal means of how these key parties will be informed of the routing guidance and controls but it will also be reiterated to site supervisors when they are inducted prior to commencing work on site.

4.3.2 Until such time that a principal works contractor is on board to undertake and co-ordinate the works, as well as the sub-contractors and suppliers requiring access the site, it is not practical to be fully prescriptive with regard to the routing strategy. However, an overview strategy of the local routing strategy can be put forward, with this reconfirmed and/or updated during a subsequent version of the CTMP prior to commencement of construction.

4.3.3 In summary, the routing within the immediate vicinity of the site will be for all vehicles to approach from and depart to the B511 Fitzjohn's Avenue, which is approximately 250m to the west of the site. This has been observed on site as both a practical and convenient strategy, being one adopted by HGVs and buses regularly requiring access of the nearby school along Lyndhurst Gardens as well as less frequent access of other local facilities.

4.3.4 From and to the B511 Fitzjohn's Avenue the routing strategy would adopt a clockwise loop, running firstly along Lyndhurst Road before turning right into Lyndhurst Gardens and then right again into Wedderburn Road and towards the frontage access arrangements. Upon exit the routing strategy would continue along Wedderburn Road, turning right into Akenside Road and then left into Lyndhurst Road to reach the B511 Fitzjohn's Avenue.

4.3.5 The appropriateness of this routing strategy has been assessed against the background of the manoeuvrability through this local network of the typical larger-sized vehicles requiring regular access of the site during certain construction periods – the six-wheeler grab truck and the standard concrete mixer. These routing assessments are presented on Drawings TPHS/072/TR/003 and TPHS/072/TR/004, attached for reference at **Appendix C**.

4.3.6 The routing to and from the site from further afield will be dependent upon the origin / destination of the service provider, but in general for all journeys there will be an approved route which connects the site with the strategic TLRN 'A' road network or, for longer-distance travel, the motorway network at the earliest opportunity. These networks are those best suited to construction traffic and generally avoid sensitive areas.

4.3.7 The four typical routes which will set the principles for those to be adopted at a later stage in terms of the routing strategy further afield are as summarised, based on access via the A41 which forms part of the TLRN network and runs north-south to the west of the site:

North: From the site, south along the B511 Fitzjohn's Avenue to the A41 Swiss Cottage gyratory, then routing along the eastern (southbound), southern (westbound) and western (northbound) stretches, to reach the A41 in a northbound direction.

East: As to the north, but following travel along the southern (westbound) stretch of the A41 Swiss Cottage gyratory turning left into the A41 Finchley Road in the direction of central London, travelling along this to the A501 Marylebone Road and then turning left in the direction of Euston and King's Cross.

South: As to the north, but following travel along the southern (westbound) stretch of the A41 Swiss Cottage gyratory turning left into the A41 Finchley Road in the direction of central London and the A501 Marylebone Road.

West: As to the east, but turning right onto the A501 Marylebone Road in the direction of Paddington and the A40 Westway.

4.3.8 Where the origin and destination of the supplier / contractor is further afield, an alternative longer-distance routing strategy would be to direct these to use the stretch of the A41 north of the Swiss Cottage gyratory, between that location and the Brent Cross interchange which provides direct access with the strategic North Circular route around the inner London area.

4.3.9 Where a vehicle arriving at or departing from the site is on a 'single drop' delivery, then the vehicle will be directed to use one of the four general routes or the longer-distance North Circular route, as there will be no need for deviation off of the route other than for the ultimate origin / destination at either end.

4.3.10 Where it is a multi-drop vehicle (only part of the load is specifically for the project), the vehicle will be recommended to use one of the general routes as much as is practicable, but this cannot be fully enforced as there will be prior and/or subsequent drops to be made.

4.3.11 As referenced previously in this plan, all deliveries to site will be required to be pre-booked into a timed delivery slot operated by the site's logistics manager. Vehicles which arrive without a booked slot or miss their timed slot will be turned away from the site, unless the proposed access arrangements are clear and the vehicle can be accommodated without impacting upon the remainder of the timetable for that day, in terms of loading / unloading.

4.3.12 Temporary signage will be installed at key locations upon the approaches to the proposed access arrangements advising pedestrians if the footway closure along Wedderburn Road in the vicinity of the site is required for a particular time period.

4.4 Parking Arrangements & Staff Travel Access

4.4.1 There will be no car parking spaces provided on-site for staff and staff will not be permitted to access the site by car. The CPZ and its hours of operation will be adequate to enforce any issues that this may have as the local roads are in the main allocated for resident permit holders only and are subject to controls between 09:00 and 20:00 Monday to Saturday.

4.4.2 Staff and visitor groups will be notified that there is no available car parking on-site and also that they will not be permitted to park on the adjoining local roads, with all site user groups encouraged to use the range of public transport services, cycle or walk. This will be explicitly referenced in the terms of engagement and reiterated during induction for site staff personnel. This will form an integral part of the site's *'Travel & Parking Strategy'*, which will have the overarching objective of minimising vehicle-based activity for all groups.

4.4.3 Prior to commencement of employment, all employees will be notified of the *'Travel & Parking Strategy'* for the site, whilst similarly all contractors and suppliers / delivery companies will be notified of the restrictions. The *'Travel & Parking Strategy'* will comprise a double-sided A4 sheet detailing how the site can be accessed by each of the non-car modes of travel, identifying the local bus and rail services as well as links to key journey planning websites, confirming how the site can be accessed by foot and by cycle, and listing the 'dos' and 'don'ts' specifically in relation to driving and parking.

4.4.4 The strategy will reiterate that employees should not be driving to and from work, but instead using the other modes.

4.5 Risk Assessment Considerations

4.5.1 The main potential risk associated with the construction logistics will be the risk of a collision between construction vehicles and those user groups travelling in proximity to the site and in the local roads, particularly with pedestrians using the footway in front of the site.

4.5.2 When the site is to be hoarded off for construction it will have a dedicated security guard and/or banksman stationed full-time at the proposed access arrangements comprising the kerbside and footway in front of and within the vicinity of the site, to ensure that vehicles arrive safely and are supervised during their period of delivery, as well to prevent unauthorised vehicles or members of the public entering the site.

4.5.3 Banksmen (and equivalent personnel) will all have completed mandatory and best practice training before commencing work on site and training will be maintained throughout their time at the project. The training of this staff group will ensure that vehicles safely manoeuvre between the general traffic stream and the proposed access arrangements along the kerbside and adjacent footway, during both the entry and exit manoeuvres.

4.5.4 As illustrated on the vehicle tracking plans, vehicles will reverse into the proposed access arrangements, with some further forward and reversing manoeuvring so that the vehicle sits in the best position to service the site. To exit the proposed access arrangements the vehicle will then reverse to the rear-most point of this area, before exiting in forward gear.

4.5.5 A banksman will be located within the vicinity of the access arrangements during the times of vehicles being permitted access, confirming to pedestrians if required that the footway remains available for their use at that time. Prior to the arrival of a vehicle at the site for loading / unloading, banksmen would locate themselves at either end of the stretch of footway to inform pedestrians of the impending closure and to start initiate arrangements to close the footway and confirm the alternative arrangements; these banksmen would remain in-situ for the duration of the vehicle being loaded / unloaded in this area and then following departure of the vehicle remove the closure arrangements and open the footway.

4.5.6 The banksmen team would also assist each vehicle manoeuvring into the proposed access arrangements, given that the vehicle will be reversing (particularly the larger-sized vehicles) and the driver of the vehicle may have some difficulty in maintain a full view of the area. The banksmen team would also assist with the vehicle exit, which whilst to be undertaken in forward gear would again aid the driver in maintaining a full view of the area.

4.5.7 In addition to the above measures, temporary signage will be installed at convenient locations to direct pedestrians away from this area at the earliest opportunity, such that the risk of conflict between construction vehicles and other groups would be minimised.

5 Monitoring & Review

5.1 Key Parties – Roles & Responsibilities

5.1.1 The main works contractor's Project Manager will appoint a member of staff who will be responsible for the day-to-day organisation and monitoring of construction logistics for the site. Part of the responsibilities of this individual will be the implementation and management of the Construction Traffic Management Plan (CTMP) for the lifetime of the construction works on the project.

5.1.2 As well as planning and co-ordinating the day-to-day site deliveries, the arrangements to accommodate the delivery vehicles and the arrangements for special deliveries, this manager will liaise with nominated representatives of key stakeholders and interested parties to discuss and agree where practical to do so consolidation of vehicle activity and other measures to support the running of the CLP.

5.1.3 A notice board will be provided on site which will contain contact telephone numbers for information and complaints and in the event of an emergency occurring. These boards will also display the latest copy of the newsletter which will be issued regularly to neighbours, to inform them of key activity dates and key contacts. This information will be updated monthly and also prior to the step-changes between the different types of work activity.

5.1.4 At this stage the appointment of the Logistics Manager has not been made, since the main works contractor has not been appointed. Until such time that the main works contractor has been engaged TPHS (as the lead author of this draft CTMP) will be the main point of contact for any queries and comments relating to the further development of the CTMP for the main works stage.

5.1.5 The London Borough of Camden will be notified of the nominated representative appointed to implement and manage the CTMP within a month of the appointment. This appointment will also be notified on the site notice boards available for the public to view.

5.2 Plan Updating

5.2.1 The CTMP and its associated documents are 'live' documents and will be regularly reviewed with the key stakeholders and updated throughout the project's construction lifespan, either as events dictate such as a result of comments being brought forward from local representatives or additional local construction sites coming online and thus increasing the opportunity to consider consolidation and shared practices or if there is a substantial change to the phasing of the works which will require changes to the CTMP measures and practices.

5.2.2 After implementation of the CTMP at the start of the construction works, envisaged to be around June 2015, the CTMP will be first reviewed in the run-up to the end of the excavation / piling works, thus by week 24 and six months into the project.

5.2.3 Following commencement of the structural and reinforced concrete works, the CTMP will be reviewed again after a further four-months duration, in the lead-up to the start of the internal and minor works and fit-out stages, thus by week 41 and overall two-thirds into the project duration.

5.2.4 Should an update to the CTMP be required as a result of any of these reviews, these will be undertaken and an updated version issued to the London Borough of Camden and other key stakeholders for review and information. Should the review identify that no material changes are required, this will also be notified to the Borough and other key stakeholders.

5.3 Monitoring Activity

5.3.1 The logistics manager will monitor vehicle movements on a daily basis and will also carry out a survey of vehicle movements and routes at regular (three-monthly) intervals throughout the project, as well as at the time of the previously-referenced CTMP reviews when different, and produce a summary sheet for information. The contents of this summary will be agreed at the start of the project and form part of the review process.

5.3.2 Specific aspects to be picked up in the general monitoring of site activity will include:

- monitoring of early delivery / pick-up arrivals and those seeking to wait on the local approach routes, so that the sub-contractor or supplier can be notified and warned of the inappropriate behaviour and the need to follow good practice;

- monitoring of the number of vehicle movements during peak periods, to ensure that these are being kept to an absolute minimum and are essential to support operations at the site, with use of the six-hour window being maximised;

- monitoring of staff travel patterns to ensure that the facilities initially brought forward (cycle parking and welfare facilities) continue to be adequate and to identify any inappropriate car travel, so that the individual can be advised.

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APPENDICES

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APPENDIX A

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SITE LOCATION

London Underground
London Overground
Local Bus Stops
Local Schools

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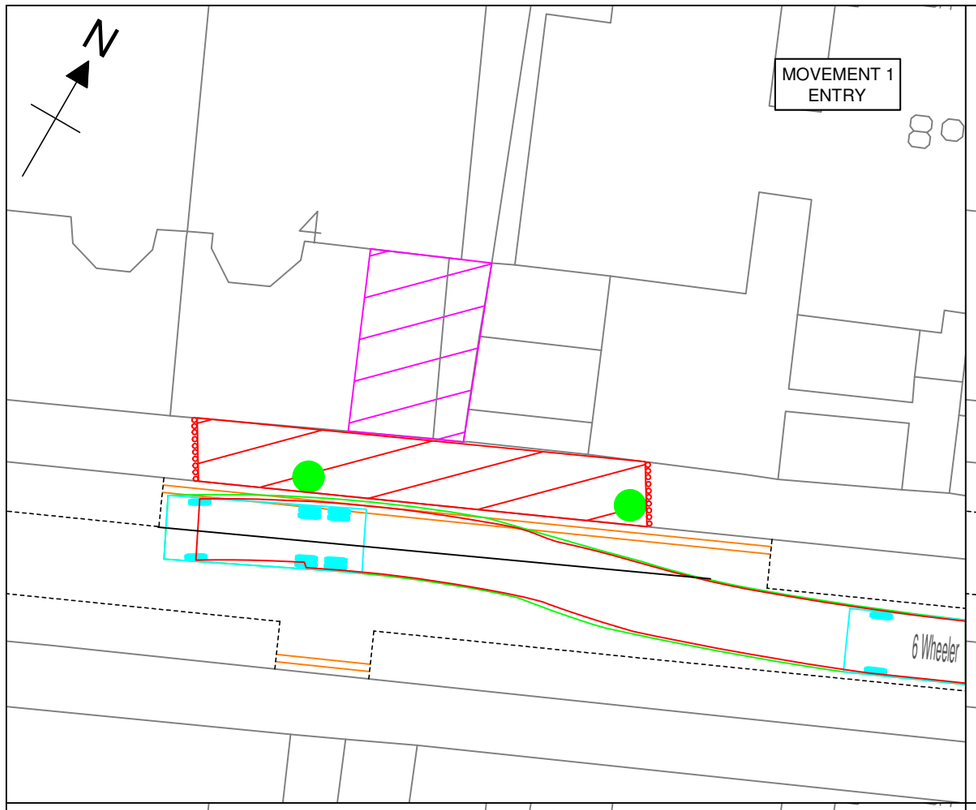
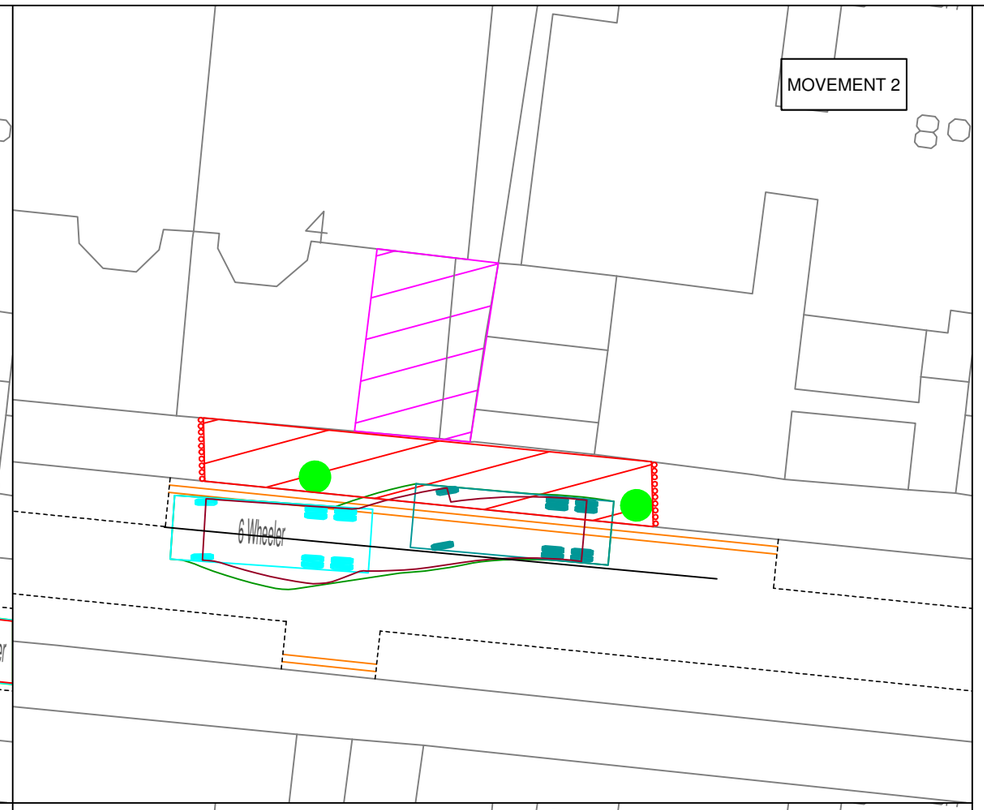
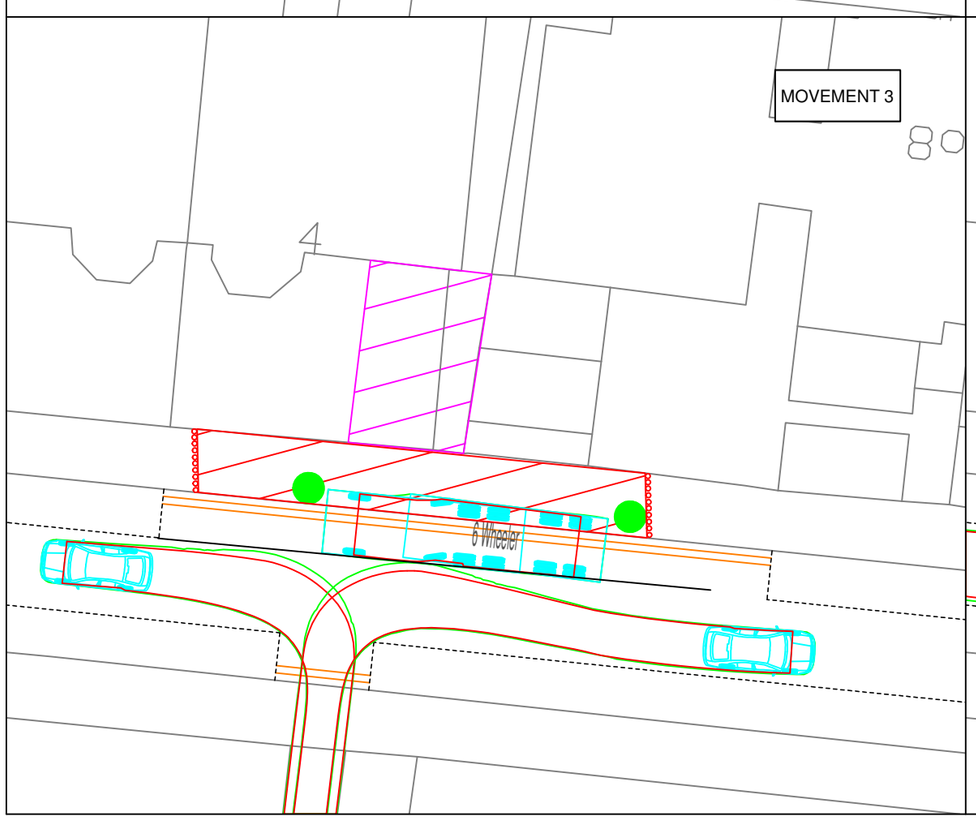
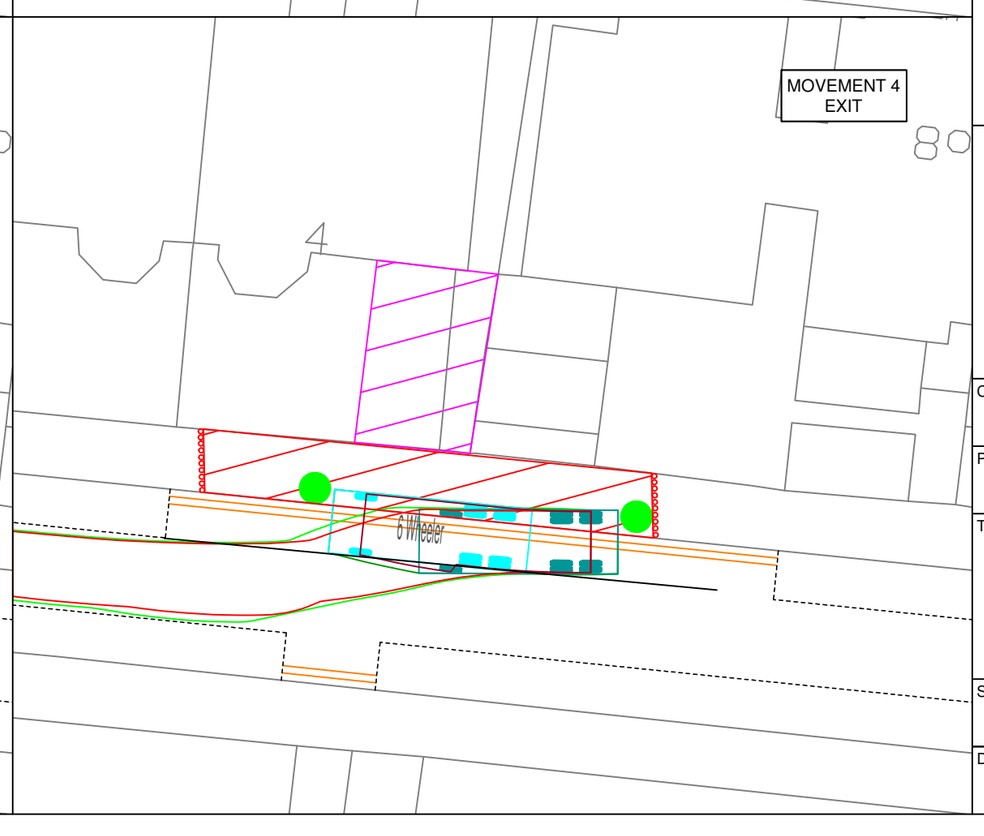
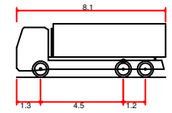
APPENDIX B











6 Wheeler	
Overall Length	8.100m
Overall Width	2.600m
Overall Body Height	2.896m
Min Body Ground Clearance	0.346m
Track Width	2.500m
Lock to Lock Time	6.00s
Kerb to Kerb Turning Radius	7.850m

Waste / Storage Area (On-Site / Hoarded)

Temporary Stretch of Footway Closure

TPHS
Transport Planning & Highway Solutions Limited

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70 London Road
Twickenham
TW1 3QS
Tel: 020 8622 4430
@: info@tphs-ltd.co.uk - www.tphs-ltd.co.uk

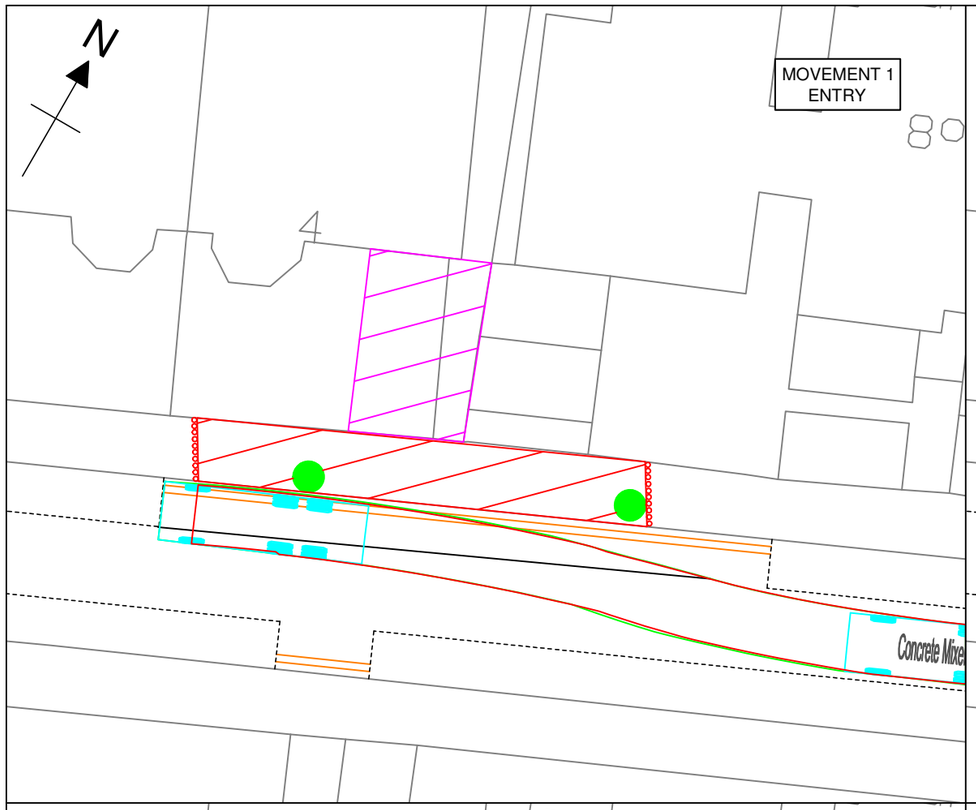
CLIENT:
HEYNE TILLETT STEEL LTD

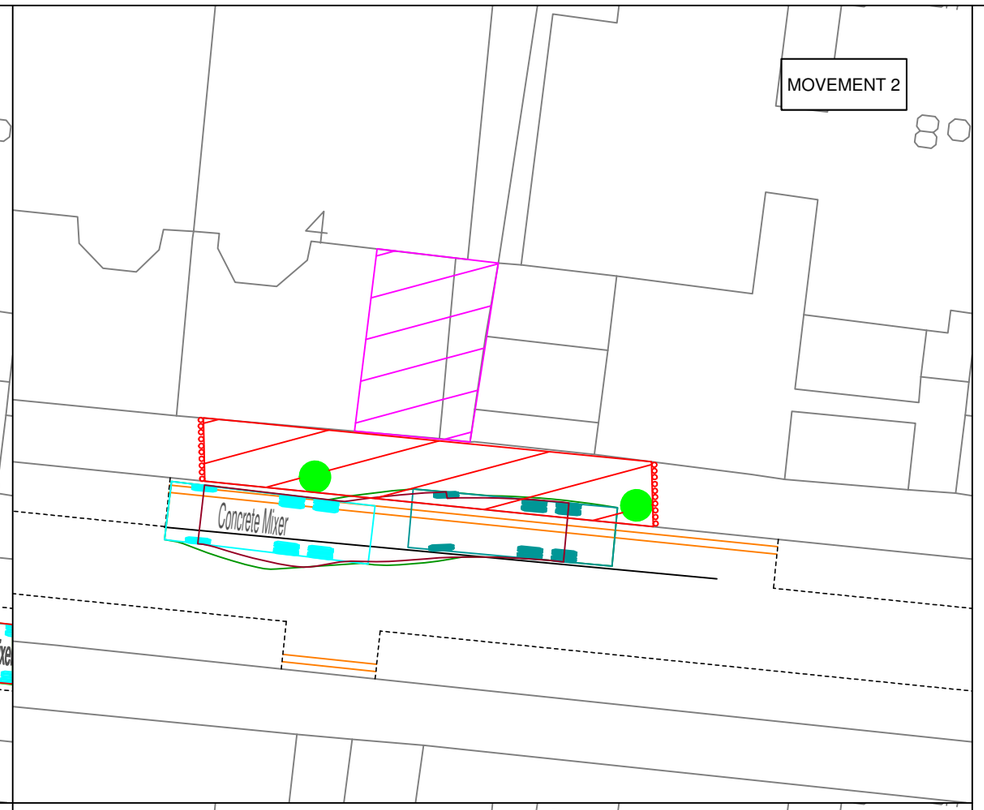
PROJECT:
4 WEDDERBURN ROAD CTMP

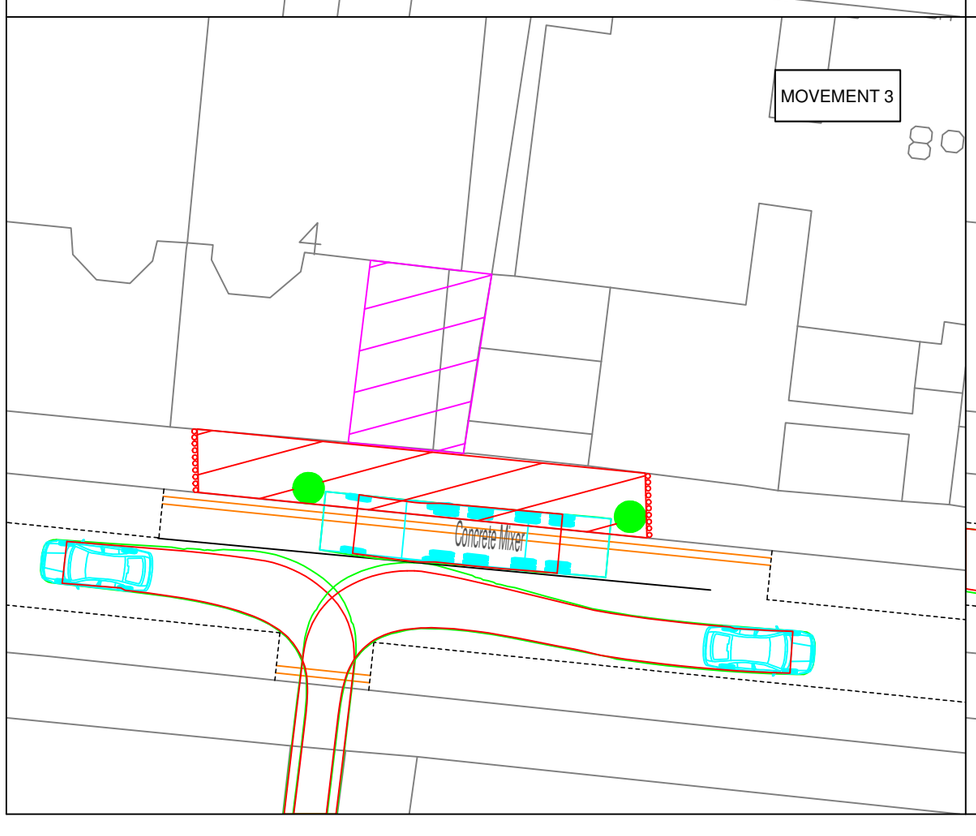
TITLE:
VEHICLE ACCESS STRATEGY
6 WHEELER (GRAB TRUCK)

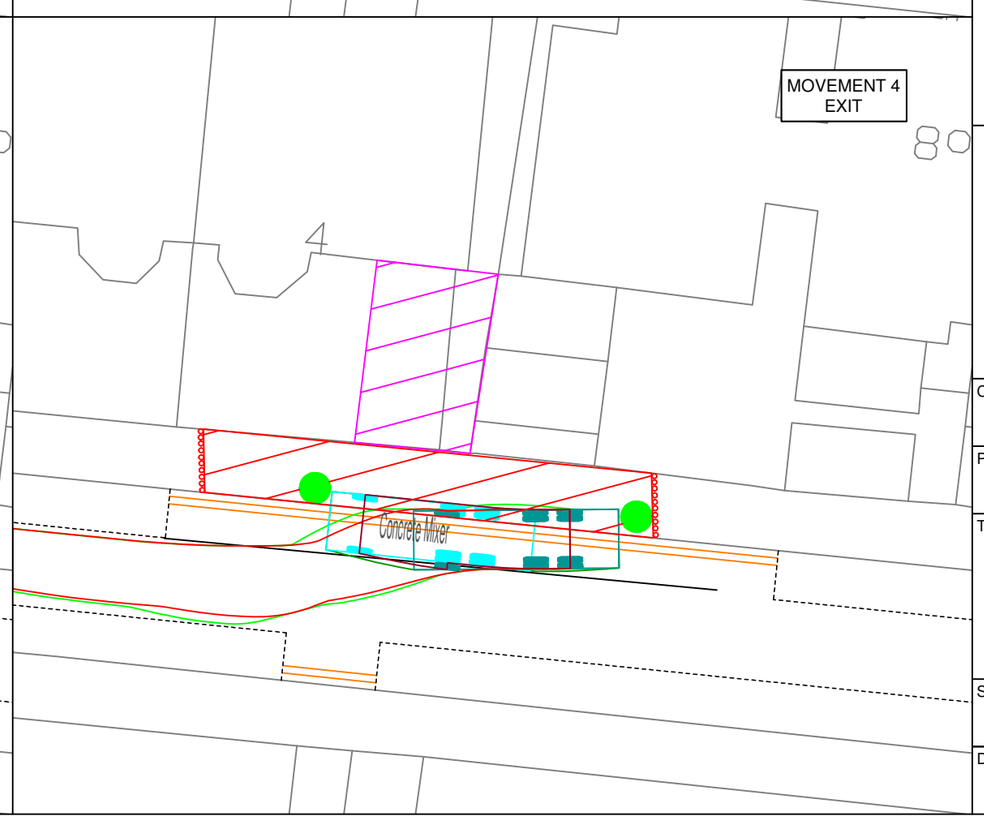
SCALE:	PLOT SIZE:	DATE:
1:250	A3	12/11/14

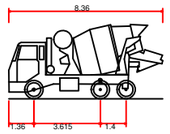
DRAWING No.	REV.
TPHS/072/TR/001	A











Concrete Mixer	
Overall Length	8.360m
Overall Width	2.390m
Overall Body Height	4.027m
Min Body Ground Clearance	0.358m
Max Track Width	2.413m
Lock to Lock Time	6.00s
Kerb to Kerb Turning Radius	8.210m

Waste / Storage Area (On-Site / Hoarded)

Temporary Stretch of Footway Closure

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CLIENT:
HEYNE TILLETT STEEL LTD

PROJECT:
4 WEDDERBURN ROAD CTMP

TITLE:
VEHICLE ACCESS STRATEGY
CONCRETE MIXER

SCALE:	PLOT SIZE:	DATE:
1:250	A3	12/11/14

DRAWING No.	REV.
TPHS/072/TR/002	A

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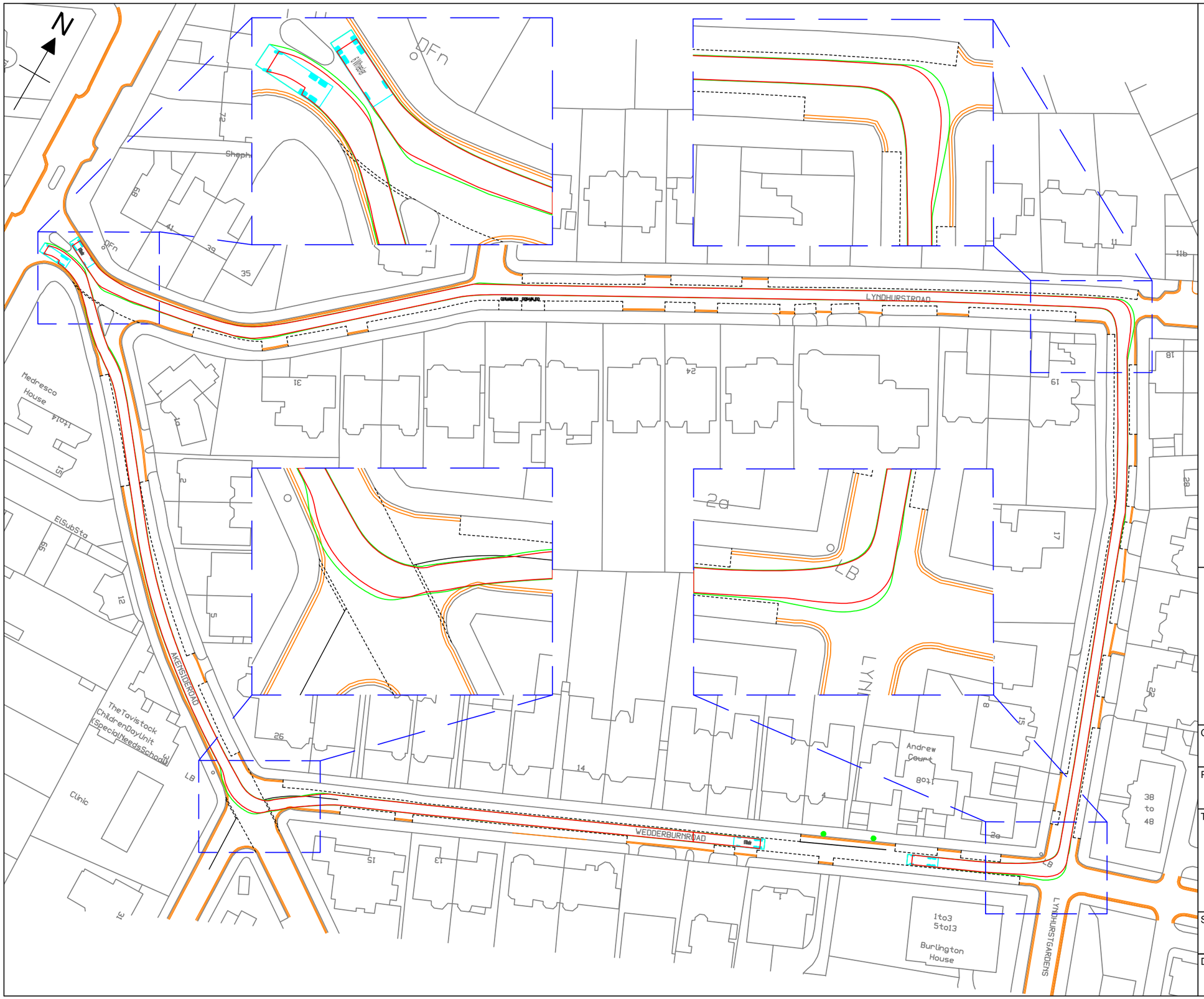
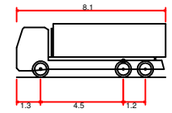
APPENDIX C





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4 WEDDERBURN ROAD CTMP

TITLE:
VEHICLE ROUTING STRATEGY
6 WHEELER (GRAB TRUCK)

SCALE:	PLOT SIZE:	DATE:
1:1000	A3	12/11/14

DRAWING No.	REV.
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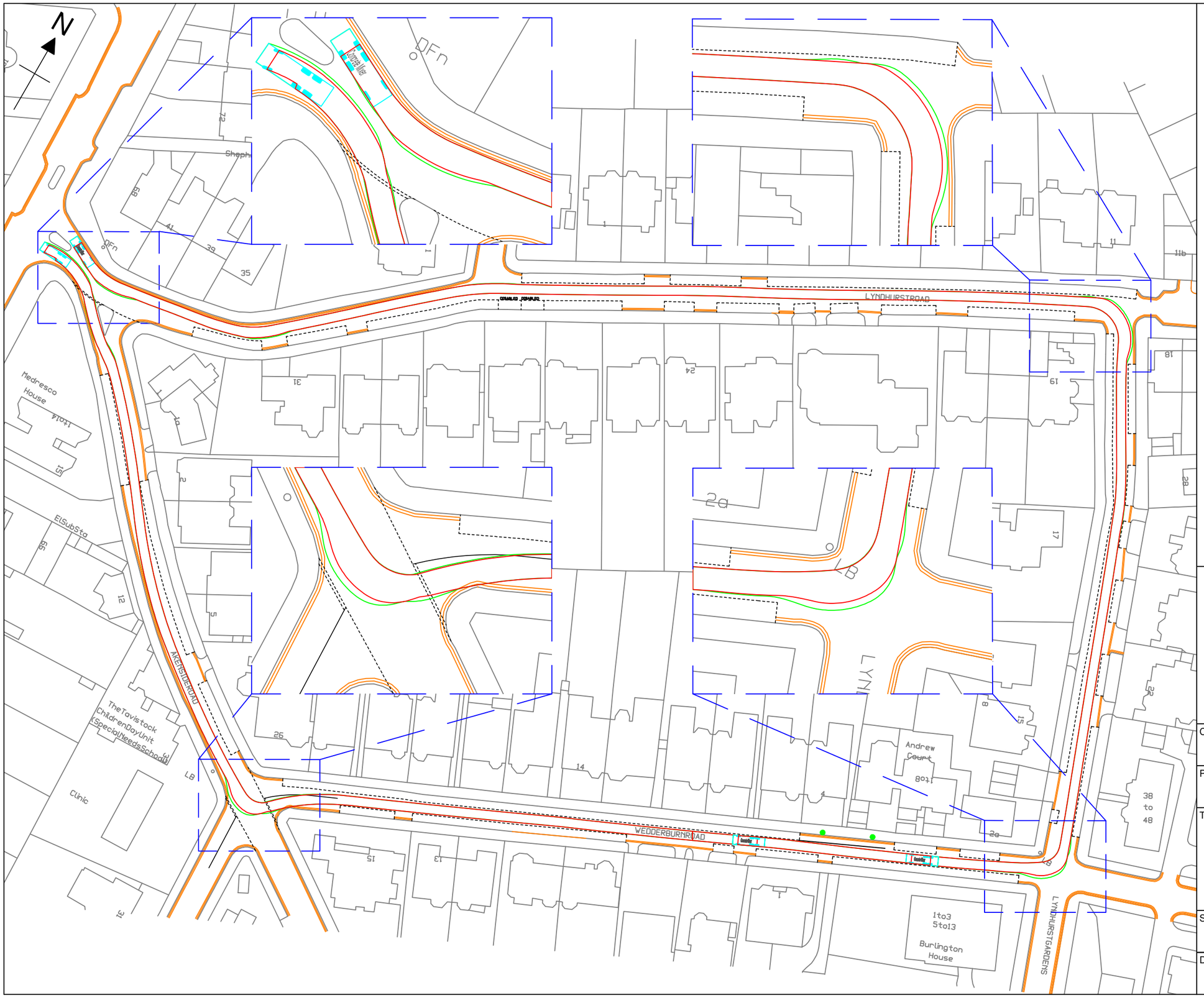

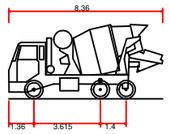

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HEYNE TILLETT STEEL LTD

PROJECT:
4 WEDDERBURN ROAD CTMP

TITLE:
VEHICLE ROUTING STRATEGY
CONCRETE MIXER

SCALE:	PLOT SIZE:	DATE:
1:1000	A3	12/11/14

DRAWING No.	REV.
TPHS/072/TR/004	A