Arboricultural Report and Tree Condition Survey For Proposed Residential Development at Land to the Rear of 41 High Street, Burton upon Stather, Scunthorpe, DN15 9DG

Prepared for Mr and Mrs Clark

Prepared by
John Graham PhD BSc ND (Arb)
JFG Consultancy

Our Ref D/01/25/05/16/JG
May 2016

Contents

1.0 Introduction

1.1 We have been instructed by Mr Clark to provide the arboricultural information to help inform the proposed development of the above site. We initially visited the site in May 2016 to undertake a Pre-Development Tree Condition Survey (See Appendix 1).

1.2 This Arboricultural Report has been prepared to inform a planning application for the construction of two residential properties on land to the rear of 41 High Street. The existing residential dwelling remains unaffected by the proposed development. .

1.3 The issues to be addressed in this Arboricultural Report and Tree Condition Survey include the;

- The species, size and position and amenity value of the trees growing within and close to the site.
- The impact of the proposed development on the tree resource including the vegetation removals and the protection of retained trees.

1.4 We have been provided with a sketch/plan of the positions that the proposed buildings will occupy and our conclusions and recommendations are based on these.

2.0 Site Description

2.1 The existing building directly abuts the pavement with High Street beyond. There is a large garden to the rear. On the left flank of the property the compacted hardcore access drive with a shrub bed to the left, runs west behind the main dwelling. To the rear of the original building there is a two storey extension.

2.2 The tree resource consists of a mix of ornamental trees and fruit trees. Most of the trees are semi-mature with some older fruit trees. The health of the trees varies; several are in poor condition (T4, T5 and T8) while others are poorly located such as T6 and T7 which are too close to a third party building. T10 and T11 may be hazard risks as they appear to have been topped in the past and now have substantial new leaders growing from these potential weak points.

2.3 The species on site include Crab Apple, Domestic Apple, Pear, Cypress, Cedar, Maple, Cherry, Rowan, Birch and Weeping Willow. The property to the north of the site has some large trees close to the proposed development including a Cypress, Ash, Walnut and Willow. Our client has informed us that the large Cypress T12 is to be felled by his neighbor due to its extremely close proximity to their property and is treated in this report as such.

2.4 The proposed development consists of two residential properties to be constructed within the rear garden of the existing property. The proposed development shares the existing vehicle access from High Street and a new driveway will continue west toward the end of the garden.

3.0 Background

3.1 The two main possibilities for injury to trees during and following the construction process are from direct and indirect damage.

Direct Damage can be defined as injury resulting from physical contact including contact with machinery or fire, and excavation of the root area.

Indirect Damage can be defined as injury resulting from activities that take place near the tree such as level changes, compaction of the soil, or contamination by chemical spillage in proximity to the root plate.

3.2 For all trees but particularly those growing in urban areas or previously developed sites, root growth is not predictable. Tree roots are opportunistic, they grow most prolifically in areas where conditions are favourable and will be deflected by natural features and man-made structures. When hostile conditions are encountered root growth will be limited.

3.3 It is generally agreed that the majority of tree roots, even for a mature tree are found in the top 90cm of the soil. These roots absorb moisture and nutrients needed for growth and contrary to popular belief mature trees do not have a large deep taproot that obtains moisture from great depth.

3.4 An ideal soil for root growth is about 50% pore space (in urban areas this is often significantly reduced). These pores, the spaces between soil particles, are filled with water and air, construction activity can compact the soil and can dramatically reduce the amount of pore space. This not only inhibits root growth and penetration but also decreases oxygen in the soil that is essential to the growth and function of the roots.

3.5 For all trees but particularly those growing in previously developed sites, root growth is not predictable. Tree roots are opportunistic, they grow most prolifically in areas where conditions are favourable and will be deflected by natural features and man-made structures. When hostile conditions are encountered root growth will be limited.

3.6 The BS 5837 (2012) calculator for Root Protection Areas (RPA's) aims to ensure a sufficient area of the trees root system is protected. It aims to protect an area around each retained tree of sufficient size to maintain the health and vigour and ensure the longevity of the retained trees. We have indicated the Theoretical Root Protection Area of each tree on the Tree Survey Plan.

3.7 Damage to trees (including their root systems) may impact on their long-term health, stability and or vitality. Damage may result in the partial or complete structural failure of the tree and increases the risk of personal injury. The provision of tree protection measures and appropriately specified and implemented construction works can serve to remove the risk of damage to the retained trees.

3.8 Tree surgery works, the provision of tree protection measures and appropriate specified, supervised and implemented construction works can reduce the risk of damage to the retained trees.

3.9 Damage to trees (including their root systems) may impact on their long-term health, stability and or vitality. Damage may result in the partial or complete structural failure of the tree and increases the risk of personal injury.

3.10 It is therefore essential if the proposed development is permitted that this report is read by all parties and the guidelines are followed by the main contractor, site agent and all contractors, particularly those undertaking groundworks on site.

4.0 Arboricultural Considerations

4.1 The proposed development is designed to ensure that it does not impact on the health, stability or vitality of the retained trees growing near the site boundary.

4.2 The vegetation to be removed to allow for the proposed development is the over-mature Apples T4 and T5, the Cedar T6 and Juniper T7, which are very close to third party building, a previously topped Maple T9, the two Birch trees T10 and T11 (topped in past) and T20 a Weeping Willow with anthracnose and associated dieback. With regard to the size and location of the trees to be removed it is felt that the removal of this vegetation will not impact on the wider area. In addition these removals can be mitigated by new planting within the garden of both the existing and proposed properties.

4.3 The proposed access runs through the theoretical Root Protection Area of the Crab Apples T1, T2 and T3 and the Cypress Group TG1. As these RPA's are already under the existing driveway it is suggested that it is suggested that with the use of small construction vehicles and small delivery materials vehicles that damage to these tree roots will be mitigated. The driveway is also to be extended west toward the end of the garden. The impact of this driveway is considered acceptable as no other RPA's of retained trees would be impacted on.

4.4 The RPA of the third party tree T12 would have been in conflict with the construction of the proposed building to the middle of the site however it is understood that this tree will soon be removed due to its very close proximity the third party dwelling.

4.5 New planting associated with the proposed development offers the opportunity to improve the quality of the boundary vegetation and offers the opportunity to improve the bio-diversity value and age diversity of the tree resource within the site.

4.6 To prevent the proposals impacting on the health, stability or longevity of the retained trees the main requirements are the installation of suitable tree protection measures and avoiding damage

to any significant roots and protecting the tree rooting environment during the construction works including during the installation of hardstanding.

4.7 In Section 5-6 of this report we have outlined the Tree Protection Measures. In Appendix 3 we have provided a draft plan showing the proposed location of the Tree Protection measures. Subject to planning, the tree protection measures, landscaping proposals including boundary treatment can be addressed in detail and secured by use of a standard planning condition.

5.0 Site Inspections

5.1 In order to ensure that the principals of tree protection set out in the statement are adhered to, it is important to set out communication details for key individuals and tasks that require supervision. These details should be retained by all relevant parties and available on site at all times. Relevant parties will be advised of any changes in personnel or contractor during the development process.

5.2 To ensure that the construction process is undertaken with minimal disturbance to the retained tree stock, we recommend that an experienced Arboricultural consultant be appointed to undertake regular inspections of the site.

5.3 In addition to the site visits prior to commencement of the works an onsite meeting will be held with all relevant parties including the main contractor, site agent, and appointed arboricultural clerk of works. The purpose of this meeting is to outline the arboricultural issues and brief the site staff on the importance of the tree protection measures.

5.4 It is our experience that a mix of scheduled and unannounced site visits will serve to identify any damage to the Tree Protection Fencing, poor working practices, potential problems and points of conflict between the construction process and the health of the trees. These reports will include recommendations for remedial action.

5.5 Listed below are the key activities for arboricultural supervision / inspection.

- Erection of Tree Protection Barriers
- Installation of No-Dig Hardstanding
- Dismantling of Tree Protection Barriers
- Practical completion

5.6 During these visits any changes to the proposed works will be discussed, their impact assessed and recommendations for best practice will be outlined. After each of these visits a copy of the report should be sent to the Site Agent, Local Authority Tree Officer and Client. The remedial action undertaken will be recorded on the next visit.

6.0 Summary of Tree Protection Measures

6.1 Prior to any enabling works commencing the Tree Protection Fencing will be erected. All plant or vehicles engaged in the construction works will operate outside the fenced off Root Protection Areas.

6.2 The Tree Protection Fencing will be installed as per the Tree Protection Plan (a preliminary version of this plan is attached in Appendix 3), which subject to planning will be agreed with the Local Authority Tree Officer. The proposed specification can be found in Appendix 4. We recommend that the areas of 'high risk' during construction works are fenced off using Heras fencing, whilst the low pressure areas are fenced off using timber stakes and plastic mesh hazard fencing.

6.3 A copy of the tree protection plan should be on display in the site office.

6.4 The site office, welfare facilities, storage area and contractors parking area need to be located within an area of the site that is outside the Root Protection Area (RPA). The compound will remain at least 1 metre outside the RPA.

6.5 All excavated soil will be removed from site or stored in a location remote from any tree protection barriers.

6.6 Within the fenced off Tree Protection Zones:

1. No Pedestrian, Machinery or Vehicular Access unless authorised by the Arboricultural Supervisor.
2. No storage of plant or materials.
3. No storage or handling of any chemical including cement washings within 5m of the fenced off areas.
4. No fires within 10m of the Tree Protection Fencing.
5. No excavation below existing soil level by any means.
6. No level increases >100mm within the fenced off area and no increase within 2m of the stem of any retained tree, without agreement from the Arboricultural Supervisor.
7. Any works within the fenced off area to be agreed and overseen by the Arboricultural Supervisor

6.7 If the subsoil is found to be plastic, the foundations will be specified to take into account the potential influence of the vegetation on the moisture content and volume of the subsoil.

6.8 Dismantling the protection barriers will be required to allow completion of final landscaping. Supervision of this exercise and control of the landscaping thereafter will be administered by the appointed Arboricultural Supervisor.

6.9 The removal of the Tree Protection Fencing is not an opportunity for machinery to access the previously fenced off area. No further excavation will be carried out during this process and soils levels will not be raised above that existing by greater than 100mm and not at all within 2m of the trunk.

7.0 Conclusion

7.1 The proposed vegetation removal will not impact on the character and appearance of the wider area.

7.2 It is my opinion that provided the site works are undertaken following our guidelines and advice, the development can be constructed without adversely impacting on the root systems, overall health and long-term future of the retained trees.

7.3 The proposed development can be carefully designed to allow the retention of the boundary vegetation. This vegetation has merit to neighbours and future occupants of the site and has the potential to continue to contribute to the area for many years.

7.4 The protection of retained trees on this site during the proposed development works can be achieved by continuing to follow the recommendations in BS5837:2012 and by use of standard planning conditions.

John Graham PhD BSc ND (Arb)
JFG Consultancy
May 2016

Appendix 1

Tree Condition Survey

Arboricultural Report and Tree Condition Survey for Proposed Residential Development at Land to the Rear of

41 High Street,
Burton upon Stather
DN15 9DG

Prepared
for
Mr Clark

Prepared by
John Graham PhD BSc ND (Arb)
JFG Consultancy

Our Ref D/1/25/05/16/JG
May 2016

Tree Condition Survey for Proposed Residential Development at Land to the Rear of 41 High Street, Burton upon Stather, DN15 9DG

1.0 Introduction

We have been instructed by Mr Clark to assess the condition of trees located within and close to the boundary of the site. The site was visited in May 2016 and an assessment of the trees' condition was made in accordance with BS5837 2012.

2.0 Survey Methodology

We have surveyed all the individual trees and groups of trees located within and close to the boundary of the site. The objective of the survey is to collect tree data relevant to the proposed redevelopment of the site and to categorise individual trees or tree groups in accordance with BS 5837 (2012) 'Trees in relation to design, demolition and construction – Recommendations' based on their condition, quality and future potential.

The purpose of the categories within BS5837 2012, is not to determine whether retention of trees is desirable, '*The purpose of the tree categorization method, which should be applied by an arboriculturist, is to identify the quality and value (in a non-fiscal sense) of the existing tree stock, allowing informed decisions to be made concerning which trees should be removed or retained in the event of development occurring*.' (BS5837 2012 Section 4.5.2). This survey should therefore be regarded as an initial appraisal and observations, assessments or recommendations relating to tree protection zones, remedial tree works, protective fencing, foundation design, material specification are beyond the scope of this report.

The location of the trees is shown on the attached drawing. It should be noted that all trees within the gardens of adjoining residential properties have been viewed only from within the site. A detailed inspection of individual trees with respect to decay, defects and hazard is not included. However, trees found to be in a structurally dangerous condition are identified.

TABLE 1

Tree No.	Species	Hgt (m)	Dia. @ 1.5m (mm)	No of stems	CS N (m)	CS E (m)	CS S (m)	CS W (m)	ER CY	Vig.	Form	Age Class	Description	Works	BS Cat
T1	Crab Apple	5	310	1	4	3	3	4	20+	A	A	M	An ornamental tree in reasonable condition planted in shrub bed to south of the site.	No Works	B1
T2	Crab Apple	7	260	1	2	3	2	3	20+	A	A	M	As per T1.	No Works	C1
T3	Crab Apple	6	200	2	3	3	3	3	20+	A	A	M	As per T1.	No Works	C1
T4	Domestic Apple	5	330	1	3	3	3	3	<10	P	A	OM	An old fruit tree with signs of die back loss of vigour and some cavities.	Fell as in decline	U
T5	Domestic Apple	4	180	2	1	2	2	2	<10	A	A	OM	As per T4.	Fell as in decline	U
T6	Cedar	7	310	1	3	3	1	3	10	A	P	SM	An ornamental tree planted close to a third party building. This tree will need to be removed in order to avoid damaging the building.	Fell as too close to third party building	U
T7	Juniper	4	200	1	2	2	2	2	10	A	P	SM	As per T6	Fell as too close to third party building	C1
T8	Pear	6	450	1	3	4	4	4	10	P	A	OM	An over mature fruit tree with a large cavity in its main stem, signs of die back and loss of vigour	No Works	C1
T9	Maple	6	450	1	3	3	3	3	20+	A	P	SM	An ornamental tree located in the centre of the rear garden. This tree has been heavily crown reduced and is of low amenity value.	Fell for proposed development	C1
T10	Birch	14	260	1	4	2	3	2	10	A	A	SM	This tree appears to have been topped at about 4m in height. A new leader has grown from the site of the wound and is a possible hazard.	Fell for proposed development	C1

Tree No.	Species	Hgt (m)	Dia. @ 1.5m (m)	No of stems	CS N (m)	CS E (m)	CS S (m)	CS W (m)	ER CY	Vig.	Form	Age Class	Description	Works	BS Cat
T11	Birch	13	360	1	6	3	3	5	10	A	A	SM	As per T10	Fell for proposed development.	C1
T12	Leyland Cypress	14	650	2	4	4	4	4	20+	A	P	EM	a third party tree growing very close to their property.	To be felled by third party	C1
T13	Ash	15	300	1	5	5	5	5	20+	A	A	SM	A large spreading tree that dominates this part of the rear gardens. The tree has reasonable form and appears to be in reasonable condition.	No Works	B1
T14	Willow	11	200	1	3	3	3	3	20+	P	P	SM	This third party tree is planted close to the north boundary. The tree is suppressed and has poor form.	No Works	C1
T15	Walnut	11	250	1	3	3	3	3	20+	A	P	SM	As per T14.	No Works	C1
T16	Cherry	6	340	1	3	4	3	4	20+	A	A	SM	An ornamental tree planted in a shrub bed to the west of the side. The trees in this area form a dense planting. The trees are individually of limited landscape value.	No Works	C1
T17	Rowan	7	200	1	3	3	3	3	20+	A	A	SM	As per T16.	No Works	C1
T18	Lawson Cypress	8	220	2	2	2	2	2	20+	A	A	SM	As per T16.	No Works	C1
T19	Birch	18	220	1	3	3	3	1	20+	A	A	SM	A tree that forms part of a small planting to the south-west corner of the rear garden. The tree has a phototropic habit.	No Works	C1
T20	Weeping Willow	18	450	1	7	7	7	7	10+	P	P	M	This ornamental tree is the largest tree on site. Its landscape impact is limited by its location and the presence of adjacent trees. There is dieback/anthracnose throughout the crown and the tree has a pronounced lean.	Fell for proposed development.	C1

Tree No.	Species	Hgt (m)	Dia. @ 1.5m (m)	No of stems	CS N (m)	CS E (m)	CS S (m)	CS W (m)	ER CY	Vig.	Form	Age Class	Description	Works	BS Cat
TG1	Cypress & Yew	6	180	1	2	2	2	2	10+	A	A	SM	A small dense group of ornamental conifers of low landscape impact.	No Works	C2
TG2	Cypress Hawthorn Hazel and Yew	4	150	1	2	2	2	2	20+	A	A	SM	A dense planting within an ornamental bed.	No Works	C2
TG3	Cypress Birch and Poplar	15	200	1	3	3	3	3	10+	A	A	SM	A small dense planting to south- west corner of garden. The group is of low landscape impact due to location.	No Works	C2
H1	Leyland Hedge	12	300	1	3	3	3	3	20+	A	A	EM	A third party hedge that is maintained on subject site side to 3m in height.	No Works	C2

Third party tree dimensions are estimates.

Table 1 Cascade chart for tree quality assessment

Trees unsuitable for retention (See Note)				
Category and definition	**Criteria (including subcategories where appropriate**			**Identification on plan**
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***.			**Red**
Trees to be considered for retention				
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**	
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 See Table 2 of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	**Green**
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	**Blue**
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	**Grey**

From BS 5837 (2012) Trees in relation to design, demolition and construction – Recommendations

KEY

Tree No.	Species	Hgt (m)	Dia. @ 1.5m (m)	No of stems	CS N (m)	CS S (m)	CS E (m)	CS W (m)	ER CY	Vig.	Form	Age Class	Description	Works	BS Cat

No. Tree number identified on copy of Tree Survey Drawing

Species: Common/English name

Hgt (m) Height of tree (measured to nearest whole metre)

Dia (m) Diameter of stem/trunk measured at 1.5 metres above ground level (or immediately above the root flare for multi-stemmed trees). If stem diameters have to be estimated a (*) will follow the numerical figure. (e.g. 450mm*)

No. of stems Number of stems

Crown Spread Maximum branch extent measured at the four compass points

ERCY: Estimated Remaining Contribution in Years

Vigour

G	Good
A	Fair
L	Low
D	Dead

Form

G	Good
A	Fair
P	Poor
D	Dead

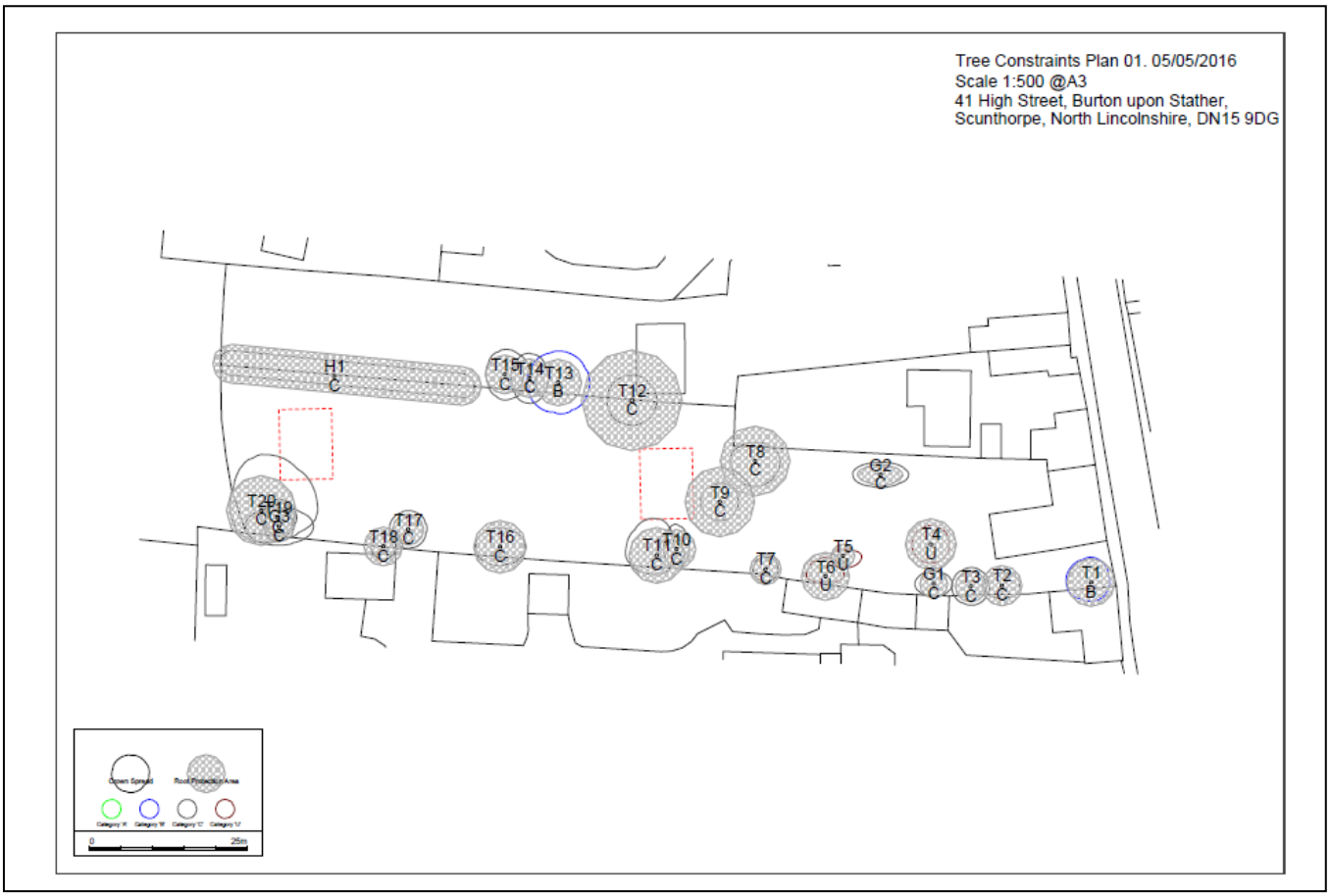
Age Class

Y	Young
SM	Semi-mature
EM	Early mature
M	Mature
OM	Over Mature
V	Veteran

BS Category See Table 1 **Cascade chart for tree quality assessment**
From BS 5837 (2012) Trees in relation to design, demolition and construction – Recommendation

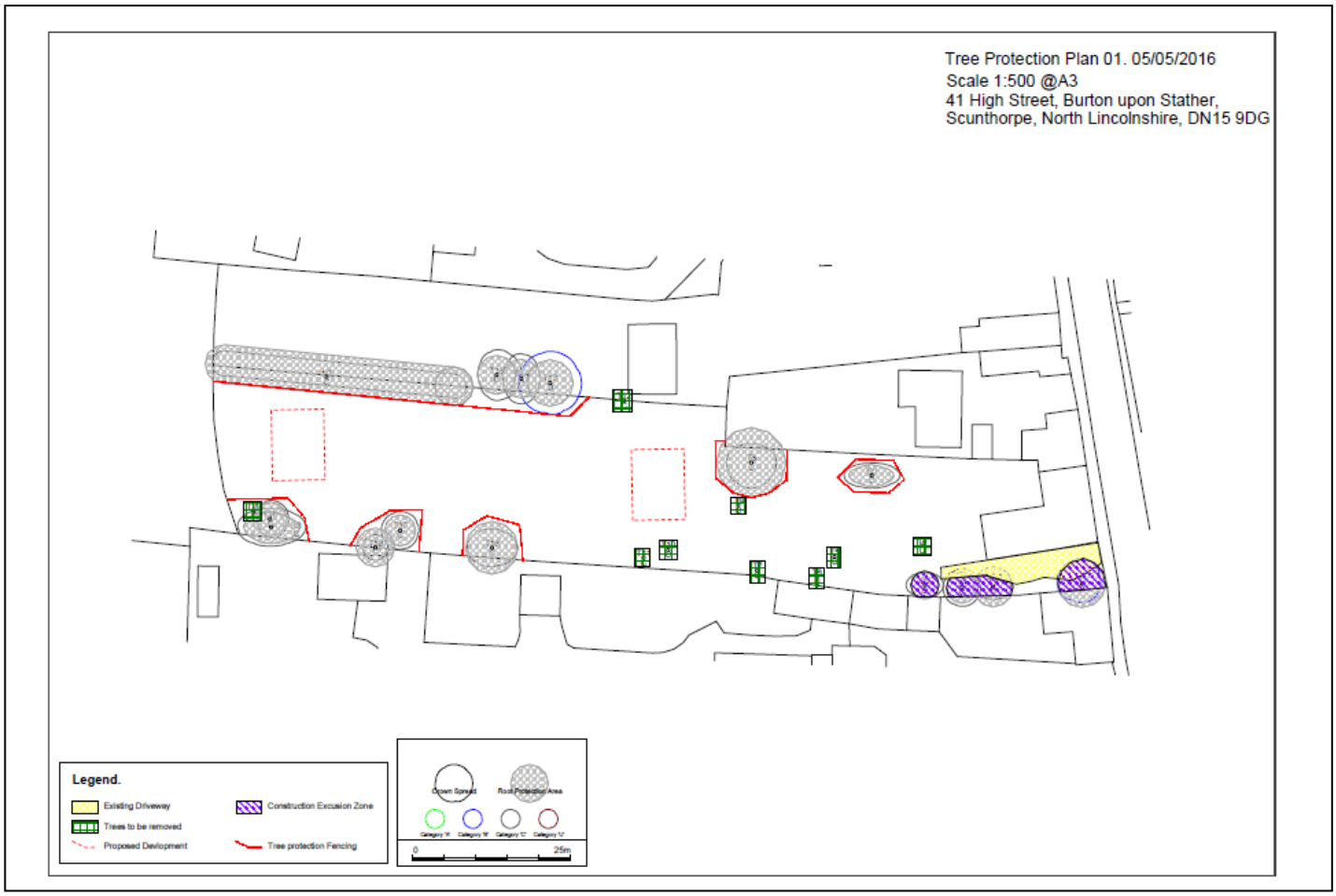
Appendix 2

Tree Survey Plan



Appendix 3

Tree Protection Plan

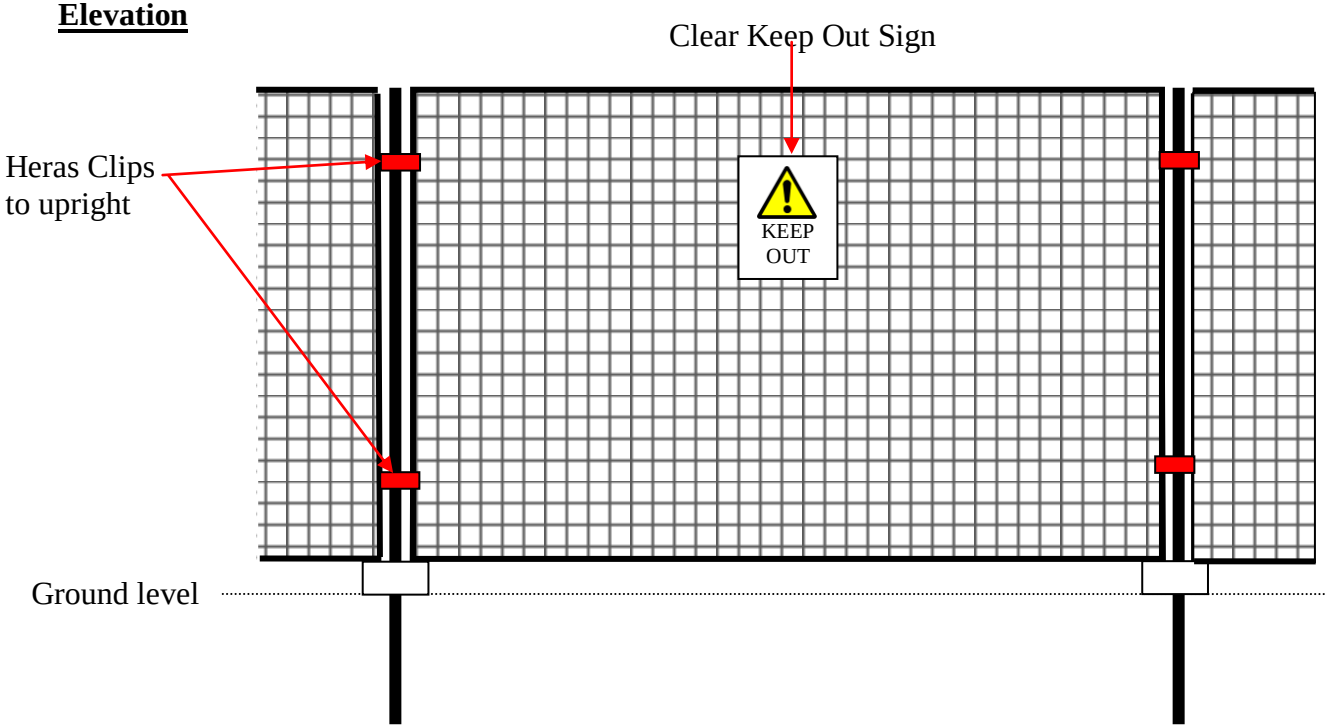


Appendix 4

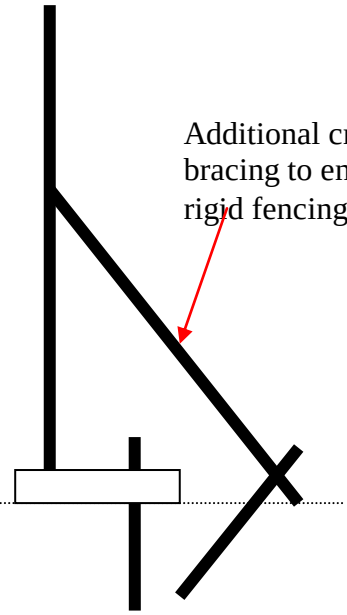
Tree Protection Specification and Notice

Tree Protection Fencing Specification

Elevation



Section



If concrete or rubber feet are used these must be pinned to the ground to prevent movement.

Tree Protection Fencing should be erected as per the Tree Protection Plan prior to any works commencing or materials being delivered to site.

TREE PROTECTION AREA

PLEASE KEEP OUT