

# Marcus Foster

## Arboricultural Design & Consultancy

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### **Arboricultural Method Statement** **(BS5837: 2012)**

#### **Site details:**

8 Inverforth Close  
London  
NW3 7EX

#### **Client details:**

Mr N Levison  
8 Inverforth Close  
Hampstead  
London  
NW3 7EX

#### **Date of Report:**

22nd May 2017

#### **Report Prepared by:**

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## **Contents**

1. Introduction
2. Summary
3. Sequence of Events
4. Tree Protection Plan & Specifications
5. Communication, Monitoring & Compliance
6. Arboricultural Supervision
7. Installation of Utility Services
8. Tree Works Schedule
9. Appendices
  - A: Tree Survey (March 2016)
  - B: Tree Protection Plan (TPP)
  - C: Tree Protection Site Notice
  - D: Tree Protection Fencing Specification
  - E: References

## **1. Introduction**

1.1 This report has been commissioned by Peter Stern, Architect & Designer on behalf of Mr N Levison, London, NW3 7EX to provide an Arboricultural Method Statement for the trees being retained as highlighted within close proximity of the proposed development at 8 Inverforth Close, London, NW3 7EX

1.2 The Arboricultural Impact Assessment prepared for the proposed development at this site (*Marcus Foster Arboricultural Design & Consultancy*, 12/12/16) highlighted root protection areas and trees affected by any proposed development.

1.3 The tree survey, report and recommendations included 3 trees surveyed within the neighbouring land (Hampstead Heath, The Corporation of London) and the site / rear garden of the property (T1-T3). The aim of this report is to ensure those trees are preserved; all 3 trees can be retained and protected during the proposed redevelopment of the site by clearly setting out tree protection methods, construction techniques and working practices. This report provides this information; principles that are approved and enforced by the local planning authority.

1.4 It should be noted that this is a site specific Arboricultural Method Statement produced solely for the physical protection of those trees identified on the plan within the report and is not relevant to any other site or situation.

1.5 This report and the opinions within it have been produced by Marcus Foster, a qualified Arboriculturist holding a National Diploma in Arboriculture, and the Arboricultural Association's Technicians Certificate as well as a degree in History. Work experience within the industry includes work as a Contracts Manager for an Arboricultural Association Approved Company, a Local Authority Tree Preservation Officer and an independent Arboricultural Consultant.

1.6 The Method Statement must be made available to all contractors and operatives on the site during the construction process so that they fully understand the importance of the measures set out for tree protection.

1.7 Close reference has been made to the following plans supplied in preparation of this report:

*Peter Stern Architect & Designer*  
*Drawing No; 425/20 constr - May 2017*

## **2. Summary**

2.1 There are 3 trees located within close proximity of this site (trees T1-T3), which currently comprises 8 Inverforth Close, and the adjacent trees on Hampstead Heath, London, NW3. The implementation of the proposed development can be achieved whilst retaining trees **T1 - T3** for the long term by taking into account all protective measures highlighted within this report.

2.2 The protection measures are required for the entire construction phase of the development which incorporate the following works as follows:

- Development of garage to east of existing property
- Re-instatement of boundary fence between No.8 Inverforth Close and Hampstead Heath

2.3 For the trees proposed for retention only tree T1 requires protective measures and this document will give site specific instructions to protect these trees. The methods are set out in a logical and coherent sequence for ease of understanding and implementation. The operations that may be required in order to ensure comprehensive tree protection include:

- Construction Site Access - Vehicular & Pedestrian
- Delivery of materials
- Construction Site Storage of Materials / Chemicals / Plant Machinery
- Use of light construction site machinery / moderate plant machinery
- Associated construction site activities

2.4 The Tree Protection Plan will indicate retained trees, trees to be retained and precise locations of protective barriers and ground protection where applicable.

2.5 This document and the associated Tree Protection Plan will be endorsed by planning conditions, agreement or obligation as appropriate.

2.6 The protective measures are outline within *Section 4* and also the Tree Protection Plan (TPP) within *Appendix B*.

### **3. Sequence of Events**

3.1 The following sequences are governed by operational constraints and are subject to change. The consulting arboriculturist must be noted of any changes to this schedule prior to implementation where trees / tree protection measures as exiting are likely to be affected. For the development as proposed the following stages are relevant:

#### *3.2 Pre-development stage*

- a) Pre Contract / Commencement site meeting between client and developers architect and Local Planning Authority (if deemed appropriate). The meeting should take place before any development activity begins to confirm the timing and implementation of the agreed tree works and tree protection measures including site storage and any pertinent time scheduled for site operators.
- b) Pruning of trees as specified to to standard as specified within Tree Work Recommendations - if works are required
- c) Tree protection measures installed as specified - Tree Protection Plan
- d) Site to be inspected by consulting arboriculturist as deemed appropriate

#### *3.3 Development Stage*

- e) This stage is subject to site monitoring visits by the consulting arboriculturist at intervals as agreed at the pre-commencement site meeting. These visits are to ensure that the agreed protection measures are functional and correctly achieving their purpose.
- f) Arboricultural supervision is to be carried out at all crucial stages throughout the development process - inparticular developmentt of the trench fill foundations to ensure detailed tasks are carried out as per the approved methodology and all objectives met.
- g) The local authority arboriculturist will have free access to the site and forward any recommendations directly to the consulting arboriculturist.

#### *3.4 Final Development Stage*

- h) For dismantling Tree Protection Fencing a minimum of seven days notice will be given to the Local Authority prior to the works.
- i) Prior to the commencement of any landscape works where tree protection / basal shuttering has been surrounding the trees and / or within the RPA of tree T1, close adherence must be made to *Excavations & Root Severance Guidance* as highlighted within this report.
- j) All landscaping (fence instalation) works once the protective fencing has been removed will avoid soil re-grading and disturbance within the RPA.

#### **4. Tree Protection Specifications**

##### **To be read in conjunction with Tree Protection Plan (TPP)**

4.1 The implementation of the proposed development can be achieved whilst retaining trees **T1 - T3** for the long term by taking into account all methods as outlined:

##### ***Tree Works***

4.2 No tree works are currently recommended in relation to the development - works to tree T1 will be carried out by the landowner - Corporation of London - within 2017 schedule of works.

##### ***Tree Protection Fencing***

4.3 Protection of the tree T1 highlighted for retention should be implemented as explained below. These measures should remain for the entire construction process in order to provide a comprehensive barrier from the trees.

- The area surrounding the trees should be surrounded by protective fencing as outlined in Appendix B (TPP) applicable for the following
  - o Tree Protection Fencing (BS5837 recommended specification) along a 10m length 100mm within boundary line of Hampstead Heath land between No.8 and Hampstead Heath / Corporation of London land
  - o The above fencing to be shifted within Corporation of London land to accommodate implementation of building works on boundary line on completion of foundation works / base to proposed development only - proposed line is 150mm within line of original Tree Protection Fencing line
  - o Tree Protection Fencing (BS5837 recommended specification) along a 5m length on boundary line between Inverforth Close and Hampstead Heath / Corporation of London land
  - o Tree Protection Fencing extending to the north to enclose the area surrounding tree T1 and provide a CEZ (Construction Exclusion Zone)
- Inverforth Close private driveway should remain a Construction Exclusion Zone with the exception of site traffic with this area defined by the private access gate to the driveway
- The protective fencing used should be suitable for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained tree.

- This barrier should remain rigid and complete during the entire construction process. Protection is not required surrounding the whole tree as the remainder of the root plate will remain unaffected by virtue of being located within the neighbouring properties
- The type of fencing used should be that as described in the current British Standard 5837: 2012 'Recommendations for trees in relation to construction'. This consists of a scaffold framework as outlined in the British Standard, comprising a vertical and horizontal framework, well braced to resist impacts, with the vertical tubes spaced at a maximum of 3m. A weldmesh panel should be securely fixed with wire or scaffold clamps to the framework. The specifications of this fencing have been outlined in Appendix E along with an example of basal shuttering which would also be suitable for this location.
- Once this Exclusion Zone has been protected by fencing all weather notices as included in *Appendix E* should be put onto the barrier warning that the area is a construction exclusion zone.
- No heavy plant should come into contact with any part of the lower - mid – upper canopies of the trees.
- No building materials or chemicals are stored within the tree protection zone as indicated on the Tree Protection Plan.
- There should be no fires within this site.

4.4 The site notice as included in *Appendix D* summarising the above information should be visible at all times for employees working within the site.

#### ***Protection of ground from associated construction site activities***

4.5 For the driveway this will remain as the existing paver / hard landscape surface with no further tree protection measures required apart from for site storage - see below. The tree protection fencing alongside the boundary between Inverforth Close and the Corporation of London Hampstead Heath land will ensure soft landscape ground within the RPA of retained trees in this area remains protected.

4.6 For the area denoted on the TPP where tree protection fencing is not feasible and sections of the RPA of trees T1 remains unprotected (although beneath hard standing) close adherence to Excavations & Root Severance Guidance (*Section 4.12* - see below) must be applied at all times.

### **Ground Protection during Groundworks / Foundation Implementation**

4.7 The implementation of the foundations as specified within *DWG NO: 425/20 constr* require for the following trench to be dug within the RPA of T1 on the existing building line:

*600mm width x 1500mm depth*

4.8 The excavations may encounter tree roots in excess of 25mm diameter where foundations from the existing structure have not been implemented. Where implemented originally foundations from trial hole excavations show that foundations are already set at 1500mm depth on a sandy / gravel soil.

4.9 The trench required for the foundations is to be HAND DUG only to the dimensions above under close arboricultural supervision to ensure tree root severance does not occur which will detrimentally impact upon the health and structural integrity of tree T1.

4.10 By exposing any roots which remain *in situ* along the existing boundary line, a structural engineering solution will be implemented to accommodate tree roots encountered. Whilst undertaking excavations where significant roots are encountered the following protective measures should be implemented at all times in conjunction with *Excavations & Root Severance Guidance* below also:

- Damp hessian wrap should be covering all major roots left exposed for more than 12 hours
- Damp hessian wrap should be covering all major areas of exposed fibrous roots that are encountered during excavations and left exposed for more than 12 hours
- Hand tools only should be used and larger tree roots should not be damaged via digging techniques where possible
- All spoil should be removed from the immediate RPA and stored in the designated area and / or removed from site within a relative short timescale

4.11 All works as above should be undertaken with close arboricultural supervision as detailed within this AMS.



### ***Excavations & Root Severance Guidance***

4.12.1 All excavations for the trench and fill foundations must be hand-dug where within the RPA of retained tree T1 and in close adherence with the guidance below and with prior agreement from the consulting arboriculturist or Local Authority Tree Officer to the following specifications:

4.12.2 During construction works, the severance of any tree roots encountered larger than 2.5 cm in diameter MUST NOT occur without prior consultation with the Local Authority Tree Officer or appointed Arboricultural Consultant.

4.12.3 If at any point it is deemed not possible to continue with excavations without having to damage very significant tree roots, the Local Authority Tree Officer and / or the appointed Arboricultural Consultant must be contacted.

4.12.4 Should works be carried to within the RPA of retained trees with the prior written consent of the Local Authority, the 'breaking up' of any surface may be carried out by low impact pneumatic tools only or by hand where possible.

### ***Traffic Management System & Parking***

4.13 A traffic management system must be implemented whereby the following is adhered to:

- One vehicle at any one time must be permitted within the driveway area between the main access gate and the private gate to No.8 Inverforth Close
- The traffic management system must clearly define that the driveway is used for access only in a direct manner without waiting or unloading of materials
- The fencing line as recommended for the boundary with the heath adjacent to tree T1 (see Appendix B.4) should be adhered to at all times

4.14 There should be no parking for construction site employees during the development within Inverforth Close driveway area (between the 2 main access gates) to ensure encroachment to Corporation of Land does not occur as a direct result of congestion / prevented access for delivery of materials / implementation of development.

### ***Storage of Materials, Machinery & Chemicals***

4.15 A designated area for storage of materials, machinery and chemicals is recommended within *the* TPP to be within the front driveway area of No.8 Inverforth Close but without causing damage by implementing site specific storage area to be constructed using a 4mm minimum plywood as a base above to prevent:

- A) Spillage of materials / chemicals which could leach within ground / porous paving
- B) Encroachment out of this area thereby providing defined containment

4.16 No mixing of chemicals should occur within RPA of tree T1 where exposed during the construction process

### ***Open Access to Arboricultural Consultant / LA Tree Officer / Corporation of London for development site***

4.17 The Local Authority Tree Officer / Corporation of London / Arboricultural Consultant (where instructed) will have open site access at any point during the development to undertake inspections as deemed appropriate

## **5. Communication, Monitoring and Compliance**

5.1 In ensuring that all Tree Protections Specifications as highlighted within this method statement are closely adhered to at all times, it is important to set out for the long term of the development, communication details for key individuals and tasks that require monitoring.

5.2 The key individuals appointed for advising and complying with Tree Protection specifications must adhere to the following at all times:

- Relevant parties / key individuals must be advised of any changes in personnel or contractor during the development process.
- Relevant parties / key individuals must be responsible for relaying information regarding tree protection within work force where deemed applicable / relevant

5.3 Once the Tree Protection Fencing has been installed and for the remainder of the development until the final stage as highlighted in *Section 3: Sequence of Events* above, it must be considered as sacrosanct and should not be removed or altered without prior written consent from the Local Authority tree officer and/or consulting arboriculturist.

5.4 The local authority arboriculturist will have free access to the site and forward any concerns / recommendations directly to the consulting arboriculturist.

## **6. Arboricultural Supervision**

6.2 It is recommended that an arboricultural supervision scheme is implemented to ensure that Tree Protection is implemented as specified within this report therefore avoiding significant tree root damage or compaction of tree roots. The following is recommended:

### ***Before & During Land Preparation:***

- Approval of any utility service routes approved that infringe within the RPA
- Approval of Site Storage Area
- Approval of Root Protection Areas (where fencing not implemented)
- Approval of Tree Protection Fencing positioning

### ***Ongoing throughout development process:***

- Supervision of foundation trench
- Monitoring of tree protection
- Monitoring construction methods and storage areas in relation to trees

6.3 In addition to the implementation of arboricultural supervision as above, the Local Authority Tree Officer will have open site access at any point during the development to undertake inspections as deemed appropriate

## **7. Installation of Utility Services**

7.1 If for any reason installation of utility services within the Root Protection Area of trees T1 - T3 is required, the consulting arboriculturist and Local Authority must be notified prior to any ground tree protection / fencing and barrier removal and the following details adhered to:

- Trenching for the installation of underground services severs any tree roots present and can have a detrimental impact on the structural integrity of affected trees. When services are required to pass through a Tree Protection Area, detailed plans showing proposed routes should be drawn up in conjunction with the consulting arboriculturist to avoid long term health and anchorage problems for related trees.
- The preferable method for trenching is to use a 'Air Spade' or similar to remove soil with compressed air, therefore minimising damage to roots in the process

7.2 Further reference can be made to National Joint Utilities Group (Volume 4, Issue 2) for guidance but any approach must be approved by both the consulting arboriculturist and Local Authority tree officer.

## **8. Tree Works Schedule**

Any tree work should be carried out to BS 3998; 2010 'Tree Work – Recommendations' and to standards set within the Arboricultural Association's 'Standard Form of Contract and Specifications for Tree Work' by a qualified arboriculturist.

T1 Lime

*Re-pollard and further inspect south westerly stem to provide further recommendation\**

*\* Works only to be carried out by The Corporation of London and are recommended to be carried out for reasons of health and safety in line with good arboricultural practice. These works are not related to the proposed development for which no works are recommended.*

T2 Apple

*No action required at present*

T3 Birch

*No action required at present*

## **9. Appendices**

### **Appendix A**

#### **Tree survey (BS5837:2012) *Prepared December 2016***

**8 Inverforth Close  
Hampstead  
London  
NW3 7EX**

Colour Key: BS5837: 2012 (see Section 2.6)

-  Category A
-  Category B
-  Category C
-  Category U

**8 Inverforth Close, London, NW3 -  
BS 5837: 2012 Tree Schedule – December 2016**

Tree No	Species	Ht (m)	DBH (mm)	Sprd (m)	Age	Visual Cond.	Phys. Cond.	Comments / Structural condition	Management Recommends.	Estimated Remaining (years)	BS 5837 Rating	RPA Distance (m)
T1	Lime	14	1130	N: 4 E: 5 S: 5 W:3	M / OM	F	G	Tree is heavily leaning at base to the south - good compensatory growth although extensive epicormic growth at base. On southern side extensive single fluting extends from base; appears sound. Main union at 3.0m showing signs of decay. 3 stems develop. South western stem has been heavily reduced with fungus from main union to 5-6m - likely <i>Bjerkandera adusta</i> ; top of this stem has full cavity. Further 2 stems heavily reduced to 11-13m to account for decay; reasonable condition. Last reduced 3-4 years ago	Re-pollard and further inspect south westerly stem to provide further recommendation	10 years +	C.1	3.0m
T2	Apple	6	180	N: 2 E: 2 S: 2 W:2	M	G	G	Generally structurally sound; a good ornamental specimen, lightly suppressed by neighbouring trees	No action required at present	40 years +	C.1	6.7m
T3	Birch	11	m/s 180	N: 3 E: 4 S: 3 W:2	M	G	G	Tree is generally structurally sound at base with good root flare - 6 stems developing from main union which is congested but gives way to balanced canopy, previously reduced back to west towards property	No action required at present	20 years +	B.1	1.8m



## **Appendix B**

### **Tree Protection Plan (TPP):**

**8 Inverforth Close  
Hampstead  
London  
NW3 7EX**

**Tree Canopy Colour Key: BS5837: 2012 (see Section 2.6)**

-  Category A
-  Category B
-  Category C
-  Category U

***Note: Do not scale from this drawing -  
separate PDF provided***



**Appendix C.1:**  
**Tree Protection Notice**

**SITE SPECIFIC**  
**Tree Protection Notice**  
**(BS5837: 2012):**

**8 Inverforth Close**  
**Hampstead**  
**London**  
**NW3 7EX**

***Notice to be clearly shown on site***  
***AT ALL TIMES***

## **Guidance for ALL EMPLOYEES working on site in relation to the tree protection required at all times**

### **Site: 8 Inverforth Close, London, NW3**

- There should be no storage of fuels, chemicals or cement based products within the Tree Protection Areas - where tree protection applies
- There should be no parking for employees within the Inverforth Close driveway area
- There should be no storage of materials or mixing of chemicals / concrete within the RPA of trees T1-T3 at any time other than in designated storage areas as clearly defined externally. There should also be no fires within the site
- Notice boards, telephone cables etc should not be attached to any part of any of the trees.
- The severance of any tree roots encountered larger than 2.5 cm in diameter MUST NOT occur without prior consultation with the Local Authority Tree Officer or appointed Arboricultural Consultant.
- If excavations do occur within the specified Root Protection Area where hand dug excavations are being undertaken, ANY tree roots encountered over 2.5cm in diameter should be retained where possible. Hand digging is to continue around any such tree roots.

**If at any point it is deemed not possible to continue with excavations without having to damage significant tree roots, the Local Authority Tree Officer and / or Arboricultural Consultant must be contacted.**

**Marcus Foster (Arboricultural Consultant): 0781 202 4070  
Local Authority Tree Officer (LB Camden): 020 7974 5939**

**Appendix C.2:**  
**Tree Protection Notice**

**Generic Tree Protection Notice  
(BS5837: 2012):**

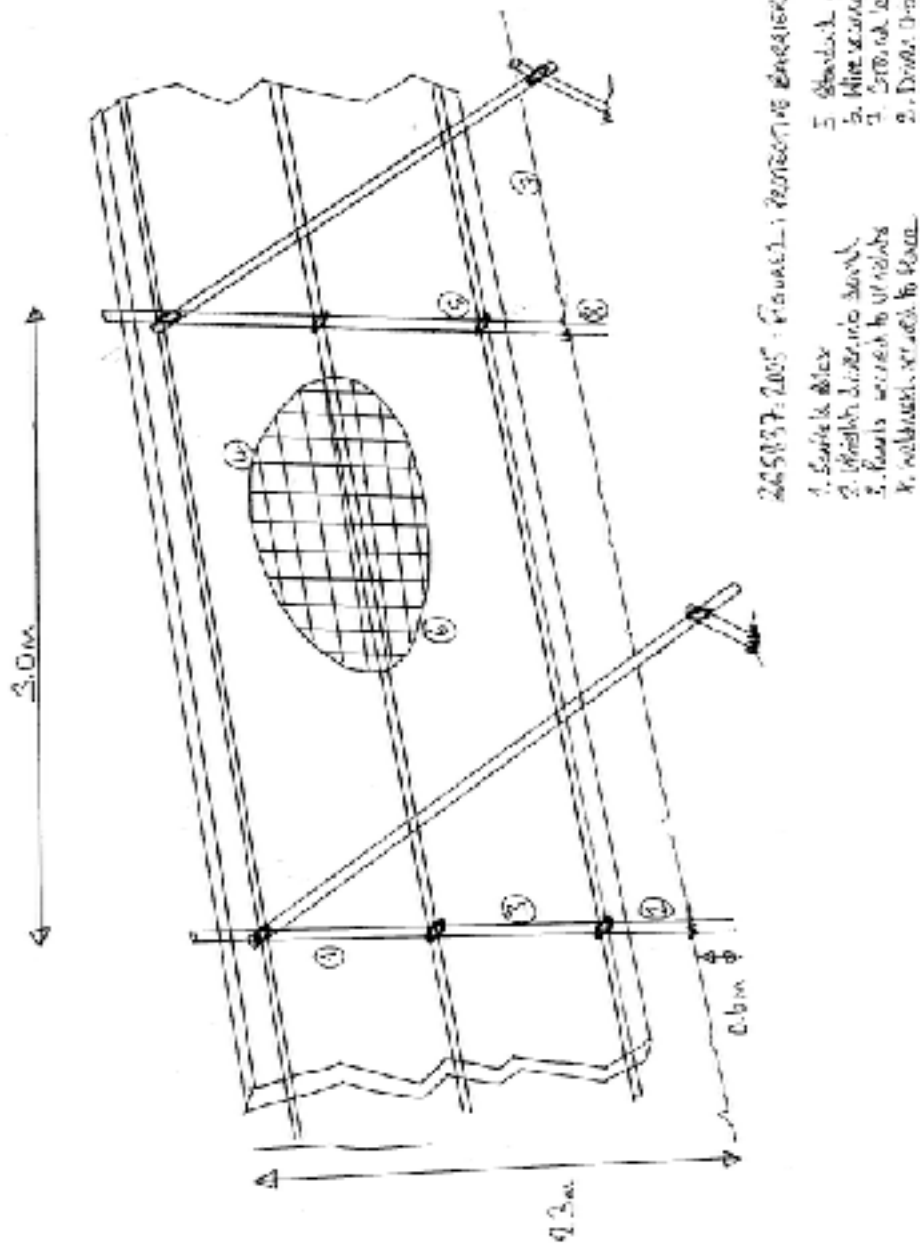
**8 Inverforth Close  
Hampstead  
London  
NW3 7EX**

***Notice to be clearly shown on site  
AT ALL TIMES***



## Appendix D.1: Tree Protection Fencing as outlined in BS5837 (2012) Specifications

Appendix D: Diagram of Figure 2, Specification for protective fencing, as illustrated in BS5837: 2005



## **Appendix D.2: Example of Basal Shuttering**

Basal shuttering offers immediate protection for the lower main stem and initial root plate of a tree where exposed with a porous surface. This method of tree protection does not offer protection to the root plate of a tree where surfaces are exposed / development works are being undertaken within the Root Protection Area of a tree. however, it does offer immediate protection to the main stem and provides vital clearance between the tree and construction site activities such as storage of materials, ad hoc toilet usage and compaction of exposed soft landscaped ground (in addition to many other additional construction site activities).



*Photograph taken by Marcus Foster within City of Westminster, 2015*



## **Appendix E: References**

1. *Arboricultural Practice Note 12: Driveways Close to Trees (APN12)* as provided by the Arboricultural Advisory and Information Service (2007)
2. *BS5837: British Standard: Trees in relation to construction - Recommendations*, British Standard (2012)
3. *Principles of Tree Hazard Assessment and Management*, Lonsdale, D. (Department for Transport, Local Government and the Regions, 1999)
4. *The Body Language of Trees*, Mattheck, C. and Breloer, H. (HMSO, 1994)
5. *Trees in Britain*, Philips, R. (Pan Books, 1978).
6. *Diagnosis of Ill Health in Trees*, Strouts, R. and Winter, (TSO, 1994)
7. *NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (Issue 2)*, (November 2007)