1-38-3689

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R E P O R T

on the impact on trees

of proposals for development

at

4 Tavistock Place, London, WC1H 9RA

(24th February 2015)

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01
Introduction and Instructions

I am instructed by Marek Wojciechowski Architects Ltd on behalf of clients to make an assessment of tree amenity value and condition of trees at 4 Tavistock Place, London, WC1H 9RA and of the impact of a proposal for development on such trees. Accordingly, I visited the property on 9th January, 2015 in order to carry out an inspection.

02
Copyright

02.01

03
Notes

03.01
PLANS

1-38-3689/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 'Trees in relation to design, demolition and construction - Recommendations'. Assessment of value in the TREE DETAILS table appended is, in accordance with British Standard 5837:2012 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
1-38-3689/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:
MWA drg. D_01 Exist_Demo Ground Floor
MWA drg. P_01 Demolition & Proposed Ground Floor

05
Appraisal

05.01
AMENITY / SCREENING BY TREES AND SHRUBS
A group of London planes to the SE of the site are of significant general public amenity value, as they are large trees, visible from multiple private dwellings.

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 *orthodox* root protection area ('RPA').

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.) SRP is an acronym for *static root plate*, (after *Mattheck*, 1991, etc.) a radial dimension derived from trunk diameter based on studies of wind-thrown trees and thus a guide to where structurally significant roots are likely to be located. RPA is an acronym used in BS5837:2012 and signifying the *root protection area*. The RPA is a guide to where systemically significant roots are likely to be located. The section 4.6.2 assessment is of particular relevance in connection with this site where several trees proposed to be retained are sited close to a retaining wall on adjacent land. A trenching exercise was carried out to a method of working supplied by the writer :

Method 1 :
The trench shall be dug with hand tools only. Probes such as screwdrivers or steel rod <10mm diameter to determine root presence ahead of digging shall be used. The work shall proceed cautiously. No roots over 25mm diameter shall be cut. Roots 25mm or more in diameter unearthed shall be temporarily protected with bubble-wrap and insulating or gaffer tape while rest of trench is dug. An HDPE membrane shall be placed against the excavated soil face to conserve moisture in the root zone, and shall be held in place by manufactured board cut to avoid roots protruding from the soil surface and secured with re-bar passed through drilled holes in the board, punched through the membrane, and secured with wing nuts.

Notes:
Appropriate revetment may be required for safety reasons.

Two extensive trial strip trenches were excavated as shown in the images appended, to a depth of 1.5m (TRENCH 01- see appendix) and 2.6m (TRENCH 02) below garden level. These established that roots of the London planes had not underpassed the wall to any marked extent. It is of note that only very small diameter roots were encountered in both trenches, and minimally in the deeper trench 02. The sparse roots encountered (see photos S1-S6) appeared to have grown through the weak lime mortar of the unusually deeply founded wall. The subsoil encountered was mainly sand and gravel. This is, when well-compacted as was the case in the trenches, tends to be a poor medium for root development.

05.04

Regular reduction of the trees has likely over time diminished the extent of the root systems (see *Coder*, 'Crown Pruning Effects on Roots' (1997). On the plans appended I have shown the RPAs modified in accordance with the assessment recommended at BS5837:2012 section 4.6.2, to 80% of the orthodox RPA. It is on the other hand very likely that significant anchorage roots in or near the SRP will have remained exactly as the orthodox SRP as these are essential to tree stability : the SRPs lie completely within the adjacent curtilage to the SE. The root systems are also likely to feature many grafts by reason of the trees' close proximity to one another and the constraints of the built form nearby. On the basis of the combination of the long term pruning cycle and the root-hostile substrate encountered it can be concluded that no significant encroachment on the RPA (or SRP) of any retained tree is entailed in the proposal which involves excavation via contiguous piles at the position of trench 02 to form a basement courtyard.

05.05

ROOTS and DESIGN

In view of the above I conclude that no special footings are needed from the arboricultural perspective. In this case all trees to be retained can be adequately protected by exclusion fencing and other measures as indicated. Methods are proposed below to reduce impacts on root systems of retained trees.

05.06

PERCEPTION OF TREES

The majority of the significant trees are located mainly to the SE of the habited parts of the proposed building. The proposed dwelling is in a closely similar position to the existing structure : the existing structure's position in relation to the existing trees has not generated any obvious or reported requirement to prune trees inappropriately. The trees are evidently under a management regime, and which for safety reasons will require repetition, whether the site is developed as housing or not. It is noted that the current structure is an office whereas the proposed building would consist of dwellings. The trees lie outside the proposed curtilage, and therefore can reasonably be viewed as secure from proposals to fell or reduce. The species (London plane) has a very low incidence of windthrow, and it is not subject to high levels of significant branch fracture. In view of the above I conclude that shading by and perception of trees has been considered (as sections 5.3.4 and 5.6.2.6 of BS 5837:2012 recommend) and appear not to be negative factors.

05.07

Processing by the LPA of any due application from future owners for permission to carry out 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.

05.08

SUPERSTRUCTURE AND TREE APPRAISAL - TREE PRUNING

I note from the elevation drawings supplied that no encroachment on the crowns of retained trees will occur. It is of note that the form of the trees is such that the defining branch structure is well above or clear of the proposed building line.

05.09

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.

05.10

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."

05.11

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

05.12

CONCLUSION

I conclude that the construction proposed, subject to 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
Tree Protection Proposals

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 1-3

PLEASE READ WITH PLAN REFERENCE 1-38-3689/P2, APPENDED.
The Methods shall be implemented in the order given unless it is stated to the contrary.

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 protective fencing is erected and completed as proposed. Ensure site huts, mixing sites for mortars, disposal-to-skip sites, etc., are located appropriately, and sign off.**
2) **Supervise laying of temporary ground protection and sign off.**
3) **Approve timing of removal of protective fencing (post main phase) and sign off.**

Method 2 : ROOT PRUNING
Any roots encountered shall be trimmed to the edge of excavation using a sharp edge tool such as handsaw or secateurs; the cuts shall be made at right angles to the long axis of the root, and in accordance with BS3998:2010, 8.6. An HDPE membrane shall be placed between any root-bearing soil and any wet concrete to be poured. The membrane shall be laid and secured locally by temporary weighting or as required. Pile casting shall take place without disturbing this protective layer.

Method 3 : 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 free discharge of wet mortar, concrete, fuels, oils, solvents, or tar shall be made on any part of the site.
C) No storage of wet materials shall be made within the protective fences.
D) No breaching or moving of the protective fences shall take place without the approval of an arboriculturist.

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.

24th February 2015
Signed:

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

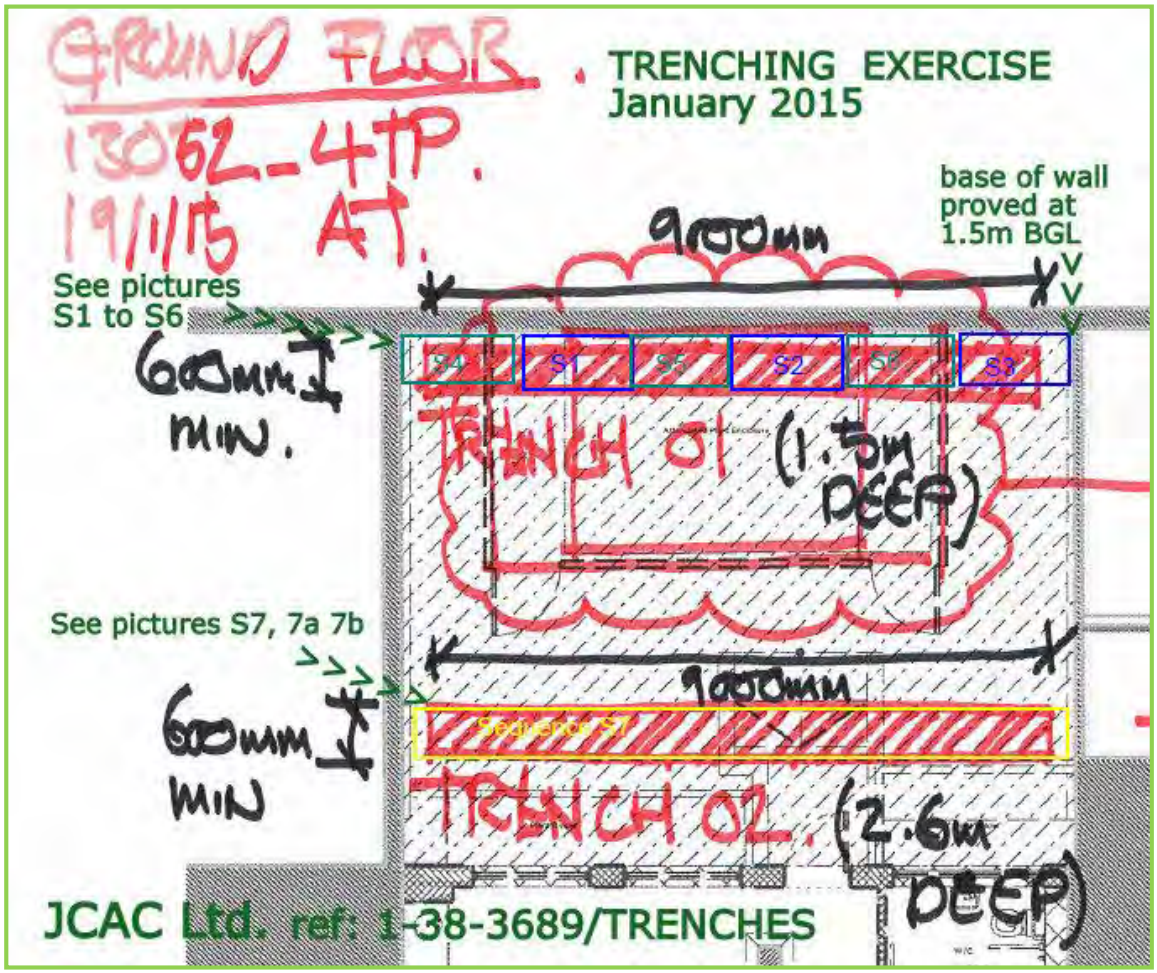
APPENDICES

08
Tree Data

Tree number	Tree type	Height range (m)	Stem diameters	Radius of RPA if circle (mm)	RPA (m^2)	Comments	Life expectancy (years)	Assessed BS5837 value category
All trees high pollarded late 2013/early 2014.								
1	London plane	16–20	750	9000	254	Old fire damage to underside of lower limbs.	40+	B1
2	London plane	16–20	800	9600	290	Old fire damage to underside of lower limbs.	40+	B1
3	London plane	16–20	700	8400	222		40+	B1
4	London plane	16–20	750	9000	254	Low vitality noted.	10+	C1

09

Images from trenching exercise - plan and photos



Pictures S1 to S6

S1

S2

S3

S4

S5

S6

S7 S7a S7b (sequence over time)

S7

S7a

S7b

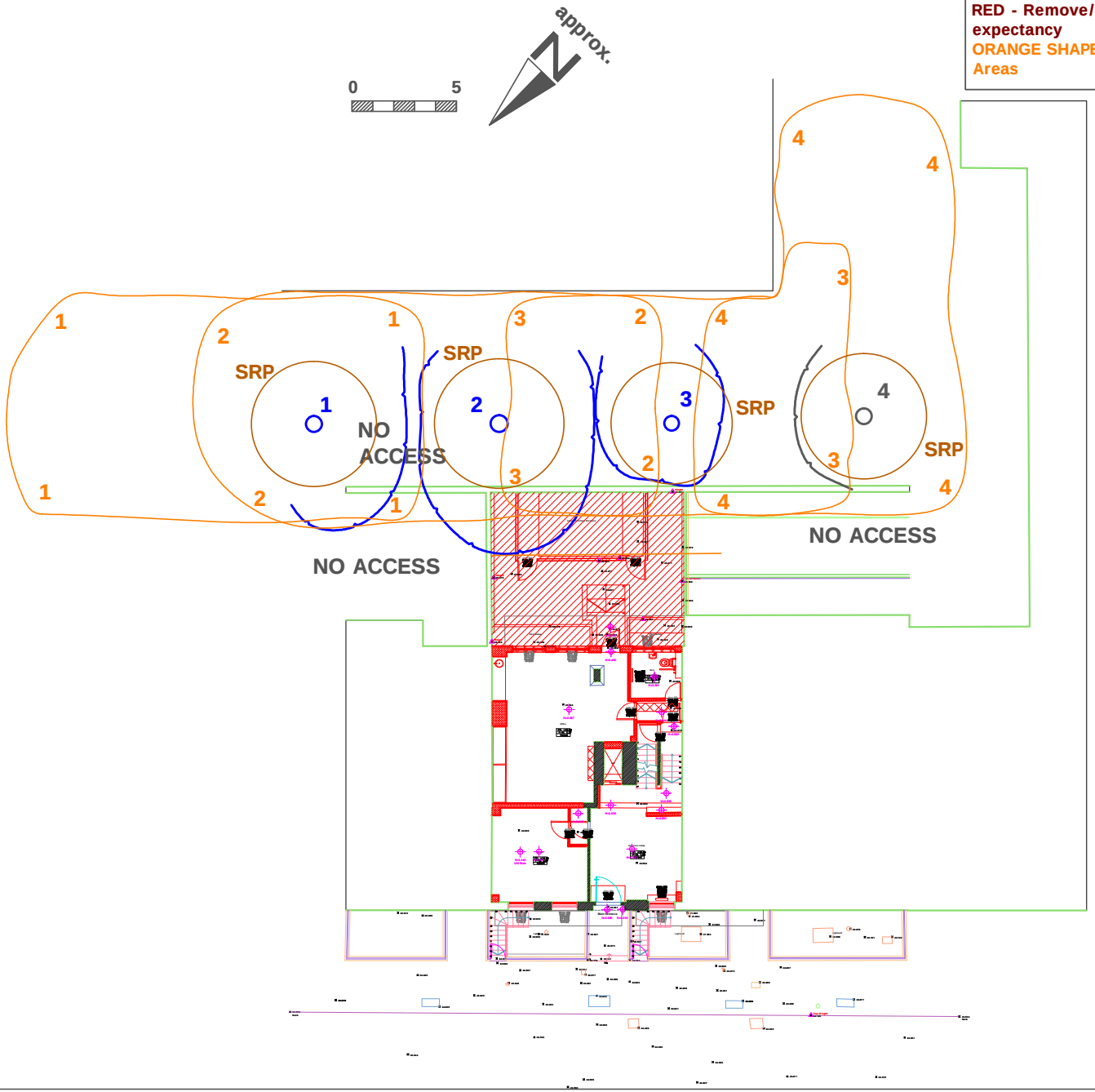
Trench bottomed out at 2.6m below rear garden level

10
Plans

1-38-3689/P1
1-38-3689/P2

KEY TO PLAN SYMBOLS

GREEN - High Value
BLUE - Moderate Value
BLACK - Low Value
RED - Remove/Very short life expectancy
ORANGE SHAPES: Root Protection Areas



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TREE VALUE ASSESSMENT
as per BS5837:2012
&
Root Protection Areas

for full details of tree value see report reference 1-38-3689

4 Tavistock Place,
London, WC1H 9RA

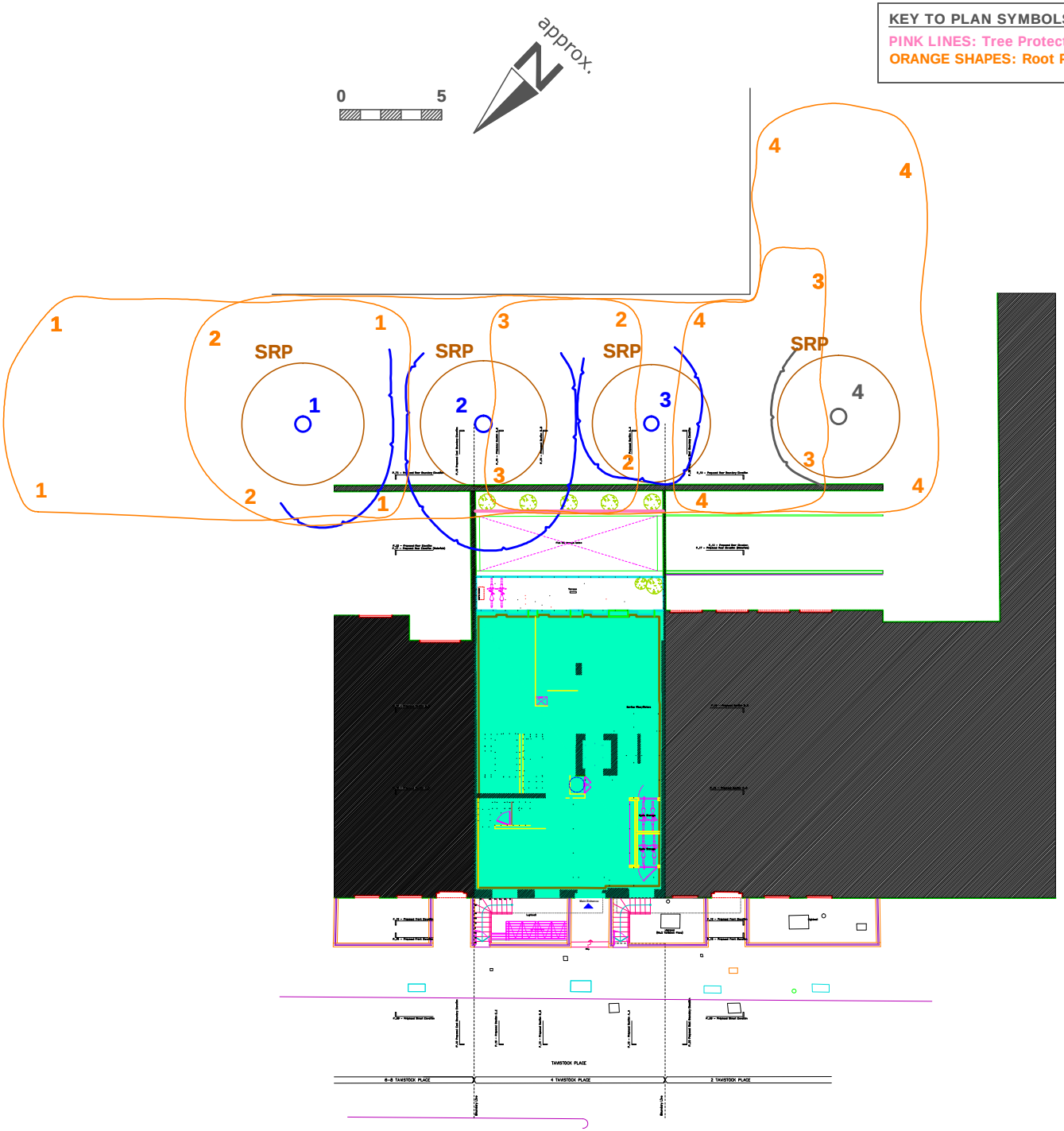
based on MWA drg.
D_01 Exist_Demo
Ground Floor supplied

ref: 1-38-3689/P1
rev. 24.02.15
1:200 scale @ A3

KEY TO PLAN SYMBOLS

PINK LINES: Tree Protection Fencing

ORANGE SHAPES: Root Protection Areas



Ground Floor Plan

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TREE RETENTION and TREE PROTECTION MEASURES

for fuller details of protection measures see report reference

- -

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based on MWA drg. P_01 Demolition & Proposed Ground Floor supplied

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1:200 @ A3 scale