1-38-2991

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R E P O R T

on the impact on trees

of proposals for development

at

22, Belsize Lane, London, NW3

(20th July, 2012)

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REGISTERED
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01
Introduction and Instructions

I am instructed by Belsize Architects on behalf of clients to make an assessment of tree amenity value and condition of trees, at 22, Belsize Lane, London, NW3, and of the impact of a proposal for development on such trees. Accordingly, I visited the property on 14th June, 2012 in order to carry out an inspection.

02
Copyright

02.01
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03
Notes

03.01
PLANS

1-38-2991/P1 gives an approximate representation (in plan) of actual crown form, and is intended to indicate the relationship of neighbouring trees to each other, and should be read with the comments on crown shape and tree value in TREE DETAILS appended. The plan gives a quick reference assessment of value as per section 4, table 1, of BS 5837:2012. Assessment of value in the TREE DETAILS table appended is, in accordance with British Standard 5837:2012 'Trees in relation to design, demolition and construction - Recommendations' related mainly but not exclusively to the criterion of *visual value to the general public*. The Standard recommends a way of classifying trees when assessing their potential value in relation to proposed development. Some surveys may not include any trees of one or more categories. Table 1 suggests categories 'U', 'C', 'B' and 'A' , in ascending merit. 'U' (RED crown outline on plan) category trees are dangerous \ low value trees that could require removal for safety or arboricultural reasons. 'C' (GREY or black/uncoloured crown outline on plan) category trees are of no particular merit, but in adequate condition for retention. 'A' category trees (GREEN crown outline on plan) are trees of high vitality or good form, or of particular visual importance: 'B' (BLUE crown outline on plan) category are good trees but may be of slightly poorer form or be not sited as importantly as 'A' category trees. See TREE DETAILS appended. Category Assessment appears in column 10. This standard also provides a way of determining an area (see TREE DETAILS column 7) – the RPA – root protection area - around the trunk of the tree in which protective measures should be used in order to prevent significant damage to trees. There are various ways of achieving this. A simple way is to use exclusion fencing, but other methods have been shown by established use to be very effective.

03.02
1-38-2991/P2 shows proposed retained trees and is colour-coded to indicate where arboricentric methods are proposed during the construction process.

04
Sources and Documents

Ground level inspection.
Supplied plans refs: 22BL-GARDEN STUDIO.dwg – Existing and Proposed

05
Appraisal

05.01
AMENITY / SCREENING BY TREES AND SHRUBS
No trees on or adjacent to the site are of any significant general public amenity value, as they are not visible from any truly public viewpoint. Certain trees are of considerable strictly local amenity value to owners / users of the site, and to those of adjoining properties, as these trees provide screening on the perimeter of the site.

05.02
TREES AND LAYOUT - POTENTIAL FOR CONFLICT WITH ROOTS
(Details appear in the tree detail table appended.) The figures in columns 6 and 7 in the tree details table appended indicate the root protection area ('RPA'), and typically the basic exclusion fence position. New materials and methods have been developed and continue to be developed that assist in promoting the successful retention of trees in association with constructed features. It should be noted that BS 5837:2012 (section 7.4.2) supports 'up and over' methods of construction where appropriate. The design principle of this method is outlined within Arboricultural Practice Note 12 (Through the Trees to Development). This method has been used for many years on the recommendation of John Cromar's Arboricultural Co. Ltd. and has successfully allowed the retention of mature trees very close to construction activities.

05.03
An assessment as per BS5837:2012 section 4.6.2 has been carried out in connection with all trees to be retained. (This section requires that site conditions, tree mechanics, etc., are taken into account in determining the likely position of roots.)

05.04
FOOTING DESIGN
The use of a piled footing with reduced depth ground beams or fully suspended ground beams is proposed in the footprint area and outlined in method below. All retained trees will be adequately protected by exclusion fencing and other measures as indicated in methods below.

05.05
Minor encroachment on the RPA of certain retained trees is entailed, as analysed in the table below :

No.	Tree	RPA in sq.m.	Area sq.m affected	Percentage affected	Notes
1	sycamore	366.44	41.29	11.27	RPA protected by special method – no levels reduced, no significant roots to be cut - see section 07 below
2	Japanese cherry	23.93	6.92	28.92	
3	lime	65.33	22.51	34.46	
4	horse chestnut	289.53	28.83	9.96	

The use of a piled footing with reduced depth ground beams or fully suspended ground beams is proposed in areas indicated on plan and outlined in method below. BS 5837:2012 – section 7.4.2.3 restricts permanent impermeable hard surfacing of any existing unsurfaced ground within the RPA of trees to be retained to 20% of the RPA. In this case, the area proposed to be covered by the footprint is covered.

05.06
PERCEPTION OF TREES
Being a single-storey studio, the proposed building is not continuously habited. In addition, all trees lie outside the proposed curtilage, and therefore can reasonably be viewed as secure from proposals to fell or reduce. In view of the above I conclude that shading by trees has been considered (as section 5.6.2.6 of BS 5837:2012 recommends) and appears not significant.

05.07
SUPERSTRUCTURE AND TREE APPRAISAL - TREE PRUNING
I note from the drawings supplied and from my site visit that no major conflict with the crown of retained trees will occur in relation to the proposal. The form of the trees is such that the defining branch structure is well above or clear of the proposed building line.

05.08
Removal of a limb from tree 1 is proposed for safety reasons. The limb in question has developed from an adventitious bud on the SW side of the trunk some years ago, and such limbs are typically not firmly attached to the trunk (junction arrowed in image left). This work is recommended whether the site is developed or not. The pruning proposed is according to British Standard 3998:2010 'Tree work – Recommendations'. A schedule for the use of a contractor appears below.

05.09
Processing by the LPA of any due future application from owners for permission to carry out any other tree work will no doubt be carried out with due regard for good arboricultural practice and according to British Standard 3998:2010 'Tree Work – Recommendations'. In any appeal that might arise against refusal of LPA consent to reduce inappropriately, or fell trees, common arboricultural criteria to those of the LPA would be used by any specialist tree inspectors of the Planning Inspectorate, and thus the trees would in my view be thus protected against inappropriate work. I consider that any such notional issues are very likely to be dealt with appropriately as no doubt in the past they have been within the Borough, as such tree/building juxtapositions are far from rare.

05.10
SUPERVISION
Supervision by an arboriculturist is a desirable (but not always essential) element of site development where trees are present and to be retained. Good communication between site agent and arboriculturist can reduce the need for such a measure. I propose that this takes place at key points in the construction process, and additionally whenever required by the architect or LPA. These key stages are as per method 1 in section 06.02 below.

05.11
PUBLISHED GUIDANCE IN RELATION TO TREES AND DEVELOPMENT
In conserving trees on development sites, expected best practice is as in B.S. 5837 : 2012. Section 5.1.1 notes :

"Certain trees are of such importance and sensitivity as to be major constraints on development or to justify its substantial modification : attempts to retain too many or unsuitable trees on a site

can result in excessive pressure on the trees during demolition or construction work, or post-completion demands for their removal."

05.12
The above advice appears to have been considered in formulating proposals for development.

05.13
CONCLUSION
I conclude that the construction proposed, subject to precautionary measures as outlined above and as per the recommendations outlined below, will not be injurious to trees to be retained, nor will require any trees to be removed.

06
<u>Tree Protection Proposals</u>

06.01
TREE PROTECTION - GENERAL
It is highly important to tree health and vitality that construction activities are carried out strictly in accordance with the tree protection methods specified. A single traverse of a root protection area by a mechanical excavator can cause SIGNIFICANT and PERMANENT (albeit temporarily invisible) damage to trees. Such machinery, including piling rigs, shall be kept at ALL times outside the root protection areas as indicated in the tree details table appended, and/or shall be subject to SPECIAL METHODS below. Fences to protect trees shall be respected as TOTAL EXCLUSION fences. Hence, before any site activity, including demolition, the fence lines shall be complete. Protective fencing and any temporary protection of ground surfaces will have to be removed in due course to allow finishing of landscaping, paving, etc., but this shall not take place until all need for vehicular access to the site has passed, and shall be agreed with arboriculturist / planners on site during progress of works.

06.02
TREE PROTECTION – SPECIAL METHODS 1-11
PLEASE READ WITH PLAN REFERENCE 1-38-2991/P2, APPENDED.

Method 1 : Supervision by an arboriculturist shall take place at key points in the construction process, and additionally whenever required by the architect or LPA. These key stages are :

1) **At site possession by contractor, outline all tree protection measures with site agent and resolve any issues arising. Ensure remedial tree work is carried out to specification and sign off. Ensure protective fencing is erected and completed as proposed. Ensure any site huts, mixing sites for mortars, disposal-to-skip sites, etc., are located appropriately, and sign off.**
2) **Supervise lifting of hard surfacing near trees.**
3) **Supervise laying of geotextile combination ground protection and sign off.**

4) Attend as required to supervise digging for and the laying of lighting cable ducts or services.
5) Approve timing of removal of protective fencing (post main phase) and sign off.

Method 2 : Tree work shall be in accordance with good arboricultural practice, to BS 3998:2010 'Tree Work - Recommendations'. Dead wood shall be removed where overhanging the site.

Method 3 : Tree protection fencing shall be erected, consisting of 'Heras' type fencing (weld-mesh panels), each section securely attached to uprights driven at least 0.6m into ground, as per the layout as shown on the plan (pink lines). The standard rubber supports ('elephant's feet') shall if used, be as per BS 5837:2012 section 6, figure 3.

Method 4 : TEMPORARY HARD SURFACE
This method shall apply in zone purple honeycomb on plan. No reduction of levels shall take place. No wheeled or tracked machinery shall be used, except if standing on completed formation as outlined below. An HDPE impermeable membrane shall be laid over the surface ; 100mm depth sharp sand shall be laid over membrane ; edge restraint shall be of timber formwork around the entire perimeter of the zone ; such edge restraint shall stand 50mm above finished concrete-pour level to prevent concrete leaching into the soil ; concrete shall be poured to a depth of 100mm over sharp sand layer. On completion of construction phase or when all need for vehicular access to the zone has ceased, slab / sand /membrane shall be removed using only hand-held tools or hand-held power tools.

Method 5 : LIFTING OF EXISTING HARD SURFACE and GROUND PROTECTION

This method shall apply in zone hatched brown and zone dotted red (dwarf wall) on plan. The existing shed and greenhouse structures, hard surfacing, any existing surface debris, light vegetation, etc., that lies within the zone shall be removed using hand tools or hand-held power tools only. No 'scraping up' with a mechanical excavator shall be carried out. Cement residues shall be dry brushed, bagged up and removed to skip for disposal off site. Hoses or other irrigation shall not be used to wash cement dust residues away. Any cement-contaminated soil shall be removed with hand tools only and removed from site. Heavy-duty impermeable membrane and then continuously abutted scaffold boards or manufactured boards shall be laid so as to completely cover this area.

CONSTRUCTION PHASE

Method 6 : This method shall apply within zone hatched brown on plan. The proposed structure is lightweight : the position of piles/pads is not critical to support and loading considerations and considerable design flexibility exists in terms of final position of piles/pads. Trial pits for determining pile/pad locations shall be dug with hand tools only. Trowels and hand brushes in addition to border (ladies') spades shall be

used. The work shall proceed cautiously from ground level. A skimming horizontal action rather than primarily vertically-orientated use of spade shall be adopted where possible. No roots over 20mm diameter shall be cut. Concentrations of 3 or more roots of 10mm to 20mm diameter within 150mm shall be preserved. Roots 20mm or more in diameter unearthed shall be temporarily protected with bubble-wrap and insulating or gaffer tape while rest of hole is dug. The use of small probes such as screwdrivers to determine root presence ahead of digging is recommended. It should be borne in mind that the presence of large numbers of roots >20mm in diameter may effectively prevent completion of trial pit, and this would be sufficient reason to terminate the operation and consider its purpose complete or shall entail the moving of the trial pit to a different location. If a root > 20mm diameter is inadvertently damaged, it shall be retained *in situ* for appraisal by the arboriculturist. Trial pits to determine suitable pile/pad locations shall be taken to 0.8m below ground level. Shallow excavations for any void former for ground beam placement shall be taken only to the depth of proposed void former – and no lower than the underside of the existing sub-base supporting the existing yorkstone slabs. An impermeable membrane shall be placed between any root-bearing soil and any wet concrete to be poured. The upper 3m of any piles shall be sleeved. All groundworks – piling operations, re-bar laying, concrete casting, etc., shall take place over the layers of impermeable membrane and continuously abutted scaffold boards or manufactured boards. These protective layers shall not be modified without reference to an arboriculturist.

Method 7 : LINTEL and PAD/PILE CONSTRUCTION
This method shall apply in the zone solid green fill on plan. Pre-cast concrete lintels shall be placed with underside no lower than existing ground level or no lower than any existing root-free sub-base. Brick slips may be affixed to a rebate in the lintel if a decorative brick finish is required. An impermeable membrane shall be placed in any excavation for pads to protect root-bearing soil during concrete casting.

Method 8 : This method shall apply after completion of main build only, within zone dotted purple on plan. No reduction of levels shall take place. Paving shall be laid open jointed on lime-free sharp sand firmed to approx. datum by foot / hand-held tamper.

Method 9 : This method shall apply after completion of main build only. Soil-handling of any kind within the root protection areas shall take place only after a minimum of 3 days after heavy rain, and shall where possible be carried out 7 days or more after such rainfall. Screened topsoil (to BS3882:2007- multi-purpose topsoil) shall be laid to a maximum depth of 100mm as required

Method 10 : In addition to the above, careful general operation and site handling shall be observed as outlined at 06.03 below.

06.03
GENERAL TREE PROTECTION METHODS

A) No fires shall be made on any part of the site, or within 20m of any tree to be retained.
B) No spilling or pouring of fuels, oils, solvents, tar shall be made on any part of the site.
C) No spillage or discharge of wet mortar or concrete shall be made on any part of the site.
D) No storage of materials shall be made within the protective fences.
E) No breaching or moving of the protective fences without the approval of an arboriculturist.
F) Services, if planned to be laid in the root protection areas, shall be laid using trenchless 'no dig' methods or by hand dug trenches to avoid cutting major roots.
G) Alterations in levels within the tree protection fence areas shall be avoided.

06.04
It is recommended that acceptance of the recommendations in this report is demonstrated by, for example, the architect specifying in writing to the building contractor that tree care conditions apply in execution of the contract, and by an estimate or written undertaking from the contractor to the architect demonstrating that the practical aspects of observation of such recommendations have been priced in.

07
General

If conflicts between any part of a tree and the building(s) arise in the course of development these can often be resolved quickly and at little cost if a qualified arboriculturist is consulted promptly. Lack of such care is often apparent quickly and decline and death of such trees can spoil design aims and can of course affect saleability, and reflect poorly on the construction and design personnel involved. Trees that have been the recipients of careful handling during construction add considerably to the appeal and value of the finished development.

20th July 2012
Signed:

John C. M. Cromar, **Dip.Arb.(RFS) F.Arbor A.** **01582 808020 / 07860 453072**

APPENDICES

08
Tree details

TREE ASSESSMENT AND ROOT PROTECTION ZONES

Tree number prefix(es)	Tree number	Tree type	Height range (m)	Number of stems	Stem diameter (combined if applicable) (mm)	Radius of RPA if circle (mm)	RPA (m^2)	Comments	Life expectancy (years)	Assessed BS5837 value category
T	1	sycamore	19	1	500.00	6000.00	113	Remove weakly attached limb on SW side of trunk, arising at about 3m +GL.	40+	B2
T	2	Japanese cherry	5	1	230.00	2760.00	24	suppressed by 1+3	10+	C2
T	3	lime	7	1	380.00	4560.00	65	some screening value although pollarded to 5m above ground level	20+	B2
T	4	horse chestnut	20	1	800.00	9600.00	290	multi stem above 2m above ground level	40+	B2

09
Schedule

Tree at 22, Belsize Lane, London, NW3

Please read in conjunction with plan 1-38-2991/P2. Trees outside the curtilage of the property may be included. Boundaries where marked should always be treated as notional, and no statement either implied or explicit as to the ownership of trees should be taken as definitive or precise. As applicable, the consent to, or acquiescence to, and communication of the timing of the recommended remedial works, as far as the relevant owner is concerned, should be checked before any such trees are actually treated.

Tree number prefix	Tree number	Tree type	Height range (m)	Stem diameter (mm)	Comments
T	1	sycamore	19	500.00	Remove weakly attached limb on SW side of trunk, arising at about 3m +GL.

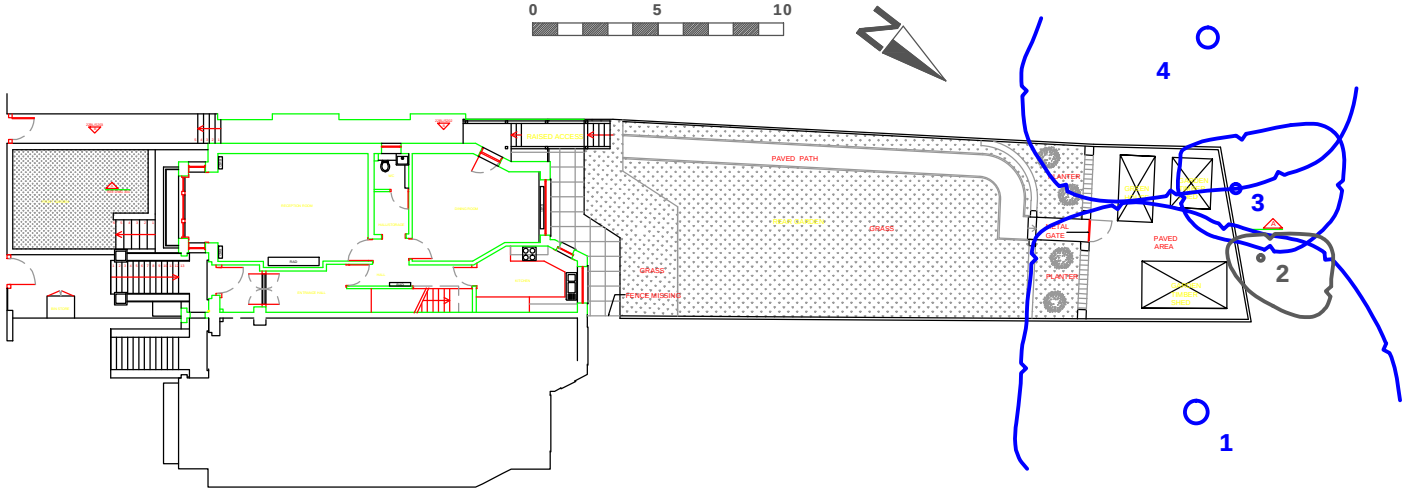
NOTES:
All tree work should be carried out to BS 3998 : 2010 'Tree Work - Recommendations'. The Wildlife and Countryside Act 1981 protects with certain exceptions all birds and their nests. It is an offence to destroy such nests or take or injure such birds in the course of tree works operations. If a tree is a bat-roost, a licence to work on the tree must first be obtained from the relevant Statutory Nature Conservation Organization (in England : Natural England 0845 601 4523.) Acting without a licence is likely to be justifiable only in acute emergencies threatening human life and where all other legally available option such as footpath diversion, fencing and warning signs cannot be applied.

10
Plans

1-38-2991/P1
1-38-2991/P2

KEY TO PLAN SYMBOLS

GREEN - High Value
BLUE - Moderate Value
BLACK - Low Value
RED - Remove/Very short life expectancy



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TREE VALUE ASSESSMENT
as per BS5837:2012

for full details of tree value see report ref. TC/1-38-2991

22, Belsize Lane, London, NW3

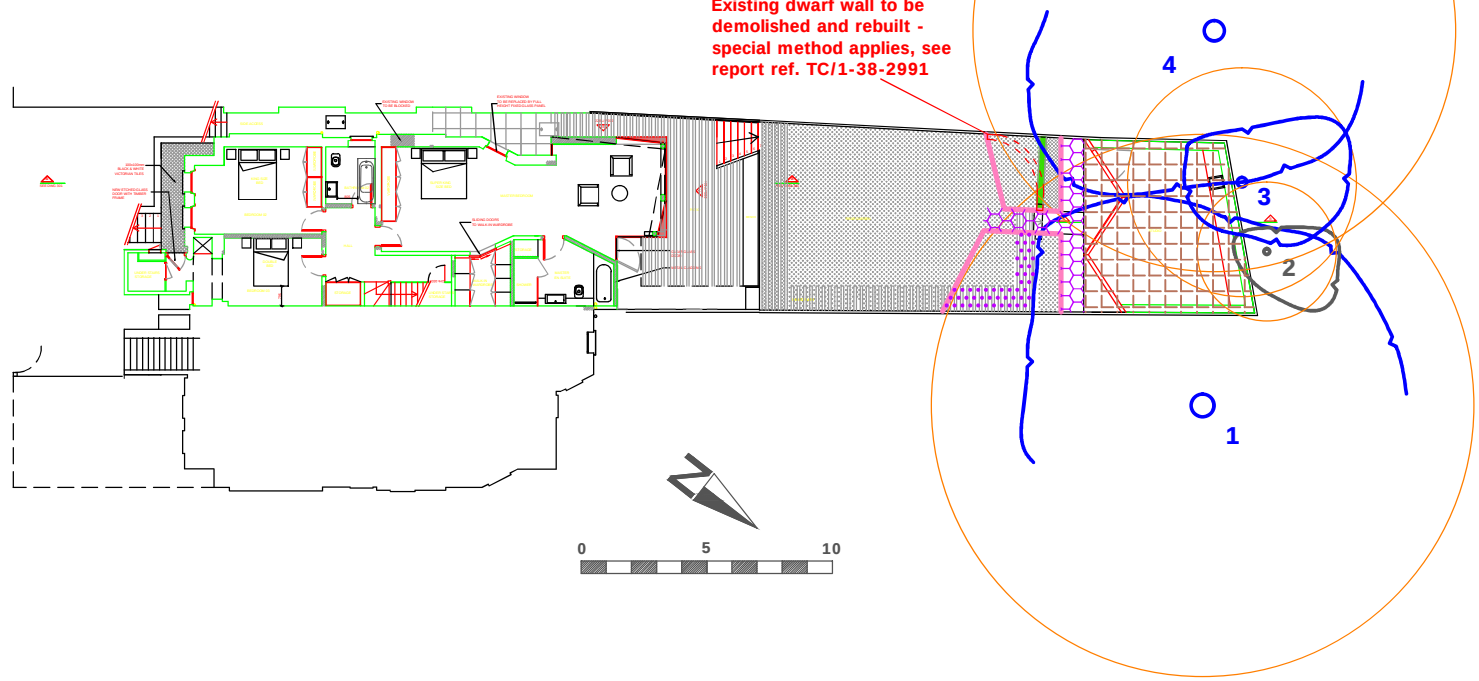
based on Belsize Architects drg. 22BL-GARDEN STUDIO supplied

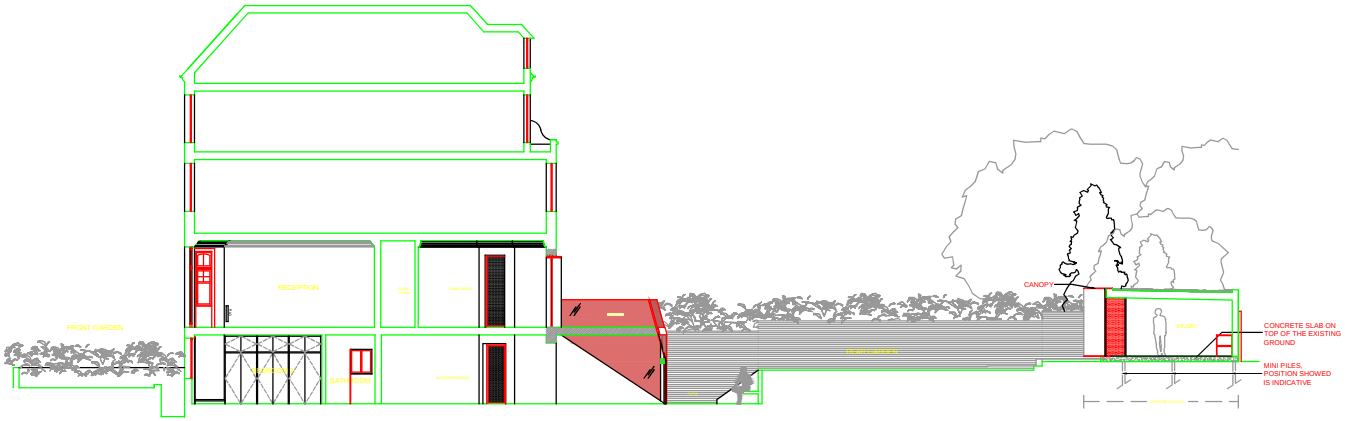
ref: 1-38-2991/P1
1:200 scale @ A3
Jul 2012

KEY TO PLAN SYMBOLS

PINK LINES: Tree Protection Fencing
ORANGE CIRCLES: Root Protection Areas
PURPLE HONEYCOMB: Temporary geotextile method - see report ref. TC/1-38-2991
BROWN HATCH: Ground protection method applies - see report ref. TC/1-38-2991
GREEN FILL: dwarf wall construction method - see report ref. TC/1-38-2991
PURPLE DOTS: special method applies - see report ref. TC/1-38-2991

Existing dwarf wall to be demolished and rebuilt - special method applies, see report ref. TC/1-38-2991





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TREE RETENTION and TREE PROTECTION MEASURES

for fuller details of protection measures see report reference TC/1-38-2991

22, Belsize Lane, London, NW3

based on Belsize Architects drg. no. 22BL_P100_Proposed-Garden Studio supplied

ref: 1-38-2991/P2
1:200 @ A3 scale
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