Make Architects

92 Fitzjohn's Avenue

Construction Management Plan

Report Ref 225590-REP-CMP-001

26th February 2013 |

Job number 225590-00

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Document Verification

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[HELP1]

Job title		92 Fitzjohn's Avenue		**Job number**	225590-00
Document title		Construction Management Plan		**File reference**	
Document ref		Report Ref 225590-REP-CMP-001			
Revision	**Date**	**Filename**	Document1		
Draft 1	20 Sep 2012	**Description**	First draft		
			Prepared by	Checked by	Approved by
		Name	Paul Baldwin	Tom Honnywill	
		Signature			
Draft 2	11 Jan 2013	**Filename**	92 Fitzjohns Ave draft CMP[rev01]		
		Description	CMP revised following redesign		
			Prepared by	Checked by	Approved by
		Name	Paul Baldwin	Tom Honnywill	
		Signature			
Rev 2	23 Jan 2013	**Filename**	92 Fitzjohns Ave draft CMP[rev02]		
		Description	CMP revised following comments		
			Prepared by	Checked by	Approved by
		Name	Paul Baldwin	Tom Honnywill	
		Signature			
Rev 3	26 Feb 2013	**Filename**	92 Fitzjohns Ave CMP[rev03]		
		Description	CMP revised following change in layout and levels		
			Prepared by	Checked by	Approved by
		Name	Paul Baldwin	Tom Honnywill	
		Signature			
				Issue Document Verification with Document	✓

Contents

1 Introduction

The purpose of this document is to provide a Construction Management Plan (CMP) for the development at 92 Fitzjohn's Avenue, London NW3 6NP. It is intended the CMP will outline how, based on the current design, the construction phase of the development can be managed in order to mitigate the potential impacts of the works on both neighbours and surrounding road network. The CMP must be complied with unless otherwise agreed with the Council. The project manager overseeing the works shall work proactively with the Council and relevant parties to ensure, where possible, problems relating to construction do not arise. During the course of the works the project manager shall review and if necessary make amendments to this CMP to address any issues that may arise. Any future revised plan must be approved in writing by the Council and complied with thereafter.

London Borough of Camden require Construction Management Plans where developments are on constrained sites, in close proximity to schools or care homes, when the construction process will take place over a number of months and where there is very narrow or restricted site access. All of the above conditions apply to the development at 92 Fitzjohn's Avenue which in broad terms includes the demolition of an existing building and construction of a new residential property with new landscaping.

This Construction Management Plan has been produced in accordance with Camden Planning Guidance CPG6: Amenity (in particular Section 8), along with Camden's Core Strategy Policy CS5 '*Managing the impact of growth and development*' and in particular development policies DP20 and DP26 ('*Movement of goods and materials*' and '*Managing the impact of development on occupiers and neighbours*' respectively).

The CMP is split into two elements. The first is focussed on controlling environmental impacts, e.g. air quality, dust and other emissions. The second element is traffic control with a view to minimising traffic disruption and avoiding dangerous situations for pedestrians and other road users.

2 Controlling Environmental Impacts

2.1 Significant Scheme Environmental Aspects

Location

The development at 92 Fitzjohn's Avenue is within a site bounded to the north by Greenhill apartment block, to the east by the Royal School Hampstead, to the south by Fitzjohn's Primary School, to the southwest by St Anthony's Preparatory School and to the west by Henderson Court Age UK Camden Resource Centre (see figure 1).

It is noted the Royal School Hampstead has been renamed North Bridge House Senior School. For the purpose of continuity with drawings and other reports the original name will be used in this document.

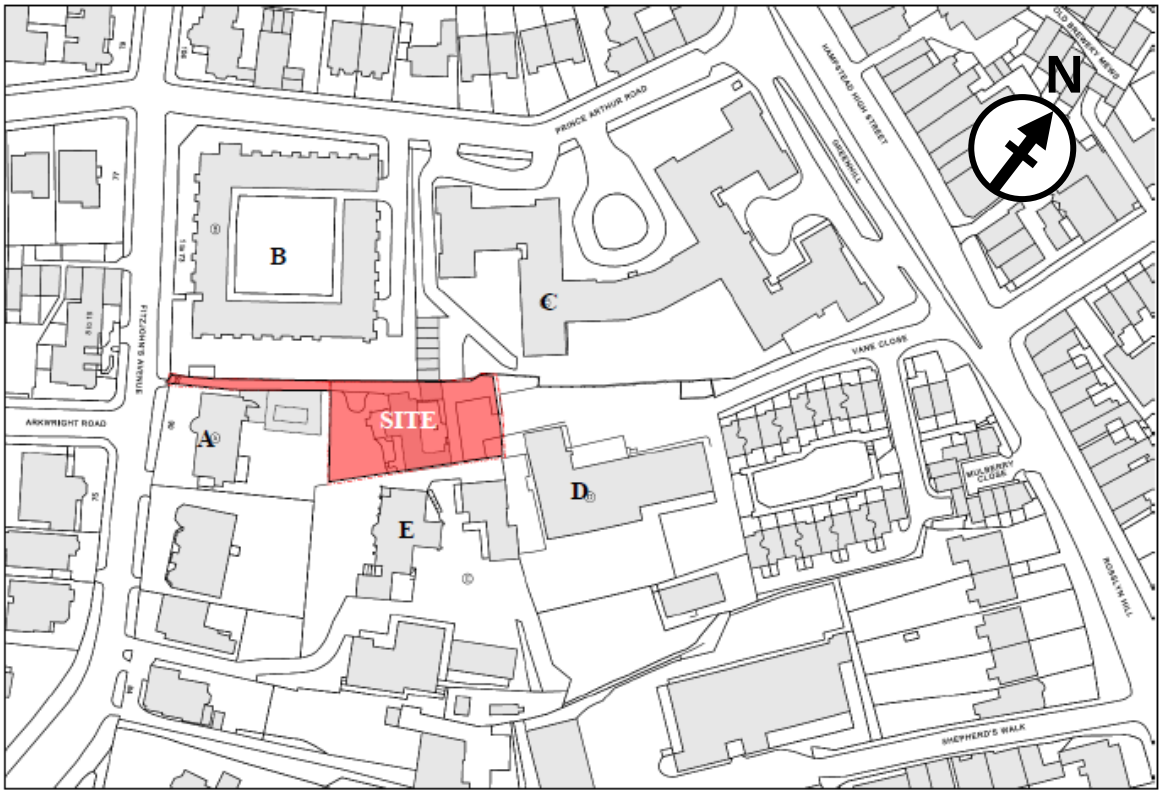


Fig.1 Location Plan: A- St Anthony's Preparatory School; B-Henderson Court; C-Greenhill (apartments);D-The Royal School Hampstead; E-Fitzjohn's Primary School

Access

The site is currently accessed by an existing private road from Fitzjohn's Avenue, close to its junction with Arkwright Road, and this will continue during the construction period.

There will also be the opportunity to access the site from the Royal School side via Vane Close. The extent of this access and details of the types of vehicles involved will be confirmed in the final CMP.

Demolition
The existing structures on the site comprise an L shaped two storey residential property and out houses. The development requires the removal of all structures along with hard and soft landscaping.

Perimeter Walls
To Henderson Court: The existing fence mounted on a low masonry wall will be retained and supported temporarily during construction of adjacent foundations.
To Greenhill: The existing masonry wall will be retained and supported temporarily during construction of adjacent structures.
To The Royal School: A new boundary will be created by construction of a reinforced concrete and masonry wall.
To Fitzjohn's Primary School: The current temporary retaining wall will be replaced with a new reinforced concrete and masonry wall incorporate bricks salvaged from the original wall following its collapse in Summer 2012 (where necessary this supply of brick will be augmented with salvaged bricks of a similar type – see Design and Access Statement for full details).
To St Anthony's School: The existing boundary will be replaced with a new masonry wall.

Excavation
The lower level ground floor accommodation will be formed by installing a perimeter wall founded on mini bored piles to two of its four sides. Generally the sides of the excavation within which the retaining wall is constructed will be battered back although may also be supported by sheetpiles when close to retained trees.
Superstructure
It is anticipated that, subject to final design, the above ground structures will comprise a steel frame with pre-cast concrete roof slab.

2.2 Significant Scheme Environmental Impacts

The aim of the contractor responsible for the works must be to minimise the environmental impact of the development on surrounding properties, neighbours and the local road network. To this end, and in addition to the measures outlined below, it is recommended they are part of the '**Considerate Constructors Scheme**' and works within London Borough of Camden's '**Guide to Contractors Working in Camden**'.

2.3 Significant Scheme Environmental Controls

This Construction Management Plan is intended to provide a framework upon which detail can be added, mainly due to there being aspects of the works that can

only be confirmed by detailed design and appointment of main contractor and specialist subcontractors (who may employ specialist techniques/equipment).

Given there are details concerning the development that are to be confirmed, the control measures listed below should be seen as minimum requirements.

2.3.1 Hours of Operation

To be agreed with LBC but generally seen as being in line with industry standards, namely:

8.00am-6.00pm Monday to Friday, and
8.00am-1.00pm Saturday.

Exceptional operations (such as crane erection / dismantle and delivery of key plant such as excavators) may take place outside of these hours and will be notified by the contractor's project manager. It is not expected there will be any works on Sundays or Bank Holidays although it is noted that, *as long as no planning conditions apply restricting actual working hours, Camden's Environmental Health Team would not object to the presence of workers on site outside these hours as long as they are only involved in quiet work* (LBC Guide to Contractors Working in Camden part 4.1).

2.3.2 Demolition

Particular attention will be paid to minimising noise and dust. Noise will be limited, where possible, by dismantling rather than breaking (which also promotes salvaging materials such as roof tiles, timber and bricks). The use of hydraulic crushers rather than percussive breakers will also minimise noise along with instructing plant operators not to drop loads from height. Damping down will be required during demolition of the existing structure to minimise dust.

2.3.3 Asbestos

There is the potential that asbestos will be present in the current property given its age and the fact it was extensively redeveloped in the post war period. Asbestos may be present in features such as chimney flues, central heating systems, floor/ceiling tiles and some types of thermo plastics (this is not an exhaustive list). The property and out buildings will therefore require a full asbestos survey prior to demolition, carried out in accordance with the Control of Asbestos Regulations 2012. Any asbestos removal that is necessary must also be carried out in accordance with current legislation.

2.3.4 Noise

The close proximity of the Henderson Court (Age UK Camden Resource Centre) means that noise will be a sensitive issue during the construction period. While the Council accepts that "*all construction and demolition work will cause at least some noise and disturbance*" (CPG6 Amenity, paragraph 8.2), the contractor is expected to use best practical means and work within the requirements of British

Standard BS 5228: Parts 1, 2 and 4 to minimise noise. This will include, although not limited to, using well maintained plant, using noise baffles especially to plant such as generators.
The contractor is expected to work with the adjoining schools to establish controls that significantly reduce any nuisance arising from noise during exam periods. This particularly applies to the Royal School Hampstead.

2.3.5 Contaminated Land Management

The area occupied by the development plot was given over to farming prior to construction of the late current Victorian villa. Therefore significant contamination is not expected on the site although this will need to be confirmed by investigation and/or inspection of excavated material as the works proceed.

2.3.6 Dust

As well as during the demolition phase dust will need to be controlled during general construction and in particular during landscaping. Dust is best controlled by good housekeeping within the site and minimising the area of exposed soil, especially during dry, windy weather.

2.3.7 Smoke

There will not be any burning on the site so smoke is not considered to be an issue.

2.3.8 Odour Control

This is not considered to be an issue. Certain types of waterproofing membranes that may be used to seal the low level ground slab may give rise to a requirement for odour control but this will need to be assessed as the design is developed.

2.3.9 Stability of Adjacent Properties

Foundation and Lower Ground designs are to include provision for temporary supports to the boundary walls during construction of the permanent structure. The current property within the development site has a garage built against the wall to Greenhill to the north and an elevation against the boundary to Fitzjohn's Primary School to the south. The contractor is expected to carry out an assessment of these adjacent structures prior to demolition.

The southern Fitzjohn's School boundary is currently supported up by a temporary retaining wall following the collapse of the original wall in summer 2012. This temporary structure will be replaced with a new retaining wall incorporating bricks salvaged from the original wall.

The constrained nature of the site means the contractor must ensure that any stockpiled material is not allowed to surcharge adjacent structures or boundary walls.

2.3.10 Vibration

It is not considered there will be any construction techniques employed that will result in excessive or prolonged vibration. The contractor will need to ensure vibration is kept to a minimum by avoiding dropping loads and ideally maintaining flat access ways for tracked vehicles (the movement of which can set up vibrations).

2.3.11 Protection of Listed Buildings

Fitzjohn's Primary School is a Grade 2 listed building and approximately 3m from the boundary to the new development. The contractor would be advised to undertake a photographic survey of this and all other adjacent structures prior to start of work.

2.3.12 Protection of Biodiversity and Trees

Refer to the arboricultural impact assessment report prepared by Messrs Landmark Trees.

2.3.13 Air Quality and Climate Change Considerations

The contractor will employ best practise to control dust emissions (see 2.3.6 above).
The contractor will also employ best practise to control PM10 and NOx emissions from vehicles and plant. This will include measures such as ensuring drivers/operators have appropriate training, using well maintained plant, switching off equipment when not in use, using mains electricity (with appropriate safety measures)for the site power supply rather than diesel generators.
These techniques will also assist in reducing CO2 emissions from construction vehicles.

3 Programme

Appendices 1 and 2 contain indicative information relating to the key construction phases required by the development and an outline construction programme, showing works starting in April 2013 and completed September 2014, is contained in Appendix 3.
I should be noted the final phasing and programme will be dependent on design, procurement and any constraints relating to start/end dates. Furthermore, some aspects of the works may need to be planned to coincide with school holidays.
For information the adjacent schools have posted the following regarding Easter and Summer holidays:-

Holiday	School	Start	Finish
Easter 2013	Royal School	22 Mar	10 Apr
	Fitzjohn's Primary	29 Mar	15 Apr
	St Anthony's School	27 Mar	23 Apr
Summer 2013	Royal School	11 Jul	4 Sept
	Fitzjohn's Primary	19 Jul	4 Sept
	St Anthony's School	10 Jul	5 Sep
Easter 2014	Royal School	2 Apr	24 Apr
	Fitzjohn's Primary	4 Apr	22 Apr
	St Anthony's School	28 Mar	24 Apr
Summer 2014	Royal School	10 Jul	
	Fitzjohn's Primary	23 Jul	
	St Anthony's School	11 Jul	

4 Controlling Highways Impacts

The development site is currently accessed from Fitzjohn's Avenue by a private road on the Henderson Court side of St Anthony's School and this will continue to be the point of access for the new property. For a period during the construction there may be the opportunity for construction vehicles to access the site via Vane Close and the Royal School to the east.

4.1 Access to the Development Site and Construction Vehicle Routing

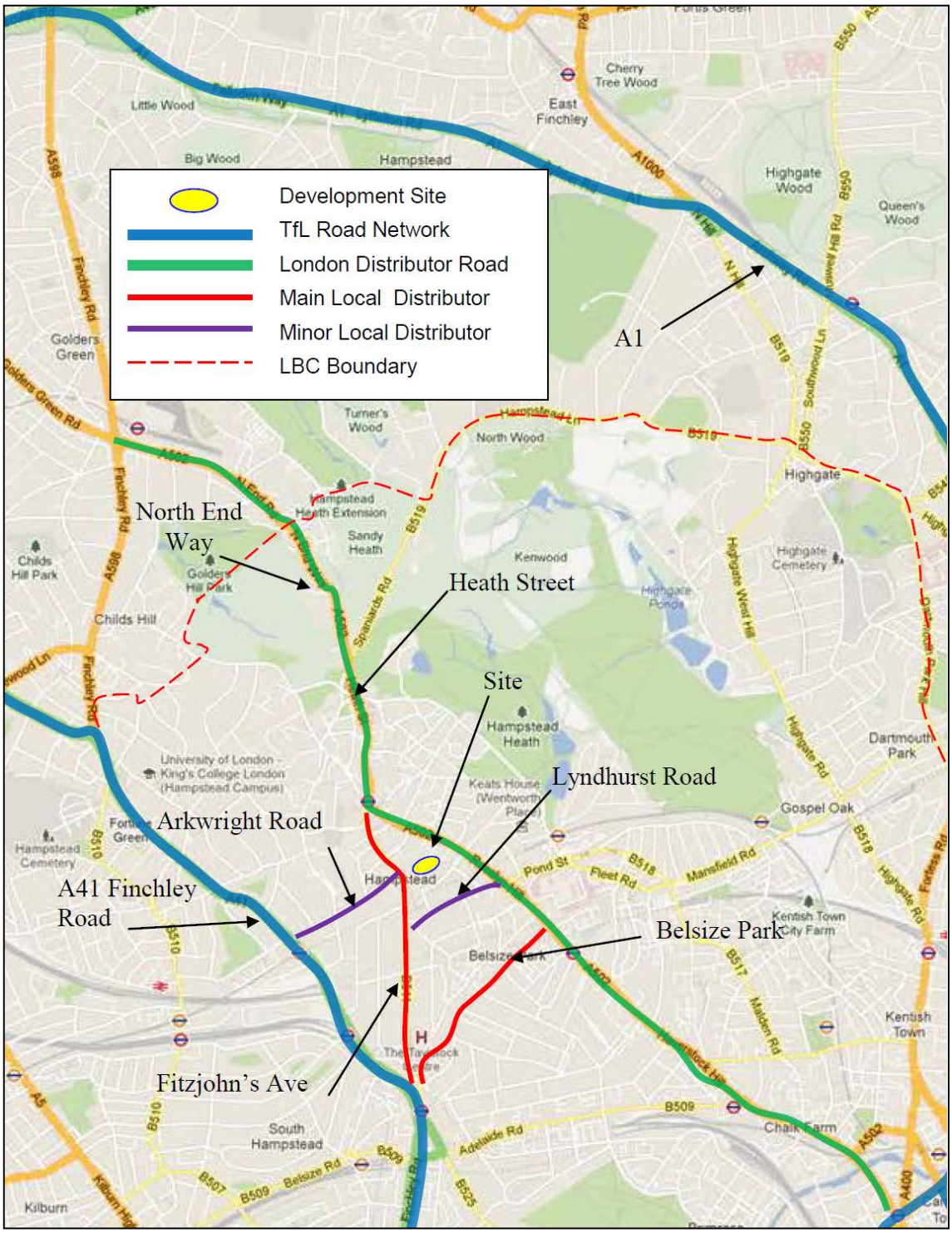
Figure 4 shows the proximity of the development site to Transport for London's (TfL) road network along with key London and local distributor roads. From this it can be seen that, at approximately 600m, the A41 Finchley Road is the closest TfL road if accessed using Arkwright Road (designated a Minor Local Distributor road by LBC). As an alternative to Arkwright Road and at a distance of 1.2km, construction traffic could access the site from the A41 at Swiss Cottage using the wider Fitzjohn's Avenue (designated a *Main* Local Distributor road by LBC).

The ability for larger delivery vehicles, such as concrete mixer trucks, to turn around within the site will not be available during the latter stages of construction. From this point larger vehicles will need to reverse into the site under the control of a banksman. It is anticipated that vehicles entering the site in such a manner will need to approach from the north (Heath Street), turn right as if proceeding into Arkwright Road and then reverse into the site entrance.

The shortest route using Minor Local Distributor roads between the A41 and Rosslyn Hill/Vane Close site access is a distance of 1.8km travelling via Arkwright Road, Fitzjohn's Avenue and Lyndhurst Road. This compares with a slightly longer distance of 1.9km from Swiss Cottage to Vane Close (using the Main Local Distributor roads Belsize Avenue and Belsize Park).

The A1 represents the other TfL road within the borough which can be accessed at Archway (5.1km) or more likely to the north of the development at Hendon (4.3km). The latter route would see construction traffic using North End Way and Heath Street which would suit vehicles that need to reverse into the site.

It is believed there are no low bridges or weight restrictions on any of the routes described above.



4.2 Example Vehicles for Each Construction Phase

See Appendix 1

4.3 Access within the Development Site

The development site is approximately 50m x 25m in size. Construction will cover around 35% of this area with the remainder being high quality landscaping. The new structure forms a strip along the northern edge of the site and the gardens are laid out in two distinct levels (as opposed to the general slope currently across the site). This difference in level will influence construction phasing which in turn will impact on access and opportunities for site set up and material storage. As a consequence the contractor will plan works to minimise the need for on-site storage i.e. use just in time deliveries.

Vehicles exiting the site onto Fitzjohn's Avenue are expected to be controlled by banksmen as will all movements along the private road to the side of St Anthony School. When there is no longer space within the development site to turn vehicles, it will be necessary to reverse deliveries along the private road. In such circumstances the banksman and driver should be in radio contact to mitigate the problem of restricted rear vision. Larger vehicles intending to reverse into the site will need to approach from the north (Heath Street)

All deliveries are expected to be off-loaded within the development site with the exception of large items of plant which may be delivered by low loader. These can include specialist piling rigs, mobile tower cranes and excavators. In such cases it is anticipated the plant will be delivered during off peak periods to either Fitzjohn's Avenue or Arkwright road and tracked to the site under the control of a banksman.

4.4 Other Transport Considerations

With the site located well away from Fitzjohn's Avenue it is not anticipated there will be hoardings, scaffolds or site accommodation/storage adjacent to public highways. Similarly the development is not expected to require any highway works or the suspension of parking bays.

The interface with the public highway will be restricted to vehicles entering and exiting the site which will be under the control of a banksman.

Good housekeeping within the site and the length of access to Fitzjohn's Avenue mean there is not expected to be a problem with mud or dirt being deposited on the public highway. While the cleanliness of this access will be the responsibility of the contractor this is not expected to require much, if any, wheel washing.

The contractor is expected to coordinate deliveries with the start and end of the school day so as to minimise disruption to the immediate road network during these very busy periods.

5 Conclusion

Within this Construction Management Plan we have outlined a sequence of constructing for the development at 92 Fitzjohn's Avenue. We have endeavoured to identify the potential impacts of the construction works, along with the means to mitigate their effect on the immediate surroundings. In addition, routes have been identified between the development site and Transport for London's road network.

In order for this document to form a working reference through to project completion it will need to be updated, where appropriate, prior to start of the works.

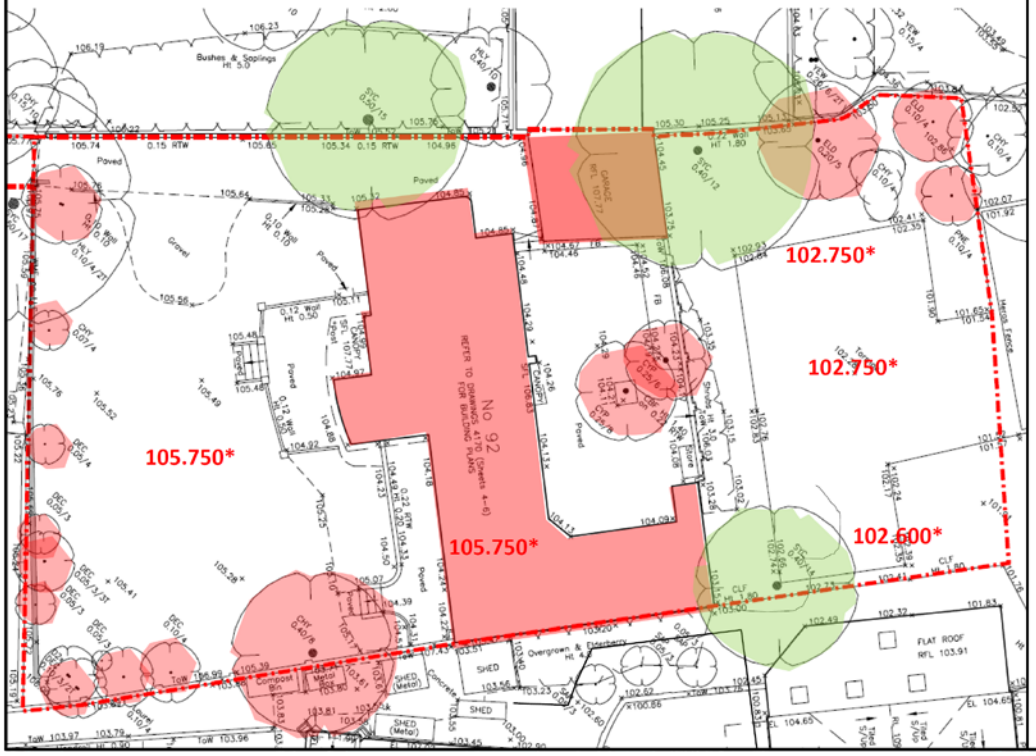
Appendix 1
Phasing Information

Appendix 1: Phasing Information

Phase	Works	Dates	Vehicles + Routes	Comments
1	Demolition and site clearance		7.5 tonne flat bed trucks width 2.4m (scaffold lorries). Roll on roll off skips (similar size to 7.5t trucks) or 15 tonne tipper lorries (2.6m wide). Access via Fitzjohn's Ave with ability to turn vehicles within the site	Potential opportunity to use some or all of the demolition arisings as temporary hard standings for deliveries and piling equipment
2	Piling for perimeter walls and wall construction		Excavators and specialist equipment delivered on low loaders located on Fitzjohn's Ave or Arkwright Road. Concrete wagons (2.6m wide) and 15 tonne tipper lorries will access via Fitzjohn's Ave and possibly Vane Close (tbc)	
3	Lower ground floor construction		Combination of Phase 1 and 2 type vehicles with possible use of small tower crane. Access via Fitzjohn's Ave with ability to turn vehicles within the site. Possible access via Vane Close for works to eastern elevation	Any mobile tower crane used in this stage of construction will need to depart prior to start of Phase 4
4	Retaining wall between upper and lower gardens		Excavator with lifting capacity, concrete wagons. Access via Fitzjohn's Ave. Area required for wall construction will reduce opportunities to turn vehicles within site	
5	Upper ground floor		As Phase 4. Ability to turn vehicles within site limited to transit van size. Any larger delivery vehicles will need to access the site by reversing in from Fitzjohn's Ave.	
6	Superstructure		Telescopic forklift truck, articulated dumper, mini digger for landscaping. Concrete can be placed using the forklift although there may be a requirement for use of a static concrete pump located in the entrance to the site. During such an operation access to site will be completely blocked by pump and concrete delivery trucks.	Confirmation required whether the structure is concrete or stick built. Use of pre-fabricated modular panels unlikely due to access issues and lack of space for a crane
7	Landscaping		Bulk movements of excavated materials out and new materials in (topsoil, tree soil) will best be completed before loss of access brought about by Phases 4 and 5. Vehicle access to the gardens will cease towards the end of Phase 6 with completion of the roof terrace.	
8	Fit out		Transit van deliveries with some specialist equipment, such as structural glazing, delivered by 7.5t truck. Access from Fitzjohn's Ave.	

Appendix 2
Construction Sequence

92 Fitzjohn's Avenue Phase 1 – Site Clearance and Demolition



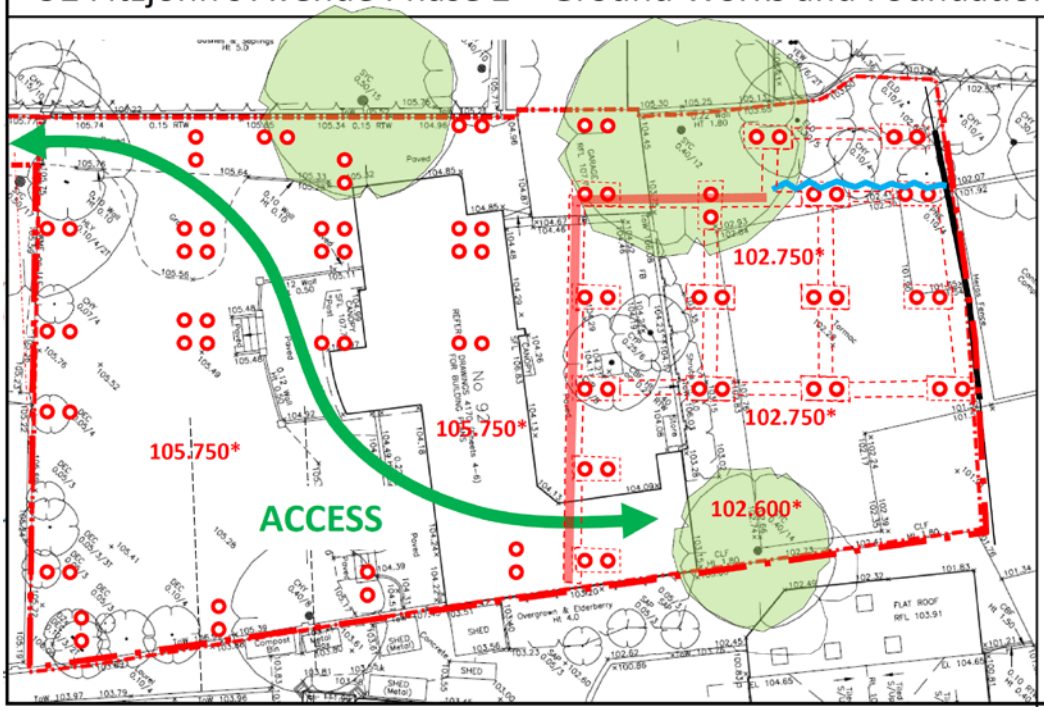
Works

- Set up hoardings (red dashed line)
- Demolish Existing buildings
- Remove trees not retained in the development (shaded red)

Comments

- Access via Fitzjohn's Ave
- Demolition works undertaken using methods to minimise noise and dust so as to minimise disruption to adjoining schools
- Levels marked '*' are estimated final ground levels

92 Fitzjohn's Avenue Phase 2 – Ground Works and Foundations



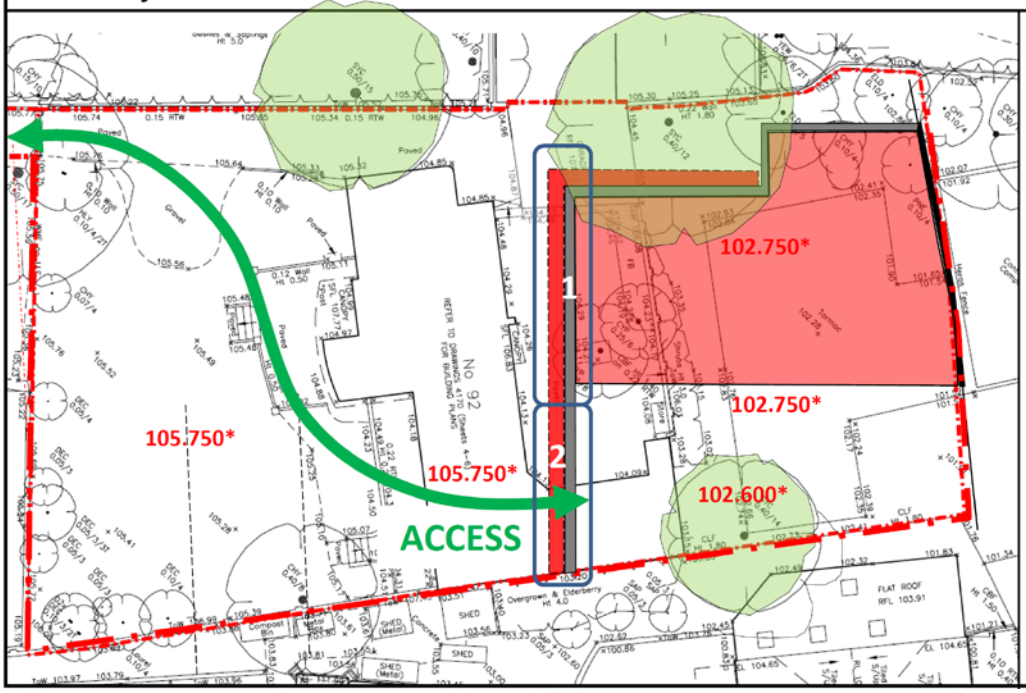
Works

- Mini piling for building and perimeter wall foundations, ground beam construction (note size and positions of piled foundations are shown for guidance only)

Comments

- Access via Fitzjohn's Ave
- Possible restrictions on noisy work during exam times
- Perimeter wall design will need to ensure stability of the Henderson Court and Greenhill boundaries.

92 Fitzjohn's Avenue Phase 3.1 – Lower Ground Floor Level Works



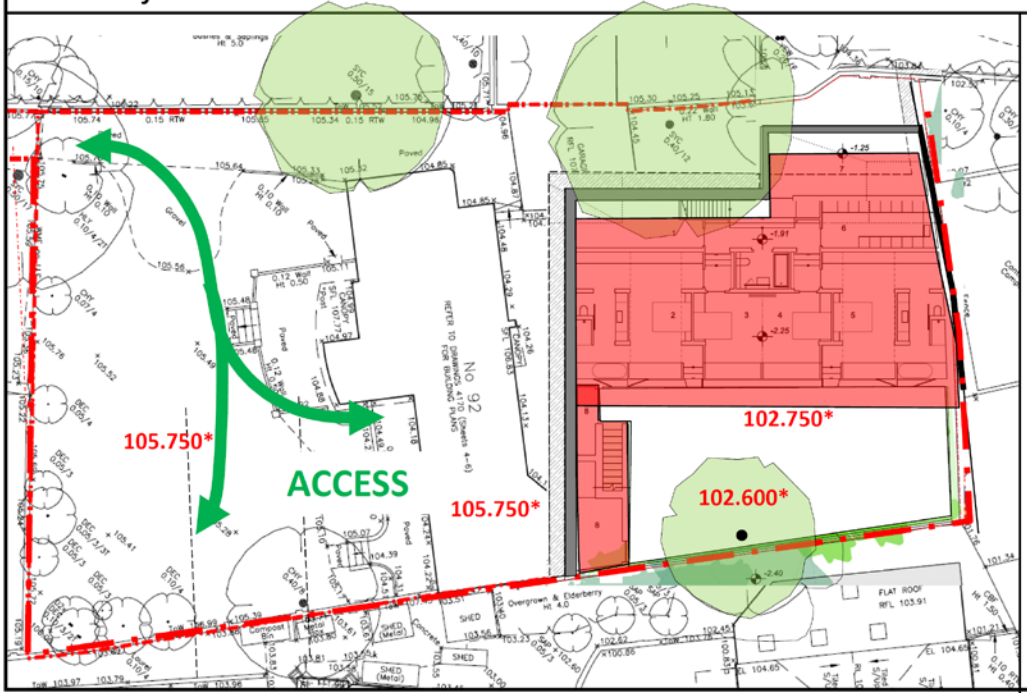
Works

- Excavation for low level ground floor
- Construction of perimeter walls

Comments

- Retaining wall between low and high level areas constructed in two sections in order to maintain access via Fitzjohn's Ave

92 Fitzjohn's Avenue Phase 3.2 – Lower Ground Floor Level Construction



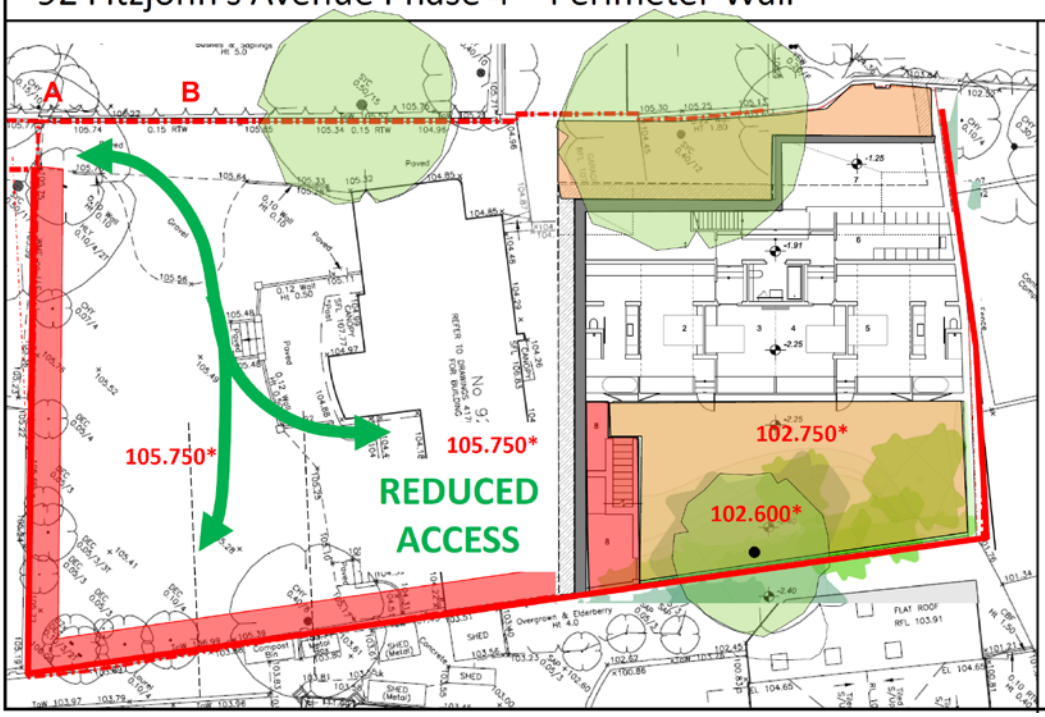
Works

- Construction of low level ground floor
- Installation of landscaping materials ahead of loss of access

Comments

- Construction of upper ground floor will prevent access to for vehicles larger than transit vans

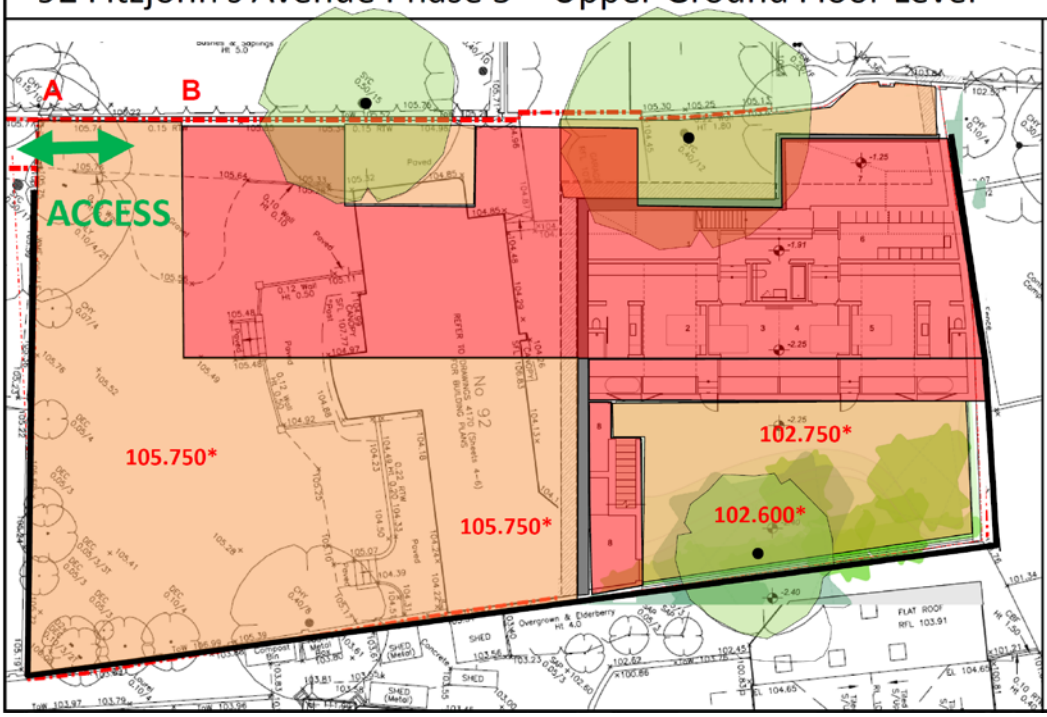
92 Fitzjohn's Avenue Phase 4 – Perimeter Wall



Works
- Installation of landscaping materials ahead of loss of access
- Construction of garden retaining wall

Comments
- Construction of upper ground floor will prevent access to for vehicles larger than transit vans

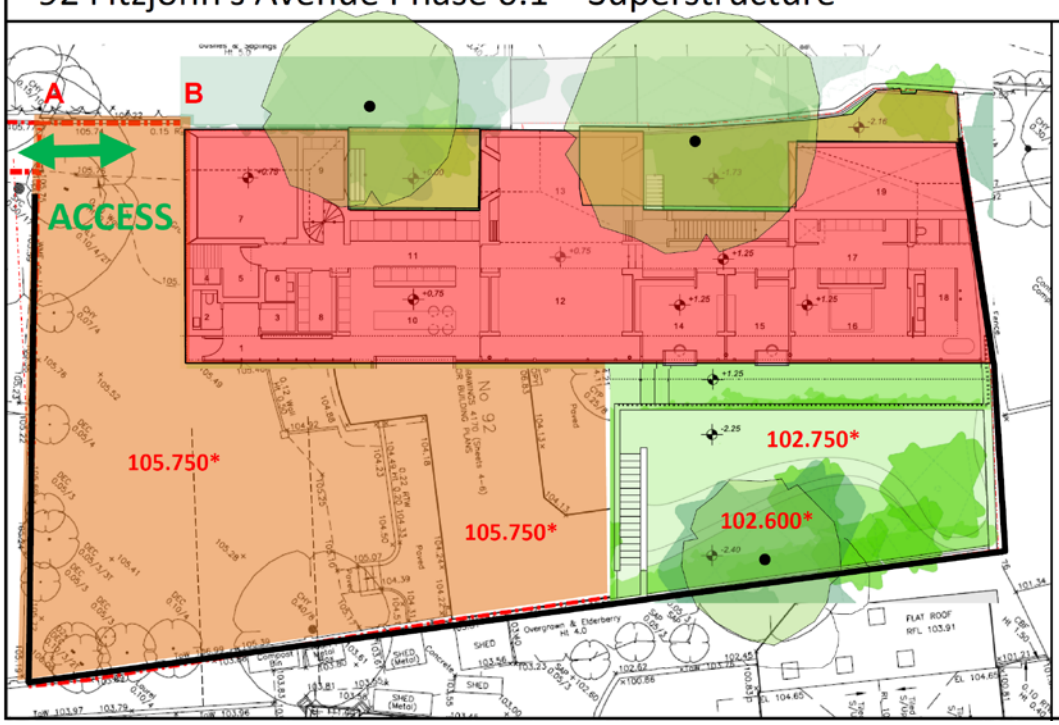
92 Fitzjohn's Avenue Phase 5 – Upper Ground Floor Level



Works
- Construction of upper level ground floor

Comments
- Construction of upper ground floor will prevent access to for vehicles larger than transit vans

92 Fitzjohn's Avenue Phase 6.1 – Superstructure



Works

- Construction of upper level ground floor
- Installation of landscaping materials ahead of loss of access
- Facing brickwork to perimeter walls

Comments

- Access to and within the future upper garden area likely to be by forklift truck only

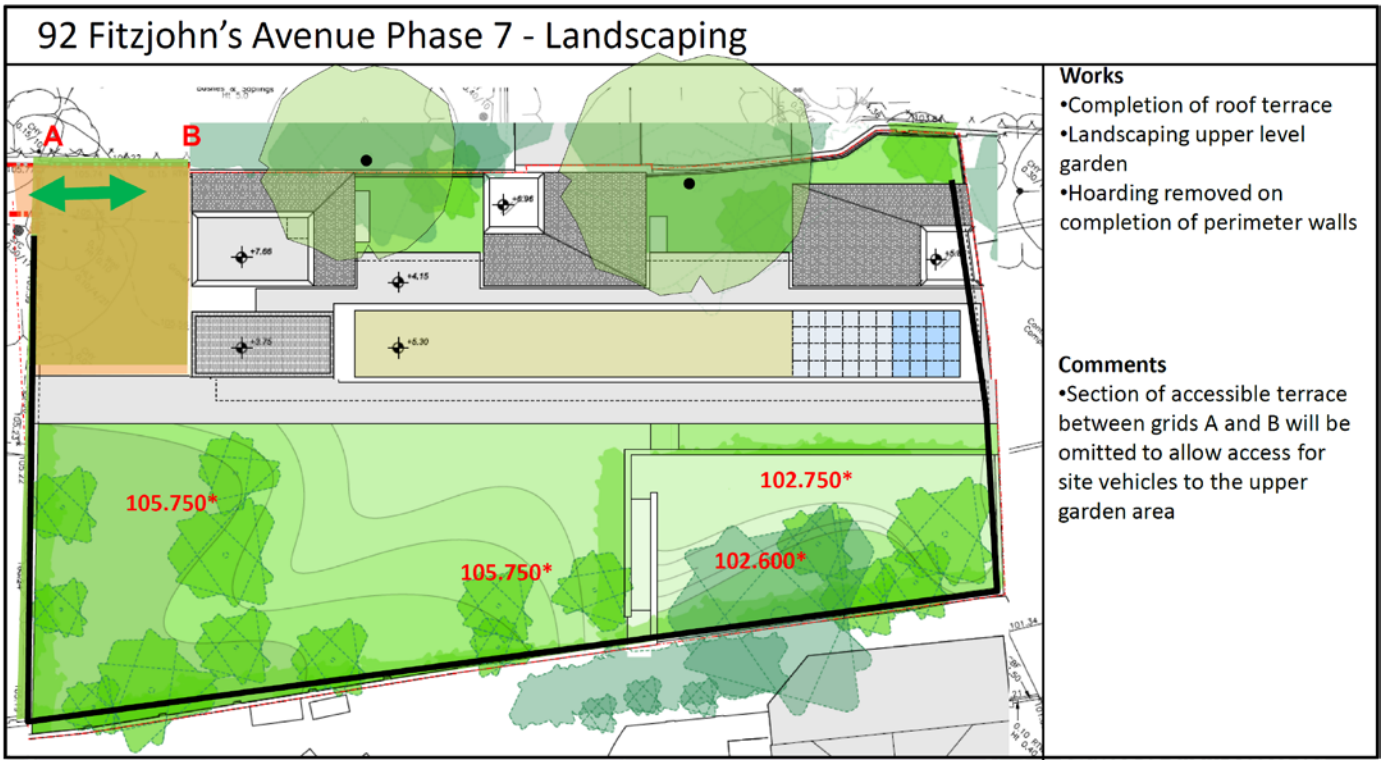
92 Fitzjohn's Avenue Phase 6.2 – Roof and Finishes

Works

- Construction of super structure and roof
- Installation of landscaping materials ahead of loss of access
- Hoarding removed on completion of perimeter walls

Comments

- Section of roof between grids A and B will be omitted to allow access for site vehicles to the upper garden area


92 Fitzjohn's Avenue Phase 7 - Landscaping
A
B
105.750*
105.750*
102.750*
102.600*
Works
•Completion of roof terrace
•Landscaping upper level garden
•Hoarding removed on completion of perimeter walls
Comments
•Section of accessible terrace between grids A and B will be omitted to allow access for site vehicles to the upper garden area

Appendix 3
Outline Programme

Appendix 3: Outline Programme