Arboricultural Report

Planning and Development

Arboricultural Appraisal and Implications Assessment

Project Name and Address	**46 Holmdale Road, London NW6**		
Prepared for	2x2 Architects	**Project Ref**	-
ACS Ref	ha/aiams1/46holmdalerd	**Client**	
Prepared by	Hal Appleyard Dip. Arb (RFS), F.Arbor. A. MICFor		
Report Date	15th December 2017		

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Registered Consultant

Hal Appleyard is an Arboricultural Association Registered Consultant and a Chartered Forester

ACS (TREES) Consulting

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Appendices

1.0 Introduction and Scope

Executive Summary
Construction of a rear extension and basement area will be carried out in the vicinity of a retained tree in the rear garden of the subject property. This report assesses the impact of the proposals upon the tree and measures for effective tree protection. There will be a low impact upon the tree from the proposed construction, subject to implementation of the tree protection methods set out in this report.

1.1 A planning application for the construction of a rear extension and lower ground floor, is to be submitted for consideration by the Local Planning Authority.

1.2 The proposed construction is to be undertaken in the vicinity of trees. The implications upon the trees and the methods for tree protection and preservation during ground works, demolition and construction are set out in this report and which includes a requisite a tree protection plan.

1.3 I have been appointed on behalf of the site owners as a competent and qualified arboricultural consultant to provide this report and to supervise any works that may have the potential to affect the protected and retained trees.

1.4 The tree and site have been inspected on 1st December 2017. The tree details are provided accordance with the guidance set out in BS 5837:2012 'Trees in relation to design, demolition and construction- Recommendations' (the BS) and an extract from that guidance is appended herewith. The root protection areas (RPAs) of the relevant trees are indicated upon the plans. Some RPAs may be modified from the

standard circle by the presence of structures in the ground e.g. foundations, roads or kerbs.

2.0 The Site and Trees

2.1 The site comprises a two-storey Victorian dwelling with basement space for part of the house. A rear garden supports one mature tree, subject of this report.

Fig. 1 Rear garden area with tree

2.2 The BS details of the tree is provided within the tree survey schedule at **Appendix 1** and its corresponding position is shown on the tree protection plan included at **Appendix 2**.

2.3 The tree, a Wild Plum T1, grows at the northern boundary of the site, in the rear garden. The tree has been pruned to contain its size but it is vigorous and new growth has redeveloped as would be expected.

2.4 I note that one stem has been removed but the remaining stem has not suffered and it is structurally sound.

2.5 Roots of the tree will extend out into the area for construction but typically, roots taper in diameter very quickly from the origin near the tree base and it is unlikely that any roots of any significance will be lost during the excavations for the new foundations.

Fig. 2 Cut stem with no adverse impact upon retained trunk

2.6 Subject to the implementation of the tree protection measures from the outset of construction, the trees of importance to the landscape, will not be adversely affected by the proposals.

Table 1 **Proposed/Recommended Tree Works**

Tree Works (Spec.)	Tree Nos	Visual Landscape Impact of Works*	Space Available for Replacement Planting(Y/N)	Comments
Root exposure and pruning (Sp8)	1	None	-	Pruning out roots avoiding causing splits or tears
Total		None		

*This is a preliminary visual appraisal based upon the opinion of the author having inspected the trees in the context of their current surroundings. – None (no change or beneficial impact) Negligible or indiscernible difference to treed landscape; Low – Noticeable but mitigated by retention of other landscape trees and features; Medium – Obvious but temporary alteration to the treed landscape; High – Obvious and permanent alteration to the landscape.

Visual receptors include the public or community at large, residents, visitors or other groups of viewers together with the visual amenity of potentially affected people.

Specifications for recommended tree works:

General

All work is to conform to BS 3998:2010 'Tree work – Recommendations' and with current arboricultural best practice. Tree works are to be undertaken by a professional and specialist arboricultural contractor, who carries the appropriate experience and insurance cover, equipment and PPE. All works and processes are to comply with all relevant Planning, Wildlife, Environmental, Conservation and Health and Safety legislation.

Sp6.Felling involves the careful removal of a tree to ground level (or other specified height), either

Sp8.Root pruning is to be carried out or supervised by a competent person (arboricultural contractor). Only sharp and specific pruning tools will be used for the root pruning exercise. No roots are to be pruned if it is considered that their loss (or shortening) will adversely impact upon tree condition or anchorage, immediately or in the future. Any exposed roots will be covered with a material to prevent desiccation. All exposed cut root surfaces will be made as small as possible. If possible roots will be pruned back to side shoot.

Table 2 Summary of Implications of Construction on Trees*

Tree Ident.*	Landscape Contribution	Implications /Impact	Mitigation measures	Impact Assessment**
1	Low	Construction within proportion of RPA	1. Erect tree protection and install ground protection 2. Carry out careful root pruning during foundation construction	Neutral

* Main trees selected for comment included above. Refer to previous notes on other trees.
** Negative – adverse impact upon trees and landscape; Neutral – no material impact (negative or positive); Positive – improvement (potential) to tree quality and landscape

3.0 Recommended Tree Protection Methods

3.1 In order to afford protection from general construction processes associated with the building of the extensions, it will be necessary to erect robust tree protection fences/barriers (normally wire mesh panels) in the position indicated on the Tree Protection Plan at **Appendix 2** (TPP1_HR). A recommended example of the type BS grade tree protection is included at **Appendix 3**.

3.2 Following erection of the tree protection fencing/barriers and following the completion of the tree works, I recommend installing the ground protection (refer to the TPP) to ensure that roots under the surface are not damaged by compaction during regular passing by operatives and light machinery. I have included recommended examples of ground protection at **Appendix 3** also.

3.3 The methods of manual digging near trees is described with **Appendix 5** but for clarity I have set out the procedure below, which is to be overseen by the appointed arboricultural consultant:

i) Clearly mark out the area for hand dig (using biodegradable marker paint) (see TPP)
ii) Use hand tools (forks and spades) to remove the spoil and deposit beyond RPA.
iii) Identify roots to be retained by brushing or the use of compressed air
iv) Unless after professional assessment permits pruning, roots in excess of 25mm Ø are to be retained in-situ by manually clearing around (with compressed air for example), wrapping with non-woven geotextile (e.g.Terram), covering with a void former e.g. split, rigid polythene piping.
v) Roots <25mm Ø will be pruned using sharp pruning tools ensuring that no splits or tears occur and that the pruning wound is made as small as possible. Roots will be pruned back to a side shoot where possible or to a suitable position.

NOTE: THE APPOINTED ARBORICULTURAL SUPERVISOR IS TO BE CONSULTED BEFORE ANY WORK, EITHER SCHEDULED OR UNSCHEDULED, IS CONSIDERED WITHIN THE EXCLUSION ZONE OR ROOT PROTECTION AREAS OF ANY RETAINED TREE. FAILURE TO DO SO MAY LEAD TO ENFORCEMENT ACTION BY THE LPA.

3.4 In order to ensure that the tree protection measures are implemented effectively, a site monitoring exercise will be undertaken to confirm:

i) The efficacy and accuracy of the fencing and ground protection
ii) The root inspection and treatment exercise
iii) Maintenance of tree and ground protection

An example of a site record (tree protection) is provided at **Appendix 4**. In this case, the form will be used as confirmation that all practical precautions have been undertaken in accordance with this method statement.

3.5 A copy of this method statement is to be retained on site for the duration of the build process together with a scaled, colour copy of the Tree Protection Plan.

3.6 The details pertaining to tree protection as set out in this method statement, specifically include:

i) erection of tree protection barriers:

ii) the installation of ground protection;

iii) lines of communication and incident reporting,

are to be explained to the Site Agent at the pre-commencement site meeting. It will be the responsibility of the Site Agent to ensure that all personnel working on site are aware to the tree protection measures processes. A copy of this method statement is to be retained on site for the duration of the build process together with a scaled, colour copy of the Tree Protection Plan.

3.7 Key times for site supervision include:

1. Completion of agreed/necessary tree works
2. Erection of tree protection barriers
3. Installation of ground protection
4. Works within RPAs of retained trees
5. Landscaping

3.8 Effective site monitoring will be undertaken from the outset of the project and at agreed intervals thereafter. The frequency of monitoring may well decrease following the proper installation of all tree protection measures. Below is a recommended programme of arboricultural supervision. (This programme may alter dependent upon site circumstances or by agreement.)

3.9 The process for recording the tree protection measures will involve:

i) Site Agent to contact Arboricultural Supervisor with a minimum of 5 days' notice of any site work commencement.
ii) Arboricultural Supervisor to monitor site to agree tree protection fencing

iii) When all tree protection is installed in accordance with the tree protection plan, the Arboricultural Supervisor is to arrange with LPA tree officer and relevant contractors **the pre-commencement site meeting** in order to agree the tree protection and subsequent works within RPAs of retained trees and importantly the lines of communication between the on-site contractors, the Arboricultural Supervisor and the LPA tree officer and incident reporting,
iv)Arboricultural Supervisor to record all site visits and distribute reports to LPA tree officer and contractors for their records
v)Subsequent to completion, Arboricultural Supervisor to sign-off and complete.
vi) Any incidents resulting in potential tree damage are to be reported in line with the 'Incident Reporting Flow Chart in **Appendix 4**.

Table 3 Preliminary site supervision schedule

Stage	Action	Arboricultural Supervisor (AS) (Required – Y/N)	Notes
1	Pre-commencement meeting*	Y	Site Agent(SA) and LPA tree officer, contractor to attend
2	Tree works	Y	Following completion of tree works
3	Installation of tree protection and ground protection	Y	PRIOR to ground/demolition works
4	Initial manual dig exercise and any root treatment	Y	SA to advise AS prior to commencement
5	Ground works and Construction phase	Y	AS to monitor tree protection at agreed and suitable intervals
6	Remove tree protection fencing/ground protection	N	No tree protection to be removed without prior agreement with the AS
7	Tree planting/landscaping	Y	Brief landscape company & sign off

3.10 The frequency of tree protection monitoring depends upon the nature of the project. In this case, it will be appropriate for the SA to organise with the AS monitoring visits to be twice in the initial 28 days from commencement and thereafter once every 28 days for two months and then by agreement.

Fig. 3 Root exposure and careful pruning

Table 4 Contact List (to be completed **PRIOR** to commencement)

Interested Party	Name	Company/LPA	Contact Number(s)	Comment/ Responsibilities
Site Agent	TBA			Day to day site management; co-ordination of timings; **contact with project Arboriculturist**
Main Contractor	TBA			Legal and administrative running of the project; finance; appointment of and liaison with all project consultants
Arb. Supervisor	TBA			Tree protection and management; dissemination of tree-related information
LPA Tree Officer	TBA			Tree protection and enforcement
Site Engineers	TBA			Technical advice and design
Architects	TBA			Design

TBA – to be advised

***Pre-commencement means i) before any works including tree felling or pruning and ii) before any ground works or demolition commences and upon completion of the initial installation of the tree protection, including ground protection.**

4.0 General site care (trees)

4.1 No fires will be lit on site.

4.2 No access will be permitted to within the fenced or otherwise protected areas (unless for site accommodation or Authorised agreement) at any stage during construction.

4.3 No materials, equipment or debris will be stored within the fenced areas unless agreed with the arboricultural supervisor.

4.4 Areas for mixing are to be located beyond RPAs of trees and contained to prevent leaching into the soil.

4.5 A copy of this report and the Tree Protection Plan is to remain on site at all times.

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Please note that all relevant planning approvals and approval to planning conditions must first have been issued by the relevant planning authority in order for this report to become effective. We strongly advise that you consult your planning advisors before implementing any recommendations set out in this report.

Hal Appleyard
Date: 15th December 2017

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APPENDIX 1

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ACS (Trees) Consulting
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Tree Survey Schedule

Site: 46 Holmdale Road, London NW6

Surveyor:H. Appleyard
Ref:ts1/46holmdalerd

Date:1st December 2017

Tree No.	English Name	Height	Crown Spread	Ground Clearance	Age Class	Stem Diameter	Protection Multiplier	Protection Radius	Growth Vitality	Structural Condition	Landscape Contribution	B.S. Cat	Sub Cat	Useful Life	Observations
T1	Plum,Wild	7	2 2 2 2	2/N2	Middle Aged	230	12	2.8	Normal	Good	Low	C	1,2	20-40	Boundary self-set tree One basal stem removed Reduced in past; vigorous regrowth

Notes:

1. Height describes the approximate height of the tree in meters from ground level.
2. The Crown Spread refers to the crown radius in meters from the stem centre and is shown above on each of the four compass points (i.e. N, E, S, W) clockwise.
3. Ground Clearance is the height in meters of crown clearance above adjacent ground level together with the height and direction of the lowest branch
4. Stem Diameter is the diameter of the stem measured in millimetres at 1.5m from ground level. The diameter may be estimated (e), where access is restricted. An average (a) may be taken for tree groups. A full inspection is always recommended.
5. Protection Multiplier is 12 for single-stemmed trees; for multi-stemmed a cross-sectional area is calculated to derive the DBH, which in turn is multiplied by 12.
6. Protection Radius is a radial distance measured from the trunk centre and is used to calculate the BS RPA.
7. Growth Vitality - Normal growth, Moderate (below normal), Poor (sparse/weak), Dead (dead or dying tree).
8. Structural Condition - Good (no or only minor defects), Fair (remediable defects), Poor - Major defects present or suspected.
9. Landscape Contribution - High (prominent landscape feature), Medium (visible in landscape), Low (secluded/among other trees).
10. B.S. Cat. refers to British Standard 5837:2012 Table 1 category and refers to tree/group quality and value; 'A' - High, 'B' - Moderate, 'C' - Low, 'U' - Remove or very poor quality.
11. Sub Cat refers to the retention criteria values where 1 is Arboricultural, 2 is Landscape and 3 is Cultural including Conservation/ecological, historic and commemorative.
12. Useful Life is the tree's estimated remaining effective contribution in years.

Table 1 **Cascade chart for tree quality assessment**

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality *NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see **4.5.7**.*			See Table 2
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A **Trees of high quality** with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	See Table 2
Category B **Trees of moderate quality** with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	See Table 2
Category C **Trees of low quality** with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	See Table 2

APPENDIX 2

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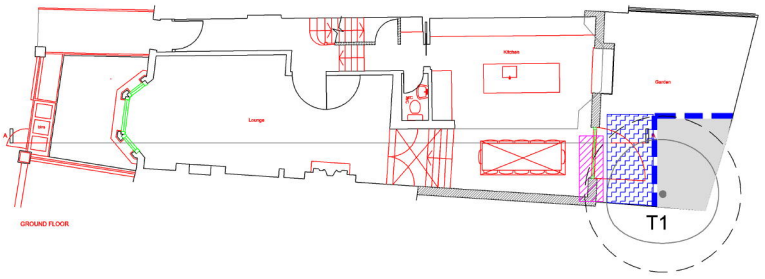

ACS (Trees) Consulting LEGEND

Indicative

BS Root Protection Area, (RPA) shown uniform (above left) but site features such as roadways, retaining walls and foundations, may modify root patterns and therefore the RPA shape.

A grade trees

B grade trees

C grade trees

U grade trees

Position of tree protection barriers; denotes construction exclusion zone for the duration of the project.

Area for effective ground protection suitable for the project

Area identified for hand excavations and for all care to be taken to avoid causing splits or tears in exposed roots over 25mm diameter.

Tree Management Methods to be adopted on site.

1. Undertake pre-commencement site meeting to agree tree protection methods and timings.
2. Carry out any permitted tree works - ask before beginning.
3. Install all tree and ground protection (see Appendix3).
4. Undertake demolition and ground works.
5. Construction phase.
6. Remove tree protection and carry out re-instatement landscaping.

0 1 m 5 m 10 m

Scale: 1:100

Client :
-

Project :
46 Holmdale Road
London NW6

Title :
Tree Protection Plan

Scale : 1: 100 A3
Dwg No : TPP1_HR
Rev : -
Date : Dec. 2017

Do not scale from this drawing. Any discrepancies are to be reported to ACS (Trees) Consulting.
This drawing is to be used when printed to scale & in colour.

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Tree Protection Fencing

Specifications (specifically identified by outline box)

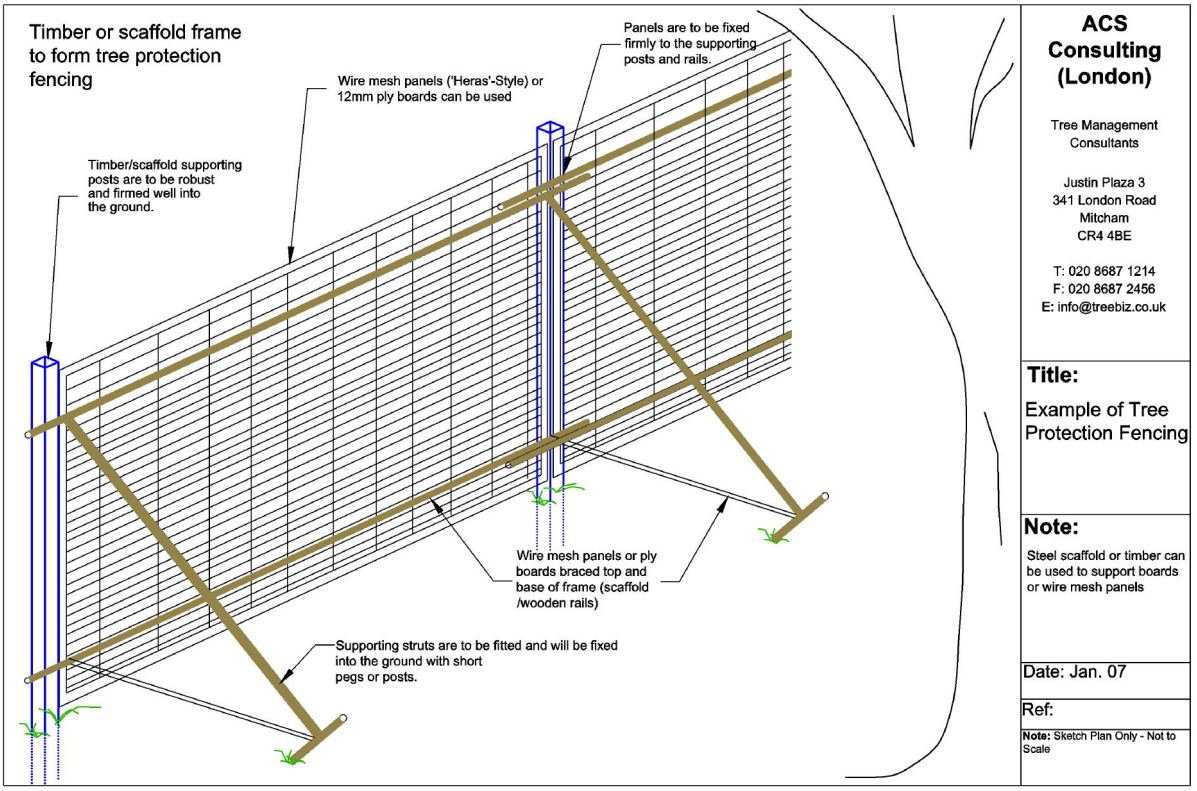
2.4m Hoarding

3.0m 100 X 100mm square wooden posts
3 X 38 X 87mm wooden rails affixed to posts
2.4m X 1200 outside grade ply panels (12mm) affixed to rails.
50 X 100mm angled supporting struts affixed internally (quantity as required).

(Supporting posts fixed into position using concrete. All post holes to be hand excavated. Post holes to be no larger than 300 X 300mm.)

Heras Fencing

Heras fencing describes the 2.4m galvanised steel mesh panelled fencing normally supplied with pre-cast concrete bases. **Bases are to be replaced with a fixed frame to which panels are clamped/ firmly fixed.** For extra stability, scaffold poles/4x4 wooden posts are to be firmed into the ground as supporting posts and supporting struts are to be attached at a 45 degree angle on the 'tree-side' of the fencing and fixed into the ground. Supporting posts will be braced at the top and base for added support.



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Title:

Example of Tree Protection Fencing

Note:

Steel scaffold or timber can be used to support boards or wire mesh panels

Date: Jan. 07

Ref:

Note: Sketch Plan Only - Not to Scale

Tree Protection Fencing

Scaffold Framework supporting 'Heras' type panels with signs attached.

Wooden Framework with 'Heras' type panels attached.

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Example of Tree Protection Box Frame

Designed to provide immediate protection from impacts and damage to the trunk and root crown.

Specification:

Uprights x 4, min. 100 X 100 treated wood

Batons top, middle and base min. 25mm x 75mm

45° angled batons to and base for rigidity 25mm x 75mm

Fix 12mm OSB sheeting to framework

Affix 'Tree Protection' signage.

Fig. 1 Ground protection – hoarding over sharp sand and wood chip

Installing heavy-duty OSB boarding over a depth (min. 50mm) of sharp sand and/or wood chip between the tree protection fencing and the foundation line of new development is effective in protecting roots, which grow in the soil beyond the position of the fencing.

Fig.2 Side-butting scaffold boards and covered and fixed with 20mm OSB boarding

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ACS (Trees) Consulting
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Arboricultural Site Supervision

ACS CONSULTING

Site:	Project Site Address/Name
Inspected By:	Arboricultural Supervisor (AS)
Client:	Client
Site Agent:	Site Agent's Name (SA)
Date of Inspection:	24/02/2017
Time of Inspection:	8:15:00

Tree Protective Fencing

Tree protection in correct location

Comments/Action

Ground protection - temporary concrete and existing paving

Agreed Construction Exclusion Zone

No debris within construction exclusion zone

Comments/Action

Amendments to Documentation Required

No amendments required

Comments/Action

Remedial Works

Robust hoarding and temporary concrete ground protection

Tree protection Hoarding and ground protection over sharp sand.

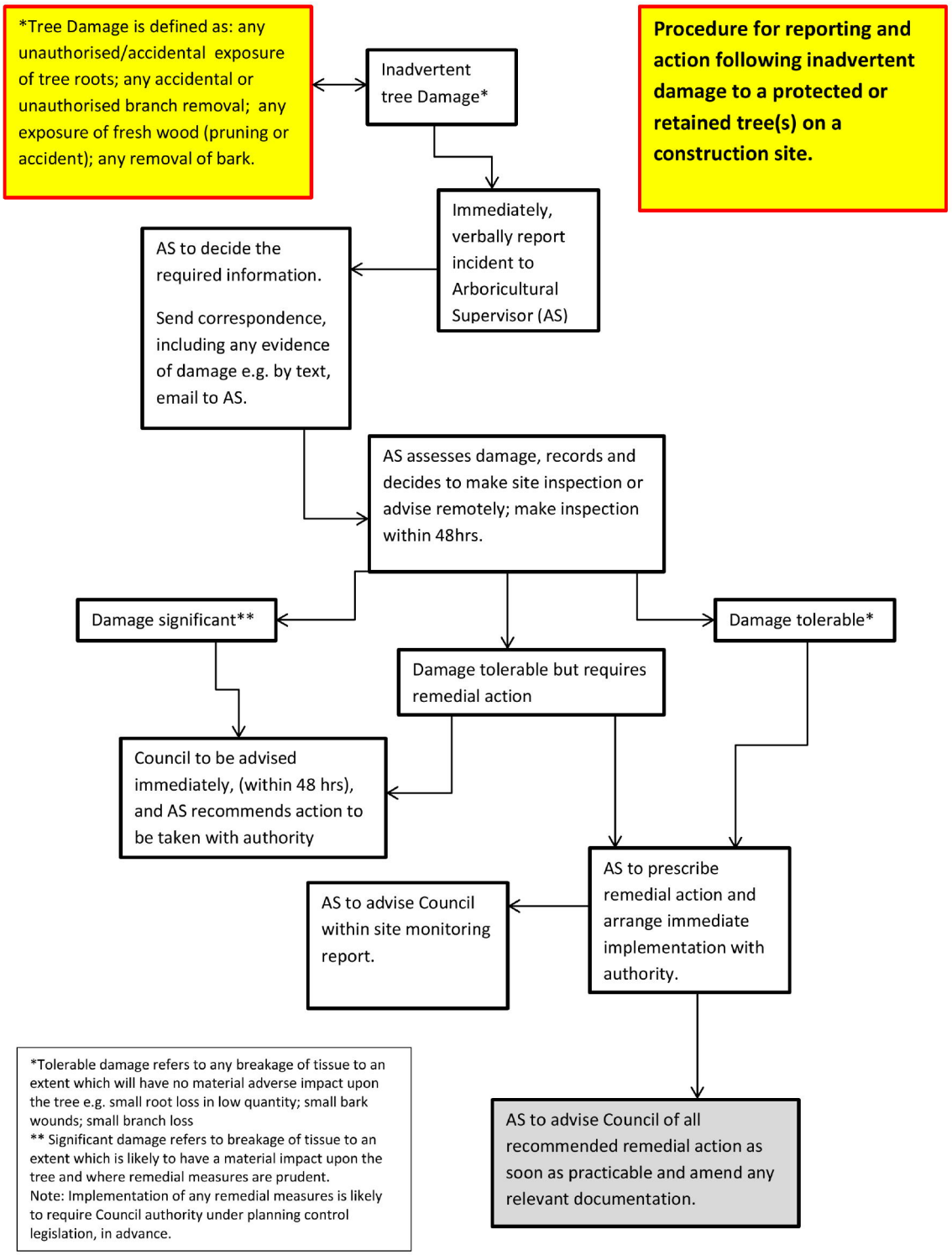
General Comments

1. Tree protection in position and effective
2. Position of site huts used as tree protection for T7 and T10
3. Temporary concrete used for ground protection for T10
4. Hoarding style tree and ground protection effective and in position

Next Inspection April 2017

Procedure for reporting and action following inadvertent damage to a protected or retained tree(s) on a construction site.

*Tree Damage is defined as: any unauthorised/accidental exposure of tree roots; any accidental or unauthorised branch removal; any exposure of fresh wood (pruning or accident); any removal of bark.



*Tolerable damage refers to any breakage of tissue to an extent which will have no material adverse impact upon the tree e.g. small root loss in low quantity; small bark wounds; small branch loss
** Significant damage refers to breakage of tissue to an extent which is likely to have a material impact upon the tree and where remedial measures are prudent.
Note: Implementation of any remedial measures is likely to require Council authority under planning control legislation, in advance.

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