

Proposed Residential Development at  
The Water House, Millfield Lane

Construction Management Plan

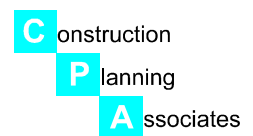
Prepared for  
Mr & Mrs Paul Munford

Revision E

July 2011

Status:- Planning Application Issue

Construction Planning Associates  
9 Woodland Green  
Upton St Leonards  
Gloucester GL4 8BD  
01452 612719



Motion Transport Planning  
25 Floral Street  
London  
WC2E 9DS  
020 7031 8141



## Contents

Section 1.0	Introduction	page 4
	Site History	page 5
	Pre Application Engagement	page 5
Section 2.0	Programme & Construction Methodology	page 7
	Demolition	page 7
	Excavation & Foundations	page 8
	Lower Ground Floor	page 9
	Superstructure Frame & Envelope	page 10
	Internal finishes	page 10
	Landscaping	page 11
Section 3.0	Access	page 12
	Access Routes	page 12
	Vehicle sizes & tracking	page 12
	Vehicle Movements	page 13
	Phasing & peak movements	page 14
	Light Goods Vehicles (LGV)	page 15
	Interface with adjoining sites	page 15
Section 4.0	Nuisance Control	page 17
	Dust Control	page 17
	Wheel Wash	page 17
	Noise Control	page 18
	Site Security	page 18
	Consultation with Local Residents	page 18
	Travel Plan	page 19
	Ground Water and Surface Water Run Off	page 19
Section 5.0	Pedestrian and Road User Safety	page 20
	Current Utilization of Millfield Lane	page 20
	Proposed Mitigation Measures	Page 21
Section 6.0	Millfield Lane Road Surface	page 23
Section 7.0	Summary	page 24

## Appendices

Appendix A – Ordinance Survey Plan

Appendix B – Phasing of construction works

Appendix C – Tipper Truck Images

Appendix D – Swept path Plots

Appendix E – Millfield Lane Movement Survey Data

Appendix F – Indicative Cross Section of Lane

## **1.0 Introduction**

Construction Planning Associates and Motion Transport Planning have been instructed by Mr & Mrs Munford to produce a Construction Management Plan (CMP) in relation to the proposed redevelopment of the Water House, Millfield Lane, Highgate, London. The development proposals involve the demolition of the existing house and the construction of a high quality 2 storey family home with basement along with a separate guest bedroom chalet. The location of the site is shown on the ordinance survey plan at Appendix A.

This document has been jointly prepared by Construction Planning Associates (CPA) and Motion Transport Planning (Motion). CPA established for 18 years is a practice specialising in advising clients, designers and contractors on construction methodologies and programme covering the full spectrum of projects from large domestic to neighbourhood redevelopments. Motion is a practice providing specialist transport analysis to a wide range of clients including a number within Fitzroy Park.

The purpose of the CMP is to ensure that the impact of demolition and construction work on the local residents and the immediate highway network is minimised. The CMP provides detail of all measures that are considered appropriate at this time; however, the CMP is a live document that will evolve as necessary to address issues that may be identified through ongoing consultation with local residents as the project progresses.

The Contractor's Project Manager will be responsible for implementing measures contained in the CMP and will be the point of contact for local residents during the construction process. The Contractor's Project Manager's name, telephone number and email address will be added to the CMP once he/she has been appointed. Prior to the appointment of the contractor the implementation of any necessary measures will be managed by Mr & Mrs Munford's Project Architect Mr Stuart McLauchlan. (Contact details [StuartM@shh.co.uk](mailto:StuartM@shh.co.uk) Telephone 020 8600 4171, Postal Address:- SHH Architects, Vencourt Place, Ravenscourt Park, Hammersmith, London W6 9NU ) This document has been prepared with input from the project architects, planning consultants, structural and civil engineers to ensure that the CMP can comprehensively address all issues that may arise during demolition and construction works.

## **1.1 Site History**

The site is currently occupied by a 2 storey house and swimming pool. The house was previously completely rebuilt after a fire in the 1970's and extensively modified and extended in 1990's. The site forms part of the original estate of Fitzroy Farm which has been subdivided into the current plots during the post war period.

The site only has vehicle access along Millfield Lane. Pedestrians can access the site from Millfield Lane and via a narrow pedestrian access from the rear of the property onto Fitzroy Park.

## **1.2 Pre-Application Community Engagement**

As part of the scheme development, Mr & Mrs Munford and their project team have carried out extensive pre-application community engagement with the following parties over the last 10 months, to discuss both the scheme and the construction management:

- Fitzroy Park Residents Association
- Mr Derrick Dale, Wallace House (neighbour)
- Mrs Karen Beare, Dormers, Fitzroy Park (neighbour)
- Mrs Lynne Turner-Stokes, Fitzroy Park (neighbour )
- Occupier of Fitzroy Lodge (Frontage on Millfield Lane)
- Dr Colin Cooper Apex Lodge (Frontage on Millfield Lane)
- Simon Lee of the City of London, Superintendent Hampstead Heath, (City of London manage and maintain Millfield Lane in the vicinity of the site)
- Hampstead Heath Consultative Committee (HHCC)
- Highgate Society,
- The Kenwood Ladies' Pond Association and managers
- London Borough of Camden

In developing the overall building design and the CMP, the views and comments made by the local community have been fully considered and the evolving design and methodologies have been adapted and revised where appropriate.

The consultation with local residents and interested parties has been carried through the planning pre-application process, and the CMP has been be updated to reflect the feedback and the changes made to the scheme arising from this wide ranging and extensive consultation.

In addition to meeting with the neighbouring property owners 2 formal presentations and meetings have been held with the Hampstead Heath Consultative Committee, under the aegis of the City of London Superintendent of Hampstead Heath. Other local interested parties were also invited and attended these presentations.

As a result of these extensive local consultation and dialogue the scheme has been amended to respond to the various issues and concerns raised

- Overall size of the building reduced
- Position of building adjusted on site away from Wallace House boundary
- Volume of building reduced, library basement omitted
- Volume of bulk excavation reduced
- Height of southern building wing reduced
- Hydrology modelled in both temporary and permanent conditions
- Millfield Lane surfacing and improvements aligned with feedback
- Millfield Lane movement control aligned with feedback
- Total vehicle movements along Millfield Lane reduced
- Daily cap of 8 vehicle movements in total for both HGV and LGV for 94 of the total 100 weeks construction period and a cap of 12 daily movements for intermittent peak periods over 6 weeks.

The full engagement and practical response to the various concerns expressed during the consultative process indicates Mr & Mrs Munford's commitment to a real engagement process with the local residents and other interested parties.

## 2.0 Programme & Construction Methodology

As planning approval has yet to be granted, the programme below provides an indication of the duration of each phase of the works. The programme will be updated with the dates envisaged for each phase of works once planning permission has been granted, a contractor has been appointed and the date for works to start on site has been determined. It is currently anticipated that the overall construction period will be 100 weeks, with a further period of 6 weeks for installation of furnishings, decant and occupation.

Works Phase	Duration	Typical Labour levels (excluding management & supervision)
Site mobilisation & establishment	4 weeks	6
Demolition & site clearance	5 wks	8
Temporary works & excavation	7 wks	14
Piling, GSHP & drainage	6 wks	14
Lower ground floor & pool	9 wks	20
Suspended ground floor slabs	7 wks	20
Superstructure Frame & Roof	10 wks	20
Envelope	14 wks	24
Internal finishes	28 wks	32
Phase 2 Library structure ( overlaps with Finishes)	(24 wks)	8
External landscape (overlaps with finishes)	(12 wks)	8
Commissioning final fit out and furnishings	8 wks	10
Overall works	100 wks	

Table 1 – Anticipated Labour levels

### 2.1 Demolition

The existing building comprises a masonry façade with tiled pitched roofs. The existing foundations are strip footing and a ground bearing floor slab. There is also an existing swimming pool and associated plantroom.

We have reviewed the existing materials within the buildings and have concluded that with the exception of some of crushed floor slab and foundations there are no opportunities for re-use of the existing materials within the new building. The brick and elements of the façade and internal wall bricks together foundation concrete will be crushed on site. The resulting granular material will be used in the new building as granular fill, and as part of the temporary works.

The remaining demolition materials will be separated on site with all recyclable material (timber, metals and glass) being taken for reprocessing, such that the volume of arising to be sent to landfill will be minimized to those material such as plaster which cannot be recycled.

The demolition process will be carried out within a three sided sheeted scaffold enclosure to ensure that there is no migration of dust or debris onto the adjoining properties. The demolition will be carried out from the Millfield Lane elevation using a tracked excavator with appropriate attachment. The on site crushing will be carried out using a compact portable unit with integrated dust and noise suppression. The volume of material involved will not require the crushing machine to run for more than 2-3 hours per day over the 2 week dismantling period. It is therefore expected that the volumes of dust generated by the dismantling of the existing house will be limited.

## **2.2 Excavation & foundations**

The excavation of a building's foundations is a major source of bulk materials and vehicle movements and also a major source of imported materials. As part of the overall environmentally aware design philosophy of the building, it has been decided to maximize the reuse on site of materials arising from the foundation and basement excavation. This has been integrated into the partial buried aspect of the new building, which utilizes 525m<sup>3</sup> (30%) of the total 1054m<sup>3</sup> of bulk materials as part of the overall site landscaping scheme. This will reduce the number of material collections by 150 vehicle movements, when compared with traditional off site disposal.

The lower ground floor is part cut into the sloping site and will be constructed in a kingpost wall supported excavation. The kingpost piles will be installed from the existing ground level following demolition of the existing building. The new building is also supported on piles and the contractor will have the option of either installing these piles at the same time as the kingpost piles, or installing the piles from the lower ground floor slab formation level. If the building piles are installed with the kingpost piles these will need to be cased for the depth from existing ground level to the new formation level, however the piling equipment will only require to be mobilized once. Where the building piles are formed after the general excavation the casing and empty bore will be saved, but the rig will require to be mobilized twice. The final selection of these options will be the discretion of the contractor, however it has been assumed for the purposes of the CMP that the piling will be completed in two distinct operations. The geothermal ground source heating pipework is integrated in to the building and kingpost piles and will this be installed with the relevant piling operation

The piles will be installed using a compact hydraulic mini pile rig. This rig has a separate power pack unit. The rig is 2.9m long and 1.25m wide in its shipping mode with the trailer mounted power unit being a similar size. The installed piles will be between 300 and 350mm in diameter and will vary in length to suit the structural and geothermal requirements of each pile. Concrete for the piles will be delivered in a standard 6m<sup>3</sup> ready mix concrete vehicle and will be held in an agitator for distribution to each of the piles as it is formed

The building forms a 'L' shape in plan, and the only access is gained via the existing driveway. In order to access the main block of the building the leg of the 'L' adjacent to the driveway will not be constructed until the structural shell of the main block has been completed. Consequently the foundations and structure of the building will be formed in two phases as illustrated in Appendix B. The area currently occupied by the existing swimming pool and the front lawn will form a working area to access the main block.

The shape of the site will restrict access to the rear of the building. A site access road will be formed between the east gable end and the site boundary with Nr 55 Fitzroy Park. This will incorporate tree route protection where necessary and will allow site dumpers, excavators and similar site plant to access the rear elevation of the building. Access to the rear will not be required once the main superstructure has been completed and the rear basement structures have been backfilled. At this point the temporary access road will be removed to allow completion of the landscaping works.

The lower ground floor and pool excavation for Phase 1 will be formed using a compact hydraulic excavator, with the arisings being loaded directly into dumpers for stockpiling at the rear of the site for later re-use or loaded into 6 wheel tipper lorries for off-site disposal. Drainage runs will be installed on completion of the piling, with the reclaimed granular demolition material being used as backfill and also providing the sub-base for the ground floor slab, making further savings in the use of imported materials.

### **2.3 Lower Ground floor**

The ground floor slab bears directly onto the piles and is formed by a concrete 'flat slab'. This form of construction has been adopted in order to minimise the excavation quantities and material import. The swimming pool slab and pool plantroom slabs will be formed at the same time as the ground floor slab, using a similar construction methodology. The concrete for the slab will be placed using a telescopic handler mounted skip, where direct discharge is not possible.

## **2.4 Superstructure Frame & Envelope**

The structural frame of the new house will be constructed using a mix of concrete and structural steel. The floor slabs will be a mix of insitu concrete on temporary formwork or concrete on permanent steel 'holorib' decking, selected to suit the requirement of each specific element. The roof structure will be formed using a structural steel frame and cold rolled sections to a low pitched timber and insulated decked covered with a single ply membrane.

The superstructure frame will be erected using a rough terrain mobile telescopic crane, which has been selected for its compact size and enhanced manoeuvrability both in accessing the site and in use on site. The crane will be positioned so that the lifting radius remains within the confines of the property boundaries at all times. The steel frame sections will be sized to ensure that these can be contained within the bed length of a 17 tonne 2 axle lorry.

The building envelope utilizes a mix of rendered and timber clad elevations with curtain walling and stone clad feature panels to the main garden facing facades. Mortar for the internal leaf backing blockwork will be supplied using an ultra quiet electric silo plant, so as to minimise waste, avoid open sand and cement storage, and reduce noise and dust nuisance. The curtain walling and window system will be installed following completion of the structural frame and be accessed together with the brick work, from a perimeter standing scaffold.

## **2.5 Internal finishes**

The internal finishes for the building will use a high proportion of pre-fabricated and pre-finished materials, ranging from the main feature staircase, to joinery and stone flooring. The internal partition walls will generally be formed for dry construction to minimize the volumes of material import. The building will also incorporate a rain water harvesting system which will utilize stored rainwater for flushing of toilets and irrigation of the landscape.

The finishes have been chosen to limit the volume of site works and the number of operatives required to complete the installation, as well as limiting the volumes of waste materials generated by the installation.

## **2.6 Landscaping**

The landscape works will take place in to two phases. The initial phase will comprise the re-levelling of the rear elevation of the building to cover over part of the lower ground floor to accommodate some of the excavated material generated during the foundation phase. The second phase will comprise the topsoil and planting to the main lawn and the area adjacent to the new building, and will take place during the later stages of the internal finishes.

### **3.0 Access**

#### **3.1 Access Routes**

All demolition, construction and delivery vehicles will approach the site from Highgate West Hill and then Merton Lane before turning right into Millfield Lane. Vehicles leaving the site will use the same route. The section of Millfield Lane leading to the Water House from Merton Lane, is a single carriageway road with no footways. The road varies in width from some 4.1 metres to 6.4 metres.

Millfield Lane provides vehicular access to the Water House and is also used by Hempstead Heath maintenance and service vehicles. As such, vehicle movement is relatively infrequent. The lane is also used by pedestrians and cyclists including visitors to the Kenwood Ladies Pond, access to which is located opposite the Water House.

#### **3.2 Vehicle sizes & tracking**

The following list provides detail of the type of vehicles that will need to gain access to the site during the demolition and construction process. The vehicles proposed have been selected to ensure that they are of a size that can be accommodated on the highway network given the constraints of the site access route, whilst minimising the potential number of traffic movements to and from the site. For example, during the demolition and excavation phase, 3 axle tipper trucks are proposed rather than larger 4 axle tipper trucks. Images providing a comparison of 3 and 4 axle tipper trucks are provided at Appendix C.

- Skip Lorry 4 Wheel, 17 Tonne, G.V.W
- Piling plant delivery 4 Wheel, 17 Tonne, G.V.W
- Concrete Delivery Vehicle 6 Wheel, 24 Tonne, G.V.W
- Building Panel Deliveries 4 Wheel, 17 Tonne, G.V.W
- Ballast and Loose Materials 6 Wheel, 24 Tonne, G.V.W, Tipper
- General Building Materials 4 Wheel, 17 Tonne, G.V.W, HIAB Flat Bed
- Wheeled 360 Excavator, 23 Tonne GVW
- Mobile All Terrain Crane, 24 Tonne GVW (Terex RT 230 or similar)

Highgate West Hill and Merton Lane are currently being used by construction vehicles of this size for other construction projects on Fitzroy Park and the use of these roads by vehicles of this type has been considered by the highway authority prior to the grant of planning consent for these development schemes. It should be noted that the use of these routes by construction and demolition vehicles has not resulted in the need for the suspension of any on-street parking bays or any other physical mitigation measures.

Swept path analysis has been undertaken to demonstrate that an 8.7 metre rigid/flat bed construction vehicle can manoeuvre to and from the site via Millfield Lane and leave sufficient space for pedestrians to pass. This type of vehicle has been used for the exercise as it is the longest, and most onerous in terms of manoeuvrability, of the construction and demolition vehicles that will be used on site.

The swept path plots are attached at Appendix D . The plots show that Millfield Lane can accommodate vehicles of this size and that space is available for pedestrians and vehicles to pass. However, given the width of Millfield Lane, measures will need to be implemented to manage the interaction between construction vehicles and other users of the Lane. These measures are considered in detail in Section 5 of this report.

### **3.3 Vehicle movements**

Construction vehicle movements will not be permitted at weekends or during public holidays and will be scheduled to take place between the hours of 08.00 and 18:00. Heavy goods vehicle movements will also be scheduled so as to avoid more than one movement every 30 minutes. The following table provides a breakdown of the number of vehicle movements during each phase of the construction process.

A delivery will comprise of two movements, arrival and departure. The movement table will be updated to provide more specific detail of anticipated delivery times once planning permission has been granted and the date for works to start on site has been determined.

Works Phase	Duration	Total HGV movements	Average daily movements	Peak daily movements
Site set up and establishment	4 wks	10	0.5	Max 4 per day
Demolition & site clearance	5 wks	116	4.6	Max 8 per day
King post & bulk excavation	7 wks	146	4.6	Max 12 per day*
Piles & drainage	6 wks	125	4.2	Max 12 per day*
Lwr grd,& pool slab & walls	9 wks	48	1.1	Max 12 per day*
Suspended Grd floor slabs	7 wks	59	1.7	Max 8 per day
Superstructure Frame	10 wks	72	1.4	Max 8 per day
Envelope	14 wks	65	1.0	Max 8 per day
Internal finishes	28 wks	79	0.6	Max 4 per day
Phase 2 structure (overlaps with finishes)	(24 wks)	93	0.8	Max 8 per day
Commissioning final fit out & furnishing	8 wks	10	0.25	Max 4 per day
Landscape (phase 2) (overlaps with finishes)	(12 wks)	75	1.2	Max 8 per day
Total	100 wks	898	1.8	
* Peak of 12 movements will occur in no more than 6 intermittent weeks during these phases				
Table 2 - Vehicle Movements				

### 3.4 Phasing and Peak movements

Within the overall project average of 1.8 HGV movements per day (i.e. 1 HGV delivery) there will be some variability and peaks of activity. These will particularly be associated with the foundation stages when excavations are taking place and the foundation structures are being cast. These variations are noted in Table 2 and peak with the two phases of the foundation construction. The peak periods will be limited to a total of 6 intermittent weeks occurring during bulk excavation, piling and lower ground floor slab construction period. The construction programme for the works is currently aligned such that this peak occurs during the winter months and will coincide with the period of lower pedestrian activity along Millfield Lane. The final alignment of the works programme is however dependent upon the timing of the receipt of a planning consent, and the project programme does allow for the full statutory period for determination of the application.

### **3.5 Light goods vehicles (LGV)**

During the consultation local residents have expressed concerned over the number of light goods vehicles and cars which may access the site in addition to HGV movements. The restricted space on site will prevent the use of the site for any vehicle parking for the contractor's staff or operatives. This will be reinforced by a specific restriction contained within the construction contract documentation. There will be a residual volume of light deliveries by van for smaller elements and for day to day incidental requirements. The number of these is difficult to predict due to their variable and incidental nature. It would be anticipated that the average for these deliveries will be in the order of 2 movements per day. In order to respond to the concerned expressed by the residents, the CMP and construction contract documentation will further restrict the LGV movements such that total number of daily movements of all types will NOT exceed the maximum numbers stated in Table 2.

The imposition of an absolute limit of all vehicles types, covering HGV's LGV and other vehicles using Millfield Lane in connection with the Water House development has been introduced to limit the effect of the works upon the other users of Millfield Lane and to limit the potential impact of the works on the public amenity of the heath users.

The commitment to a daily maximum of this type is in response to the concern expressed during the consultative process and indicates Mr & Mrs Munford's full commitment to meaningful engagement with local residents and other interested parties.

### **3.6 Interface with adjoining sites**

Table 2 indicates typical daily vehicle movements and the maximum number that is predicted would occur. The range between average and maximum number of daily vehicle movements will provide an element of flexibility during each of the building phases. No other properties currently use Millfield Lane for vehicle access, it is however noted that there are some works currently taking place at 51 Fitzroy Park and at Fitzroy Farm, both of which are located on Fitzroy Park and use Merton Lane as their access route.

The Construction Management Plans for these sites indicate that by December 2011 (the earliest start on site date currently anticipated at the Water House) works at 51 Fitzroy Park will be complete, whilst the more intensive period of construction in terms of vehicle movements at Fitzroy Farm will have passed.

In the event that construction works on Fitzroy Park coincide with works at the Water House, there is flexibility within each of the building phases to enable vehicle movements to be scheduled so as to limit the cumulative daily impact of construction vehicles associated with the Water House and other development sites.

## **4.0 Nuisance Control**

A range of measures will be implemented to ensure that the potential impact of the works on local residents and neighbours will be minimised. These measures are discussed in turn below.

### **4.1 Dust Control**

Water dampening measures will be used during the demolition process, which will significantly control dust generation. Dust screens will also be incorporated during this element of the project. The dust screen will be formed using a fully sheeted scaffold around the three sides to the height of the existing building, with the Millfield Lane elevation being left open to access the works. This will form a cocoon within which to carry out the dismantling work of the existing building. This scaffold will be dismantled once the demolition works is completed to allow for access to the new building foundations.

Dust generation during the next phase of the work for the new house basement and substructure will be limited, as it is currently envisaged that this works will take place during the winter of 2011 -2012. Any dust generated by vehicles moving along Millfield Lane removing surplus materials will be very limited due to the time of year, the limited number of daily movements and restriction of speed to walking pace behind vehicle banksmen.

It should be also noted that concrete is delivered wet, and that the superstructure steel frame is delivered as fabricated elements with the cladding and glazing panels pre-cut to size so that the potential for dust generation has been limited by the selection of materials and methods.

### **4.2 Wheel Wash**

Site vehicles will have wheels washed down prior to leaving the site so as to reduce unwanted debris spreading onto Millfield Lane. A temporary concrete slab will be installed at the entrance to the site to form an impervious surface that can be used as a wheel wash area.

Waste water from the wheel wash, and also from general site operations such as damping down and concrete delivery washout, will be stored in temporary 'silt buster' holding and separation tank on site the level of which will be monitored by the Principle Contractor. When full, the tank will be emptied by a registered waste disposal contractor using a vacuum tanker and transported to a local depot for processing prior to disposal. The total volume of concrete used on the site is limited and we anticipate that the tank will require to be emptied 3 -4 times during the execution of the works. This operation will be controlled by a consignment note to allow full traceability of all material removed from site.

#### **4.3 Noise Control**

Trees and walls that surround the Water House will assist in acting as a noise barrier. The noise levels associated with particular materials has, and will continue to be taken in consideration as part of the design specification process. The building contract will require the use of noise suppression equipment which complies with or exceeds the current codes of practice. Building work will be limited to the hours of 08.00 to 18.00, with no works taking place at weekends or on public holidays.

#### **4.4. Site Security**

All construction materials will be stored within the site. It is proposed that solid boarded 2.4 m hoardings will be erected along the site boundary with Millfield Lane. Access gates will be formed in the fence to main entrances to the site on to Millfield Lane. The site will be locked outside of working hours to ensure that all materials and equipment are stored securely

#### **4.6. Consultation with Local Residents**

It is proposed that a Construction Working Group will be formed by the Contractor's Project Manager to ensure that local residents and other interested parties are aware of how the construction works are progressing and to provide them with the opportunity to raise any issues that may arise as they occur. A direct dial number of the client's on-site agent will also be provided so that any issues can be reported.

Representatives of the Heath Consultative Committee, the City of London and the Kenwood Ladies Pond Association will be invited to join the Construction Working Group as well as any other parties affected by the works and Council Officers.

The Contractor's Project Manager will keep in regular contact with local residents, affected parties and the Council by sending a fortnightly update by email, and post if necessary. It is also proposed that monthly Construction Working Group meetings will be held if all parties agree that they are required.

The Contractor's Project Manager will liaise with any other contractors carrying out construction works in the vicinity of the site to ensure that the combined impact of development is kept to an absolute minimum.

#### **4.7 Travel Plan**

There will typically be a total of up to 20 construction workers on site, although this may increase to 32 during the later stages of the project when the internal finishes and landscaping phases are being undertaken. It will be a condition of the building contract that no workers vehicles will be allowed on to the site and construction works must access the site on foot along Millfield Lane.

To minimise the potential impact of construction workers travelling to the area, a Travel Plan will be implemented to promote and encourage the use of sustainable mode of travel to and from the site and minimise the use private cars. Construction workers will be instructed not to park private vehicles on Fitzroy Park.

The Travel Plan will take the form of a leaflet that will include details of local public transport services, promote walking and cycling and encourage car sharing. Consideration will be given to the operation of a shuttle bus service to and from the junction of Millfield Lane with Merton Lane from nearby public transport nodes.

#### **4.8 Groundwater & Surface water run-off**

The existing land drainage network will be located prior to the demolition of the existing building, and any necessary temporary or permanent diversions will be install in order to maintain continuity of sub-surface groundwater flows as recommended in the Hydrogeology report.

New land drains will be installed as part of the bulk fill and re-grading of the site, and these will be designed to maintain the current groundwater flows across the site. Surface run-off from the temporary hardstanding areas will be directed via a temporary settlement tank prior to discharge into the existing land drainage system. Surface water flow from potential sources of contamination such a concrete delivery washout points, mortar silos and plaster mixing baths will be separately contained and will not be discharged into the land drainage system.

## **5.0 Pedestrian and Road User Safety**

As discussed in Section 3, Millfield Lane between the site and Merton Lane is a narrow single carriageway road that is used by very few vehicles but is a commonly used pedestrian route. It is proposed that a number of measures be implemented during the proposed demolition and construction works at the Water House so as to mitigate against any safety issues that could arise as a result of the use of the route by construction traffic and to maintain the visual and recreational amenity of the lane.

### **5.1 Current Utilization of Millfield Lane**

Data provided by the City of London shows that on average, between 7am and 7pm on a weekday, pedestrian flows on Millfield Lane are in the order of 1000 movements. The number varies throughout the year, with winter months being quieter and summer months being busier. The current programme seeks to align works so that vehicle movements on Millfield Lane during the summer months will be minimal, on average 2 movements per day, and to schedule these movements to take place during quieter times of the day, typically between 10am and 12 noon.

Further movement surveys were undertaken on Thursday 7<sup>th</sup> April 2011 between the hours of 0800 and 1800. The counts took place on Millfield Lane to the north west of the public toilets on Hampstead Heath so as to record pedestrian and vehicle movement between Millfield Lane and the heath as well as from Merton Lane.

The results of this survey are presented in Appendix E. In addition to the raw survey data, the appendix also contains figures 1, 2 and 3, which show the total pedestrian and vehicular movement recorded during the survey period, during the busiest hour (1400 – 1500) and during the busiest 15 minute interval (1445 – 1500) as well as a chart showing the profile of movement on the busiest section of Millfield Lane throughout the day.

The results of this survey show that the majority of pedestrians enter and exit Millfield Lane via the heath as opposed to from the junction of Millfield Lane with Merton Lane and Fitzroy Park. This results in pedestrian movement on the southern end of Millfield Lane being considerable lower than that on the northern section that leads to the Water House and the Kenwood Ladies Pond, 257 movements compared to 703 on the day of the survey.

## **5.2 Proposed Mitigation Measures**

- Dressing back verges, removing mud and improving drainage along the boundary of the Water house so as to remove the existing ditch in this area and provide a level surface for pedestrians to walk. The works to the ditch have been undertaken.
- If necessary, prune overhanging trees to provide sufficient height clearance on Millfield Lane for heavy goods vehicles. The extent and nature of any works will be based upon the recommendation of an Arboriculturalist, discussed and agreed with the relevant landowner and subject to permission necessary from the City of London or Camden Borough Council.
- Banksman will be required to walk in front of and to the rear of construction traffic on Millfield Lane to restrict speed to walking pace (4mph).
- The banksman will instruct drivers to manoeuvre their vehicles along the edge of the carriageway that borders the heath leaving room for pedestrians to pass on the opposite side of the carriageway. The banksmen will stop the vehicle to enable oncoming pedestrians and cyclists to pass.
- The swept path analysis undertaken demonstrates that there are a number of pinch points where the width of the lane may not be sufficient for pedestrians to comfortably pass a stationary heavy goods vehicle. There are also areas where vegetation may restrict passing opportunities. It is proposed that banksmen will stop vehicles in advance of any pinch points, or vegetation that restricts passing opportunities, and not proceed until these areas are clear of pedestrians. The swept path drawing in Appendix D shows pinch points where the lane is narrow, but not vegetation as the extent of these areas will vary dependent upon the time of year. A plan showing an indicative cross section of the lane is provided at Appendix F.
- Upon arrival at the site the Banksman will ensure that the area is clear of pedestrians and other users before the vehicle reverses into the site.
- A Banksman Co-ordinator will keep a log of all construction vehicle movement.
- A Banksman will be stationed at the junction of Merton Lane with Highgate West Hill. The role of this Banksman is to prevent construction vehicles from approaching the Water House when a vehicle is leaving the site given that vehicles will not be able to pass on Millfield Lane. Vehicles will instead be waived on and asked to return later when access will be granted if the exiting vehicle has left the area.
- The banksman team will have three members, who will all be on site from Monday to Friday between 08:00 and 18:00 when construction traffic movements will take place. The banksmen will have radios in order to contact each other whilst working.

- Temporary road signage will be positioned on Millfield Lane at either end of the construction vehicle route warning road users of the presence of construction traffic.
- Measures will developed and put in place to ensure that the pedestrian gate on Apex Lodge (adjacent to Millfield Lane) can be used safely, without the risk of a pedestrian stepping into the path of a vehicle.

## **6.0 Millfield Lane Road Surface**

Millfield Lane is managed and maintained by the City of London. The surface of the road has been allowed to wear so as to blend in with the rural surroundings, whilst providing a suitable road surface for all users of the lane. It is proposed that any damage to the road surface that occurs during the demolition and construction process would be repaired as required following daily inspection by the building contractor.

In order to minimise the potential for damage during the demolition and construction process, consideration is being given to the implementation of road strengthening works adjacent to the heath side of the lane. Two options were proposed during the pre application consultation process, and as a result a minimum intervention solution is now proposed and is illustrated in Appendix F.

It is proposed to carry out a reactive maintenance regime to lane surface with daily inspection being carried out and the surface made good with granular material whenever ruts or potholes begin to be formed. Tree root protection works would also be carried out as appropriate, subject to guidance of an Arboriculturalist.

A sewer runs along Millfield Lane at a depth of some 4 metres beneath the surface. Survey work undertaken to determine the construction of Millfield Lane showed that the road substructure has a CBR of 30%, indicating a very substantial resistance to rutting and excellent load bearing capabilities. The nature of the underlying subgrade material indicates that the sewer is unlikely to be damaged as a result of the use of the lane by construction traffic.

## 7.0 Summary

This Construction Management Plan relates to the proposed redevelopment of the Water House. The purpose of the CMP is to ensure that the impact of demolition and construction works on the local residents and the immediate highway network is kept to an absolute minimum.

This plan seeks to address the concerns expressed by the users of Millfield Lane, local residents and other interested parties.

This scheme developed by the owners Mr & Mrs Munford represents an inclusive and open approach to the site and the manner in which it is developed, the materials selected and the techniques used.

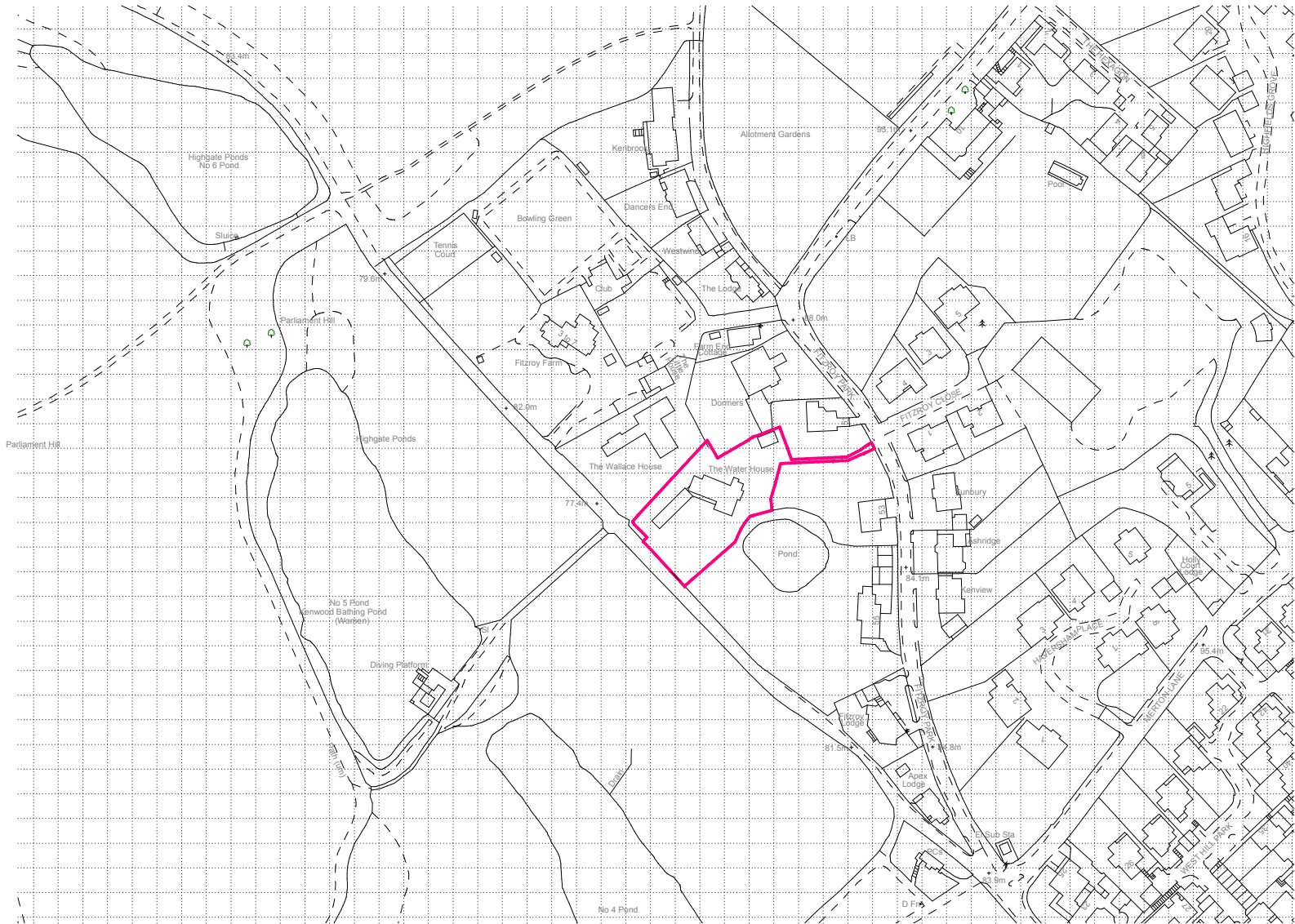
The table below summarises the main issues associated with demolition and construction works on this site and identifies how the CMP addresses them.

Issue	Response
Pedestrian and road user safety on Millfield Lane	Banksman strategy to control vehicle speed and the interaction between pedestrians and other road users.
Volume of traffic movements along Millfield Lane	Size of building and volume of basement reduced to limit vehicle movements, absolute daily maximum limit set for both HGV's and all other vehicles to limit impact upon other lane user and public amenity. Daily cap introduced to limit all vehicle movements covering both HGV and LGV.
Public amenity on Millfield Lane	Construction methodology and vehicle selection chosen to minimise the level of vehicle movement on Millfield Lane and any physical works have been designed to maintain the rural nature of the lane.
Ground Water and Surface Water run off	Temporary and permanent works will be implemented in accordance with the Hydrology report recommendations so as to maintain current groundwater and sub-surface water flows across the site. Additional measures are proposed to contain contaminated surface water run off during the construction process.
Impact on Millfield Lane sewer	Substantial substructure to existing road (CBR 30%) indicated sufficient load bearing capacity in road to protect sewer.
Interface with other construction sites	The Contractor's Project Manager will liaise with contractors of construction projects in the area so as to minimise the cumulative effect of the developments. The construction programme provides flexibility to enable vehicle movements to be scheduled so as achieve this objective.
Table 4 – Summary of Response to Key Issues	

## Appendix A

Figured dimensions only are to be taken from this drawing. All dimensions are to be checked on site before any work is put in hand.  
If in doubt, ask.

NOTES



Ordnance Survey (c) Crown Copyright 2011. All rights reserved. Licence number 100020449



Rev	Description	Drawn	Date	Checked
B	Updated	hp	10.01.11	sm
A	Preliminary	hp	26.11.10	sm

Spence Harris Hogan associates  
architects + interiors + design consultants

1 Vencourt Place  
Ravenscourt Park  
Hammersmith London  
W6 9nu

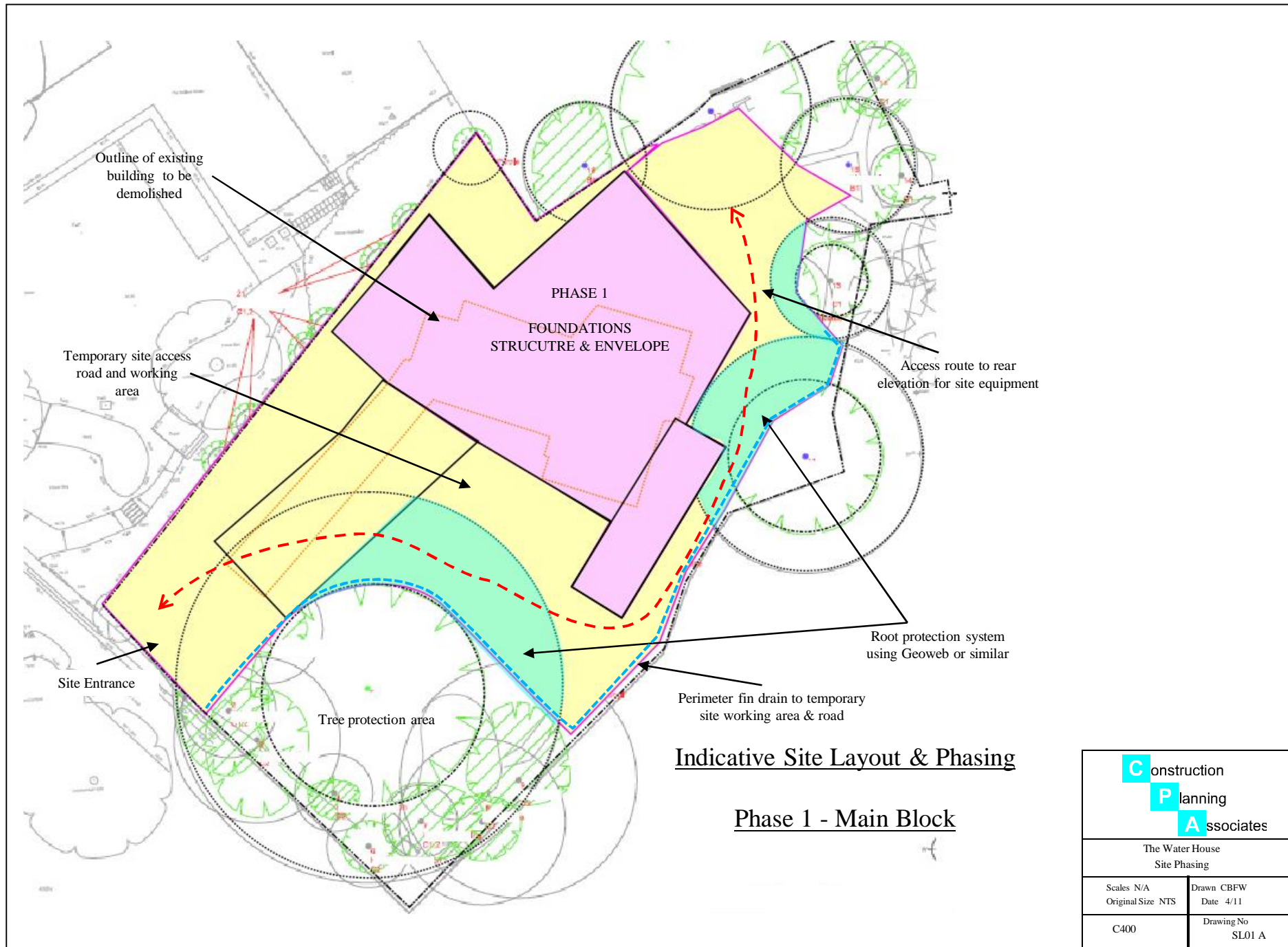
tel : 020 8600 4171  
fax : 020 8600 4181  
mail : shh@shh.co.uk  
web : ww.shh.co.uk



Project No:	633	Project:	The Water House
Author:	JSM	Site Address:	Millfield Lane Highgate
Checked:	TW	Client:	Corp. City Dev. No. 2 Ltd
		Title:	000 Site Plans Ordinance Site Plan
Status:	Preliminary	Scale A1:	1:1250
		Scale A3:	1:2500
Project no. / Stage / Drawing no.	633(SK)003	Date:	JAN.11
		Revision:	B



## Appendix B



Construction Planning Associates	
The Water House Site Phasing	
Scales N/A Original Size NTS	Drawn CBFW Date 4/11
C400	Drawing No SL01 A



**C**onstruction  
**P**lanning  
**A**ssociates

The Water House  
Site Phasing

Scales N/A  
Original Size NTS

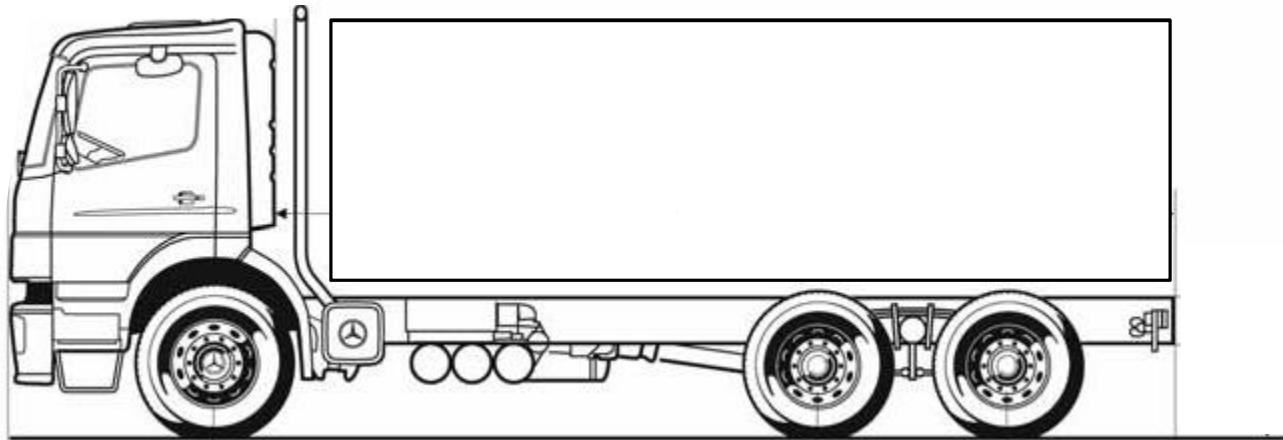
Drawn CBFW  
Date 4/11

C400

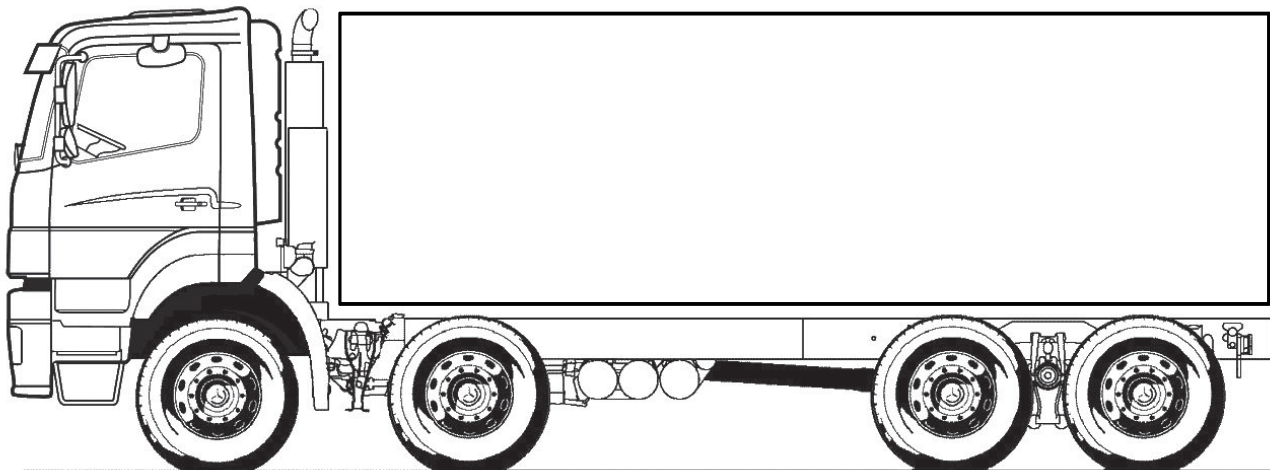
Drawing No  
SL02

## Appendix C

Three Axle Tipper Lorry Approx length 8 metres

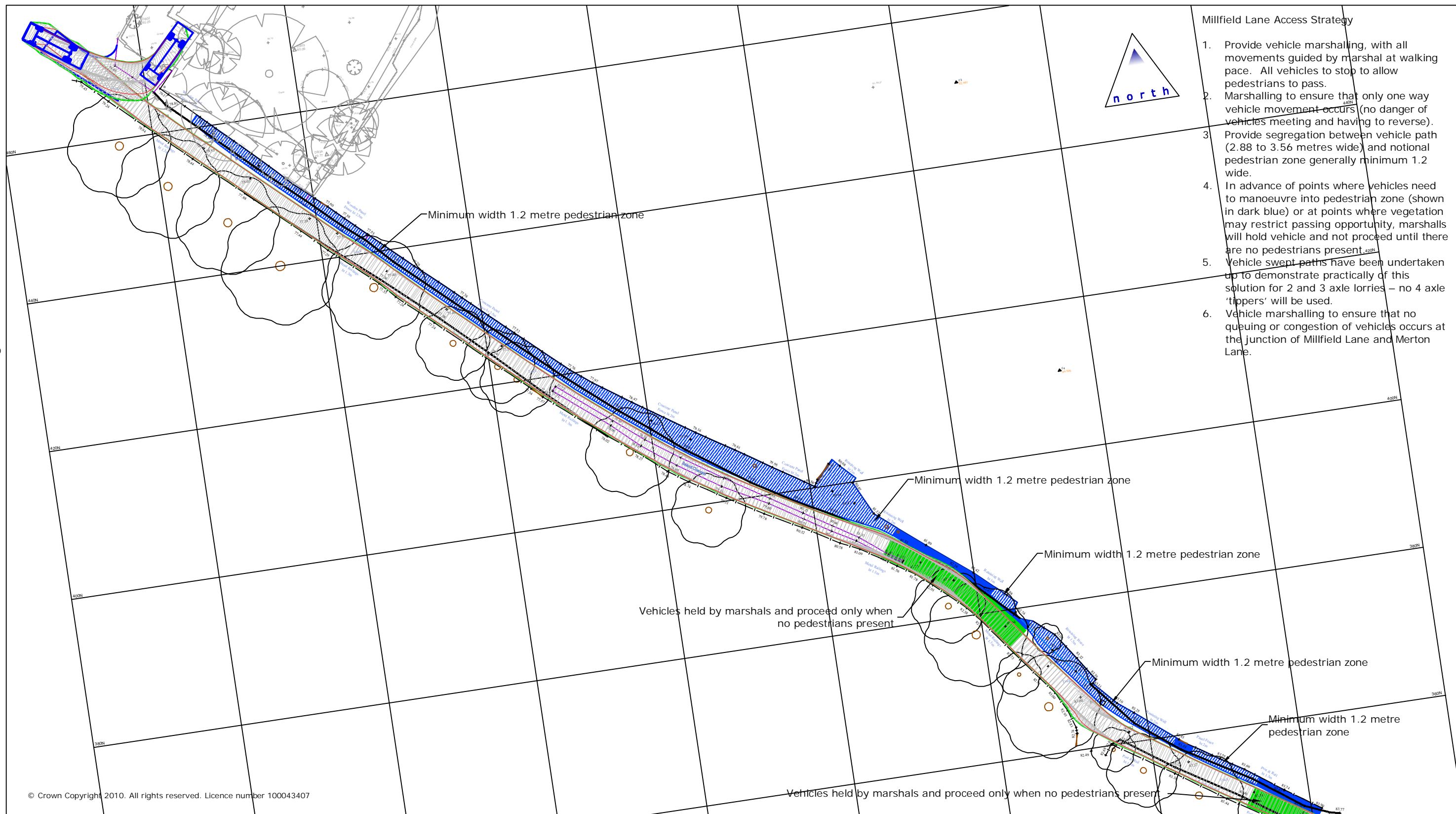


Four Axle Tipper Lorry Approx Length 9 metres



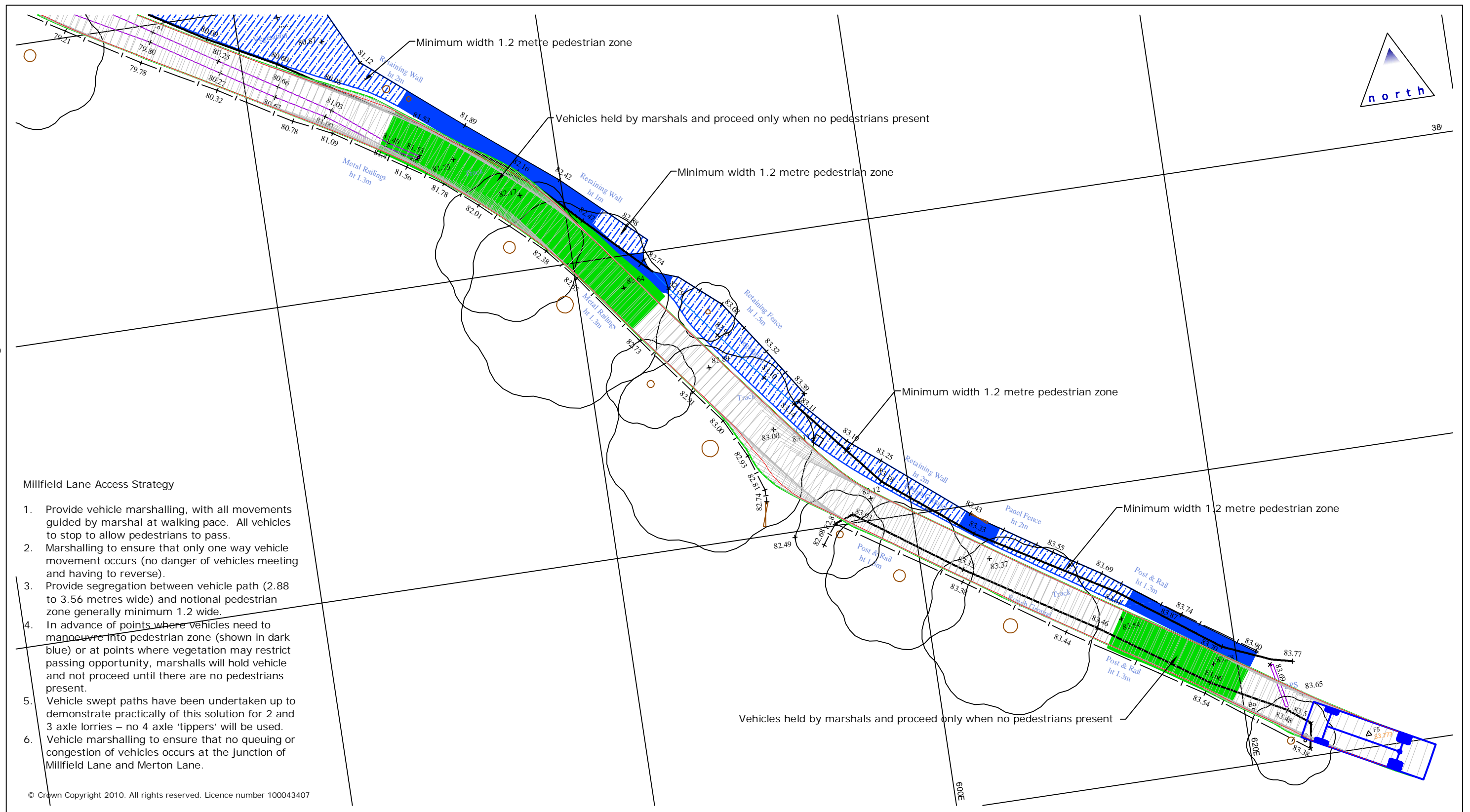
## Appendix D

N:\London\_CAD\shwate 100702-TK01c, TK02c, TK03a, TK04, TK05a, TK06a, TK07, TK08.dwg



Millfield Lane Access Strategy

1. Provide vehicle marshalling, with all movements guided by marshal at walking pace. All vehicles to stop to allow pedestrians to pass.
2. Marshalling to ensure that only one way vehicle movement occurs (no danger of vehicles meeting and having to reverse).
3. Provide segregation between vehicle path (2.88 to 3.56 metres wide) and notional pedestrian zone generally minimum 1.2 wide.
4. In advance of points where vehicles need to manoeuvre into pedestrian zone (shown in dark blue) or at points where vegetation may restrict passing opportunity, marshalls will hold vehicle and not proceed until there are no pedestrians present.
5. Vehicle swept paths have been undertaken up to demonstrate practically of this solution for 2 and 3 axle lorries – no 4 axle 'tipper' will be used.
6. Vehicle marshalling to ensure that no queuing or congestion of vehicles occurs at the junction of Millfield Lane and Merton Lane.



#### Millfield Lane Access Strategy

1. Provide vehicle marshalling, with all movements guided by marshal at walking pace. All vehicles to stop to allow pedestrians to pass.
2. Marshalling to ensure that only one way vehicle movement occurs (no danger of vehicles meeting and having to reverse).
3. Provide segregation between vehicle path (2.88 to 3.56 metres wide) and notional pedestrian zone generally minimum 1.2 wide.
4. In advance of points where vehicles need to manoeuvre into pedestrian zone (shown in dark blue) or at points where vegetation may restrict passing opportunity, marshalls will hold vehicle and not proceed until there are no pedestrians present.
5. Vehicle swept paths have been undertaken up to demonstrate practically of this solution for 2 and 3 axle lorries – no 4 axle 'tippers' will be used.
6. Vehicle marshalling to ensure that no queuing or congestion of vehicles occurs at the junction of Millfield Lane and Merton Lane.

© Crown Copyright 2010. All rights reserved. Licence number 100043407



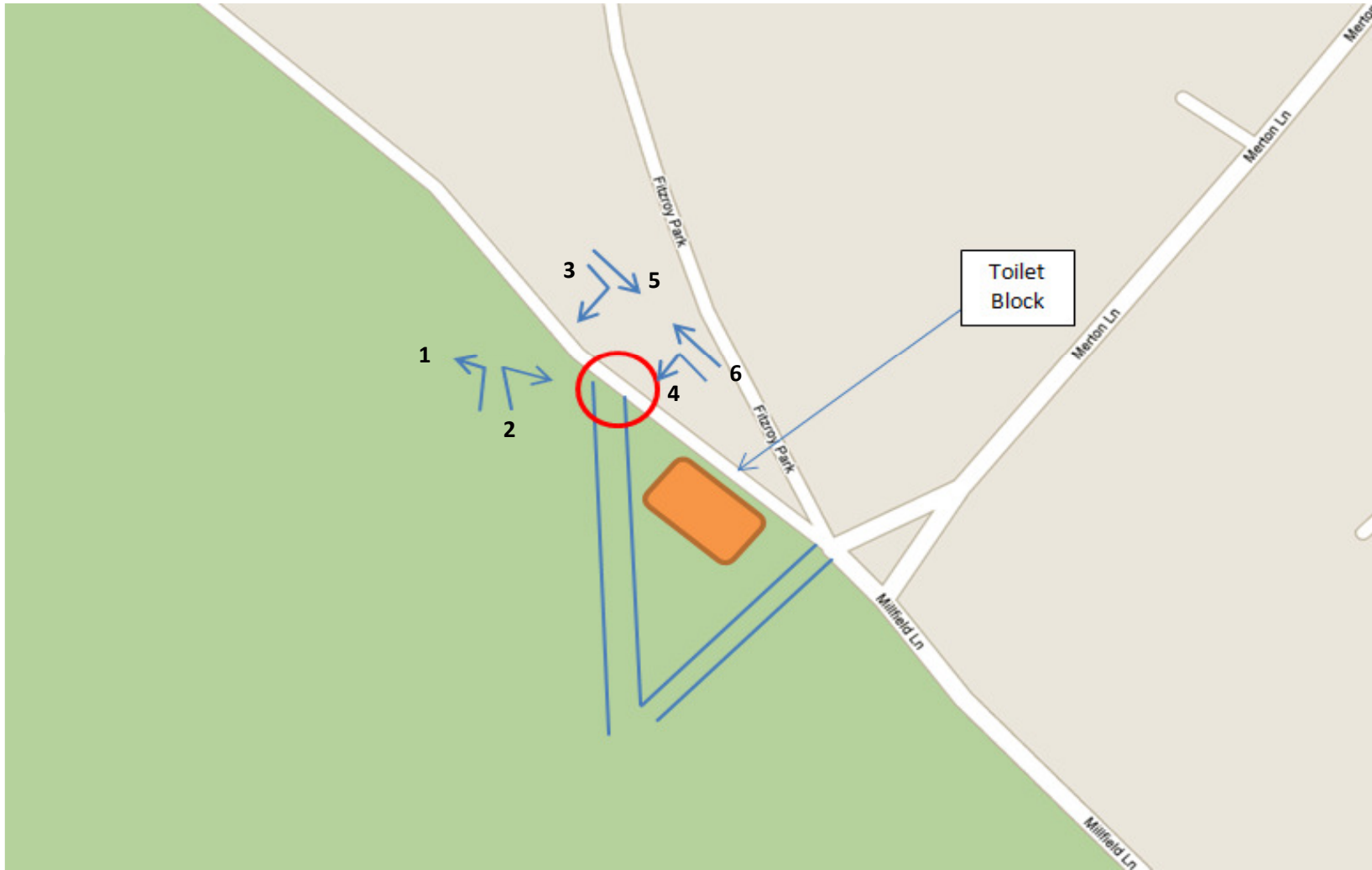
## Appendix E

# K&M TRAFFIC SURVEYS

DATE : 7th APRIL 2011

DAY : THURSDAY

LOCATION : HIGHGATE PONDS, MILLFIELD LANE



# K&M TRAFFIC SURVEYS

DATE : 7th APRIL 2011

DAY : THURSDAY

LOCATION : HIGHGATE PONDS, MILLFIELD LANE

MOVEMENT							
1							
			DOG WALKERS		VEHICLES		
	PED	PED & PRAM	PCYCLE	PED	DOGS	TYPE OF VEH	TOTAL VEHS
							TOTAL MVTS
0800-0815	10	0	0	0	0		10
0815-0830	2	0	0	5	4		11
0830-0845	5	0	0	2	1		8
0845-0900	4	0	0	1	2		7
0900-0915	5	0	0	3	3		11
0915-0930	8	0	0	3	3		14
0930-0945	3	0	0	1	1		5
0945-1000	7	1	0	0	0		8
1000-1015	2	0	0	4	4		10
1015-1030	4	0	0	4	3		11
1030-1045	2	0	0	5	3		10
1045-1100	1	0	0	2	1		4
1100-1115	4	0	0	0	0		4
1115-1130	3	1	0	1	1		6
1130-1145	6	0	0	0	0		6
1145-1200	6	0	0	0	0		6
1200-1215	3	0	0	0	0		3
1215-1230	1	0	0	0	0		1
1230-1245	5	1	1	0	0		7
1245-1300	1	0	0	3	4		8
1300-1315	6	0	0	0	0		6
1315-1330	11	0	0	1	1		13
1330-1345	4	0	0	0	0		4
1345-1400	7	0	0	0	0		7
1400-1415	7	0	1	3	1		12
1415-1430	0	0	0	0	0		0
1430-1445	4	0	0	2	1		7
1445-1500	21	0	1	0	0		22
1500-1515	3	0	0	0	0		3
1515-1530	4	0	0	0	0		4
1530-1545	5	0	0	0	0		5
1545-1600	4	0	0	0	0		4
1600-1615	6	0	0	0	0		6
1615-1630	5	0	0	5	5		15
1630-1645	12	1	0	0	0		13
1645-1700	8	0	1	0	0		9
1700-1715	5	0	0	0	0		5
1715-1730	8	0	0	0	0		8
1730-1745	6	0	3	0	0		9
1745-1800	2	0	0	0	0		2
<b>0800-1800</b>	<b>210</b>	<b>4</b>	<b>7</b>	<b>45</b>	<b>38</b>	<b>0</b>	<b>304</b>

# K&M TRAFFIC SURVEYS

DATE : 7th APRIL 2011

DAY : THURSDAY

LOCATION : HIGHGATE PONDS, MILLFIELD LANE

MOVEMENT							
1							
			DOG WALKERS		VEHICLES		
	PED	PED & PRAM	PCYCLE	PED	DOGS	TYPE OF VEH	TOTAL VEHS
							TOTAL MVTS
0800-0900	21	0	0	8	7		0
0815-0915	16	0	0	11	10		0
0830-0930	22	0	0	9	9		0
0845-0945	20	0	0	8	9		0
0900-1000	23	1	0	7	7		0
0915-1015	20	1	0	8	8		0
0930-1030	16	1	0	9	8		0
0945-1045	15	1	0	13	10		0
1000-1100	9	0	0	15	11		0
1015-1115	11	0	0	11	7		0
1030-1130	10	1	0	8	5		0
1045-1145	14	1	0	3	2		0
1100-1200	19	1	0	1	1		0
1115-1215	18	1	0	1	1		0
1130-1230	16	0	0	0	0		0
1145-1245	15	1	1	0	0		0
1200-1300	10	1	1	3	4		0
1215-1315	13	1	1	3	4		0
1230-1330	23	1	1	4	5		0
1245-1345	22	0	0	4	5		0
1300-1400	28	0	0	1	1		0
1315-1415	29	0	1	4	2		0
1330-1430	18	0	1	3	1		0
1345-1445	18	0	1	5	2		0
1400-1500	32	0	2	5	2		0
1415-1515	28	0	1	2	1		0
1430-1530	32	0	1	2	1		0
1445-1545	33	0	1	0	0		0
1500-1600	16	0	0	0	0		0
1515-1615	19	0	0	0	0		0
1530-1630	20	0	0	5	5		0
1545-1645	27	1	0	5	5		0
1600-1700	31	1	1	5	5		0
1615-1715	30	1	1	5	5		0
1630-1730	33	1	1	0	0		0
1645-1745	27	0	4	0	0		0
1700-1800	21	0	3	0	0		0

# K&M TRAFFIC SURVEYS

DATE : 7th APRIL 2011

DAY : THURSDAY

LOCATION : HIGHGATE PONDS, MILLFIELD LANE

	MOVEMENT						
	2						
				DOG WALKERS		VEHICLES	
	PED	PED & PRAM	PCYCLE	PED	DOGS	TYPE OF VEH	TOTAL VEHS
							TOTAL MVTS
0800-0815	0	0	0	0	0		0
0815-0830	0	0	0	0	0		0
0830-0845	0	0	0	0	0		0
0845-0900	0	0	0	0	0		0
0900-0915	0	0	0	0	0		0
0915-0930	0	0	0	0	0		0
0930-0945	0	0	0	0	0		0
0945-1000	0	0	0	0	0		0
1000-1015	0	0	0	0	0		0
1015-1030	0	0	0	0	0		0
1030-1045	0	0	0	0	0		0
1045-1100	0	0	0	0	0		0
1100-1115	0	0	0	0	0		0
1115-1130	0	0	0	0	0		0
1130-1145	0	0	0	0	0		0
1145-1200	0	0	0	0	0		0
1200-1215	0	0	0	0	0		0
1215-1230	0	0	0	0	0		0
1230-1245	0	0	0	0	0		0
1245-1300	0	0	0	0	0		0
1300-1315	0	0	0	0	0		0
1315-1330	0	0	0	0	0		0
1330-1345	0	0	0	0	0		0
1345-1400	0	0	0	0	0		0
1400-1415	0	0	0	0	0		0
1415-1430	1	0	0	0	0		1
1430-1445	0	0	0	0	0		0
1445-1500	0	0	0	0	0		0
1500-1515	0	0	0	1	4		5
1515-1530	0	0	0	0	0		0
1530-1545	0	0	0	0	0		0
1545-1600	0	0	0	0	0		0
1600-1615	0	0	0	0	0		0
1615-1630	0	0	0	0	0		0
1630-1645	0	0	0	0	0		0
1645-1700	0	0	0	0	0		0
1700-1715	0	0	0	0	0		0
1715-1730	0	0	0	0	0		0
1730-1745	0	0	0	0	0		0
1745-1800	0	0	0	0	0		0
<b>0800-1800</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>4</b>		<b>0</b>
							<b>6</b>

# K&M TRAFFIC SURVEYS

DATE : 7th APRIL 2011

DAY : THURSDAY

LOCATION : HIGHGATE PONDS, MILLFIELD LANE

	MOVEMENT							
	2							
				DOG WALKERS		VEHICLES		
	PED	PED & PRAM	PCYCLE	PED	DOGS	TYPE OF VEH	TOTAL VEHS	TOTAL MVTS
0800-0900	0	0	0	0	0		0	0
0815-0915	0	0	0	0	0		0	0
0830-0930	0	0	0	0	0		0	0
0845-0945	0	0	0	0	0		0	0
0900-1000	0	0	0	0	0		0	0
0915-1015	0	0	0	0	0		0	0
0930-1030	0	0	0	0	0		0	0
0945-1045	0	0	0	0	0		0	0
1000-1100	0	0	0	0	0		0	0
1015-1115	0	0	0	0	0		0	0
1030-1130	0	0	0	0	0		0	0
1045-1145	0	0	0	0	0		0	0
1100-1200	0	0	0	0	0		0	0
1115-1215	0	0	0	0	0		0	0
1130-1230	0	0	0	0	0		0	0
1145-1245	0	0	0	0	0		0	0
1200-1300	0	0	0	0	0		0	0
1215-1315	0	0	0	0	0		0	0
1230-1330	0	0	0	0	0		0	0
1245-1345	0	0	0	0	0		0	0
1300-1400	0	0	0	0	0		0	0
1315-1415	0	0	0	0	0		0	0
1330-1430	1	0	0	0	0		0	1
1345-1445	1	0	0	0	0		0	1
1400-1500	1	0	0	0	0		0	1
1415-1515	1	0	0	1	4		0	6
1430-1530	0	0	0	1	4		0	5
1445-1545	0	0	0	1	4		0	5
1500-1600	0	0	0	1	4		0	5
1515-1615	0	0	0	0	0		0	0
1530-1630	0	0	0	0	0		0	0
1545-1645	0	0	0	0	0		0	0
1600-1700	0	0	0	0	0		0	0
1615-1715	0	0	0	0	0		0	0
1630-1730	0	0	0	0	0		0	0
1645-1745	0	0	0	0	0		0	0
1700-1800	0	0	0	0	0		0	0

# K&M TRAFFIC SURVEYS

DATE : 7th APRIL 2011

DAY : THURSDAY

LOCATION : HIGHGATE PONDS, MILLFIELD LANE

MOVEMENT							
3							
			DOG WALKERS		VEHICLES		
	PED	PED & PRAM	PCYCLE	PED	DOGS	TYPE OF VEH	TOTAL VEHS
							TOTAL MVTS
0800-0815	2	0	0	0	0		2
0815-0830	5	0	0	0	0		5
0830-0845	3	0	0	1	2		6
0845-0900	3	0	1	0	0		4
0900-0915	6	0	0	0	0		6
0915-0930	4	0	0	1	1		6
0930-0945	2	0	0	2	2		6
0945-1000	1	0	0	0	0		1
1000-1015	3	0	0	0	0		3
1015-1030	5	0	0	0	0		5
1030-1045	1	0	0	0	0		1
1045-1100	5	0	0	1	2		8
1100-1115	5	0	0	0	0		5
1115-1130	2	1	0	0	0		3
1130-1145	1	1	1	0	0		3
1145-1200	3	0	0	0	0		3
1200-1215	2	0	0	2	1		5
1215-1230	1	0	0	2	2		5
1230-1245	3	0	0	0	0		3
1245-1300	3	0	0	0	0		3
1300-1315	3	0	0	0	0		3
1315-1330	4	0	0	1	3		8
1330-1345	4	2	0	2	3		11
1345-1400	1	1	0	0	0		2
1400-1415	6	0	0	0	0		6
1415-1430	3	0	0	0	0		3
1430-1445	5	0	0	0	0		5
1445-1500	4	0	0	1	1		6
1500-1515	5	0	0	0	0		5
1515-1530	5	0	0	0	0		5
1530-1545	7	0	0	0	0		7
1545-1600	20	1	0	0	0		21
1600-1615	11	1	1	1	1		15
1615-1630	7	0	0	0	0		7
1630-1645	5	0	0	0	0		5
1645-1700	9	0	0	0	0		9
1700-1715	0	0	0	0	0		0
1715-1730	0	0	0	0	0		0
1730-1745	6	0	1	0	0		7
1745-1800	3	0	0	0	0		3
0800-1800	168	7	4	14	18		0
							211

# K&M TRAFFIC SURVEYS

DATE : 7th APRIL 2011

DAY : THURSDAY

LOCATION : HIGHGATE PONDS, MILLFIELD LANE

	MOVEMENT							
	3							
				DOG WALKERS		VEHICLES		
	PED	PED & PRAM	PCYCLE	PED	DOGS	TYPE OF VEH	TOTAL VEHS	TOTAL MVTS
0800-0900	13	0	1	1	2		0	17
0815-0915	17	0	1	1	2		0	21
0830-0930	16	0	1	2	3		0	22
0845-0945	15	0	1	3	3		0	22
0900-1000	13	0	0	3	3		0	19
0915-1015	10	0	0	3	3		0	16
0930-1030	11	0	0	2	2		0	15
0945-1045	10	0	0	0	0		0	10
1000-1100	14	0	0	1	2		0	17
1015-1115	16	0	0	1	2		0	19
1030-1130	13	1	0	1	2		0	17
1045-1145	13	2	1	1	2		0	19
1100-1200	11	2	1	0	0		0	14
1115-1215	8	2	1	2	1		0	14
1130-1230	7	1	1	4	3		0	16
1145-1245	9	0	0	4	3		0	16
1200-1300	9	0	0	4	3		0	16
1215-1315	10	0	0	2	2		0	14
1230-1330	13	0	0	1	3		0	17
1245-1345	14	2	0	3	6		0	25
1300-1400	12	3	0	3	6		0	24
1315-1415	15	3	0	3	6		0	27
1330-1430	14	3	0	2	3		0	22
1345-1445	15	1	0	0	0		0	16
1400-1500	18	0	0	1	1		0	20
1415-1515	17	0	0	1	1		0	19
1430-1530	19	0	0	1	1		0	21
1445-1545	21	0	0	1	1		0	23
1500-1600	37	1	0	0	0		0	38
1515-1615	43	2	1	1	1		0	48
1530-1630	45	2	1	1	1		0	50
1545-1645	43	2	1	1	1		0	48
1600-1700	32	1	1	1	1		0	36
1615-1715	21	0	0	0	0		0	21
1630-1730	14	0	0	0	0		0	14
1645-1745	15	0	1	0	0		0	16
1700-1800	9	0	1	0	0		0	10

## K&M TRAFFIC SURVEYS

DATE : 7th APRIL 2011

DAY : THURSDAY

LOCATION : HIGHGATE PONDS, MILLFIELD LANE

	MOVEMENT							
	4							
				DOG WALKERS		VEHICLES		
	PED	PED & PRAM	PCYCLE	PED	DOGS	TYPE OF VEH	TOTAL VEHS	TOTAL MVTS
0800-0815	0	0	0	0	0			0
0815-0830	0	0	0	0	0			0
0830-0845	0	0	0	0	0			0
0845-0900	0	0	0	0	0			0
0900-0915	0	0	0	0	0			0
0915-0930	0	0	0	0	0			0
0930-0945	0	0	0	0	0			0
0945-1000	0	0	0	0	0			0
1000-1015	0	0	0	0	0			0
1015-1030	0	0	0	0	0			0
1030-1045	0	0	0	0	0			0
1045-1100	0	0	0	0	0			0
1100-1115	0	0	0	0	0			0
1115-1130	0	0	0	0	0			0
1130-1145	0	0	0	0	0			0
1145-1200	0	0	0	0	0			0
1200-1215	0	0	0	0	0			0
1215-1230	0	0	0	0	0			0
1230-1245	0	0	0	0	0			0
1245-1300	0	0	0	0	0			0
1300-1315	0	0	0	0	0			0
1315-1330	0	0	0	0	0			0
1330-1345	0	0	0	0	0			0
1345-1400	0	0	0	0	0			0
1400-1415	0	0	0	0	0			0
1415-1430	0	0	0	0	0			0
1430-1445	0	0	0	0	0			0
1445-1500	0	0	0	0	0			0
1500-1515	0	0	0	0	0			0
1515-1530	0	0	0	0	0			0
1530-1545	0	0	0	0	0			0
1545-1600	0	0	0	0	0			0
1600-1615	0	0	0	0	0			0
1615-1630	0	0	0	0	0			0
1630-1645	0	0	0	0	0			0
1645-1700	0	0	0	0	0			0
1700-1715	0	0	0	0	0			0
1715-1730	0	0	0	0	0			0
1730-1745	0	0	0	0	0			0
1745-1800	0	0	0	0	0			0
0800-1800	0	0	0	0	0	0		0

# K&M TRAFFIC SURVEYS

DATE : 7th APRIL 2011

DAY : THURSDAY

LOCATION : HIGHGATE PONDS, MILLFIELD LANE

	MOVEMENT							
	4							
				DOG WALKERS		VEHICLES		
	PED	PED & PRAM	PCYCLE	PED	DOGS	TYPE OF VEH	TOTAL VEHS	TOTAL MVTS
0800-0900	0	0	0	0	0		0	0
0815-0915	0	0	0	0	0		0	0
0830-0930	0	0	0	0	0		0	0
0845-0945	0	0	0	0	0		0	0
0900-1000	0	0	0	0	0		0	0
0915-1015	0	0	0	0	0		0	0
0930-1030	0	0	0	0	0		0	0
0945-1045	0	0	0	0	0		0	0
1000-1100	0	0	0	0	0		0	0
1015-1115	0	0	0	0	0		0	0
1030-1130	0	0	0	0	0		0	0
1045-1145	0	0	0	0	0		0	0
1100-1200	0	0	0	0	0		0	0
1115-1215	0	0	0	0	0		0	0
1130-1230	0	0	0	0	0		0	0
1145-1245	0	0	0	0	0		0	0
1200-1300	0	0	0	0	0		0	0
1215-1315	0	0	0	0	0		0	0
1230-1330	0	0	0	0	0		0	0
1245-1345	0	0	0	0	0		0	0
1300-1400	0	0	0	0	0		0	0
1315-1415	0	0	0	0	0		0	0
1330-1430	0	0	0	0	0		0	0
1345-1445	0	0	0	0	0		0	0
1400-1500	0	0	0	0	0		0	0
1415-1515	0	0	0	0	0		0	0
1430-1530	0	0	0	0	0		0	0
1445-1545	0	0	0	0	0		0	0
1500-1600	0	0	0	0	0		0	0
1515-1615	0	0	0	0	0		0	0
1530-1630	0	0	0	0	0		0	0
1545-1645	0	0	0	0	0		0	0
1600-1700	0	0	0	0	0		0	0
1615-1715	0	0	0	0	0		0	0
1630-1730	0	0	0	0	0		0	0
1645-1745	0	0	0	0	0		0	0
1700-1800	0	0	0	0	0		0	0

# K&M TRAFFIC SURVEYS

DATE : 7th APRIL 2011

DAY : THURSDAY

LOCATION : HIGHGATE PONDS, MILLFIELD LANE

MOVEMENT							
5							
			DOG WALKERS		VEHICLES		
	PED	PED & PRAM	PCYCLE	PED	DOGS	TYPE OF VEH	TOTAL VEHS
							TOTAL MVTs
0800-0815	1	0	0	0	0		1
0815-0830	1	0	1	0	0		2
0830-0845	1	0	1	2	2		6
0845-0900	0	0	3	0	0		3
0900-0915	1	0	2	0	0		3
0915-0930	3	0	1	1	1		6
0930-0945	5	0	0	0	0		5
0945-1000	3	0	1	0	0		4
1000-1015	2	0	0	0	0		2
1015-1030	0	0	1	1	1		3
1030-1045	2	0	0	0	0	lgv	1
1045-1100	1	0	1	2	1	lgv	1
1100-1115	1	0	0	1	1		3
1115-1130	1	0	1	0	0		2
1130-1145	1	0	0	1	1		3
1145-1200	3	0	1	0	0		4
1200-1215	0	0	1	0	0	lgv	1
1215-1230	1	0	3	2	2	car	1
1230-1245	10	0	1	0	0		11
1245-1300	2	0	1	0	0		3
1300-1315	1	0	0	0	0		1
1315-1330	2	0	2	0	0		4
1330-1345	2	0	2	1	1		6
1345-1400	3	0	1	2	2		8
1400-1415	1	0	3	0	0		4
1415-1430	2	0	0	3	12		17
1430-1445	5	0	1	3	12	lgv	1
1445-1500	10	0	1	0	0		11
1500-1515	6	0	1	0	0	motorcycle	1
1515-1530	6	0	5	3	2		16
1530-1545	7	0	2	0	0	car	1
1545-1600	4	1	1	0	0		6
1600-1615	3	0	1	0	0		4
1615-1630	0	0	1	0	0		1
1630-1645	0	0	0	0	0		0
1645-1700	1	1	3	0	0		5
1700-1715	5	0	0	0	0		5
1715-1730	0	0	3	0	0		3
1730-1745	2	0	2	1	2		7
1745-1800	0	0	1	0	0		1
<b>0800-1800</b>	<b>99</b>	<b>2</b>	<b>49</b>	<b>23</b>	<b>40</b>		<b>7</b>
							<b>220</b>

# K&M TRAFFIC SURVEYS

DATE : 7th APRIL 2011

DAY : THURSDAY

LOCATION : HIGHGATE PONDS, MILLFIELD LANE

	MOVEMENT							
	5							
				DOG WALKERS		VEHICLES		
	PED	PED & PRAM	PCYCLE	PED	DOGS	TYPE OF VEH	TOTAL VEHS	TOTAL MVTS
0800-0900	3	0	5	2	2		0	12
0815-0915	3	0	7	2	2		0	14
0830-0930	5	0	7	3	3		0	18
0845-0945	9	0	6	1	1		0	17
0900-1000	12	0	4	1	1		0	18
0915-1015	13	0	2	1	1		0	17
0930-1030	10	0	2	1	1		0	14
0945-1045	7	0	2	1	1		1	12
1000-1100	5	0	2	3	2		2	14
1015-1115	4	0	2	4	3		2	15
1030-1130	5	0	2	3	2		2	14
1045-1145	4	0	2	4	3		1	14
1100-1200	6	0	2	2	2		0	12
1115-1215	5	0	3	1	1		1	11
1130-1230	5	0	5	3	3		2	18
1145-1245	14	0	6	2	2		2	26
1200-1300	13	0	6	2	2		2	25
1215-1315	14	0	5	2	2		1	24
1230-1330	15	0	4	0	0		0	19
1245-1345	7	0	5	1	1		0	14
1300-1400	8	0	5	3	3		0	19
1315-1415	8	0	8	3	3		0	22
1330-1430	8	0	6	6	15		0	35
1345-1445	11	0	5	8	26		1	51
1400-1500	18	0	5	6	24		1	54
1415-1515	23	0	3	6	24		2	58
1430-1530	27	0	8	6	14		2	57
1445-1545	29	0	9	3	2		2	45
1500-1600	23	1	9	3	2		2	40
1515-1615	20	1	9	3	2		1	36
1530-1630	14	1	5	0	0		1	21
1545-1645	7	1	3	0	0		0	11
1600-1700	4	1	5	0	0		0	10
1615-1715	6	1	4	0	0		0	11
1630-1730	6	1	6	0	0		0	13
1645-1745	8	1	8	1	2		0	20
1700-1800	7	0	6	1	2		0	16

# K&M TRAFFIC SURVEYS

DATE : 7th APRIL 2011

DAY : THURSDAY

LOCATION : HIGHGATE PONDS, MILLFIELD LANE

MOVEMENT							
6							
			DOG WALKERS		VEHICLES		
	PED	PED & PRAM	PCYCLE	PED	DOGS	TYPE OF VEH	TOTAL VEHS
							TOTAL MVTS
0800-0815	1	0	0	0	0		1
0815-0830	0	0	0	0	0	lgv	1
0830-0845	1	0	1	1	1		4
0845-0900	7	0	1	0	0		8
0900-0915	2	0	2	0	0		4
0915-0930	1	0	1	2	3	car / lgv	9
0930-0945	3	0	0	4	5		12
0945-1000	1	0	0	0	0		1
1000-1015	5	0	1	0	0		6
1015-1030	3	0	1	2	9		15
1030-1045	1	0	0	3	4	lgv	9
1045-1100	1	0	0	0	0		1
1100-1115	5	0	0	0	0		5
1115-1130	0	0	1	0	0		1
1130-1145	5	0	2	0	0		7
1145-1200	2	0	0	0	0	lgv	3
1200-1215	4	0	0	0	0	car	1
1215-1230	7	0	2	1	4		14
1230-1245	4	0	3	0	0		7
1245-1300	3	0	0	0	0		3
1300-1315	2	0	0	0	0		2
1315-1330	2	0	3	0	0		5
1330-1345	3	0	2	2	7	motorcycle	1
1345-1400	3	0	1	1	7		15
1400-1415	9	1	3	0	0		12
1415-1430	4	0	1	0	0	lgv	1
1430-1445	2	0	4	0	0		6
1445-1500	2	0	1	0	0		3
1500-1515	3	0	0	0	0		3
1515-1530	0	0	1	0	0		1
1530-1545	3	0	2	0	0		5
1545-1600	2	0	2	1	4		9
1600-1615	1	0	0	0	0		1
1615-1630	11	0	1	1	2		15
1630-1645	1	0	1	0	0		2
1645-1700	0	0	2	0	0		2
1700-1715	5	0	1	0	0		6
1715-1730	1	0	0	0	0		1
1730-1745	0	0	4	0	0	car	1
1745-1800	2	0	0	0	0	car / police car	1
<b>0800-1800</b>	<b>112</b>	<b>1</b>	<b>44</b>	<b>18</b>	<b>46</b>		<b>10</b>
							<b>231</b>

# K&M TRAFFIC SURVEYS

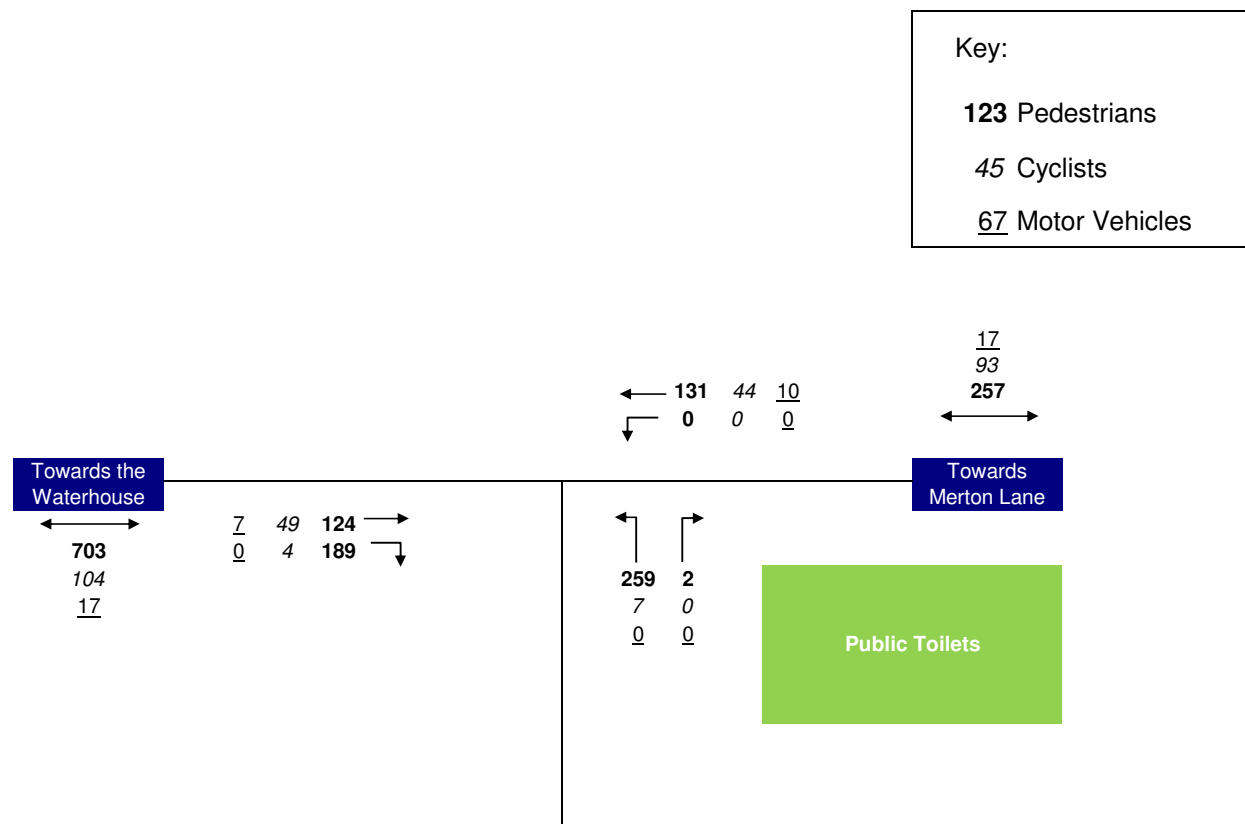
101

DATE : 7th APRIL 2011

DAY : THURSDAY

LOCATION : HIGHGATE PONDS, MILLFIELD LANE

MOVEMENT							
6							
			DOG WALKERS		VEHICLES		
	PED	PED & PRAM	PCYCLE	PED	DOGS	TYPE OF VEH	TOTAL VEHS
							TOTAL MVTS
0800-0900	9	0	2	1	1		14
0815-0915	10	0	4	1	1		17
0830-0930	11	0	5	3	4		25
0845-0945	13	0	4	6	8		33
0900-1000	7	0	3	6	8		26
0915-1015	10	0	2	6	8		28
0930-1030	12	0	2	6	14		34
0945-1045	10	0	2	5	13		31
1000-1100	10	0	2	5	13		31
1015-1115	10	0	1	5	13		30
1030-1130	7	0	1	3	4		16
1045-1145	11	0	3	0	0		14
1100-1200	12	0	3	0	0		16
1115-1215	11	0	3	0	0		16
1130-1230	18	0	4	1	4		29
1145-1245	17	0	5	1	4		29
1200-1300	18	0	5	1	4		29
1215-1315	16	0	5	1	4		26
1230-1330	11	0	6	0	0		17
1245-1345	10	0	5	2	7		25
1300-1400	10	0	6	3	14		34
1315-1415	17	1	9	3	14		45
1330-1430	19	1	7	3	14		46
1345-1445	18	1	9	1	7		37
1400-1500	17	1	9	0	0		28
1415-1515	11	0	6	0	0		18
1430-1530	7	0	6	0	0		13
1445-1545	8	0	4	0	0		12
1500-1600	8	0	5	1	4		18
1515-1615	6	0	5	1	4		16
1530-1630	17	0	5	2	6		30
1545-1645	15	0	4	2	6		27
1600-1700	13	0	4	1	2		20
1615-1715	17	0	5	1	2		25
1630-1730	7	0	4	0	0		11
1645-1745	6	0	7	0	0		14
1700-1800	8	0	5	0	0		15

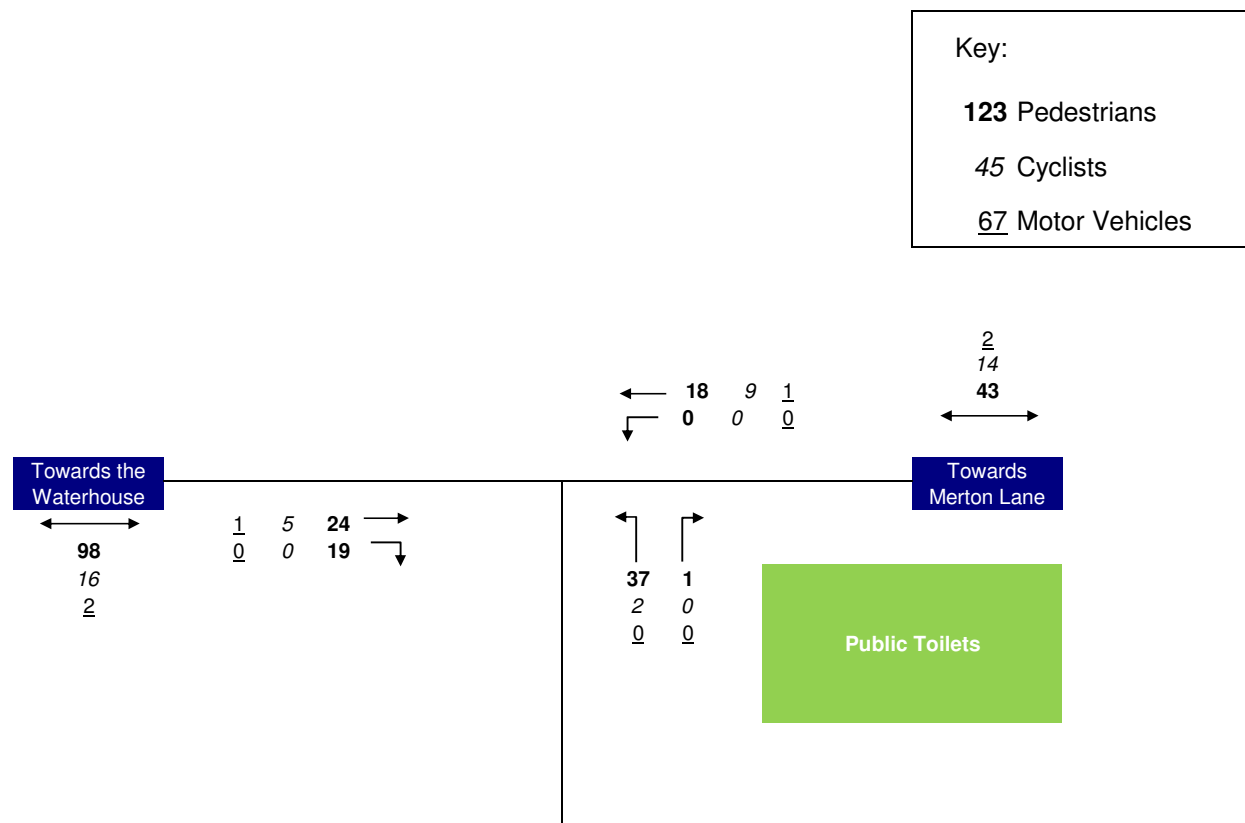


**motion**  
transport planning

Thursday 7 April 2011 - Millfield Lane Pedestrian Counts

Total Count 0800 - 1800

**Figure No. 1**

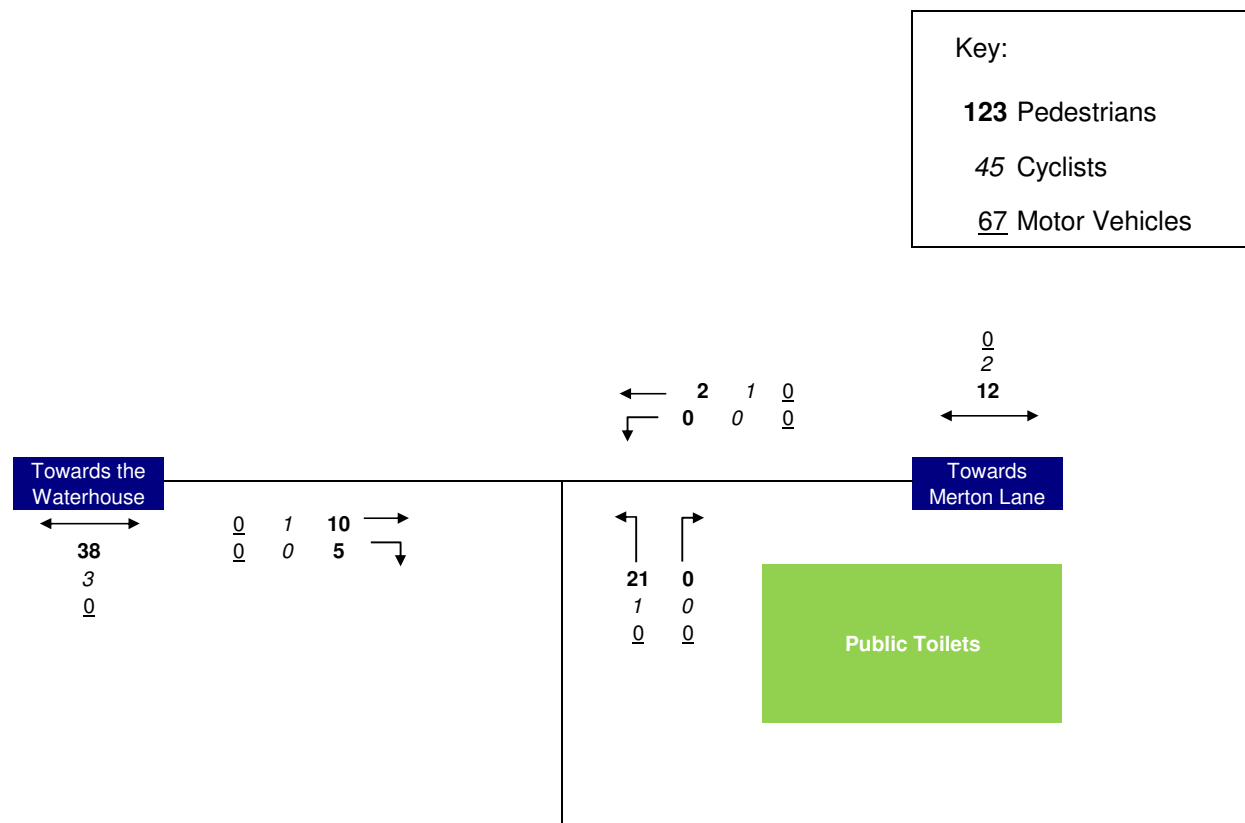


**motion**  
transport planning

Thursday 7 April 2011 - Millfield Lane Pedestrian Counts

Peak Hour Count 1400 - 1500

**Figure No. 2**



**motion**  
transport planning

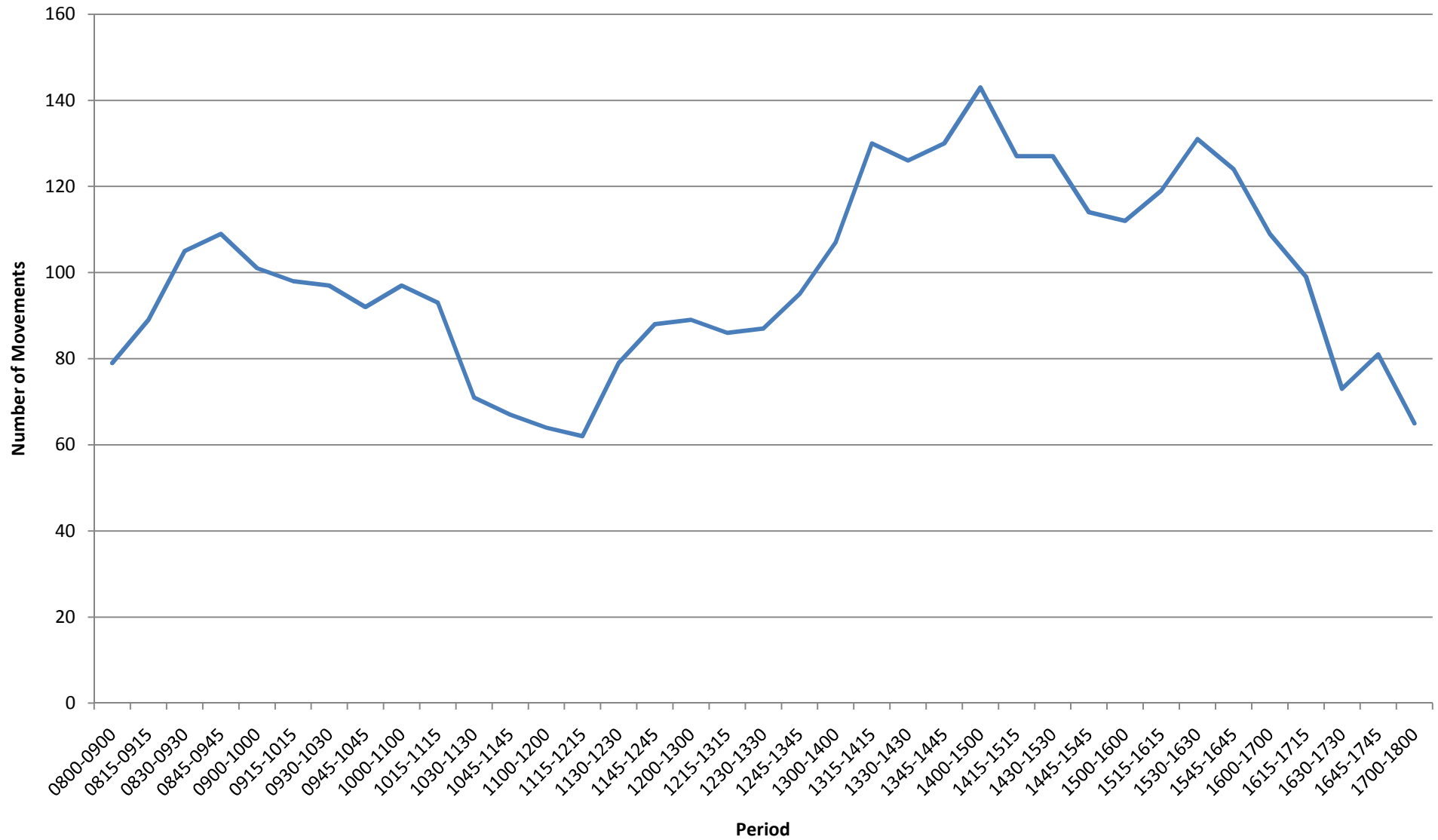
Thursday 7 April 2011 - Millfield Lane Pedestrian Counts

Peak 15 Minute Count 1445 - 1500

**Figure No. 3**

## Profile of Hourly movement on Millfield Lane 07 April 2011

(Pedestrains, cyclists, dogs and vehicles)



## Appendix F

## INDICATIVE CROSS SECTION OF LANE

