



ARBORICULTURAL METHOD STATEMENT

29 New End
Hampstead
London
NW3 1JD

REPORT PREPARED FOR:

New End LLP
C/o The Linton Group
8 Headfort Place,
Belgravia,
London.
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REPORT PREPARED BY:

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Ref: LTN/29NE/AMS/02d

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1.0 Introduction

1.1 Purpose & Use of the Method Statement

1.1.1 This method statement has been prepared for New End LLP, for assistance with the discharge of planning conditions at 29 New End, Hampstead, London NW3 1JD: London Borough of Camden Planning Ref: 2012/3089/P and Appeal Decisions APP/X5210/A/14/2218243 and APP/X5210/E/14/2218267. The document will address the following condition:

12) Details of the design of building foundations and the layout, with dimensions and levels, of service trenches and other excavations on site, in so far as these items may affect trees on or adjoining the site, shall be submitted to and approved in writing by the local planning authority before any excavation works on site are commenced, and the development shall proceed in accordance with the approved details.

1.1.2 This document lays down the methodology for any proposed works that may have an effect upon the trees on and adjacent to the site. It is essential within the scope of any contracts related to the development proposals that this method statement is observed and adhered to. It is recommended that this document form part of the work schedule and specification issued to the building contractors and can be used to form part of the contract.

1.1.3 Copies of this document will be available for inspection on site. The developer will inform the local planning authority within twenty-four hours if the arboricultural consultant is replaced.

1.2 Terms of Reference

1.2.1 We (LT) are instructed by the client, New End LLP to prepare a method statement for the proposed development based on the above planning application with reference to BS 5837:2012 Trees in Relation to Design, Demolition and Construction.

1.2.2 For this purpose, The Linton Group has supplied a Construction Management Plan (CMP) dated October 2015. Through our involvement with the site through the appeal process with Karawana Holdings Ltd, a site lay-out plan (JKK4657_1A-TOPO), the current proposals plan (NEN - PL - 120 rev L). Hoare Lee have supplied a plan of incoming services (070989-HL-XX-LG-GA-U-900-9000-P Layout 1 (2) (1)). Engineers, Fluid have supplied copies of the piling plans (23497_P090 BASEMENT PLAN & 23497_P100 GROUND FLOOR PLAN) and a plan detailing below ground drainage (24397-X090_T1). We are also reliant upon our own impact assessment report KWA/29NE/AIA/01a and plan overlays of tree constraints contained therein.

1.3 Development Proposals & Potential Impacts

1.3.1 The principal proposals are for the demolition of the existing building and replacement with residential flats with a basement and associated landscaping.

1.4 Sequence of Works

1.4.1 The sequence of works will be as follows:

- initial tree works –pruning for working clearances
- installation of Tree Protection Barrier (TPB) & ground protection
- demolition of existing building and structures
- installation of underground services
- main construction
- removal of existing tarmac from rear garden
- landscaping

1.4.2 A summary of the key dates from the CMP (October 2015) is provided in Extract 1:

Activity	Commencement	Duration
Planning conditions discharged	November 2015	16 Weeks
Demolition agreements in place with Adjacent Party walls	November 2015	
Commence Enabling works (Demolition)	January 2016	
Demolition activities	January 2016	16 Weeks
Piling and Excavation works	May 2016	25 Weeks
Superstructure Frame	October 2016	23 Weeks
Envelope and roofing works	May 2017	30 Weeks
Internal Fit out works	July 2017	42 Weeks
Completion	June 2018	

Extract 1: Summary of key dates (Source: CMP October 2015)

These works and their arboricultural implications are outlined in sequence below

1.5 Site Supervision

1.5.1 On this site, a site manager will be nominated to be responsible for all arboricultural matters on site. A pre-commencement site briefing/meeting between the site manager and arboricultural consultant will be held (see Table 1 below). The site manager's details will be issued to LBC in the minutes / site monitoring report for this meeting. During this meeting all the tree protection methods below will be studied and familiarization with requirements of this AMS. The site manager will also:

- be present on site for the majority of the time;
- have the authority to stop any work that is causing, or has the potential to cause harm to any tree;
- be responsible for ensuring that all site operatives are aware of their responsibilities toward trees on site and the consequences of the failure to observe these responsibilities;
- make immediate contact with the Arboricultural consultant in the event of any tree related problems occurring, whether actual or potential, in accordance with a tree protection protocol (see section 1.6 below).

1.5.2 At this stage, the nominated Key Personnel are as follows:

Adam Hollis
Arboricultural Consultant
Landmark Trees
info@landmarktrees.co.uk

Tel: 0207 851 4544

TBC
Site Manager

Nick Tandy
Senior Project Manager
Blenheim House Construction Ltd
ntandy@bhcltd.co.uk

Tel: 07500 014063

1.6 Site Monitoring

- 1.6.1 Landmark Trees are to be retained as Arboricultural Consultants responsible for site monitoring for the duration of the development. As noted above Adam Hollis MSc (Arb) is the key contact, with monitoring occasionally undertaken by James Bell Tech Cert. (subject to any new staff intake). Site supervision will be undertaken by a qualified and experienced arboriculturalist at pre-determined and agreed time intervals as indicated in Table 1 below. In addition to specific task supervision, general monitoring of protection measures will be undertaken at least once per month, coordinated where practical with visits detailed in Table 1.
- 1.6.2 Routine visits will generally be unannounced. However, the arboriculturalist will also visit subject to advance notification (2 weeks) and agreement to supervise any agreed works within the RPA, in accordance with table 1 below.
- 1.6.3 In the event of any unplanned incursion / accident / spillage within the RPA, the site agent should notify (by telephone) the retained arboricultural consultant immediately. The consultant will provide advice and attend site as soon as possible. This may require the stoppage of all or part of the works in the vicinity of the tree. The consultant will notify the LPA Tree Officer of the nature and extent of damage, the mitigation strategy and likely prognosis. The contact details of the LPA Tree Officer are:

Nick Bell
Arboricultural Officer
 LB Camden
 nick.bell@camden.gov.uk

Tel: 0207 974 4444

- 1.6.4 The site monitoring sheet in Appendix 3 will be used to provide photographic evidence, indicate the remedial action required and timescales for remediation completion. The consultant and officer will further liaise as necessary (perhaps meeting on site) until the officer is satisfied that protection measures are again satisfactory. The action in response to incidents will be commensurate with and appropriate to the nature of any such incident. Any breach of the stipulated timescale for remediation will trigger a further monitoring report.
- 1.6.5 Supervision will not require the arboriculturalist to be present throughout all operations to ensure tasks are carried out as per the approved methodology, but certainly, during the key elements of proposed (and any other unplanned) incursions into the protection areas (subject to LPA agreement and for whatever reasons) to ensure the arboricultural objectives were met. However, where tasks are ongoing, provided the arboriculturalist is satisfied, and after an appropriate briefing, the supervision may be reduced to telephone and email contact between the site manager and Arboricultural consultant.

- 1.6.6 The Local Authority will be accorded free access to the site subject to H&S requirements; as noted at 1.6.3, any problems will be reported directly to Arboricultural consultant, who will then visit the site and make recommendations to the developer on how best to rectify the situation and ensure implementation. As noted in Table 1 below, a final sign-off visit will be carried out at the end of the development and a formal letter sent to both the client and the London Borough of Camden indicating an end to the monitoring period. It is the client's duty to notify LT that the project has been completed, in order to facilitate such an inspection.
- 1.6.7 Landmark Trees will be instructed to provide the above monitoring. In the absence of routine payment (as per our business terms), routine monitoring will cease (temporarily or permanently) and the London Borough of Camden will be informed of the cessation of monitoring. The client will also reserve the right to dismiss Landmark Trees and replace with another arborist, but must inform the London Borough of Camden.

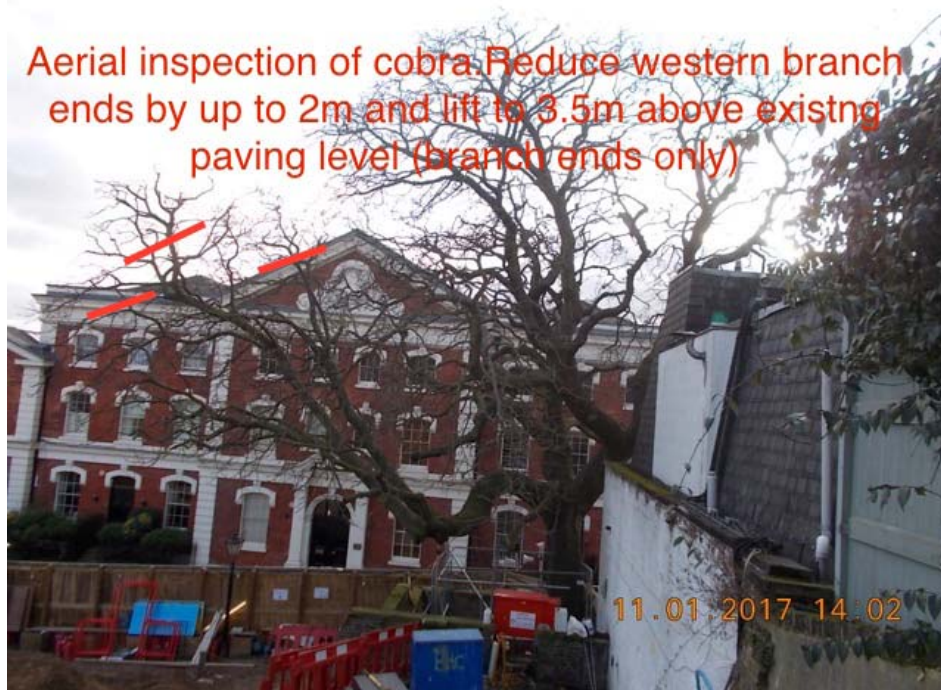
Table 1: Site Monitoring Visits

Supervision Visit No:	Details	Action
Visit 1: Pre-Development Site Inspection (S.2.3 of AMS)	<ul style="list-style-type: none"> To included construction Site Agent briefing (S.1.5). To confirm position of protective measures and that they have been erected in accordance with AMS (S.2.2 & 3 and Tree Protection Plan in Appendix 5); To check any tree works have been undertaken in accordance with this AMS (S.2.1. and Appendix 1). Determine if further tree work is required and seek required permission if necessary. To check site facilities/access are in accordance with the AMS (S.3.3). 	Issue a brief report with findings to Architect, Tree Officer and Main Contractor within 5 days of site supervision visit (Site Monitoring Sheet in Appendix 3).
Visit 2: Installation of any new services within RPA (S3.4) subject to consent for works	<ul style="list-style-type: none"> Attend any excavation within RPA's where arboricultural supervision is prescribed by the AMS to ensure work is undertaken in accordance with NJUG provisions or other specification. Date to be confirmed following formal project planning. 2 weeks prior notice required. 	Issue a brief report with findings to Architect, Tree Officer and Main Contractor within 5 days of site supervision visit (Site Monitoring Sheet in Appendix 3).
Visit 3: Demolition of hard surfaces/structures within RPA (S3.6) and Arboricultural supervision of construction within RPA	<ul style="list-style-type: none"> Confirm position of any additional temporary ground protection and that temporary ground protection is in accordance with AMS. Attend any excavation within RPAs where arboricultural supervision is prescribed by the AMS and any other unplanned incursions into the protection areas (subject to Local Authority agreement as noted above). 2 weeks prior notice required. 	Issue a brief report with findings to Architect, Tree Officer and Main Contractor within 5 days of site supervision visit (Site Monitoring Sheet in Appendix 3).
Ongoing Monitoring Visits	<ul style="list-style-type: none"> Periodically during 12 months (or longer) of entire project. Visits will be based on intensity of site operations, but at a minimum of monthly visits. Attend site to confirm protective measures are still in place / can be removed at appointed times. Ensure attendance is timed for any other key elements of proposed (and any other unplanned) incursions into the protection areas. Pre-start landscape meeting with main contractor to confirm ongoing tree protection measures. 	Issue a brief report with findings to Architect, Tree Officer and Main Contractor within 5 days of site supervision visit. (Site Monitoring Sheet in Appendix 3).
Final Site Visit - Completion of construction phase supervision visit (S.5)	After it has been confirmed that the construction phase is complete, allow removal of temporary protective fencing and ground protection. Specify any remedial work if necessary.	Issue a brief report with findings to Architect, Tree Officer and Main Contractor within 5 days of site supervision visit. (Site Monitoring Sheet in Appendix 3). Provide signed arboricultural checklist (see Appendix 3)

2.0 Pre- Development Site Preparation

2.1 Arboricultural Works

- 2.1.1 All works must be carried out by a competent arborist in accordance with BS 3998: 2010 and any other prevailing good professional practice including BS 8545:2014 Trees: from nursery to independence in the landscape. Recommendations.
- 2.1.2 The pruning works recommended to facilitate development comprise the reduction of the western branch ends of T1 by up to 2m with crown lifting to provide 3.5m clearance to the existing paving level removing branch ends only (as indicated on Photograph 1); the cutting back one limb of T4 and the tying back of 2 further limbs (as indicated on Photograph 2) and the cutting back of the lowest south-west limb of T6 to the junction indicated on Photograph 3.
- 2.1.3 Where works are explicitly required to implement a planning permission then there is no need to submit separate application/ section 211 notification (cf. S.14(vii) of the Town and Country Planning (Tree Preservation) (England). Regulations 2012. If tree works are not clearly necessary to implement a planning permission and/ or the works are included in an application to discharge a condition for reasons other than their necessity in order to implement a planning permission, then it is in these circumstances that a separate tree works application/ notification is required. I believe these works are necessary to implement the scheme and were approved in the original consent.



Photograph 1: Pruning works to T1



Photograph 2: Pruning / facilitation works to T4



Photograph 3: Pruning works to T6

2.2 Installation of Tree Protection Barrier

- 2.2.1 The Root Protection Area (RPA) indicates the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority. The default position is for the RPA's to be fully fenced off to form the boundary of the Construction Exclusion Zone (CEZ), an area based on the RPA, from which access is prohibited for the duration of the project, including the storage of any works materials and equipment.
- 2.2.2 A Tree Protection Barrier [TPB] comprising steel mesh panels of 2.4m in height ('Heras') should be erected to protect trees near buildings to be demolished on site. These panels will be mounted on a scaffolding frame as shown in Figure 1 below (this is also Figure 2 of BS5837: Trees in Relation to Design, Demolition and Construction in paragraph 6.2.2.2). The TPB should carry waterproof warning notices denying access within the RPA.

2.2.3 This TPB is to be erected before any work (other than tree surgery) commences on site, is to remain *'in situ'* undamaged for the duration of all work or each phase, and only to be removed once all work is completed. If any work is deemed necessary prior to the erection of fencing a Landmark Trees representative should be informed to enable their presence to oversee the work being carried out.

2.2.4 The location of the TPB is shown in the Tree Protection Plan at Appendix 5.

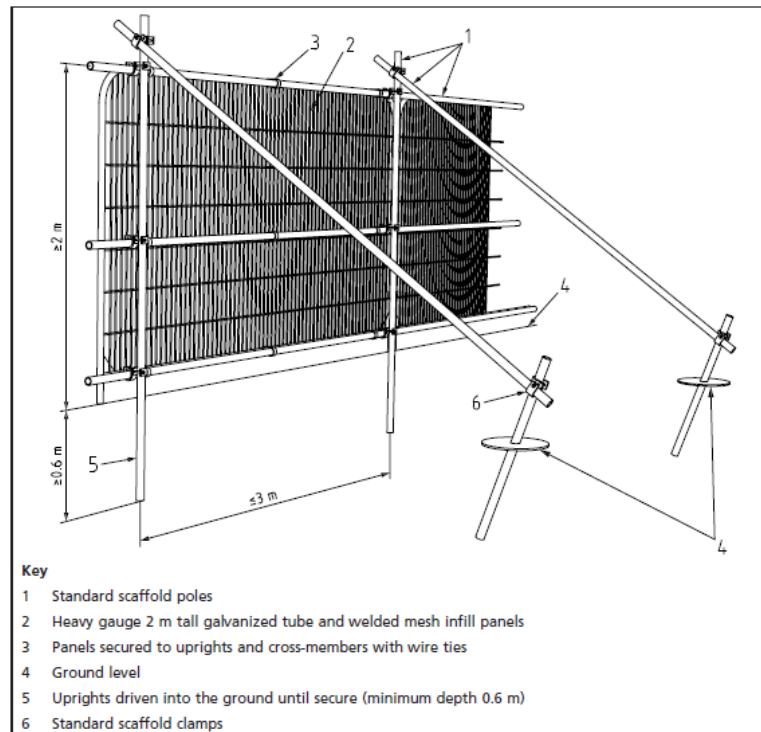


Fig. 1 Tree Protection Barrier Specification
(Source: Figure 2 from BS5837 - Default specification for protective barrier)

2.3 Ground Protection

2.3.1 Extant areas of RPA that cannot be fenced off and therefore lie outside the CEZ must be protected with fit-for-purpose ground protection. The location of the ground protection is shown in the Tree Protection Plan at Appendix 5.

2.3.2 The ground protection around T6 and T7 has already been installed and is fit for purpose. The remaining ground protection around T1 and T4 will comprise Ground Guards MultiTrack Mats secured in place.

3.0 Development Phase

3.1.1 The following general precautions will apply:

- No fires shall be made on any part of the site, or within 20m of any tree to be retained.
- No spilling or pouring of fuels, oils, solvents, tar shall be made on any part of the site.
- No materials that are likely to have an adverse effect on tree health such as oil, bitumen or cement will be stored or discharged within 10 metres of the trunk of a tree that is to be retained.
- No spillage or discharge of wet mortar or concrete shall be made on any part of the site.
- No storage of materials shall be made within the protective fences.
- No breaching or moving of the protective hoarding without the approval of an arboriculturist.

3.1.2 The procedures for dealing with variations and incidents are detailed in S1.6.

3.2 Working within Root Protection Areas (RPA)

3.2.1 Although the default position is to exclude all construction activity from the RPA, this degree of protection is not entirely possible on the site: the demolition of parts of the existing structure will take place within the RPA of T1 and it is necessary to install piling within the theoretical RPA of T1 and T4 and landscape features within the RPA of T1, T4, T6 and T7. It is also proposed to install a new surface water drainage system within the RPA of T1 and T4.

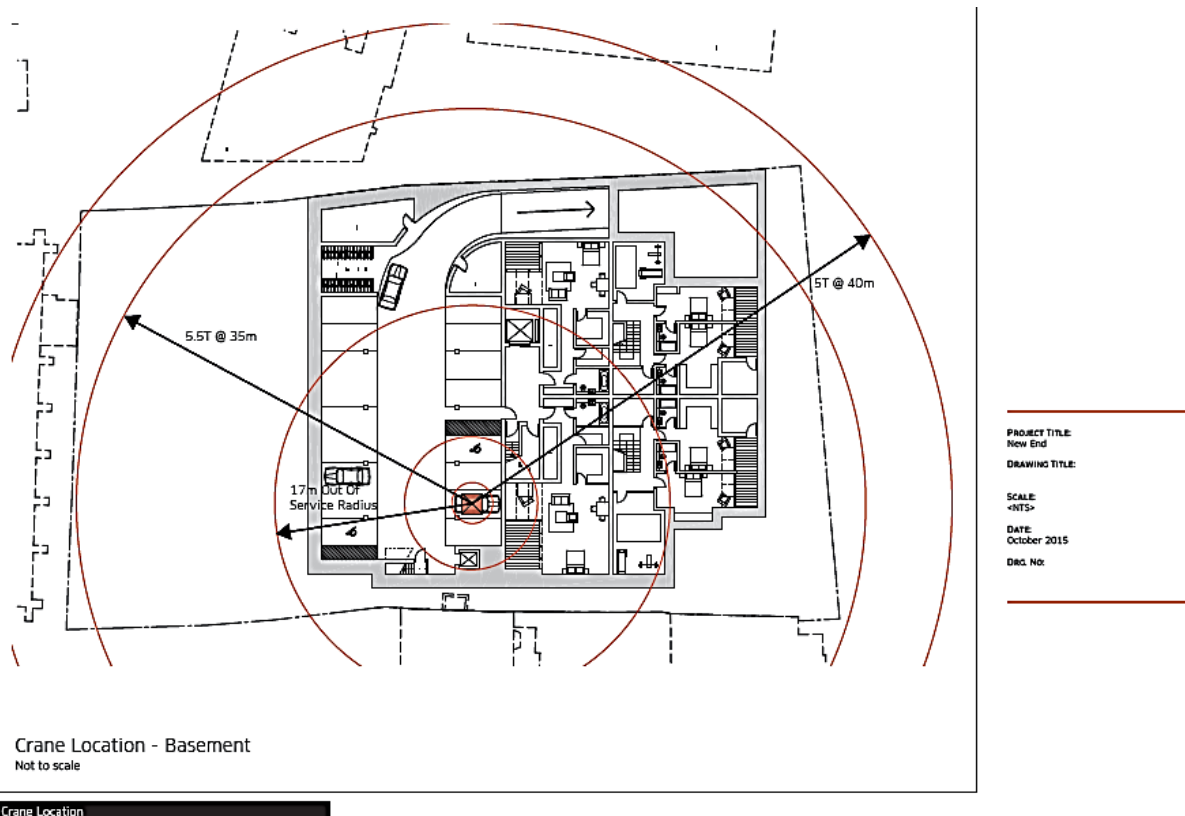
3.2.2 All involved parties will need to be made aware of the deficiencies. In these instances, careful and supervised working, as described in section S 3.4 (routing and installation of services), S 3.5 (demolition measures), S 3.6 (construction measures) and S. 3.7 (post-construction landscaping) will be required.

3.3 Site Access, Accommodation & Storage

3.3.1 It is envisaged that vehicles will need to be loaded and unloaded from outside the site boundary, with most of the deliveries being undertaken from the New End elevation of the site. Detailed discussions will be held with the London Borough of Camden team to agree the loading area on New End with the suspension of the parking bays directly out side of the site boundary. The existing site access will be used for turning vehicles only. All traffic movements will be controlled by a Banksman and Traffic Marshall.

3.3.2 Pedestrian access will be via a dedicated entrance from the foot path that runs to the east of the site boundary, separate to the main loading and unloading area with the aim to separate pedestrian and vehicle movements at all times to reduce the risk of accidental collisions.

- 3.3.3 The site set up will develop in several phases, with a mixture of on and off site provision, changing as the scheme progresses. It will be necessary to have a site accommodation to the rear of the site for the demolition, substructures and concrete frame works phases. This will comprise double-stacked cabins containing the site toilets, changing and drying facilities and a canteen unit. The cabins will be located as per the layout within our Tree Protection Plan (Appendix 5), requiring minor additional tree works to crown lift T6 to 5m and ground protection for the RPA (retention of existing hard surfaces/infra web). As the frame is erected it will be possible to relocate the site accommodation into the basement of the building.
- 3.3.4 Bulk/large materials will be delivered to site, and off loaded by the tower crane to designated loading areas via loading bays. As works develop, materials will be distributed via the goods hoist to the required level and positioned directly adjacent to the intended work place. Where possible lockable storage areas will be established on site and will be utilized for the storage of small items of material, small plant and will have facilities for storage and testing of materials.
- 3.3.5 Access for the substructure works will be from a managed point on New End, giving access directly onto the site. Delivery lorries will be excluded from RPA's by tree protection fencing and ground protection. Adequate allowance must be made for vehicle heights and ground clearance, where tree canopies overhang access routes. Any further pruning for working clearances must be discussed first with the arboriculturalist; once agreed in principle these works should be approved by the appropriate tree officer and approved in writing by the LPA. Materials can be unloaded onto protected ground within RPA's and stored throughout the interior of the site(s) away from protected trees.
- 3.3.6 Many site activities are potentially damaging to trees e.g. material storage, parking, soil compaction and the use of plant machinery. In this latter example particular care is required to ensure that the operational arcs of excavation and lifting machinery, including their loads, do not physically damage trees (i.e. T1 and T4) in use. The following extract illustrates the location of the crane



3.4 Routing & Installation of Services

3.4.1 The plan of incoming services supplied by Hoare Lee (070989-HL-XX-LG-GA-U-900-9000-P Layout 1 (2) (1)) indicates that none of these services will encroach the RPA of a retained tree.

3.4.2 Engineers Fluid's plan detailing below ground drainage (24397-X090_T1) shows a new surface water drainage route passing through the RPA of T1 and T4. This will be hand-dug where it passes through the RPAs.

3.5 Demolition Measures.

3.5.1 The building will be demolished in a sequential fashion top down and from the back of the site to the front. Arisings will be removed from site using appropriate vehicles that will be located in the designated removal zone on New End.

3.5.2 Access facilitation pruning will be undertaken to prevent injurious contact between demolition plant and the tree(s). Any such pruning will be undertaken in accordance with British Standard 3998: Recommendations for tree works (See Section 2.1 / Appendix 1) and in agreement with the local authority.

- 3.5.3 At the outset of the project a dust and air quality management plan will be produced. This plan will consider the use of water suppression, dealing with demolition arising's, encapsulation of areas, scaffolding and general site waste management. The CMP confirms that water will be used to suppress the dust generally and specifically where demolition, cutting and breaking of concrete is being carried out. All skips and wagons containing waste will be securely covered and water 'misted' as appropriate. Dust monitoring will be carried out at regular intervals, increasing in frequency during works that will inherently generate dust (e.g. demolition and reinforced concrete works). If the levels of dust particles in the air are deemed unacceptable action will be taken, and measures to avoid, reduce and/or suppress any dust will be evaluated and implemented. At the boundary to the site specific risk assessments will be carried out in relation to dust emissions and where practical dust screening measures will be placed at the boundary.
- 3.5.4 Trained and responsible management will be maintained on site at all times during working hours. Where levels of dust build-up on trees occur, it may be necessary to seek the advice of Landmark Trees on remedial measures, e.g. hose down the tree(s) immediately following any significant accumulation of dust.
- 3.5.5 All spoil is to be loaded into trucks reversing into site from the road or removed to trucks on the road outside.
- 3.5.6 Any existing hard standing within the RPA's will be first broken up with manual power tools and then carefully removed manually. Soil exposed beneath the structure will not be scraped away, but preserved in situ and protected immediately (not tracked over) with replacement ground protection (as per para 2.3) before the continuance of operations.
- 3.5.7 During the landscaping phase, further demolition will occur via the removal and replacement of the brick retaining walls around T1. The existing walls will be removed manually in hit and miss columns of a maximum width of 1m before being rebuilt in accordance with the methodology detailed in para 3.6.7.

3.6 Construction Measures

Detailed method statements and risk assessments will be obtained from all specialist subcontractors involved in the new build and these will be scrutinised by the site agent to ensure the AMS requirements have been considered therein.

- 3.6.1 The first stage of construction will comprise the installation of temporary sheet piling within the vicinity of T4 which will act as temporary works during the lowering of the ground level from approximately 119 to approximately 117 to enable the subsequent piling operations. Where these temporary piles are to be installed within the RPA of T4, their path will be manually excavated to 750mm depth under arboricultural supervision; any roots encountered within the trenches / pits will be cleanly pruned back to an appropriate junction with a sharp pruning saw or secateurs back

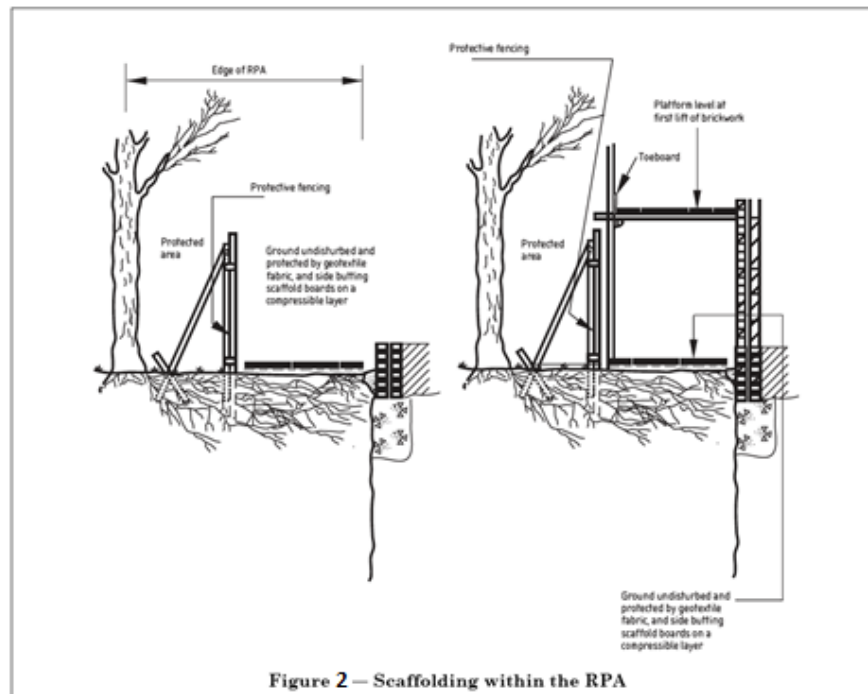
to a junction. Roots larger than 25mm diameter may only be cut in consultation with an arboriculturalist. The ground protection in this area will only be removed immediately prior to the commencement of these piling operations.

3.6.2 Following the installation of these temporary piles an excavator will reduce the existing ground level by approximately 2.0m to allow piling operations to commence. The foundation piles of the building itself will then be installed.

3.6.3 A tower crane will then be installed to the front of the site, providing a vertical transport route from the New End to the footprint of the site. The Crane selected is a Luffing Jib crane and has been chosen for the following reasons:

- Luffing Jib cranes can be zoned for lifting meaning that construction loads are only lifted over the footprint of the site. The crane coordinator will ensure that stringent controls are put in place and implemented for all lifting activities on site.
- Can lift large capacities from the perimeter of the site and can remove the site cabins once the building has been constructed (Note: consideration must be given to the logistics of positioning/moving cabins from beneath the canopy of T6 prior – it would be preferable to avoid locating cabins beneath T6).
- Having the location mid distance into the site means that the crane can be more efficient both in capacity/over sail and cost. It will also reduce the potential for damage to the canopies of trees retained around the boundaries of the site.

3.6.6 Any scaffold erected to the external elevations will be fully wrapped in monarflex or debris netting to contain the construction activities. Where erected within an RPA, the following ground protection will be required:



- 3.6.7 It is proposed to replace the existing 9" brick retaining walls around T1 with 4" brick facing to a 100mm reinforced concrete wall. Following the removal of the hit and miss columns, a suitable geotextile liner will be installed that will prevent leaching of the cast RC wall into the soil immediately behind it. These new retaining walls will be secured by a pair of stainless steel rods installed in an East-West orientation which will be anchored to the rebuilt walls at each side. 2 ground anchors will be drilled through the Southern retaining wall. All 4 horizontal anchors will be installed approximately 900mm below ground level.
- 3.6.8 The new pathway running near to T1 will be installed with a no-dig construction method as per para 3.7.3. Where ground needs to be made up in this area to provide a level surface, this shall be done using a coarse, granular material such as pebbles.
- 3.6.9 The replacement paving/hard landscaping will require a no-dig construction technique, either using a cellular confinement system with no fines aggregate for the sub-base or simply building upon the existing sub-base without disturbing the ground below. Choice of construction method will initially depend upon root penetration within the existing sub-grade. The key principle is not to excavate in the presence of roots and to provide a porous surface to promote healthy soil water relations for future root growth. A further consideration in the use of a more expensive cellular confinement system or similar, may be the claimed reduction in risk of possible future slab / surface displacement by roots of trees growing in paved areas.

3.7 Removal of Ground Protection & Post Construction Landscaping & Treatment

- 3.7.1 The tree protection may be removed upon completion of the construction phase and when all drainage and service runs have been installed and any site machinery has been removed from the RPA.
- 3.7.2 Where the new pathways and landscaping features replace old, they will be installed on the existing sub-base, with minor augmentation as necessary. Where no such sub-base exists, it will be necessary to use a no-dig method employing a cellular confinement system.
- 3.7.3 Method Statement - Specifications for no dig footpath by T1, T4, T6 & T7:
- i. The Construction will be undertaken when the ground is sufficiently dry to prevent compaction occurring. Any surface vegetation should be removed by hand or with suitable herbicide.
 - ii. Fill any hollows in the exposed ground with sharp sand or 4/20mm or 40/20mm clean angular stone.
 - iii. Place Treetex Geotextile over the area to be protected ensuring laps are a minimum of 300mm. The geotextile should not be trafficked across at any time.
 - iv. The CellWeb system is available in a number of depths for varying traffic loadings but for this site, one of the following will be employed:
 - 75mm deep CellWeb for Pedestrians, Cycleways and vehicles up to 1.5 tons;
 - 100mm deep CellWeb for Cars, 4 Wheel Drives, Vans etc up to 6 tons;
 - v. Lay out the collapsed Cellweb TRP on-top of the Treetex. Place one of the supplied J pins into the centre cell at the end of the panel and secure into the ground. Pull out the Cellweb TRP to its full 8.1m length and secure its length with another J pin. Now measure its width to 2.56m and secure in each of the corners with the J pins. Use 10 pins per panel to create a panel measuring 8.1m x 2.56m. This will produce a cell size of 259mm x 224mm which is the required cell diameter. Each cell must be fully extended and under tension. Staple adjacent panels together at each cell, all cells must be fully opened to the required diameter.
 - vi. Infill the Cellweb TRP cells with the clean angular stone (Type 4/20mm or Type 20/40mm), working towards the tree and using the infilled panels as a platform. Use a minimum 25mm overfill of clean angular stone when used in conjunction with a hard surface. **No compaction is required of the infill. Do not use a whacker plate or other means of compaction.**
 - vii. Where edging is required for footpath and light structures, a peg and treated timber board edging is acceptable, other options include wooden sleepers, kerb edging constructed on-top of the Cellweb® TRP system, plastic and metal edging etc.

viii. The CellWeb TRP system is to be surfaced with the materials listed below. Porous systems will be of greater benefit for the trees, however it is understood that this is not always possible.

Block / Flag Paving:

- Place Permatex 200 separation fabric over the filled InfraWeb.
- Lay sand / gravel bedding material as per manufacturer's recommendations.
- Place porous / standard blocks as per manufacturer's instructions.

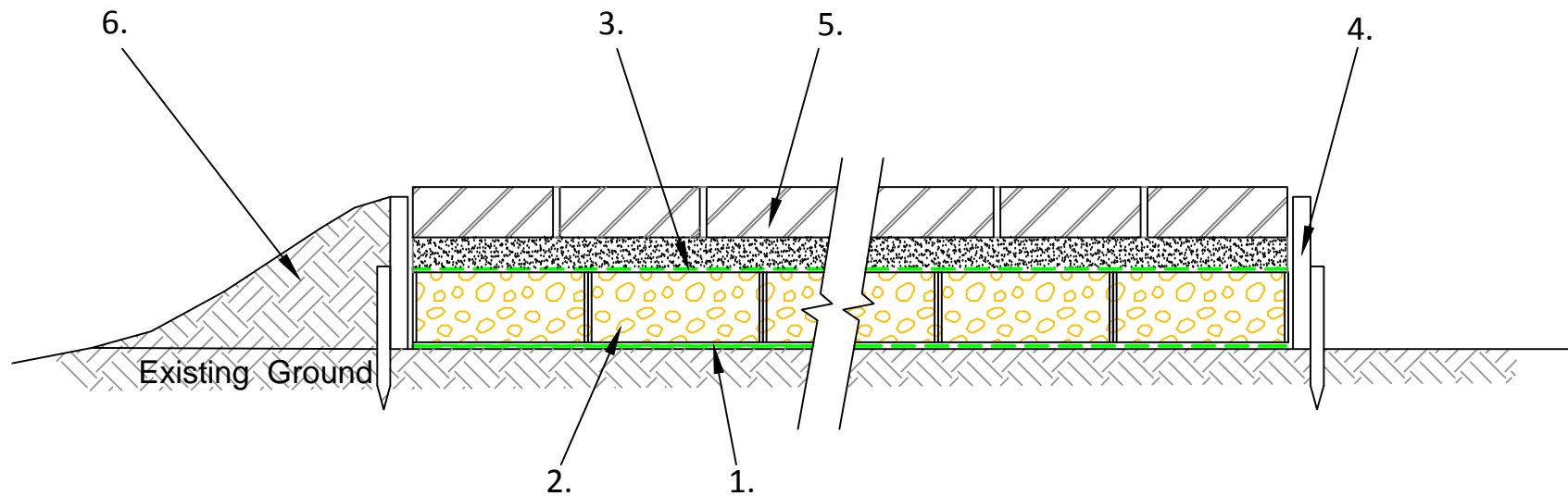
3.7.5 For technical data on the Geotextile membrane and the CellWeb cellular confinement system always refer to the manufactures guidelines for design and implementation. Further technical advice can be gained from the manufacturer:

Geosynthetics Limited
Fleming Road
Hinckley
LE10 3DU
Tel. 01455 617139
<http://www.geosyn.co.uk/>

3.7.4 All landscaping and associated ground works within RPA will be carried out manually and carefully with due regard for soil and root protection, avoiding changes of ground levels or deep digging. Mechanised cultivation must not be used within any RPA's.

KEY

1. Permatex 300 geotextile
2. 100mm deep InfraWeb tree root protection System infilled with 4/20 Clean angular Stone to BS EN 13242 / EN 12620
3. Permatex 200 separation geotextile
4. Treated Timber Edging (Or other Edging Detail Acceptable)
5. Block Paving with sand bed to Engineers Specification
6. Soil graded to edging (if required)



Warrington Business Park
Longfield Road
WA2 8TX
T: 01925 630976
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TITLE

InfraWeb Section - Tree Root Protection
c/w Block Paving Surface

DRAWN BY PP	SCALE 1:10	DATE 01/14	CHECKED BY RP
DRAWING NO IG-SD-IW-BP-100		REVISION A	APPROVED

4.0 Summary of Proposed Methods

4.1 Table of Impacts and Mitigation

4.1.1 The table below summarises the main areas where trees could become damaged by the proposed development and the methods that need to be adopted in order to prevent such damage:

Table 2: Summary of Proposed Methods

<u>Impact</u>	<u>Mitigation</u>	<u>Reference</u>	<u>Trees Affected</u>
General site access, material storage etc.	Ground protection to acceptable standards.	Paras 2.2.1 & 3.3.3 Tree Protection Plan in Appendix 5	All retained trees
Construction within existing canopy	Tree surgery	Section 2.1	T1 & T4
Demolition of existing build within RPA	Pull down technique within RPA	Section 3.5	T1
Removal of hard surfaces within RPA	Manual removal of surface	Section 3.5	T1, T4, T6 & T7
Damage to roots caused by building foundation excavation within RPA.	Hand excavation of top 750mm of basement line with pre-emptive root pruning	Section 3.6 & 7	T1 & T4
Installation of hard surfaces within RPA	Manual removal of existing surface and retention of sub-base & use of no-dig method	Section 3.5 & 7	T1, T4, T6 & T7

5.0 Completion

5.1 Completion Meeting

5.1.1 Following completion of the works listed above, a Landmark Trees consultant will conduct a walkover survey of the trees to review any defects or signs of ill-health, and inform the local authority in a final report as per Table 1. It is the client's duty to notify LT that the project has been completed, in order to facilitate such an inspection. A separate LT post-development tree inspection (with specific reference to trees identified in the Appendix 1 schedules) is recommended to facilitate a constructive meeting.

Signed

Yours sincerely



Adam Hollis
MSc Arb FArborA MICFor HND Hort
Chartered Forester
Fellow & Registered Consultant of Arboricultural Association

.....
Adam Hollis MSc ARB MICFor FArbor A

25th January 2017

For and on behalf of *Landmark Trees*

Web: www.landmarktrees.co.uk
e-mail: info@landmarktrees.co.uk
Tel: 0207 851 4544



London Office: Holden House, 4th Floor, 57 Rathbone Place London W1T 1JU

Registered Office: 15 Abbey Road, Oxford OX2 0AD

Landmark Trees is the trading name of Landmark trees Ltd. Registered in Wales. Reg No. 3882076



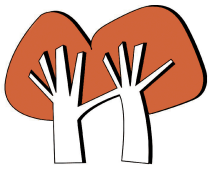
APPENDIX 1: ARBORICULTURAL WORKS

Notes for Guidance:

1, 2, 3 - Urgent (ASAP), Standard (within 6 months), Non-urgent (2-3 years)

- RP - Pre-emptive root pruning of foundation encroachments under arboricultural supervision.
- CB - Cut Back to boundary/clear from structure.
- CL# - Crown Lift to given height in meters.
- CT#% - Crown Thinning by identified %.
- CCL - Crown Clean (remove deadwood/crossing and hazardous branches and stubs).*
- CR#% - Crown Reduce by given maximum % (of outermost branch & twig length)
- DWD - Remove deadwood.
- Fell - Fell to ground level.
- FInv - Further Investigation (generally with decay detection equipment).
- Pol - Pollard or re-pollard.
- Mon - Check / monitor progress of defect(s) at next consultant inspection which should be <18 months in frequented areas and <3 years in areas of more occasional use. Where clients retain their own ground staff, we recommend an annual in- house inspection and where practical, in the aftermath of extreme weather events.
- Svr Ivy / Clr Bs - Sever ivy / clear base and re-inspect base / stem for concealed defects.

*Not generally specified following BS3998:2010



Site: 29 New End, Hampstead, London NW3 1JD

Date: 10th November 2015

Surveyor(s): Adam Hollis

Ref: KWA/29NE/AMS

Recommended Tree Works To Facilitate Development

Show All Trees

Hide Irrelevant

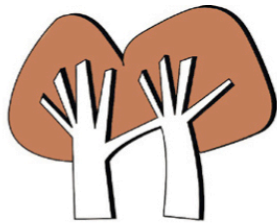
Landmark Trees

Tree No.	English Name	Height	Stem Diameter	Crown Spread	Recommended Works	Comments/ Reasons
1	Chestnut, Horse	17	920.0	8,7,11 ,7	FInv CL3.5 CR2 Crown reduce / lift as per Photograph 1 of AMS. FInv= climbing inspection of rot & brace	Bleeding canker (early) Constricted rooting N-S Cobra brace over theatre W Long laterals E fr'm decay'd h'd's To facilitate development
4	Beech, Copper (TPO)	19	860.0	6996	CB Cut back as per Photograph 2 of AMS. Tie back 2 further small limbs	Remote survey only Branches below 3.5m are <50mm dm. To facilitate development
6	Sycamore	19	849.0	5975	CB Cut back as per Photograph 3 of AMS	Co-dominant stems Included bark in main stem unions Constricted rooting to N cracking boundary wall To facilitate development

APPENDIX 2: GENERAL GUIDELINES

- 2.1 All work must be to BS 3998:2010 - '*Recommendations for tree work*'.
- 2.2 Staff carrying out the work must be qualified, experienced and ideally be Arboricultural Association approved contractors, and will be covered by adequate public liability insurance.
- 2.3 Any defects seen by a contractor or the client that were not apparent to the consultant must be brought to the consultant's attention immediately.
- 2.4 No liability can be accepted by the consultant in respect of the trees unless the recommendations of this method statement are carried out under the supervision of a Landmark Trees consultant.
- 2.5 It is advisable to have trees inspected by a consultant regularly. On this site it is recommended that these inspections are made every year.

APPENDIX 3: SAMPLE SITE MONITORING SHEET



Landmark Trees

Site Monitoring Report Sheet

Client:		Planning Ref:	
Local Authority:		Date:	
Site Address:			
Proposal:			
Visit Checklist	Y/N		Y/N
Tree protection barrier (TPB) in place		TPB as per approved	
Ground protection (GP) in place		GP as per approved	
TPB / GP breached		Trees damaged	
Site Agent briefed by LT			
LT briefed by Site Agent			
LPA informed			
Remedial action required			
Comments			
Recommendations			
Outcome			
1			
2			
3			
4			

Web: www.landmarktrees.co.uk

e-mail: info@landmarktrees.co.uk

Tel: 0207 851 4544



London Office: 20 Broadwick Street, W1F 8HT, London

Registered Office: Grange Cottage, All Cannings, Devizes, Wiltshire, SN10 3NR

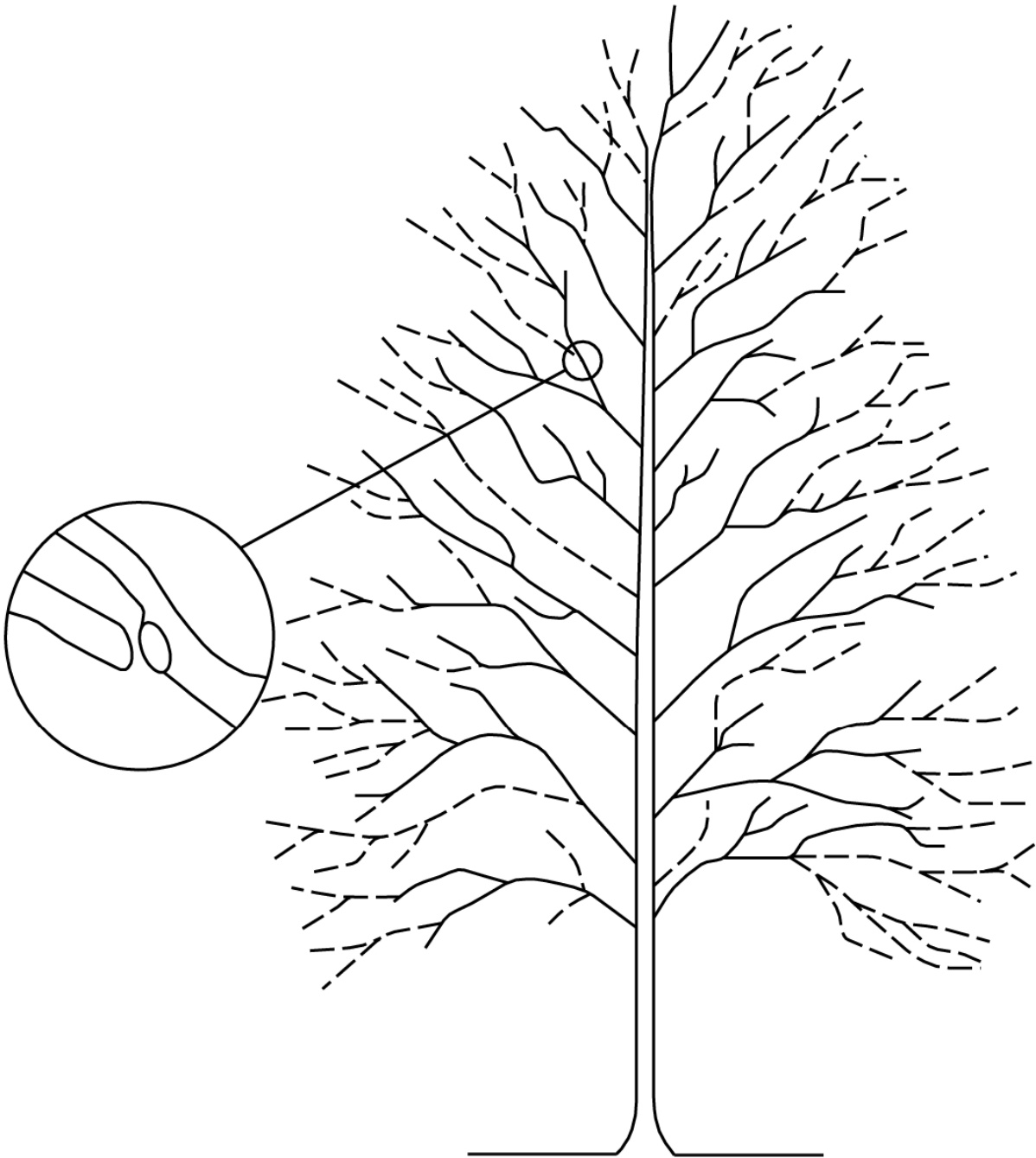
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Arboricultural Supervision Sign off Checklist

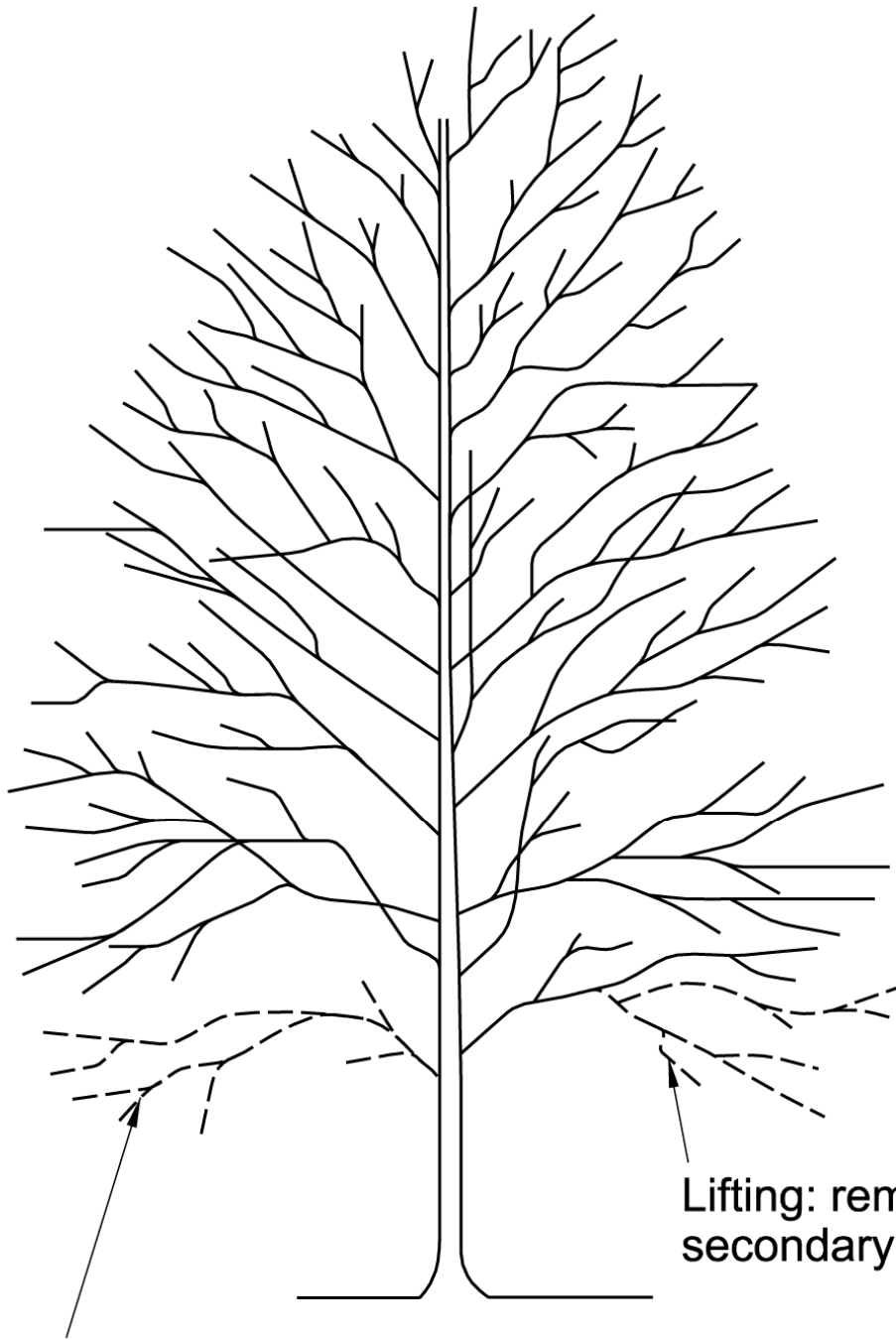
Tree No (s)	Project Phase	Task	Date Completed	Signed (Project arboriculturist)	Signed (Site Manager)
	Pre-commencement	Pre-commencement site meeting to include site manager briefing (S.1.5)			
	Pre-commencement	Confirm the location and specification of the protective measures is in accordance with AMS & Tree Protection Plan (TPP)			
	Pre-commencement	Confirm any tree works have been undertaken in accordance with this AMS (S.2.1/ App 1) and determine if further tree work is required			
	Pre-commencement	Seek required permission for further tree works if necessary.			
	Installation of any new services	Attend any excavation within RPA's where arboricultural supervision is prescribed by the AMS (S3.4) to ensure work is undertaken in accordance with NJUG provisions or other specification.			
	Demolition	Demolition of hard surfaces/ structures within RPA (S3.6) Confirm position of any additional temporary ground protection and that temporary ground protection is in accordance with AMS.			
	Completion of Demolition	Sign off of the demolition phase			
	Construction	Supervised manual excavation of foundations			
	Construction	Installation of 'No Dig' hard surfacing			
	Construction	Additional excavations (if required)			
	Completion of Construction	Completion of construction			
	Post Construction	Removal of machinery and materials from site			
	Post Construction	Dismantle & removal of protective measures			
	Landscaping	Completion of Landscaping			
	Project Completion	Sign off from project arboriculturist			

APPENDIX 4: INDICATIVE PRUNING GUIDELINES



NOTE: Branches pruned back to suitable outward pointing bud or small branch.

REDUCING THE CROWN

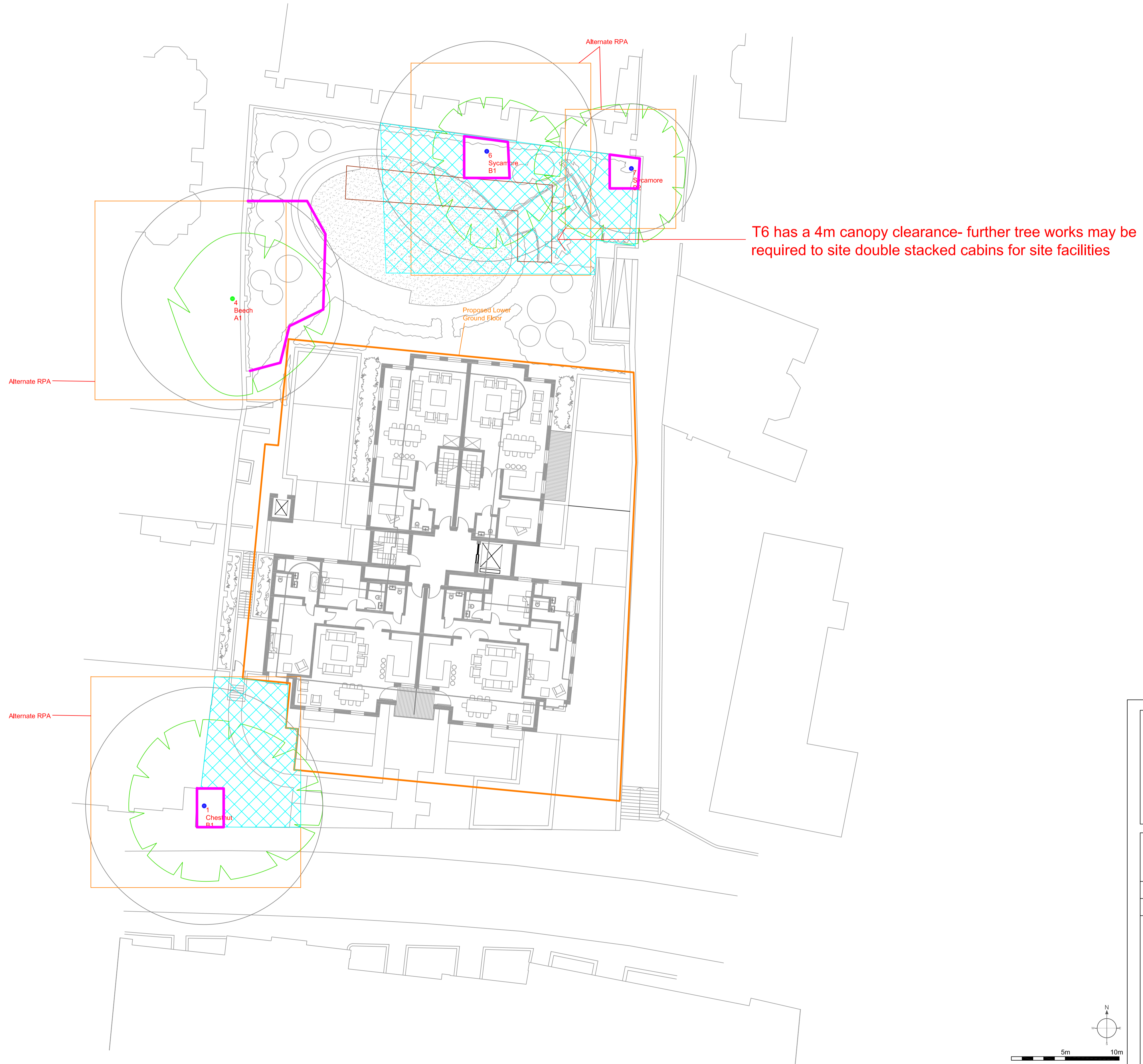


Lifting: removal of whole branch

Lifting: removal of secondary growth

CROWN LIFTING

APPENDIX 5: TREE PROTECTION PLAN



NOTE:
 This survey is of a preliminary nature. The trees were inspected from the ground only on the basis of the Visual Tree Assessment method. No samples were taken for analysis. No decay detection equipment was employed. The survey does not cover the arrangements that may be required in connection with the laying or removal of underground services.
 Branch spread in metres is taken at the four cardinal points to derive an accurate representation of the crown.
 Root Protection Areas (RPA) are derived from stem diameter measured at 1.5 m above adjacent ground level (taken on sloping ground on the upslope side of the tree base).

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 Tel: 0207 851 4544 Mobile: 07812 989928
 e-mail: info@landmarktrees.co.uk Web: www.landmarktrees.co.uk

Site: 29 New End, Hampstead, London 1-200@A1
 Drawing Title: Tree Protection Plan November 2015

Key:

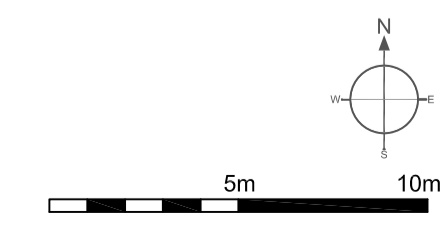
- Category A High Quality
- Category B Moderate Quality
- Category C Low Quality
- Category U Trees Unsuitable for Retention

Ground Protection: NB the provision of ground protection on plan does not prohibit the consented laying of services and related works in those areas. It means that those operations should proceed under caution and protect adjacent ground to that immediately requisitioned for the work in hand.

Tree Protection Fencing

Diagram Key:

- Crown Spread
- Tree Number
- Species
- Category
- Root Protection Area



APPENDIX 6: REFERENCED PLANS

- NOTES**
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- LEGEND**
- [Symbol] DENOTES RC WALL (250 THK U.N.O)
 - [Symbol] DENOTES RC COLUMN
 - [Symbol] DENOTES 250mm THICK SUSPENDED RC GROUND FLOOR SLAB.
 - [Symbol] FACE OF EXISTING BOUNDARY WALLS.
 - [Symbol] DENOTES EXISTING ROAD.
 - [Symbol] DENOTES EXISTING MAIN SEWER.
 - [Symbol] DENOTES SLOPPED RC SLAB FORMING CAR PARK RAMP.
 - [Symbol] DENOTES EXISTING TREES (REFER TO ARBORICULTURAL REPORTS).
 - [Symbol] DENOTES SLAB OPENING.
 - [Symbol] DENOTES LOCATION OF PROPRIETARY THERMAL BREAK.
 - [Symbol] DENOTES TREE ROOT PROTECTION ZONES. (REFER TO ARBORICULTURAL REPORTS).
 - (O/A) DENOTES OVERALL DIM INCLUDING SLAB

T.O.C = 113.155 (TYPICAL)

TENDER ISSUE

REV.	REVISION	DRN.	CHK.	DATE
T1	TENDER ISSUE	KC	RWS	10/06/16
P7	DRAFT TENDER ISSUE	KC	RWS	23/05/16
P6	UPDATED AS PER ARCHITECTS MODEL 22/04/16	KC	RWS	28/04/16
	TAGS ADDED, CHANGES CLOUDED			
P5	STAGE 3 ISSUE	KC	FO	03/03/16
P4	DESIGN DEVELOPMENT	KC	FO	10/02/16
P3	PRELIMINARY ISSUE AS PER 11/12/15 ARCHITECTS	KC	FO	18/12/15
P2	COLUMN POSITIONS UPDATED	KC	FO	18/11/15
P1	ISSUED FOR INFORMATION	KC	FO	12/11/15

REVISION SCHEDULE

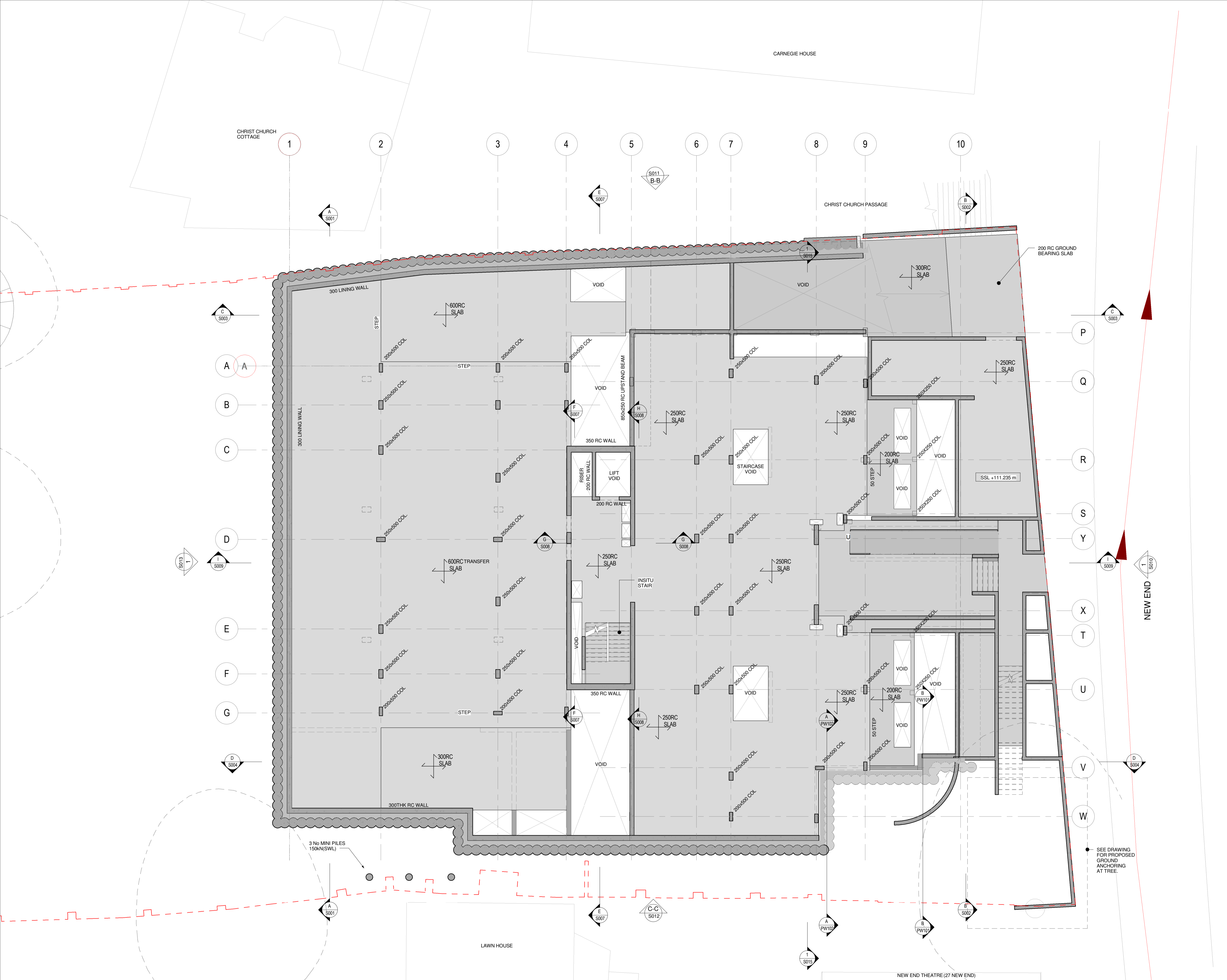


**FLUID, STRUCTURES
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Project: 29 NEW END, HAMPSTEAD NW3 1JD

Title	DRN.	CHK.	Date
GROUND FLOOR PLAN	KC	RWS	NOV 2015
Scale: 1 : 100 @ A1	DRG. NO: P100	T1	

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GROUND FLOOR PLAN
Scale 1 : 100 @ A1

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- [Symbol] DENOTES RC COLUMN.
- [Symbol] DENOTES SPAN OF RC SLAB.
- [Symbol] FACE OF EXISTING BOUNDARY WALLS.
- [Symbol] DENOTES EXISTING MAIN SEWER.
- [Symbol] DENOTES SLOPED RC SLAB FORMING CAR PARK RAMP.
- [Symbol] DENOTES LOCATION OF PROPRIETARY THERMAL BREAK.
- [Symbol] DENOTES TREE ROOT PROTECTION ZONES. (REFER TO ARBORICULTURAL REPORTS).

T.O.C = 109.680 (TYPICAL)



TENDER ISSUE

REV.	REVISION	KC	RWS	DATE
T1	TENDER ISSUE	KC	RWS	06/06/16
P7	DRAFT TENDER ISSUE	KC	RWS	23/05/16
P6	UPDATED AS PER ARCHITECTS MODEL 22/04/16	KC	RWS	28/04/16
	TAGS ADDED, CHANGES CLOUDED			
P5	STAGE 3 ISSUE	KC	FO	03/03/16
P4	DESIGN DEVELOPMENT	KC	FO	10/02/16
P3	PRELIMINARY ISSUE AS PER 11/12/15 ARCHITECTS	KC	FO	18/12/15
	MODE			
P2	COLUMN POSITIONS UPDATED	KC	FO	18/11/15
P1	ISSUED FOR INFORMATION	KC	FO	12/11/15
REV.	REVISION	DRN:	CHK:	DATE:

REVISION SCHEDULE

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Project: 29 NEW END, HAMPSTEAD NW3 1JD

Title:	DRN:	CHK:	Date:
BASEMENT PLAN	KC	RWS	NOV 2015
Scale: 1:100 @A1	CHK: RWS	DRG. No: P090	T1



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 - ALL RC TO BE 'ORDINARY' FINISH U.N.O.

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- [Symbol] DENOTES RC WALL (250 THK U.N.O)
 - [Symbol] DENOTES RC COLUMN
 - [Symbol] DENOTES 250mm THICK SUSPENDED RC GROUND FLOOR SLAB.
 - [Symbol] DENOTES TIMBER JOISTS 147x44 @500 c/c
 - [Symbol] FACE OF EXISTING BOUNDARY WALLS.
 - WRC DENOTES WATERTIGHT RC.
 - [Symbol] DENOTES EXISTING ROAD.
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T.O.C = 113.155 (TYPICAL)

ALL COLUMNS AT THIS LEVEL TO BE GRADE C40/50

TENDER ISSUE

REV.	REVISION	DRN.	CHK.	DATE:
T3	AS CLOUDED	EB	RWS	????
T2	BRICK SUPPORT, SHEET PILING, SLAB 1-4	KC	RWS	12/07/16
T1	TENDER ISSUE	KC	RWS	10/06/16
P7	DRAFT TENDER ISSUE	KC	RWS	23/05/16
P6	UPDATED AS PER ARCHITECTS MODEL 22/04/16	KC	RWS	28/04/16
P5	TAGS ADDED, CHANGES CLOUDED	KC	FO	03/03/16
P4	STAGE 3 ISSUE	KC	FO	10/02/16
P3	DESIGN DEVELOPMENT	KC	FO	18/12/15
P2	PRELIMINARY ISSUE AS PER 11/12/15 ARCHITECTS MODEL	KC	FO	18/11/15
P1	COLUMN POSITIONS UPDATED	KC	FO	12/11/15
P1	ISSUED FOR INFORMATION	KC	FO	12/11/15

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Title:	Job No:	Scale:	DRN:	CHK:	Date:
GROUND FLOOR PLAN	24397	1:100 @A1	KC	RWS	JULY'16
					DRG. No: P100 T3

GROUND FLOOR PLAN
Scale 1 : 100 @ A1

- NOTES**
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- [Symbol] DENOTES RC COLUMN.
- [Symbol] DENOTES SPAN OF RC SLAB.
- [Symbol] FACE OF EXISTING BOUNDARY WALLS.
- WRC DENOTES WATERTIGHT RC.
- [Symbol] DENOTES EXISTING MAIN SEWER.
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BASEMENT PLAN
Scale 1 : 100 @ A1

TENDER ISSUE

REV.	REVISION	DRN.	CHK.	DATE:
T4	AS CLOUDED	EB	RWS	????
T3	SHEET PILING/PILES UPDATED. GENERAL UPDATES	KC	RWS	12/07/16
T2	SHEET PILING/PILES UPDATED. GENERAL UPDATES	KC	RWS	12/07/16
T1	TENDER ISSUE	KC	RWS	06/09/16
P7	DRAFT TENDER ISSUE	KC	RWS	23/05/16
P6	UPDATED AS PER ARCHITECTS MODEL 22/04/16	KC	RWS	28/04/16
P5	TAGS ADDED. CHANGES CLOUDED	KC	FO	03/03/16
P4	STAGE 3 ISSUE	KC	FO	10/02/16
P3	DESIGN DEVELOPMENT	KC	FO	10/02/16
P2	PRELIMINARY ISSUE AS PER 11/12/15 ARCHITECTS MODEL	KC	FO	18/12/15
P1	ISSUED FOR INFORMATION	KC	FO	18/11/15
P1	ISSUED FOR INFORMATION	KC	FO	12/11/15

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BASEMENT PLAN	KC	NOV 2015
Scale: 1 : 100 @A1	CHK: RWS	DRG. No: P090 T4