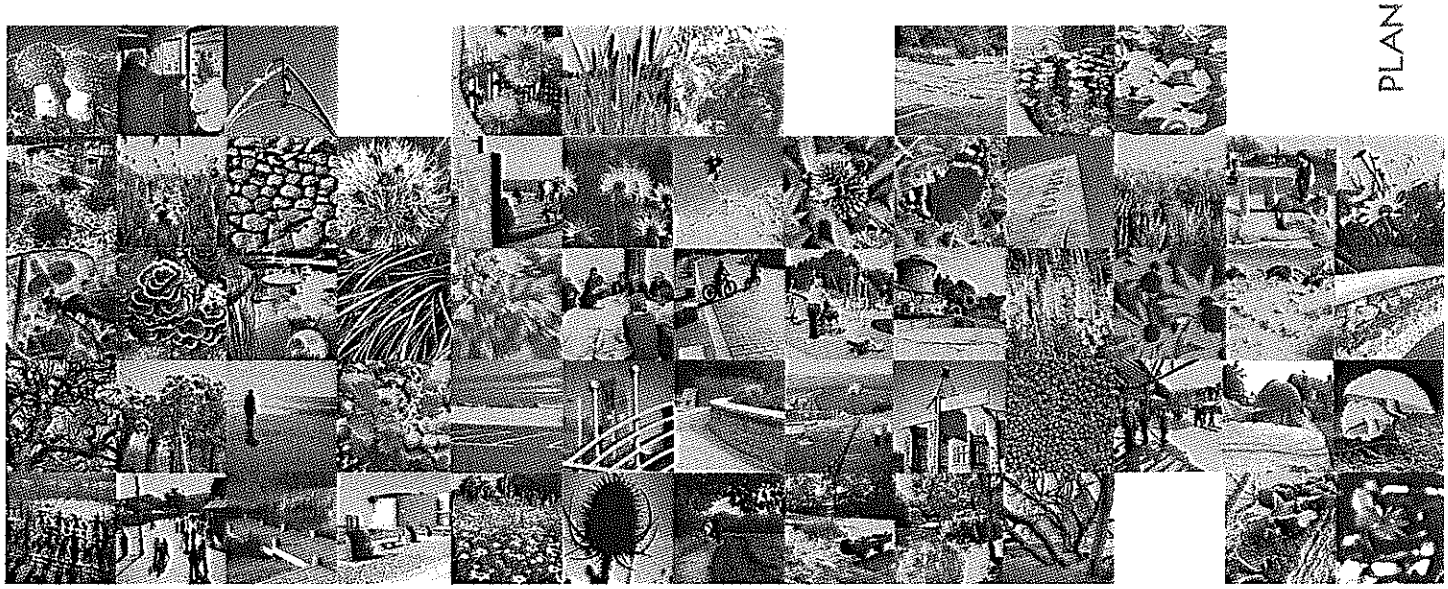
PLANNING DESIGN ENVIRONMENT



CHURCH RAIKE, CHIPPING
ARBORICULTURAL IMPLICATIONS ASSESSMENT
(Report Ref: TEP. 3192.001)
Version 3.0
December 2012

for

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1.0 INTRODUCTION

1.1 TEP has been commissioned by Liverpool Housing Trust to conduct an arboricultural survey on land located at Church Raike, Chipping. This report details the arboricultural constraints of developing the aforementioned site.

1.2 The survey was carried out in November 2011 by means of inspection from ground level by a qualified Arboricultural Consultant. The inspection was restricted in cases where trees were ivy clad or surrounded by vegetation. Weather conditions during the survey were overcast.

1.3 Since the original survey and report, a revised proposal has been drafted, which is the subject of the current application. The site survey was undertaken within the last 18 months is therefore considered to be valid to support the current application. This report and the survey data therefore follow the form of British Standard 5837:2005, which has since been superseded. This discrepancy does not materially affect any of the findings or recommendations of this report.

1.4 Under *BS 5837:2005 Trees in Relation to Construction - Recommendations* the assessment of trees is made objectively. The tree categorisation method identifies the quality and value of the existing tree stock, allowing informed decisions to be made concerning development design layout.

1.5 The standard recognises that there are many additional factors that will ultimately determine development design layout. Information in this report is not meant to be interpreted rigidly and is presented in order to allow an informed judgement on tree retention and removal.

1.6 A topographical survey drawing detailing tree stem locations was used to record the position of existing trees and vegetation (Ref: S10/213 A). Where the age distribution and species mix of tree cover was relatively uniform, trees were plotted as groups. For the purposes of this report we have assumed that detail on the drawing is accurate.

1.7 A total of 4 individual trees (T1-T4) and 8 tree groups (G1-G8) were surveyed and mapped (refer to Drawing 1). All arboricultural information recorded during the survey is presented in Appendix 1.

1.8 The nature of the soils on site was not assessed during the survey. The possibility of minor soil movement due to tree root activity cannot be discounted. The advice of a structural engineer should be sought in regard to appropriate foundation depths, with reference made to NHBC Guidelines Chapter 4.2 where appropriate.

1.9 This report provides the results of the survey and includes the following:

- A schedule of all trees located within, or in close proximity to the proposed development site (Appendix 1)
- An assessment based on *BS 5837:2005*, of trees in terms of their potential value within any future development. On the basis of this assessment trees have been categorised into one of four categories: A, B, C or R (Appendices 1 & 2)
- An assessment, based on *BS 5837:2005*, of the requirement for protection of trees during the construction phase (Section 5)
- Advice on removal, retention and management of trees (Sections 4 and 6);
- A Tree Constraints Plan detailing tree quality categories, canopy spreads and Root Protection Areas (RPA) for all trees surveyed (Drawing 1);
- A Tree Implications Plan detailing the development proposals and trees to be retained and removed (Drawing 2);
- A Tree Protection Plan detailing the alignment of Tree Protection Measures and Special Mitigation Construction (Drawing 3);
- Details of the recommended tree protection fencing (Drawing 4).

2.0 THE SITE AND SURROUNDINGS

2.1 The site is located in the village of Chipping. The surrounding landscape comprises areas of residential housing and agricultural land with light industry to the north-east.

2.2 The boundaries of the site approximately form long rectangle that lies north-west to south-east. The long south-western boundary is defined by Church Raike; a fenced boundary to the north-west abuts the tree-covered slopes that surround the north and east of the site. Fences also surround the site on the eastern site, beyond which is a large building on lower ground by a stream. A small track and area of rough ground form the south-eastern boundary and separate the site from the adjacent residential properties beyond.

2.3 The topography of the site is generally sloping down to the north-east. The hedge that runs along the majority of the south-western boundary is growing on a low raised bank, which increases the gradient at this boundary before dropping sharply to road level.

Development Proposals

2.4 The proposed development includes the erection of 7 residential units with associated gardens, hard surfacing and infrastructure. An access road and parking area adjoining Church Raike and bisecting the site is also proposed.

2.5 The detail of the proposals is shown on Drawing 2 and Drawing 3 and is based on the Site Plan supplied by Croft Goode on 11th December 2012.

3.0 TREE PRESERVATION ORDERS AND OTHER STATUTORY PROTECTION

Statutory protection

3.1 Consultation with Ribble Valley Borough Council confirmed that at the time of the survey no trees on or immediately adjacent to the site were subject to Tree Preservation Orders or Conservation Area status.

3.2 The wider hedgerow feature that contains G1 and T1 may satisfy the criteria for 'Important' status under the Hedgerow Regulations, 1997. No such assessment was undertaken as part of this survey but the presence of four woody species, a supporting bank, a standard tree, less than 10% gaps by aggregate and connections with other broadleaved trees and hedges may be sufficient to confer a level of protection to the hedge.

Protected Species

3.3 Mature trees often contain cavities, crevices and hollows that offer potential habitat for species such as bats and birds. Both are afforded protection under the Schedule 1 and 5 of the *Wildlife and Countryside Act 1981* (as amended), as well as under Schedule 2 of the *Conservation (Natural Habitats) Regulations 1994* (as amended).

3.4 A preliminary ground level appraisal of the wildlife habitat value of each tree was undertaken as part of the arboricultural survey. No trees were found to have features of a size and condition desirable to bats and/or owls.

3.5 If the presence of a bat roost is suspected whilst undertaking any works on trees and groups on site, operations must be halted until a licensed bat handler or ecologist can provide advice.

3.6 Nesting birds, their nests and eggs are protected under the *Wildlife and Countryside Act 1981* (as amended). It is an offence to intentionally or recklessly, damage or destroy nests and all tree work should ideally be undertaken outside the bird nesting season (March to September inclusive).

3.7 If this is not possible then a detailed inspection of each tree should be undertaken by a qualified ecologist immediately prior to the arboricultural works. Should an active nest be found (being built, containing eggs or chicks) then any work likely to affect the nest must be halted until the nest becomes inactive.

4.0 TREE POPULATION & DEVELOPMENT IMPLICATIONS

Population

4.1 Tree cover within the application boundary is limited but a number of trees were surveyed, including trees within influencing distance of the site. A schedule of their species, condition, age, BS 5837:2005 quality value and management recommendations is provided at Appendix 1.

4.2 The site fronts Church Raike, along which boundary runs a broadleaved hedge atop a low bank (G1). The hedge has been previously managed at a height of around 2-2.5m and has been allowed to lapse and increase in height. The sides of the hedge are still well maintained for clearance where they face the road. The hedge contains a good mix of native species and one larger tree (T1). The presence of the low bank and the topography of the road edge along with the evidence of previous hedge management by laying suggest that there has been a hedge at this location for a long time. The hedge has high value as a screen of the site and buildings beyond for the houses opposite. It also contributes to the character and amenity of the village centre and offers potential nesting and wildlife corridor benefits.

4.3 T1 is an ash tree within group G1. It is a typical hedgerow tree with multistemmed form and evidence of previous hedge-laying. The main stems form a fused lattice of congested growth before opening into a balanced crown above the main hedge. The tree is prominent from the road and housing opposite and is consistent with the traditional character of the village in its form and location. In the long term, it is possible that the tree would become structurally unstable because of its position on the bank and thereby influenced root architecture.

4.4 The site interior contains a large dense group of small shrubby blackthorn (G3). Groups G2 and G5 also contain low value scrub, comprising hedgerow species and multistemmed trees with mainly screening and habitat value.

4.5 The invasive species Himalayan balsam was noted within group G2 and elsewhere on the site. This species has the potential to significantly affect the quality and future potential of natural regeneration and biodiversity on the site if it remains untreated.

4.6 Trees along the north-eastern boundary of the site (T3, T4, G5 and G6) comprise small to medium-sized individuals with collective value as a screen for the large commercial buildings to the north of the site. Group G6 contains a number of individuals with the potential to develop on to maturity amongst a dense and unmanaged screen of other hawthorn, sycamore, ash, oak and elder.

4.7 Tree T4 was surveyed separately in this area because it has the best form and potential for future unimpeded growth, being slightly apart from the group and in a good location. This tree is at in early middle age but has reached a size that would be difficult to replace and accordingly has high value.

4.8 Large groups G4 and G7 comprise immature broadleaved planting outside of the application boundary. G7 contains younger trees, many retaining their planting tubes and collectively having good potential to screen the large adjacent commercial buildings and to develop into an attractive feature by the stream. Species selection has been well considered; willows by the water will stabilise the bank as they grow and birch and hawthorn on the slopes will pioneer the area for tree cover and provide shelter in the medium-term to succession species.

4.9 Group G4 also comprises planted trees, the majority of which are oak and are well-established on the slope up to the road. The group provides good screening for the commercial buildings to the north. Tight spacing is beginning to affect the form of some of the trees but is remediable by selective thinning.

4.10 The largest individual tree in the survey area is T2, a middle-aged sycamore. The attractive balanced crown is prominently visible from the road and adjacent properties above the developing sub-canopy of group G4. The tree is trifurcate from around 2.5m with included bark within tight unions. This may reduce the safe useful life expectancy of the tree but not in the short or medium-term.

4.11 Tree and group locations, their quality categories and canopy spreads are shown on Drawing 1.

Tree Quality Categorisation

4.12 Under *BS 5837:2005 Trees in Relation to Construction – Recommendations* trees and groups are objectively assigned a quality category designed to quantify their value within any future development. Table 1 presents a summary of the categorisation criteria. The full table has been reproduced at Appendix 2.

Table 1: BS 5837:2005 tree quality categories

Category A	Trees of high value including those that are particularly good examples of their species and/or those that are visually dominant within the landscape
Category B	Trees of moderate value including those that do not qualify as Category A due to minor remedial defects and/or those that collectively form distinct landscape features, thereby attracting a higher rating than they might as individuals
Category C	Trees of low value, the retention of which should not unreasonably constrain development
Category R	Trees unsuitable for long-term retention that should ideally be removed prior to the commencement of construction unless otherwise advised

Implications of the Proposed Development

4.13 Table 2 lists the BS 5837:2005 quality categories of trees that will require removal in order to facilitate the development proposals and those that can be retained. This is the result of an assessment based on the proposed site plan supplied by the client.

Table 2: Arboricultural implications of the proposed development

	Tree Quality Assessment Category/Retention Value			
	A	B	C	R
Trees and groups that can be retained	-	-	-	-
Trees and groups that must be removed to facilitate development	G1	T1, T3,	G2, G3,	-
Trees on third party land (retain and protect)	T4,	T2*, G4, G6, G7	G5, G8	-

See Appendix 1, Arboricultural Data Sheets for subcategories

*Retention of T2 is heavily dependent on sensitive construction methods and cannot be guaranteed. Protection methods must be exhaustively applied around this tree and its condition monitored following development. A mechanism for mitigation should also be explored.

4.14 All trees and groups within the site boundary must be removed to facilitate the development proposals.

4.15 The relatively limited size of most trees means that the impact of the removals would be limited within the wider context of the surrounding landscape. Nonetheless, it will be important to maintain or improve tree cover and arboricultural value through development in the interests of amenity, habitat and village character.

4.16 The principal impact that results from the development will be in terms of the loss of the boundary hedge section along Church Raike and the loss of green connectivity. The hedge is in keeping with the visual character of the village and is prominently visible by the road. The development will punctuate this corridor.

4.17 Removal of the hedge G1 is required to allow for the creation of a pavement and visibility splays in accordance with Highways requirements.

4.18 The dense Blackthorn scrub and lapsed or unmanaged boundary groups have little visual amenity value but are ideally suited to nesting birds and provide shelter for a variety of wildlife species. The development will remove these habitats and there will be insufficient space for their replacement on a like-for-like basis.

4.19 T2 is the largest surveyed tree and its removal would be associated with a loss of visual amenity in respect of road users and existing dwellings. In addition, this tree is outside of the site boundary. The tree is under some pressure from the layout of the proposed buildings but its removal is not a foregone necessity. As such, all best practise guidance will be followed to maximise the likelihood of its healthy retention. The tree will be monitored following the development. On the balance of probabilities and pursuant to robust protection methods, the tree is considered likely to survive in acceptable condition and is therefore shown for retention.

5.0 TREE PROTECTION REQUIREMENTS

Root Protection Areas (RPAs) and Construction Exclusion Zones (CEZ)

5.1 As per *BS 5837:2005*, the **RPA** is calculated using the trees diameter at 1.5 metres (refer to Appendix 1) and represents the minimum area around each tree that must be left undisturbed to ensure their survival.

5.2 Tree roots typically spread two times the width of the crown. The majority of tree roots are found in the top 600 mm of soil and most of the fine roots that absorb water and nutrients are found in the top 100 mm.

5.3 The morphology of roots is influenced by past and present site conditions (the presence of roads, structures and underground services), soil type, topography and drainage. This means that a tree's roots may not be uniform in their extent and the **RPA** may not be a circular area centred on the tree stem.

5.4 The **RPA** shown on Drawing 1 are indicative only at this stage. They have been used to inform the placement of protective fencing on Drawing 3. This defines a **Construction Exclusion Zone (CEZ)**.

Protective Fencing

5.5 Protective barrier fencing will be required to demarcate a **CEZ** around retained trees in close proximity to proposed construction. This must be done prior to the commencement of any development works, including bringing machinery or materials onto site and the erection of site huts. Protective fencing alignment is shown on Drawing 3 and assumes that all trees identified for removal have been felled prior to installation.

5.6 Where space constraints prevent the use of the recommended fencing design, other systems may be acceptable. These should be agreed with the council's Arboricultural Officer prior to commencement of works.

5.7 The fencing must be fixed into the ground to withstand accidental impact from machinery and to ensure that a sufficient protective area is maintained. Details of the recommended Heras protective fencing are shown in Drawing 4.

5.8 The fencing alignment must be maintained throughout the build and will affect the available space for storage of materials, site movements and may influence construction methods.

5.9 Any alteration to the fencing alignment to allow for approved activities will be made in agreement with the Council's Arboricultural Officer.

5.10 The protective fencing must not be removed until the physical construction phase has been completed and all vehicles have been removed from site, to the satisfaction of the appointed Arboricultural Consultant.

Ground Contamination

5.11 Storage areas for liquids such as fuels, oil or paint should not be located within 10m of any trees on or within proximity the site due to the risk of soil contamination caused by accidental spillage.

5.12 If contamination does occur, then remediation advice should be sought from a qualified arboriculturist.

Underground Utility Issues

5.13 Guidelines set out in the National Joint Utilities Group publication *NJUG Volume 4, Guidelines for the Planning, Installation and Maintenance of Utility apparatus in Proximity to Trees* will be adhered to during excavation works close to or partially within RPAs.

5.14 NJUG Volume 4 can be downloaded free of charge from – http://www.njug.org.uk

5.15 Where utilities enter the site via the newly created access road, it is unlikely that there will be any additional constraint presented by retained trees on the site boundaries or the remaining hedgerow.

6.0 ARBORICULTURAL RECOMMENDATIONS

Tree works

6.1 A number of pruning and management works are recommended for the improvement of the site's tree stock. Details are provided below.

6.2 Under the proposed development group G3 will be removed and G1 will be partly removed but the recommendations below still apply. All other trees are outside the application boundary and ownership was not known at the time of writing.

Table 3: Priority arboricultural works

Tree or Group Reference Number	Works Required
T2	Monitor condition in five years; consider reduction of two main stems to encourage dominance of one stronger leader; prune to increase clearance from new building
G1	Determine 'Importance' under the Hedgerow Regulations, 1997
G3, G7	Treat Himalayan balsam
G4	Thin to favour better specimens

Arboricultural Method Statements

6.3 All construction activities proposed within the **CEZ** identified on Drawing 3 will require an Arboricultural Method Statement (**AMS**).

6.4 An **AMS** details special mitigation construction and procedures that will minimise damage to tree roots and the surrounding soil, thereby allowing the retention of trees that may otherwise need to be removed. Special mitigation construction works are likely to require more time and proprietary materials, thus early consultation and discussion with an appropriately qualified arboriculturalist when detailing plans will help with resource allocation.

6.5 The **AMS** for Church Raike should cover the following activities:

- All works and protection around T2;
- Excavation, foundations and level changes;
- Retaining structure creation;
- Boundary treatment;
- Scaffolding, access and site operations;
- Landscaping;
- Hedgerow and bank removal;
- Paving and hard surfacing.

6.6 If the Tree Protection Fencing is not maintained or works are carried out within the CEZ, it is possible that damage to trees or soil would result in a breach of planning consent. This may require remedial action that cannot be estimated.

Mitigation Landscaping and Post Development Management

6.7 The extent of tree removal will necessitate a creative and exemplary planting scheme in order that a net loss of arboricultural value can be avoided.

6.8 Mitigation for the loss of trees and associated habitats should be provided in the form of replacement tree planting. The extent of mitigation planting will be the subject of a landscaping scheme to discharge anticipated planning conditions. This will ultimately be determined in agreement with Ribble Valley Borough Council.

6.9 In order to balance the screening, amenity and habitats that are described in this report, any landscaping scheme must address the following:

6.9.1 Trees outside the application boundary – such as those screening the large commercial building should not be factored into site landscaping considerations since they may later be subject to uncontrollable development pressures and could be removed. It is important therefore, that appropriate screen planting should be established where possible within the application site itself. The north-eastern boundary should be planted with small understorey species such as holly, blackthorn, wild service tree, snowy mespil, hawthorn, guelder rose, common snowberry, European spindle, purging buckthorn.

6.9.2 Internal site boundaries, such as those between front gardens, between houses and around parking areas should be planted with mixed native broadleaved hedgerow to create a network of wildlife corridors across the site. These should include species that have been lost from the site.

6.9.3 The loss of hedgerow G1 will be mitigated by a replacement hedge.

6.9.4 All new hedgerow should comprise mixed broadleaved species, such as: hazel, hawthorn, blackthorn, holly, yew and hornbeam with standard hedgerow trees at intervals.

6.9.5 Planting of larger trees in the car park area to soften the visual impact of the development from Church Raike and replace the lost canopy volume associated with T1 and the larger scrub groups. This can be achieved without impacting on the function of the car park by the use of appropriately designed planting pits and suitable species choices. This level of integrated planting design may require specialiist arboricultural input.

6.9.6 Trees for gardens and public space landscaping should include high-value species to offset the reduction in canopy area. These might include less-common native species or those with high wildlife value such as wild service tree (*Sorbus torminalis*), wild pear (*Pyrus pyraster*), wild cherry (*Prunus avium*) and small-leaved lime (*Tilia cordata*).

6.10 The choice of replacement trees should include species of varied ultimate size and height, incorporating where possible the larger tree species with the potential to provide benefit beyond their immediate environment and to a more diverse range of ecology.

6.11 Aftercare is vital to the survival of newly planted trees. Provision should be made for the maintenance of newly planted trees and include watering, formative pruning and the checking of tree ties and stakes.

6.12 Hazard recommendations are based on observations at the time of survey. Trees are dynamic living organisms whose structure is constantly changing. Even those in good condition can suffer from damage or stress. Following site development inspections of all retained and newly planted trees should be undertaken by a qualified arboriculturist.

6.13 Provision should be made for the management of new hedges on public land. In order to compliment the character of the village and to emulate the historic management of the removed hedge, it is recommended that new hedges should be laid once established. This process should be undertaken by a local specialist to ensure consistency with the regional hedge-laying style.

7.0 SUMMARY

7.1 Based on an objective assessment made in accordance with *BS 5837:2005 Trees in Relation to Construction – Recommendations*, there are 2 Category A, 6 Category B and 4 Category C features within the survey area. Of these, 2 trees (Category B) and 3 groups are within the application boundary.

7.2 No trees were subject to Tree Preservation Order or Conservation Area status.

7.3 Works recommended in Table 3 may require liaison with adjacent landowners.

7.4 No trees were found to have features of a size and condition desirable to bats.

7.5 Himalayan balsam was noted within and adjacent to the application area.

7.6 Group G1 must be removed to facilitate the proposed development. This will impact on the visual appearance of the streetscape and on habitat connectivity.

7.7 Other trees on site comprise: a hedgerow ash, an open-grown hawthorn, lapsed hedge and scrub and dense blackthorn thicket. All would be removed.

7.8 T2, the largest surveyed tree, is outside the site boundary. It is close to the new buildings so special measures are required to maximise the chances of its healthy retention. Monitoring and liaison with the adjacent land owner will be required.

7.9 Tree removal will be associated with a net diminution in tree cover, tree-related habitats and visual amenity both in the short-term, and in terms of the site's capacity to support mature trees in the future.

7.10 Mitigation for the loss of trees and associated habitats can be provided in the form of replacement tree and hedgerow planting. A landscaping scheme of exceptional quality will be required in order to maintain or increase the level of arboricultural benefits and functions on the site.

7.11 Screen planting should be established along the north-eastern boundary; native hedgerow planting should be undertaken along internal boundaries; specimen tree planting should be undertaken in the car park area; small tree planting should be undertaken within the residential gardens; a replacement hedge should be planted along Church Raike and native shrub and ground flora should be planted.

7.12 Protective barrier fencing and Ground Protection will be required to demarcate a Construction Exclusion Zone (**CEZ**) prior to commencement. Fencing alignment is shown on Drawing 3 and specifications are shown on Drawings 4 and 5.

7.13 An Arboricultural Method Statement (**AMS**) will be required for works proposed within the **CEZ** shown on Drawing 3.

7.14 Development of the site according to the recommendations of this report will result in a net increase in arboricultural value within the site.

APPENDIX 1

ARBORICULTURAL DATA SHEETS

Surveyor TP
Date 29th November 2011
Town Chipping
Site Church Raike
Dwg Ref D3192.001

Ref	Species	Height	Stem Dia.	No. of stems/individuals	Crown Spread North	Crown Spread South	Crown Spread East	Crown Spread West	Height of Lowest Branch	Maturity	Condition	Comments on form, condition, health and significant defects	BS5837 Tree Quality Assess.	F R
		(m)	(mm)	arising below 1.5m	(m)	(m)	(m)	(m)	(m)	Young, Middle Age, Mature, Veteran	Good, Fair, Poor		A,B,C,R (1,2,3)	
Trees														
T1	Ash	8.0	600.0	10.0	5.0	5.0	3.0	3.0		Mature	Good	Hedgerow tree; multistemmed and previously layed with regrowth; typical crossing branches and knuckled form	B,2,3	
T2	Sycamore	14.0	550.0	1.0	6.0	6.0	6.0	6.0	2.0	Middle Age	Good	Mid-stem trifurcation with some included bark at union; attractive balanced form; minor ivy growth on stem	B,1	
T3	Hawthorn	7.0	290.0	5.0	3.0	3.0	3.0	3.0	1.0	Mature	Good	No significant defects; one dominant stem	B,1	
T4	Oak	8.0	150.0	1.0	3.0	3.0	3.0	3.0	1.0	Middle Age	Good	Excellent form and potential; part of group G4; growing on bank top; provides screening potential	A,1	
Groups														
G1	Hawthorn; ivy; bramble; hazel; holly; ash	5.0	300.0	10+						Middle Age to Mature	Good	Well managed hedge to 2m with lapsed growth on top; on low raised bank; excellent habitat value and screening for houses; hawl fruiting; history of laying evident; stone gate at lower end	A,2	
G2	Elder; bramble; ivy; privet; ribes spp.	7.0	200.0	10+						Young to Middle Age	Fair	Scrubby regrowth around derelict shed; dense and bushy with good habitat value; short section of previous hedge along back edge	C,1	
G3	Blackthorn; bramble	4.0	100.0	10+						Young	Good	Dense bushy young trees; no access to interior of group; good for nesting thicket is less dense in centre; some bramble growth and Himalayan balsam	C,1,3	
G4	Oak; ash; hawthorn	10.0	200.0	10+					1.0	Young to Middle Age	Good	Third party group of recently planted trees; good potential to develop into woodland belt; planted in lines with planting tubes stil in place; mainly oak	B,1,2	

APPENDIX 1: Arboricultural Survey Data Sheets

Ref	Species	Height	Stem Dia.	No. of stems/individuals	Crown Spread North	Crown Spread South	Crown Spread East	Crown Spread West	Height of Lowest Branch	Maturity	Condition	Comments on form, condition, health and significant defects	BS5837 Tree Quality Assess.	F R
		(m)	(mm)	arising below 1.5m	(m)	(m)	(m)	(m)	(m)	Young, Middle Age, Mature, Veteran	Good, Fair, Poor		A,B,C,R (1,2,3)	
G5	Hawthorn; ash	13.0	350.0	10+					1.0	Middle Age to Mature	Good	Boundary trees; three hawthorn and one ash at lower level by warehouse; hawthorns are multistemmed and typical for species	C,1	
G6	Elder; oak; ash; bramble; sycamore; hawthorn	7.0	250.0	10+						Middle Age to Mature	Good	Dense group screening warehouse on adjacent land; good habitat; unmanaged group containing some individual trees with good future potential	B,2,3	
G7	Silver birch; hawthorn; bramble; oak; willow spp.; ash; hazel; goat willow	8.0	250.0	10+						Young to Middle Age	Good	Group of recently planted trees; good species mix establishing well; pheasant and deer present during survey; steep ground down to fast-flowing stream; trees will stabilise bank as they mature	B,1,2,3	
G8	Elder; hawthorn	5.0	270.0	10+						Middle Age to Mature	Fair	Scrubby trees near to slope top	C,1	

APPENDIX 2

SURVEY METHOD

APPENDIX 2: SURVEY METHOD

The survey of trees is conducted from ground level only. The nature of the soils on site is not assessed.

Trees are dynamic living organisms with a constantly changing structure; even trees in good condition can suffer from damage or stress. The information recorded is presented as being correct at the time of survey.

The following features of each tree, group of trees or wood may have been recorded in the Arboricultural Survey Data Sheets at Appendix 1.

Species The common name is given. The Latin name may also be given if further clarification is required.

Height Top height of tree recorded in metres.

Stem Diameter For single-stemmed trees the measurement is taken at 1.5 metres above ground level and recorded in millimetres.
For multi-stemmed trees an average all stems measured at 1.5m above ground level is used.
For tree groups a range from minimum to maximum diameters is provided based on measurements taken using one of the aforementioned methods.

No. of Stems A count of stems arising below a height of 1.5 metres.

Crown Spread The N, S, E and W branch spreads are recorded in metres to provide a representative crown shape.

Height of Lowest Branch Crown clearance above ground level recorded in metres.

Direction of Lowest Branch The direction of growth of the first significant branch from the point of attachment.

Maturity

Young	Trees than can reasonably be relocated or replaced like for like, without undue cost;
Middle Age	Trees in the established growth stage of their life with the potential to continue increasing in size;
Mature	Trees that have reached their ultimate size, given their location and surroundings;

Condition **Good, Fair, Poor.** An overall assessment of a tree's physiological and structural state in which factors that may increase its susceptibility to the effects of development are taken into account.

Veteran. Trees that are in such a condition as to significantly increase their biological, cultural or aesthetic value. This is characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned.

Comments A brief evaluation and description of the tree with comments on form, vitality, health and any significant defects or symptoms of ill-health.

BS 5837 Tree Quality Assessment

The tree quality assessment is based on Table 1 of BS 5837:2012 (See below). Four categories (A, B, C and U) are used to denote tree quality (A = High, B = Moderate, C = Low, U = Unsuitable for retention). Subcategories (1-3) denote the specific function value of the trees and the reasoning behind the allocation of a specific category (the subcategories may be used in combination but do not accumulate collective weight).

Root Protection Area (RPA)

The RPA is allocated to ensure that a sufficient area is left undisturbed during development. It is provided as an area (m^2) and as the radius of a circle (m) typically plotted from the centre of the stem.

The RPA is calculated using a mathematical equation included in BS 5837:2012 (Section 4.6 and Table D.1) and is based on a trees stem diameter. In some cases the RPA may need to be adapted to best reflect the likely area and position of roots required to ensure survival; this may be based on criteria such as the tree's condition, species, crown spread and any barriers to growth. Any alteration must be justifiable but is made at the Arboricultural Consultants discretion.

Recommendations

Recommendations for arboricultural works, etc. are based on the **current** land use, and take into account the tree or group attributes without bias to the proposed development.

Estimated Remaining Contribution

An estimation of the life expectancy as healthy functioning tree. This will be influenced by species and the condition of the tree at the time of survey.

Long	> 40 years
Medium	20 – 40 years
Short	less than 20 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

British Standards Institute 2012, p.9

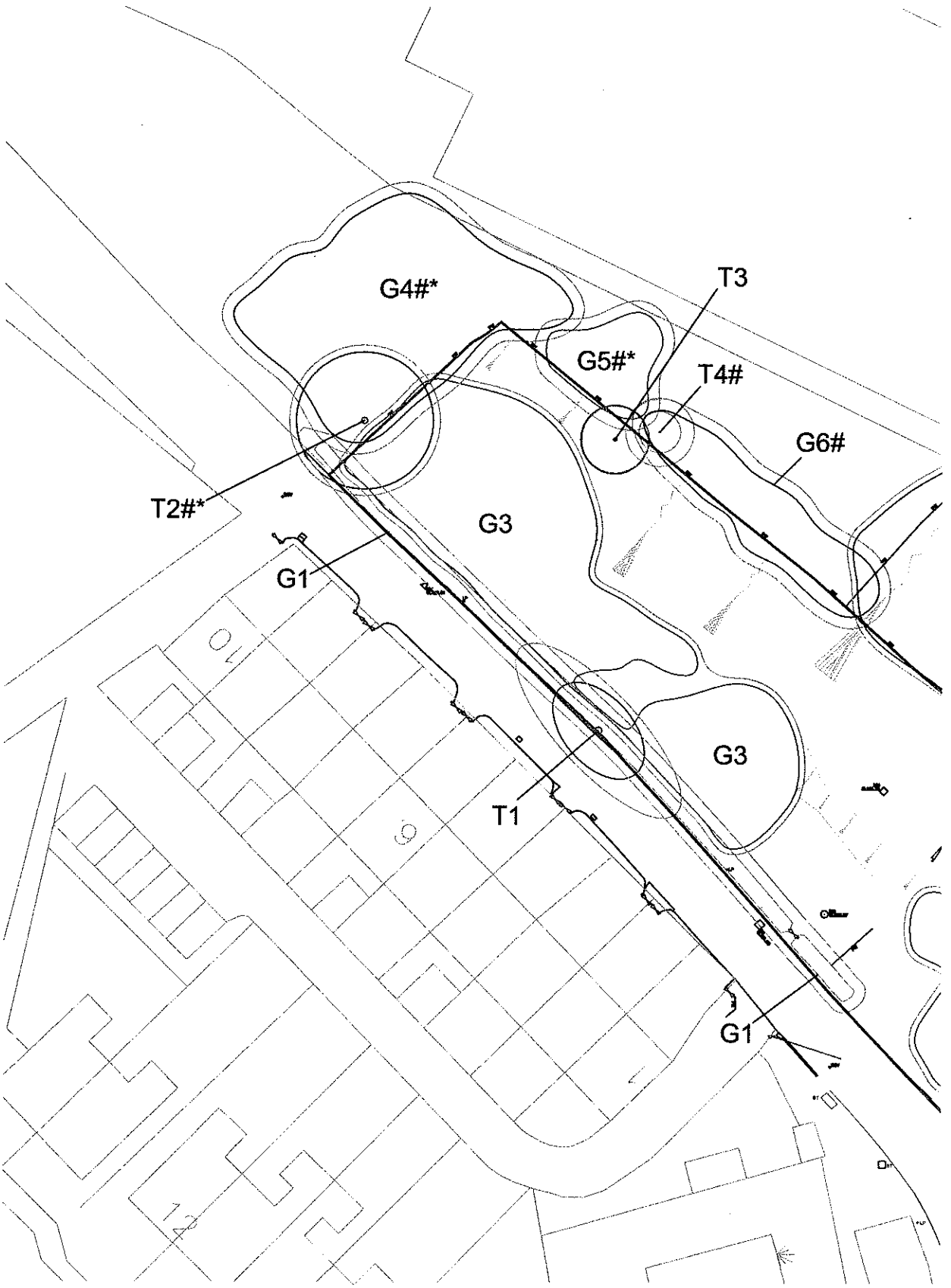
NOTES:

All young trees are assessed as quality category 'C' but this does not preclude their retention within a development.

For hedges the height, canopy spread and number of stems is recorded but they not assigned a quality category.

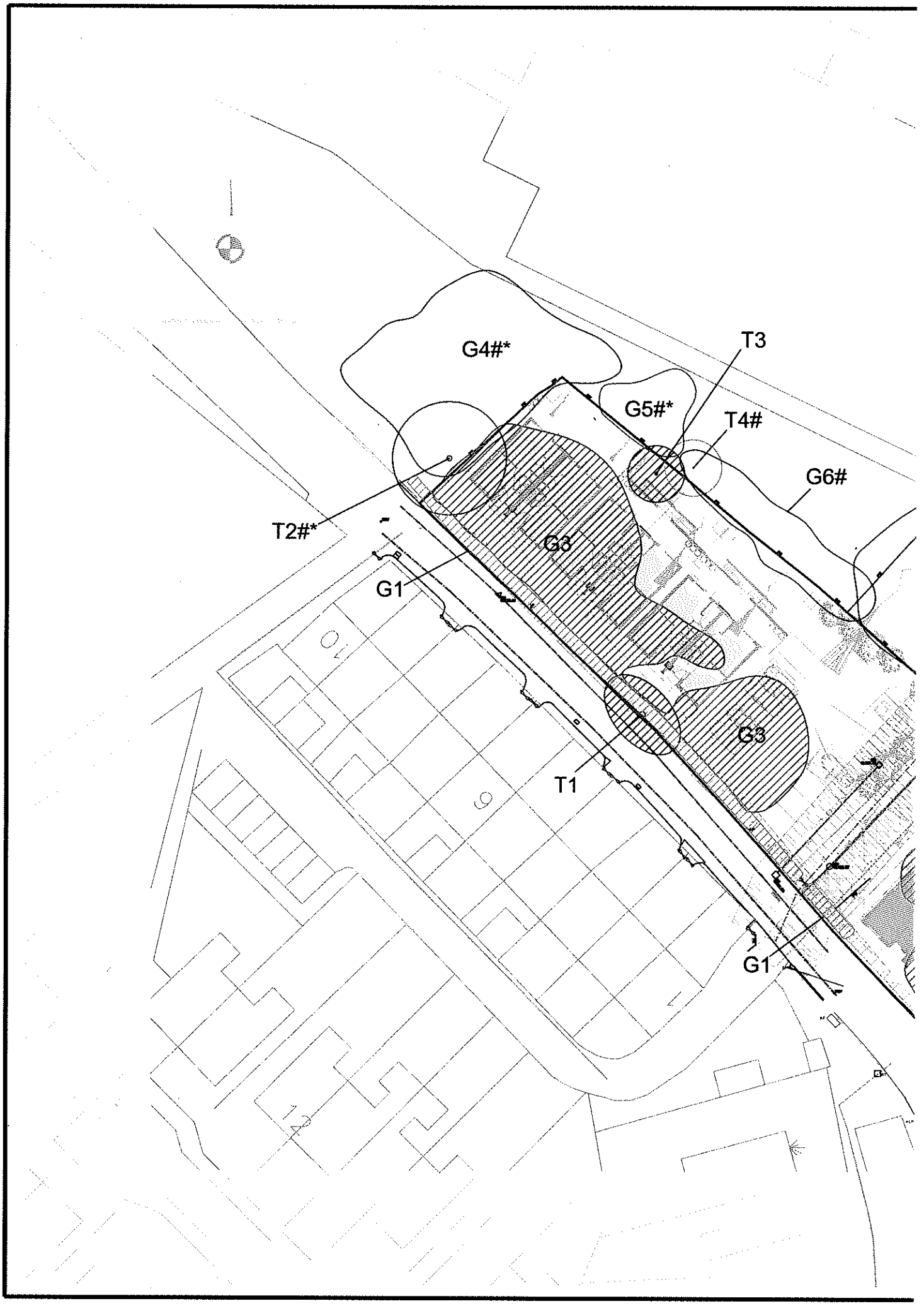
DRAWING 1

TREE CONSTRAINTS PLAN


G4#*
T3
G5#*
T4#
G6#
T2#*
G3
G1
G3
T1
G1

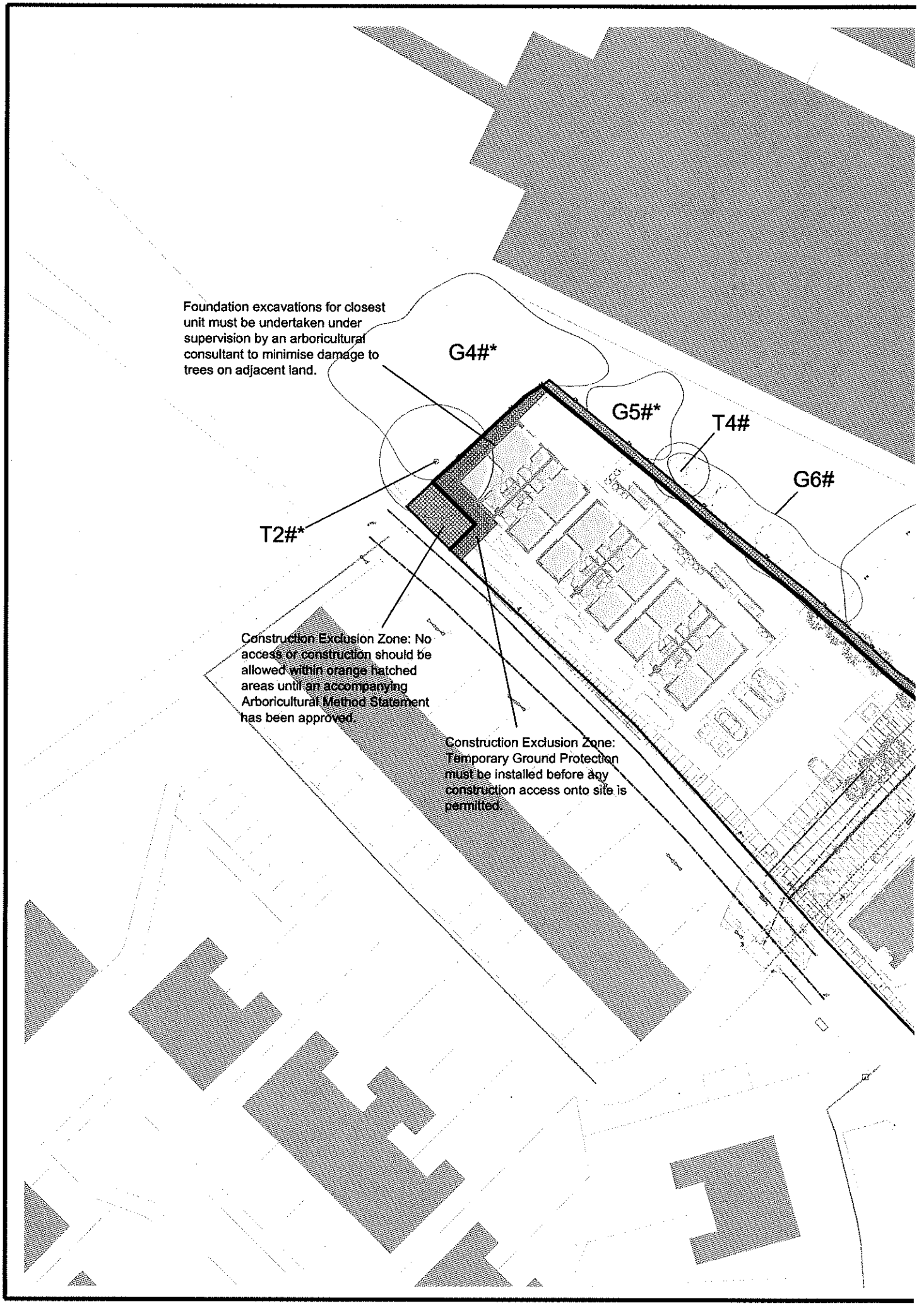
DRAWING 2

TREE IMPLICATIONS PLAN


G4#*
T3
G5#*
T4#
G6#
T2#*
G3
G1
T1
G3
G1

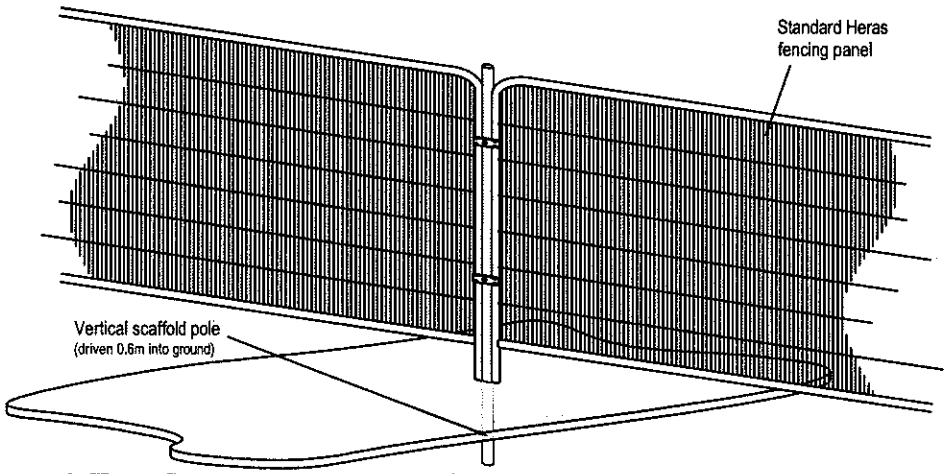
DRAWING 3

TREE PROTECTION PLAN


Foundation excavations for closest unit must be undertaken under supervision by an arboricultural consultant to minimise damage to trees on adjacent land.
G4#*
G5#*
T4#
G6#
T2#*
Construction Exclusion Zone: No access or construction should be allowed within orange hatched areas until an accompanying Arboricultural Method Statement has been approved.
Construction Exclusion Zone: Temporary Ground Protection must be installed before any construction access onto site is permitted.

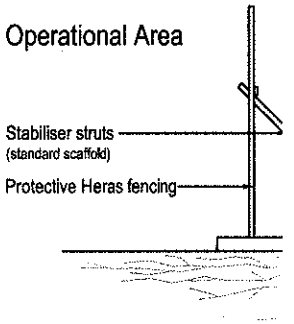
DRAWING 4

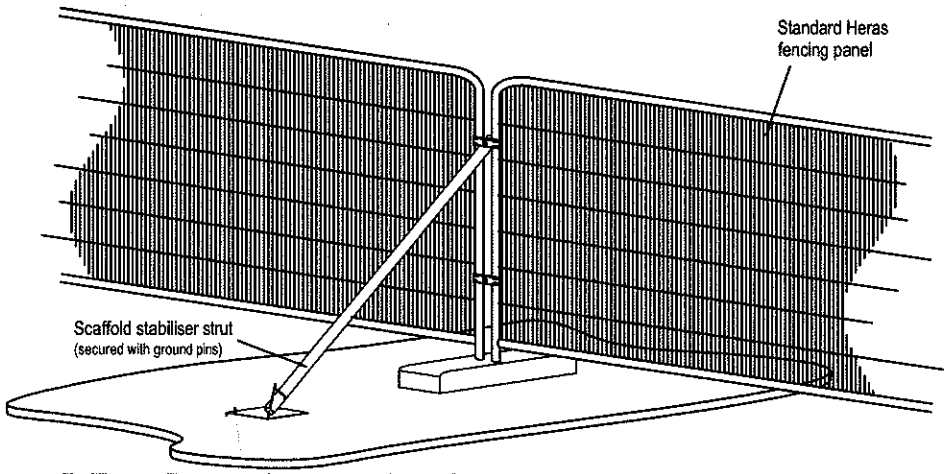
RECOMMENDED TREE PROTECTION FENCING



Type A Tree Protection Fencing: for use as standard

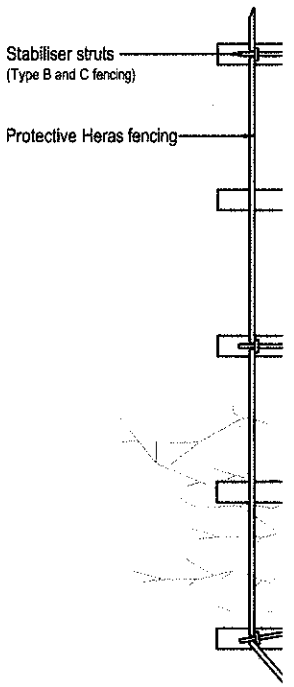
(see Tree Protection Plan for layout)

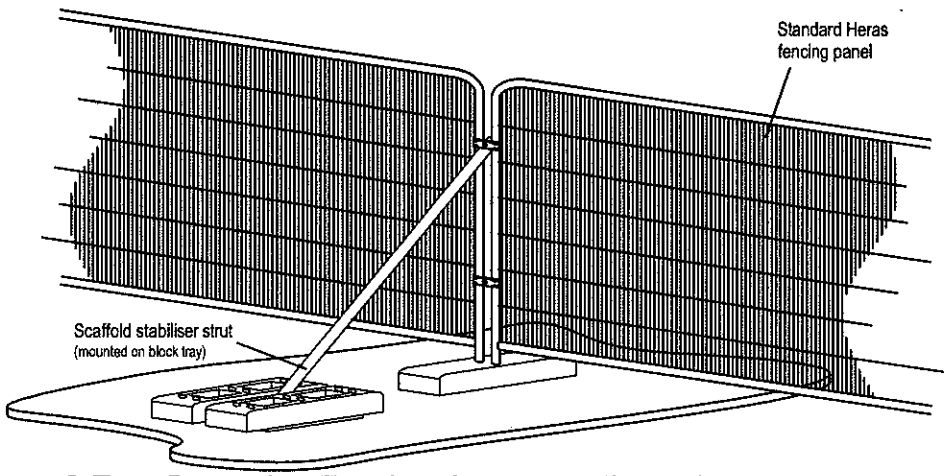




Type B Tree Protection Fencing: for use as directed

(e.g. where Type A would cause unacceptable damage to roots or underground services)





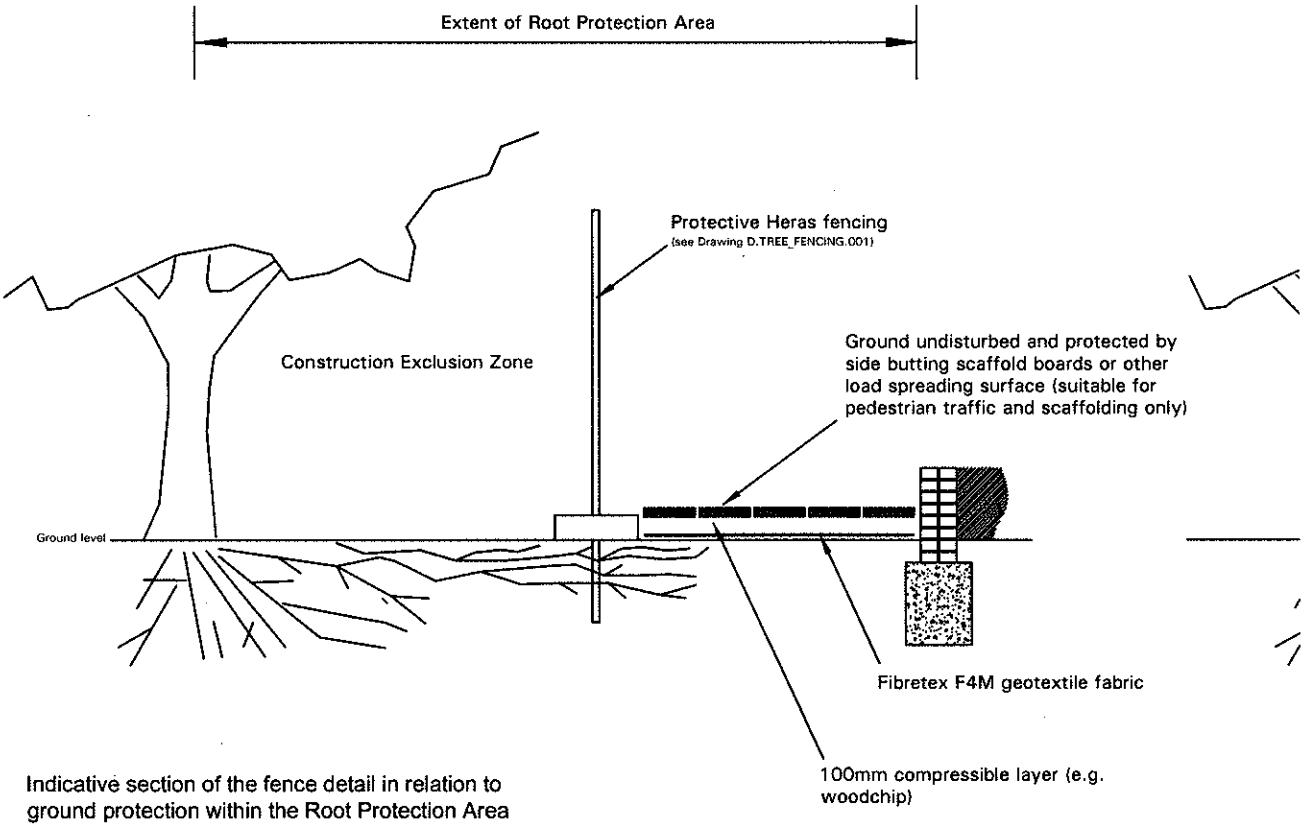
Type C Tree Protection Fencing: for use as directed

(e.g. on hard surfaces)

Operatic

DRAWING 5

RECOMMENDED GROUND PROTECTION



Indicative section of the fence detail in relation to ground protection within the Root Protection Area