

74-76 CANADA ROAD
ARUNDEL

ARBORICULTURAL
REPORT &
METHOD
STATEMENT

ACD
ENVIRONMENTAL

Ecology
Archaeology
Arboriculture
Landscape Architecture

Miss L
St-Quintin &
Mrs H Attoe

Written By:	M Welby
Date:	30 th July 2010
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Ref:	PRI17371tr

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1. INTRODUCTION

- 1.1. ACD was instructed by Miss Lynnette St-Quintin, to prepare the following report to ensure protection for all retained trees on the development site at 74-76 Canada Road, Arundel. Implementation of the protection methods and other details within this report are integral to achieving this goal.
- 1.2. **This revision (e) has been drafted to address the council's arboricultural comments dated 9th December 2016.**
- 1.3. This Method Statement is to be made available to all operatives on site during the construction process so that they understand the scope and importance of the measures set out for tree protection.
- 1.4. For details of the tree, and locations and types of special protection methods, reference should be made to the latest revision of Tree Protection Plan (ref: PRI17371-03), which should be displayed prominently on site for all staff to see.
- 1.5. The subject tree is currently protected by tree preservation order TPO/AB/3/89.
- 1.6. The information contained within this Arboricultural Method Statement is in line with BS5837:2012 *Trees in relation to design, demolition and construction*.
- 1.7. Any questions relating to the content of this report should be directed in the first instance to ACD Environmental, Courtyard House, Mill Lane, Godalming, Surrey, GU71EY, 01483 425 714/07796 832 490, quoting the site address and report reference number.
- 1.8. The following abbreviations have been used throughout this document:
 - Root Protection Area – RPA
 - Construction Exclusion Zone- CEZ
 - Tree Protection Plan – TPP
 - Tree Protection Fencing – TPF

2. TREE DETAILS AND IMPLICATIONS ASSESSMENT

2.1. There is one tree within the area of development. As per the recommendations of BS5837 it has been surveyed and the following data obtained:

- It is an English Oak (*Quercus robur*) of about 17 in height, with a stem diameter of 741mm. This stem diameter gives a notional circular RPA with a radius of 9m (251sq/m). Given the existing landscape this has been adjusted to account for constraints to root growth and is shown on the Tree Protection Plan.
- The crown is clear of the ground by 1m in places and the crown spread is shown on the plan.
- The tree is of moderate amenity value and moderate arboricultural quality. It has more than 20 years useful life expectancy and therefore, taking into consideration it is of less than perfect form, and scattered deadwood, it falls into the BS5837 B1 category. Regardless of its category, the tree is to be retained and the following steps taken to reduce any impact to it during development.

2.2. The existing garage is a constraint to root growth and it is the author's opinion that there will be limited root development beneath it. Nonetheless, following comments from the council it is now proposed to sensitively remove it and remediate/ameliorate the underlying ground to provide enhanced rooting area for the tree's future use. The associated existing driveway will also be treated in this manner. All such work will be carried out under arboricultural supervision and as per the method statement section of this document.

2.3. It can be seen that the proposed dwelling encroaches slightly into the RPA representation shown on the plan. This amounts to about 1.6m² which is less than 0.7% of the overall 251m² RPA. In justification of this, it must be noted that the RPA is indicative and represents a minimum area required to avoid detriment to the tree. In-line with 5.3.1a) of BS5837, and the council's comments, the fencing has been extended into the rear garden by an additional 40m², thus protecting far in excess of the recommended area. It is the author's opinion that such a small encroachment, will not result in detriment to the long-term health of the tree, and that along with the amelioration of the old garage and drive areas, and the extended protection area, actually improves the rooting area available for this tree and is therefore arboriculturally acceptable.

2.4. Regardless of the above, the excavation of small area of encroachment will be supervised by the project arboriculturist.

2.5. As the tree, and its protection measures, are located in the corner of the site, there is plenty of space for new drainage and service connections to the highway elsewhere on site (in the new drive for example).

2.6. The only pruning that will be carried out to the tree is that which is required to facilitate construction. This will involve cutting back any low branches to give 2.5m ground clearance over working areas only.

- 2.7. With regard to the proximity of the tree to the dwelling, the juxtaposition of the tree to the building will result in some shade during the afternoon when in leaf (as the tree is deciduous, shade in winter will be negligible). Given the orientation of the plot, the front of the house will be subject to direct sun from early morning to midday, there is also substantial rear garden space that will not be subject to shade from this tree. Therefore, the test of BRE209, in that at least half the garden will be in full sun for two hours a day, is easily met. To help demonstrate this assessment, shade images are appended for 21st June 2017.
- 2.8. Notwithstanding the above, as the tree is protected by a tree preservation order, this provides the council with ultimate control over the future management of this tree, ensuring any amenity it now offers is secure in the long-term.

3. PHASING OF OPERATIONS

- 3.1. The arboricultural protection on this site must be carried out in the following order:
- 1) Tree protection fencing and ground protection installed.
 - 2) Pre-start site meeting with project arboriculturist and LPA tree officer.
 - 3) Site accessible to construction/demolition traffic.
 - 4) Demolition/site clearance including supervised removal of garage and driveway from within protection area.
 - 5) Remediation of newly exposed soft ground (under garage and drive).
 - 6) Construction including supervised excavation of foundations within RPA.
 - 7) Removal of tree protection fencing. To be carried out only after agreement with the council and project arboriculturist.
- 3.2. The above phasing must not be changed without approval from the project arboriculturist and agreement with the council.

4. SITE SUPERVISION

- 4.1. Arboricultural supervision is to be carried out during the removal of the garage and existing drive from within the protection area and during any other, unplanned incursions into protection areas, for whatever reason.
- 4.2. This supervision will require the arboriculturist to be present throughout the task, to ensure all the arboricultural objectives are met.
- 4.3. The local authority arboriculturist will have free access to the site and pass any recommendations direct to the project arboriculturist.

5. RESTRICTIONS WITHIN TREE PROTECTION AREA

- 5.1. Inside the exclusion area of the fencing, the following shall apply (except from specific actions detailed elsewhere in this document):
- No mechanical excavation whatsoever
 - No excavation by any other means without arboricultural site supervision
 - No hand digging without a written method statement having first been approved by the project arboriculturist.
 - No lowering of levels for any purpose (except removal of grass sward using hand tools)
 - No storage of plant or materials
 - No storage or handling of any chemical including cement washings
 - No vehicular access
 - No fire lighting
- 5.2. In addition to the above, further precautions are necessary adjacent to trees:
- No substances injurious to tree health, including fuels, oil, bitumen, cement (including cement washings), builders sand, concrete mixing and other chemicals shall be stored or used within or directly adjacent to the protection area of retained trees
 - No fire shall be lit such that flames come within 5m of tree foliage.

6. AVOIDING DAMAGE TO STEMS AND BRANCHES

- 6.1. Care shall be taken when planning site operations in the proximity of retained trees to ensure that wide or tall loads, or plant with booms, jibs and counterweights, can operate without coming into contact with retained trees. Such contact can result in serious injury to them and might make their safe retention impossible.
- 6.2. Consequently, any transit or traverse of plant in the proximity of trees shall be conducted under the supervision of a banksman, to ensure that adequate clearance from trees is at all times maintained. In some circumstances, it may be impossible to achieve this without pruning works known as 'access facilitation pruning'.
- 6.3. Access facilitation pruning shall be kept to the barest minimum necessary to facilitate development and shall be carried out in strict accordance with the guidance below (Tree Surgery). Under no circumstances shall construction personnel undertake any tree pruning operations.

7. TREE PROTECTION FENCING

7.1. The Tree Protection Plan (see the latest revision of PRI17371-03) shows the alignment of Tree Protection Fencing (TPF), which is to be installed prior to any of the following taking place:

- Demolition
- Plant and material delivery
- Soil stripping
- Utility installation
- Construction works
- Landscaping

7.2. Stages of installation of TPF:

- 1) Hand clearance of any vegetation to allow clear working access.
- 2) Setting out of fencing points¹
- 3) Fencing erected
- 4) Site meeting with project arboriculturist to 'sign-off' tree protection fencing.
- 5) Site accessible to demolition/construction traffic

7.3. Once erected, all TPF will be regarded as sacrosanct, and will not be removed or altered without prior recommendation by the project arboriculturist and approval of the local planning authority.

7.4. The typical TPF construction is suitable for areas of high-intensity development and shall comprise of interlocking weld-mesh panels, well braced to resist impacts by attachment to a scaffold framework that is set firmly into the ground. A detailed specification can be found on the TPP.

7.5. Should any alternative method of barrier construction be proposed, consultation with the project arboriculturist will be obtained to clarify the efficacy of the revised design prior to informing the local planning authority and obtaining their consent.

7.6. Once the exclusion zone has been protected by barriers and/or ground protection, construction work can commence.

7.7. All weather notices should be erected on the barriers (for example see figure below).

¹ It is advised that, to ensure accuracy and avoid future costly fencing adjustments, that the TPF is set out by a surveyor with all node points being marked clearly on site for the fencing contractor to work to.

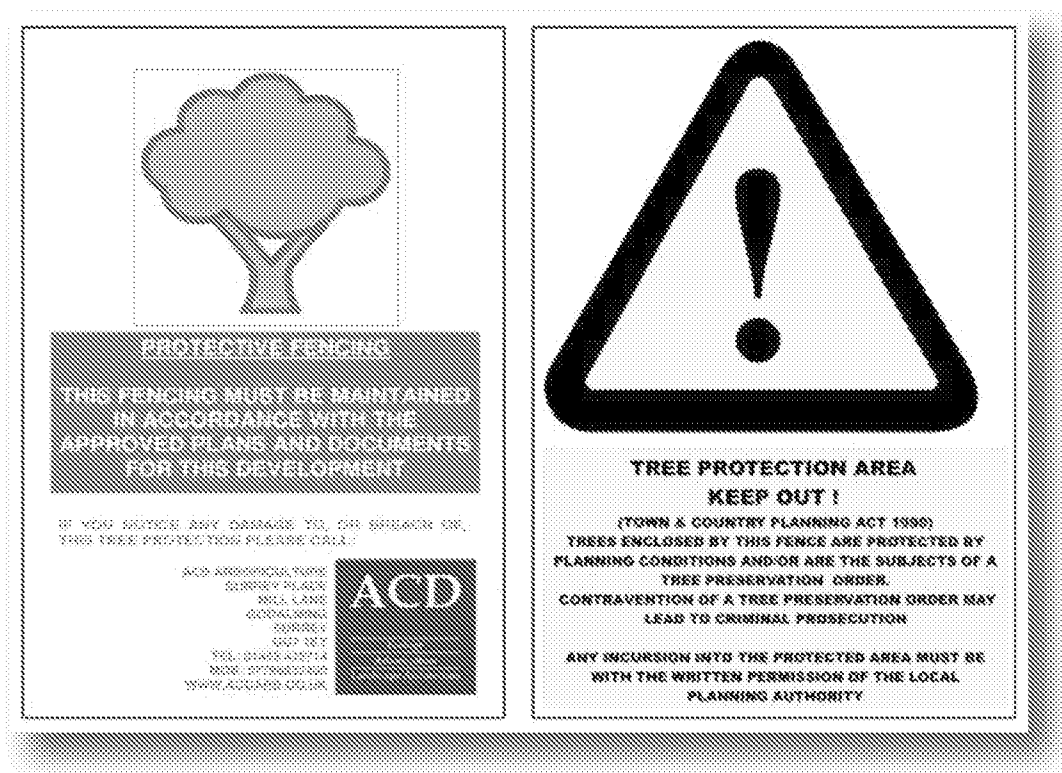


Figure 1: Tree Protection Sign (digital copies available for download at www.acdarb.co.uk)

8. SITE STORAGE, PARKING, WELFARE FACILITIES ETC.

- 8.1. The site will require provision for; site storage, contractor parking, welfare facilities, temporary services/drainage, material drop off points, etc.
- 8.2. These are to be located outside the tree protection area. An indicative zone is shown on the appended plan.

9. TREE SURGERY AND REMOVAL

- 9.1. The following surgery works are to be carried out:

Tree Number	Species	Operation
1	Oak	Crown lift to 2.5m over site. Remove epicormic growth on lower stem (to crown break), and poorly attached deadwood.

- 9.2. If any further surgery works are proposed, it will be submitted to, and approved by, The Council, before being carried out.
- 9.3. All work will be carried out in accordance with BS 3998 Recommendations for Tree Work, industry best practice and in line with any works already agreed with the Council.

- 9.4. The Tree Surgeon shall ideally be chosen from The Arboricultural Association's Approved Contractor list. All work shall be undertaken at the appropriate time and with the consent and approval of the Site Agent.
- 9.5. The statutory protection afforded by the Wildlife and Countryside Act and Countryside and Rights of Way Act will be adhered to. If further advice is required, particularly if bats are discovered during tree work, it will be obtained from Natural England or other competent persons and recommendations adhered to.
- 9.6. The stumps of any trees removed from within the Construction Exclusion Zone or the RPAs of retained trees will be either; cut flush to ground level and left in situ or ground out using a stump grinder. They will not be winched out.
- 9.7. All operations shall be carefully carried out to avoid damage to the trees being treated or neighbouring trees. No trees to be retained shall be used for anchorage or winching purposes.

10. SOFT LANDSCAPING

- 10.1. All landscaping and associated ground preparation within exclusion zones will be carried out sensitively to ensure root damage is mitigated as much as is practicable. At no time is any heavy plant to be used within any protected area. Removal of existing vegetation will be carried out by hand, turf may be removed using a mechanical turf stripper or by hand.

Turfing

- 10.2. Stages for turfing gardens and open spaces:

No plant machinery² to be used in the area for whatever reason

- 1) Contact project arboriculturist to hold pre-start site meeting and 'toolbox' talk before starting work
- 2) Remove TPF to allow access to area.
- 3) Re-erect TPF to secondary location (if required and shown on plan)
- 4) Do not reduce any high spots or excavate in any way.
- 5) Existing poor quality turf may be removed with a turf stripper.
- 6) Use good quality topsoil to level any low-lying areas and hollows, and provide a fine tilth to lay turf on. This imported soil must not result in a level increase of more than 100mm in any area.
- 7) Import turves by hand in wheelbarrow
- 8) Lay turves

² Including rotovators

Planting

10.3. Should the soil be compacted or have a poor structure that may hinder the development of any new planting, soil decompaction techniques may be used upon consultation with the project arboriculturist.

10.4. Stages for planting within tree protection areas:

No plant machinery to be used in the area for whatever reason

- 1) Contact project arboriculturist to hold pre-start site meeting and 'toolbox' talk before starting work
- 2) Remove TPF to allow access to area.
- 3) Re-erect TPF to secondary location (if required and shown on plan)
- 4) Remove existing vegetation by hand, turf may be removed using a mechanical turf stripper.
- 5) Do not reduce any high spots or excavate in any way.
- 6) Import good quality top-soil by hand (with wheelbarrow) into area.
- 7) Level to a depth of no more than 100mm with hand tools.
- 8) Dig individual planting pits for each plant by hand (including hedging which must not be trench planted).
- 9) Any mulch should also be imported and spread by hand.

10.5. No works will be carried out within any protected areas if the soil moisture is at a level likely to allow compaction to occur.

11. DEMOLITION OF GARAGE

11.1. All TPF to be installed as per approved Tree Protection Plan prior to any plant arriving on site.

11.2. Sensitive demolition will occur under supervision from the project arboriculturist

11.3. Stages of demolition within tree protection areas:

No plant machinery to be sited on any exposed rooting area

- 1) Contact project arboriculturist to hold pre-start site meeting and 'toolbox' talk before starting work
- 2) Dismantle any fencing to allow work to proceed
- 3) Building to be folded in on itself.
- 4) Removal debris by hand or with plant machinery not located on any exposed rooting area.
- 5) Floor to be broken up with hand held breaker and pieces removed by hand. Slab floor can be lifted carefully by machinery if appropriate
- 6) Underlying ground levels to be retained. No excavation to occur

- 7) Soil under the entire garage footprint to be ameliorated using a Terravent style machine at 1m spacing.
- 8) Any exposed roots and surrounding newly exposed areas to be covered with up to 100mm of topsoil, from elsewhere on site, or imported topsoil (to BS3882:1984). Soil may be placed in area by plant but must be spread by hand.
- 9) Tree protection fencing to be erected in final position as shown on plan

11.4. No reduction in levels of the underlying soil surface will occur.

11.5. At no point are any heavy machinery permitted on exposed soft ground within the RPA.

11.6. Contamination of the soil by fuel and lubricant leaks must be avoided at all cost. If such a situation arises the project arboriculturist must be notified to assess the situation and prescribe remedial measures.

12. DRIVE SURFACE REMOVAL

12.1. No hard surface removal within RPAs will occur without arboricultural supervision.

12.2. Stages for hard surface removal within tree protection areas:

No plant machinery to be sited on any exposed rooting area

- 1) Contact project arboriculturist to hold pre-start site meeting and 'toolbox' talk before starting work
- 2) Plant machinery to run only on existing hard surfaces with consent from arboriculturist
- 3) Plant may be used to carefully peel up existing tarmac and concrete
- 4) Other surfaces are to be removed by hand (paving etc.)
- 5) Where any sub base is not likely to contain roots and only on approval from project arboriculturist, it may also be carefully removed.
- 6) Underlying ground levels to be retained. No excavation to occur.
- 7) Soil under the entire garage footprint to be ameliorated using a Terravent style machine at 1m spacing.
- 8) Any exposed roots and surrounding newly exposed areas to be covered with up to 100mm of topsoil, from elsewhere on site, or imported topsoil (to BS3882:1984). Soil may be placed in area by plant but must be spread by hand.
- 9) Tree protection fencing to be erected in final position as shown on plan

13. INSTALLATION OF BOUNDARY FENCING WITHIN PROTECTED AREAS

13.1. Stages for installing wooden fence posts:

No plant machinery to be used in the area for whatever reason

- 1) Contact project arboriculturist to hold pre-start site meeting and 'toolbox' talk before starting work.
- 2) Remove TPF to allow access to area.
- 3) Dig postholes using hand tools, avoiding damage to the protective bark covering larger roots. Roots smaller than 25mm diameter may be pruned back using either secateurs or a hand saw, leaving a clean cut.
- 4) Damage or severance of roots above 25mm diameter must be avoided. If roots of this size are discovered, the hole should be relocated. If there are a large number of such roots it may be necessary to relocate the hole by half a fence panels length and adjust the fence panels accordingly.
- 5) Line hole with non-porous lining, for example, durable polyethene bag.
- 6) Insert post and fill posthole with concrete to just below ground level.
- 7) Trim polyethene to ground level and fill with clean topsoil.

Mark Welby RCArborA, TechCert(ArborA), DipArb(RFS), FArborA
30th July 2010

Revised 15.04.15-MW: New layout and update to BS5837:2012

Revised 07.10.16-MW: Layout revised

Revised 19.01.17-MW: Revised following council comments

Revised 20.01.17-MW: TPO details added

Revised 27.03.17-MW: Service details added

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APPENDIX 1: TREE PROTECTION PLAN

WHY TREE PROTECTION IS NEEDED

- 1) **Soil compaction kills roots**- caused by plant movement and storage of materials within protected areas.
 - 2) **Trenching severs roots**- many small roots grow within the top 600mm of soil. Even the removal of the top 200mm can cause damage.
 - 3) **Soil pollution kills roots**-Dripping fuel storage or cement washings can contaminate the soil resulting in root death.
 - 4) **Raising & lowering levels kills roots**-the soil used to increase levels can compact the underlying soil (see point 1). Lowering levels will remove roots causing damage to the tree.
 - 5) **Bark and branch damage**- bark removal and branch damage can allow disease and fungi into the tree.
- The impact of any of the above can take years to show**-trees can have huge reserves of food and water.

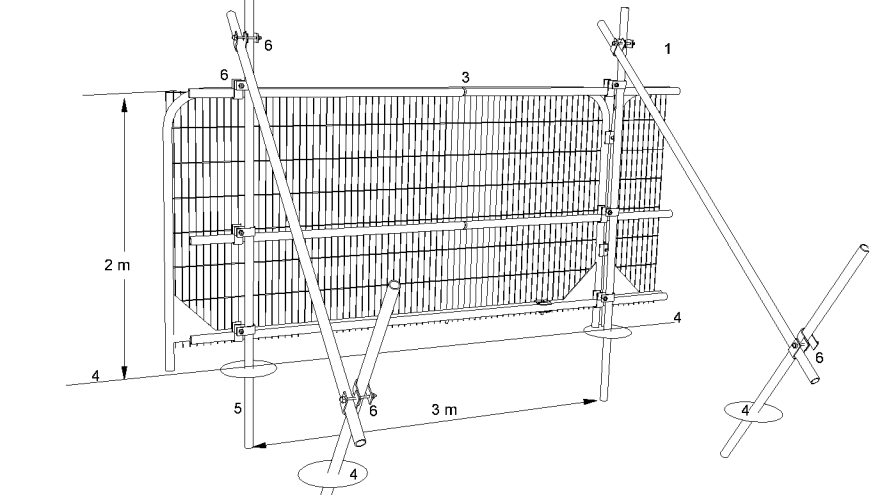
CONSTRUCTION EXCLUSION ZONE

Root protection areas (RPA) of retained trees within which all construction activity is restricted.

All trees that are being retained on site must be protected by barriers and/or ground protection before any materials or machinery are brought onto the site, and before any demolition, development or siting of soil commences. Where all activity can be excluded from the RPA, vertical barriers must be erected to create a construction exclusion zone. Where, due to site constraints, construction activity cannot be fully or permanently excluded in this manner from all or part of a tree's RPA, appropriate ground protection can be installed.

DEFAULT POSITION FOR THE TREE PROTECTION BARRIERS.

BS5837:2012 Figure 2- barrier specification

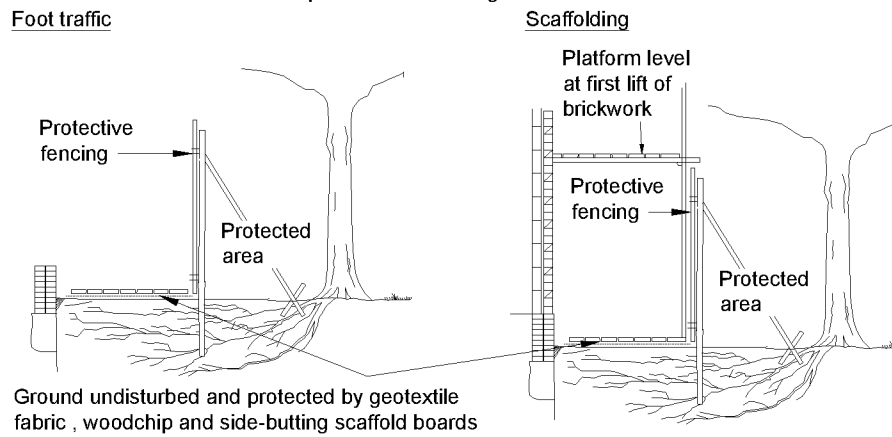


- 1 Standard scaffold poles
- 2 Heavy gauge 2m tall galvanized tube and weld mesh infill panels
- 3 Panels secured to uprights and cross-members with wire ties
- 4 Ground level
- 5 Uprights driven into the ground until secure (minimum depth 0.6m)
- 6 Standard scaffold clamps

Examples of alternative barrier designs can be found in the method statement. Should an alternative design be more viable and appropriate, it must be agreed with the project arboriculturist before its implementation.

GROUND PROTECTION

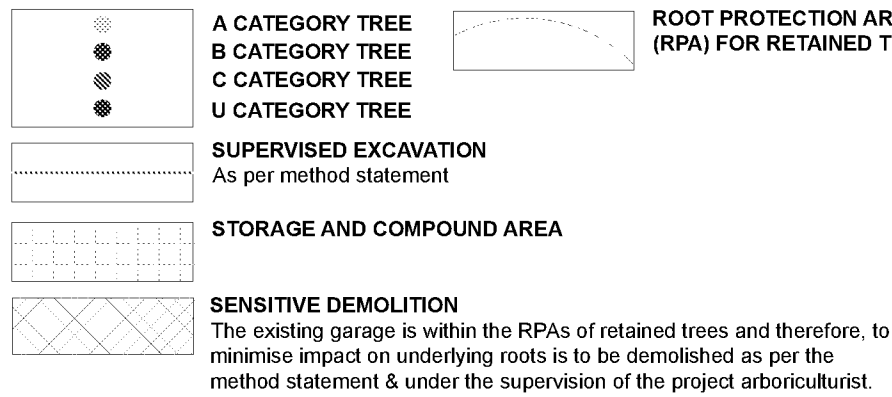
Where the set-back of the tree protection barrier would expose unmade ground to construction damage, new temporary ground protection should be installed as part of the implementation of physical tree protection measures prior to work starting on site.



For pedestrian movements only, a single thickness of scaffold boards should be placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100 mm depth of woodchip), laid onto a geotextile.

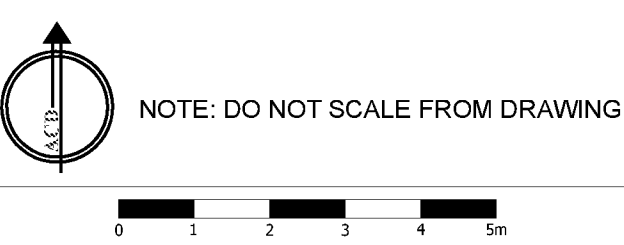
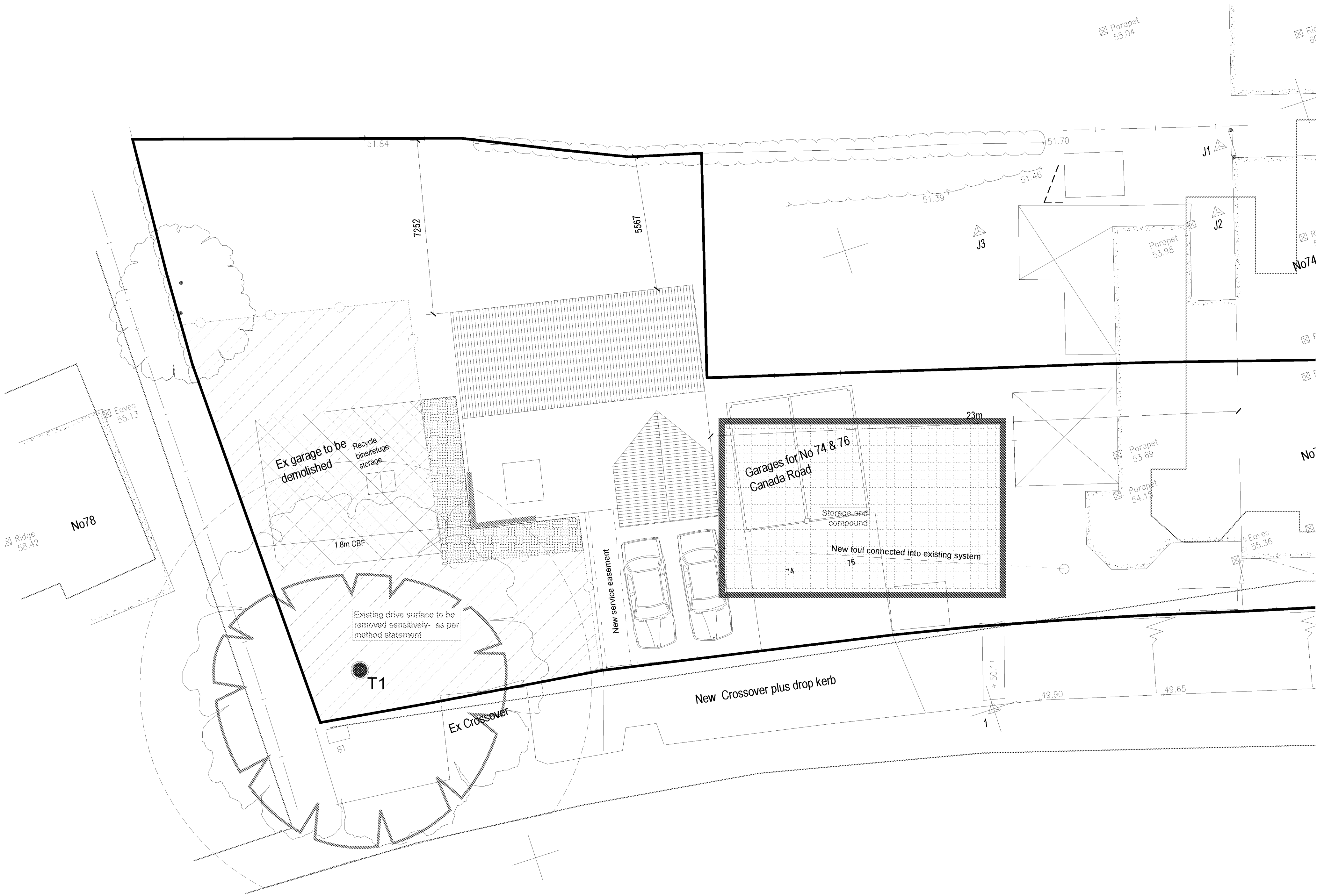
For pedestrian operated plant up to a gross weight of 2 t, proprietary, inter-linked ground protection boards should be placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile.

For wheeled or tracked construction traffic exceeding 2 t gross weight, an alternative system (e.g. pre-cast reinforced concrete slabs) should be employed to an engineering specification designed in conjunction with arboricultural advice to accommodate the likely loading to which it will be subjected.



RESTRICTIONS WITHIN TREE PROTECTION AREAS

- Inside the exclusion area of the fencing, the following shall apply:
- No mechanical excavation whatsoever
 - No excavation by any other means without arboricultural site supervision
 - No hand digging without a written method statement having first been approved by the project arboriculturist.
 - No lowering of levels for any purpose (except removal of grass sward using hand tools)
 - No storage of plant or materials
 - No storage or handling of any chemical including cement washings
 - No vehicular access
 - No fire lighting
- In addition to the above, further precautions are necessary adjacent to trees:
- No substances injurious to tree health, including fuels, oil, bitumen, cement (including cement washings), builders sand, concrete mixing and other chemicals shall be stored or used within or directly adjacent to the protection areas of retained trees
 - No fire shall be lit such that flames come within 5m of tree foliage.



D	27.03.17	Layout adjusted & service routes added following LPA comments	MW
C	18.01.17	Protection adjusted following LPA comments	MW
B	07.10.16	Layout revised	MW
A	15.04.15	Layout revised	MW
Rev	Date	Details	Drawn

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scheme: 74-76 Canada Road
Arundel

client: Lynnette St-Quintin

drawing: Tree Protection Plan

date: July '10

scale: 1:100@A2

dwg no: PR117371-03D

drawn: MW

APPENDIX 2: SHADE IMAGES FOR JUNE 2017

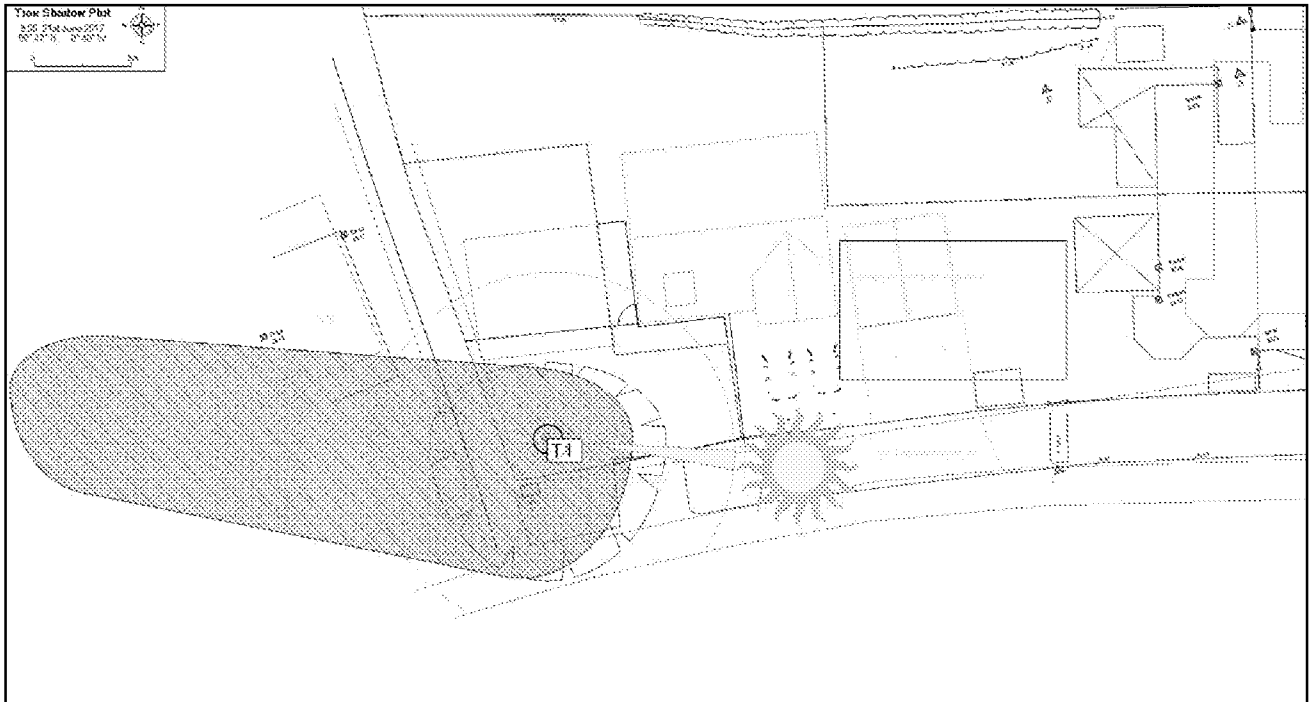


Figure 2: Shade at 09:00

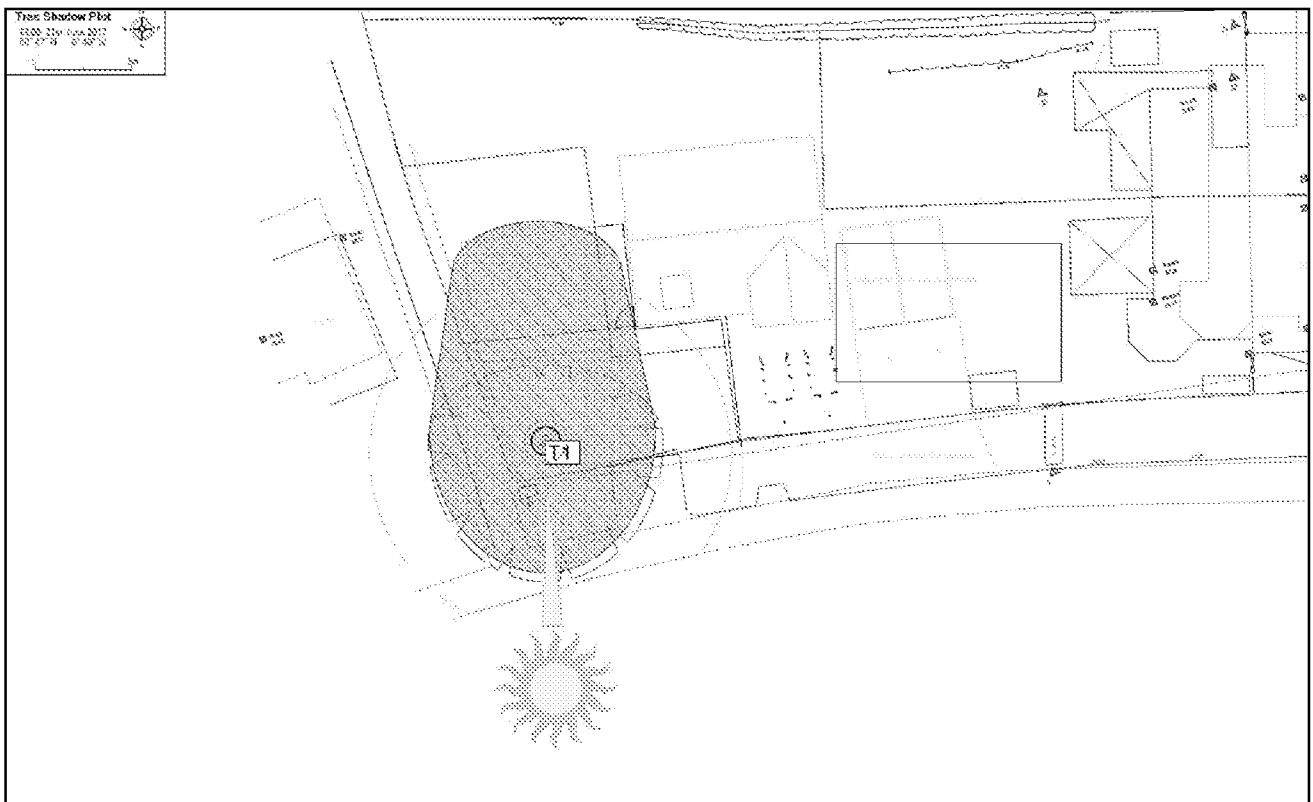
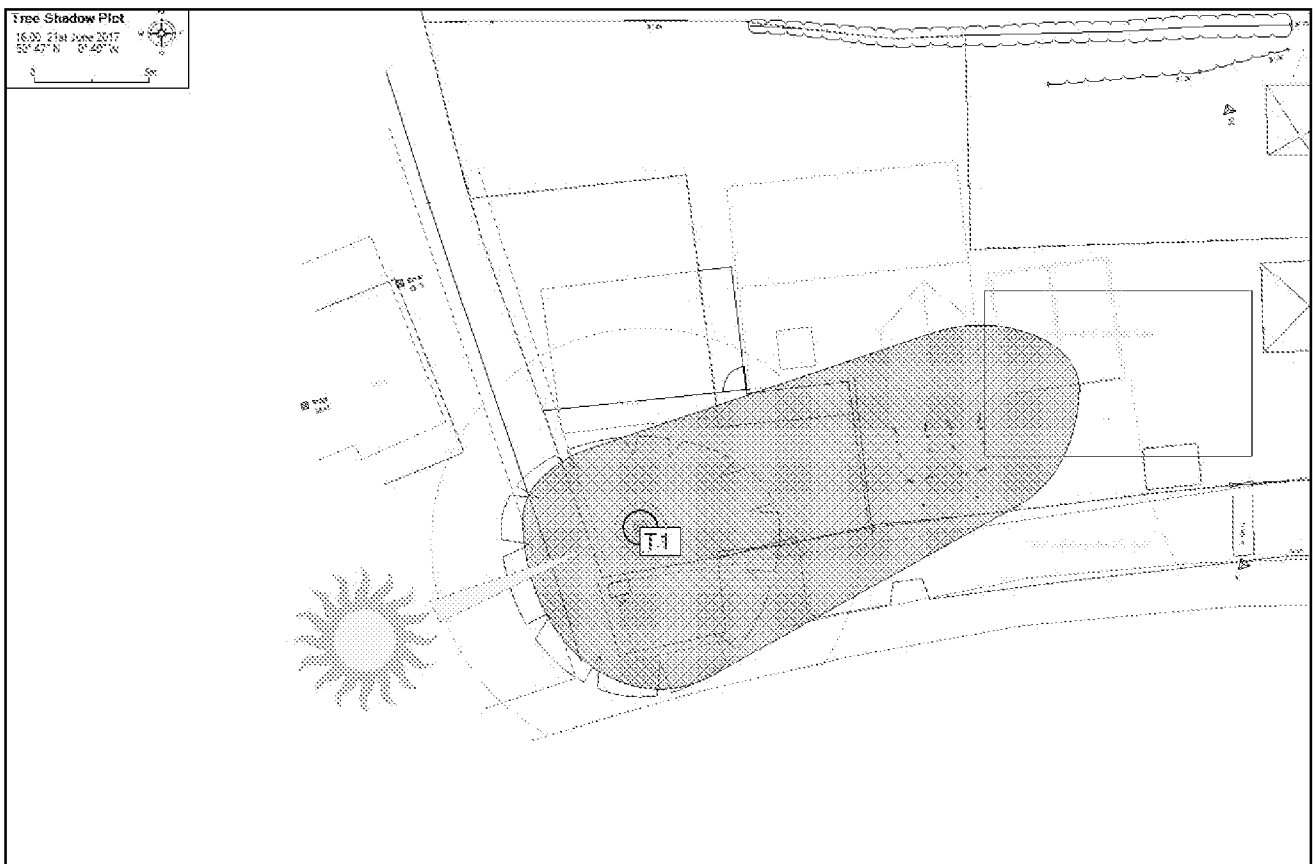
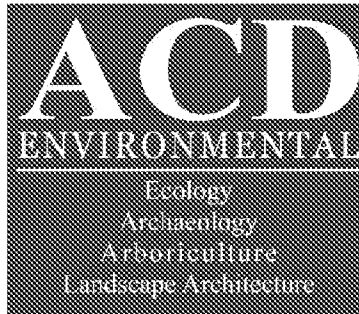


Figure 3: Shade at 13:00





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