Tree Care Consultancy
ARBORICULTURAL CONSULTANTS

Construction Damage Assessment
7 The Crest
Swillington
Leeds, LS26 8EA

Report Reference: 1671-1
September 2023

Table of Content

1. Introduction 3
1.1. Instruction and Brief 3
1.2. Qualifications & experience 3
1.3. Limitations 3

2. Construction Damage Assessment 4
2.1. Tree Status 4
2.2. Site Inspection 4
2.4. Details of Tree Protection 7

3. Conclusions 8

Appendix 1- Tree Location & Damage Identification Plan
Appendix 2- VALID Tree Risk-Benefit Assessment
Appendix 3- Tree Protection Plan

Prepared By:
Tree Care Consultancy
Mike Shackleton
Clifton Villa
37 Hall Cliffe Road
Horbury
Wakefield
West Yorkshire
WF4 6BY
[redacted]

Prepared For:
Mr. S Quabo
7 The Crest
Swillington
Leeds, LS26 8EA

1. Introduction

1.1. Instruction and Brief

1.1.1. Planning consent was granted in 2016 (App 16/00013/FU) to extend the existing footprint and construct a detached outbuilding in the rear garden of the above property. The consent included conditions relating to the protection of an early-mature Oak reference T1. A discharge of condition submission (23/00018/COND) was refused in February 2023 because the level of detail was deemed substandard by the Landscape Officer. At this point an enforcement case was opened.

1.1.2. Construction had commenced on site with no tree protective measures in place, exposing the tree to potential damage.

1.1.3. Subsequent discussions with Leeds City Council resulted in the Authority requesting Tree Care Consultancy to prepare a 'Construction Damage Assessment' to ascertain the extent of tree damage and make recommendations based on the findings.

1.2. Qualifications & experience

1.2.1. This report has been prepared by Mike Shackleton. Mike has over 20 years' experience within the Arboricultural Industry. He has a Higher National Diploma in Arboriculture, is a Professional member of the Arboricultural Association and an associate member of the Institute of Chartered Foresters. He is a Valid Tree Risk-Benefit Validator. He has been involved in dealing with proposed/active development sites, advice on trees in relation to structures, health and safety appraisals, tree inventories and planning appeals. As part of his continuing professional development, he regularly attends seminars and training events on issues relating to Arboriculture.

1.3. Limitations

1.3.1. Climate conditions including storm, drought and temperature-related factors can cause damage and failure in apparently healthy trees. It should be remembered that all trees do pose a risk, whilst every effort has been made to detect any major defects in inspected trees, no guarantee can be given as to their safety.

2. Construction Damage Assessment

2.1. Tree Status

2.1.1. Reference to Leeds City Council Interactive Map (viewed 26/09/23), suggests the site and its grounds are not located within a designated Conservation Area (CA) and that T1 is not protected by a Tree Preservation Order (TPO).

Extract taken from Leeds City Council Interactive Map. The red rectangle indicates the approximate boundary of 7 The Crest, Swillington, Leeds.

2.2. Site Inspection

2.2.1. A site inspection took place the 26 September 2023. The inspection was unaccompanied. T1 and its surroundings were only assessed from ground level.

2.2.2. The rear garden is littered with construction materials and paraphernalia including stacked materials in the immediate vicinity of T1.

2.2.3. A new wall has been installed along the property's eastern boundary, with a section being present within T1's theoretical Root Protection Area (RPA). The foundation is presumed to be constructed on a traditional strip footing.

2.2.4. The soil level has been excavated to a depth of approximately 1m, some 1.3m to the west of T1. Desiccated roots are evident along the face of the excavation. The roots have a maximum diameter of 70mm. The condition of desiccated roots suggests they have been exposed for some time. Although no details regarding the site's original topography have been provided, it is assumed the garden was either previously terraced or sloped in the direction of the house in order to marry in with the neighbouring ground levels.

2.2.5. Footings and three courses of breeze blocks have been constructed 1.4m from the stem of T1. The depth and type of foundation is unknown.

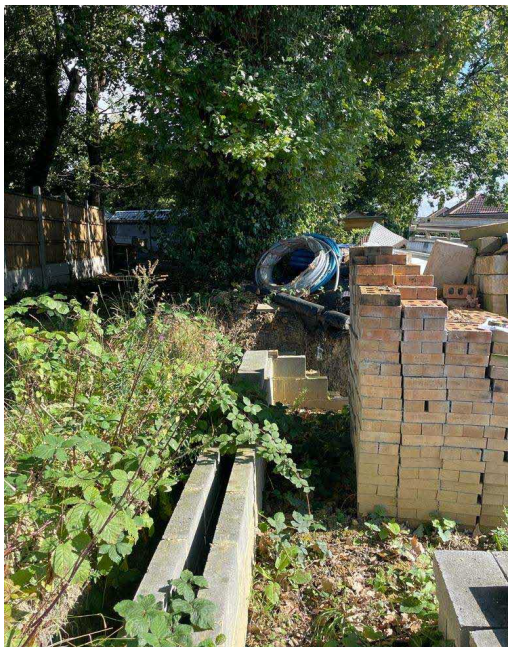


Figure 1. Displays the extent of the excavation work and new footings in the vicinity of T1.

Figure 2. Identifies a desiccated severed tree root.

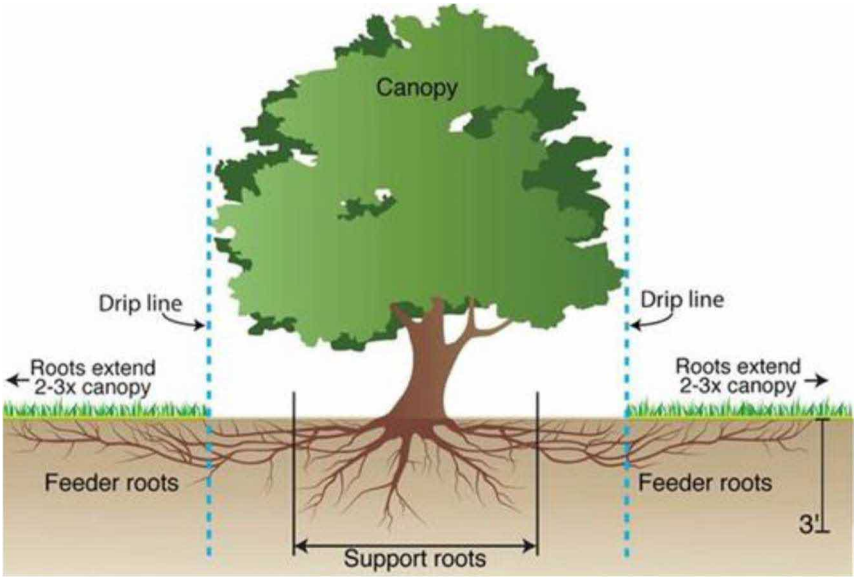
2.2.6. The remaining rooting environment appeared undisturbed. The presence of dense Ivy hindered an accurate inspection of T1's stem and immediate basal area.

2.2.7. There was no obvious cracks or indicators that could be symptomatic of root plate movement/failure in the immediate ground surrounding the stem of T1.

2.2.8. The tree exhibited good vitality with fully formed foliage. The Ivy hindered an inspection of the scaffold and secondary order branch material.

2.3. Discussion

2.3.1. Approximately eighty percent of tree roots are within the top 600mm of soil. Changes in this vital environment which may include ground level alterations, soil compaction, moisture levels and root severance will inevitably impact on tree health and potential stability. The diagram below demonstrates an indicative representation of a trees typical open grown root formation.



2.3.2. As recommended in BS5837 'Trees in relation to design, demolition and construction –Recommendations', the required Root Protection Area has been calculated and plotted on the accompanying Tree Location & Damage Identification Plan (appendix 1). Assuming T1's root growth has developed symmetrically; it is estimated that approximately 25% of its rooting volume has been destroyed including roots that potentially provided stability. The extent of root loss may have jeopardised T1's ability to withstand wind loads. It is also likely to have had an adverse effect on tree vitality which may take years to become symptomatic and evident within the crown of T1.

2.3.3. Determining a tree's tolerability to wind load and its potential safety factor can only be calculated by undertaking a Static Load Test. A Static Load Test calculates the Safety Factor of the stem and roots of a tree during a storm using engineering principles. The process calculates the trees likelihood of stem breakage and root plate failure in high winds.

2.3.4. Given the tree's surroundings it would be impossible to undertake an accurate Static Load Test without accessing third party land.

2.3.5. In order to assess the potential risk the tree possesses, a VALID Tree Risk-Benefit Assessment has been completed, the results of which are detailed at appendix 2.

2.3.6. VALID has applied ISO 31000 - Risk Management Standards and ToR to tree risk-benefit assessment. It computes probable risks and produces four possible qualitative outputs based on the computed outcomes - 'Acceptable,' 'Tolerable,' 'Not Tolerable' and 'Not Acceptable.' It has been developed with actual data modelling in the UK involving collaboration with the Cabot professor of natural hazards & risk science at the University of Bristol.

2.3.7. Once the outbuilding is constructed it will house a gym and office for use by the Ouabo family. As such it has the potential to be occupied on a daily basis including periods of inclement weather. The VALID assessment has identified the risk as 'Not Tolerable' and therefore management recommendations have been made to minimise the risk to an acceptable level. Please refer to section 3 where details of the recommended management works have been provided.

2.3.8. Compacted soil can usually be corrected by the use of de-compaction equipment i.e. AirSpade. This tool works by blowing a high speed, high volume jet of air into the ground and disrupting soil constituents. This process helps restore favourable oxygen levels, gaseous exchange and colonization of beneficial organisms such as mycelium within the rooting environment.

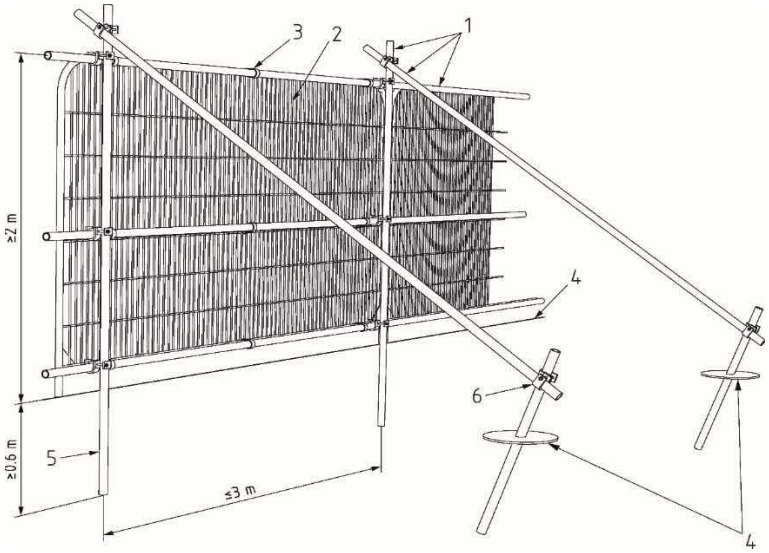
2.3.9. To be effective soil decompaction work needs to be completed immediately.

2.3.10. In this instance it would be more beneficial to complete 'vertical mulching' by using an AirSpade to improve the soil structure by incorporating enriched biochar. Mycorrhiza should also be added to the soil during this process. Mycorrhiza is a naturally occurring fungus that has a symbiotic relationship with trees. Incorporating Mycorrhiza into the soil will help stimulate root growth and improve overall tree vitality.

2.3.11. Following the vertical mulching work the rooting zone would benefit from the addition of a 70mm depth of mulch. Over a five year period the mulch should be replenished when necessary. The mulch should be spread over the maximum available Root Protection Area of T1.

2.4. Details of Tree Protection

2.4.1. On completion of the above work Tree Protective Fencing will need to be installed to safeguard T1 from the duration of construction work. The diagram overleaf identifies tree protective fencing appropriate to the location. The location of the fencing is identified on the Tree Protection plan at appendix 3.



Key

1 Standard scaffold poles

2 Heavy gauge 2m tall, galvanized tube and welded 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

3. Conclusions

3.1.1. The recent construction activity within the vicinity of T1 has resulted in root loss which has potentially altered the tree's stability and vitality.

3.1.2. A VALID Tree Risk Benefit Assessment has identified the risk the tree possesses to its surroundings as 'Not Tolerable.' To reduce the risk to an acceptable level, it is recommended the tree's sail area is reduced, lessening the force imposed on the compromised root structure.

3.1.3. The removal of building materials and application of soil improvers is recommended and included in the program of works detailed in the table overleaf.

3.1.4. The work recommended in this report should be undertaken by a suitably qualified Arboriculturist. The appointed Arboriculturist should provide the client and Local Planning Authority with written and photographic evidence to show that any agreed mitigation works have been completed.

Program of Works

Order	Work Description	Specification	Arboricultural supervision required?	Completed by
1.	Remove all construction material	Remove all construction material stored within the prescribed Root Protection Area (as denoted on plan).	Yes	Contractor or homeowner
2.	Prune desiccated roots	Prune exposed roots to live material (where possible).	Yes	Qualified Arborist or Arboriculturlist
3.	Carryout tree pruning works	Reduce T1 by 2.5-3m in height and 2m in lateral spread. Work to be completed in accordance with BS3998 Tree Work Recommendations.	Yes	Qualified Arborist
4.	Soil Improvement works	Undertake vertical mulching by incorporating enriched Biochar @ 4% of the soil volume per m2 with the aid of an AirSpade. Apply Mycorrhiza into the soil and mulch area with 70mm of good decomposing woodchip.	Yes	Qualified Arborist or Arboriculturlist
5.	Install Tree Protective Fencing	Erect Tree Protective Fencing as identified on the attached Tree Protection Plan in accordance with figure 3 of BS5837	Yes	Contractor or Qualified Arborist
6.	Monitoring	Inspect T1 on an annual basis to establish health and vitality and consider any additional tree management controls that might be required.	Yes	Contractor or Qualified Arborist

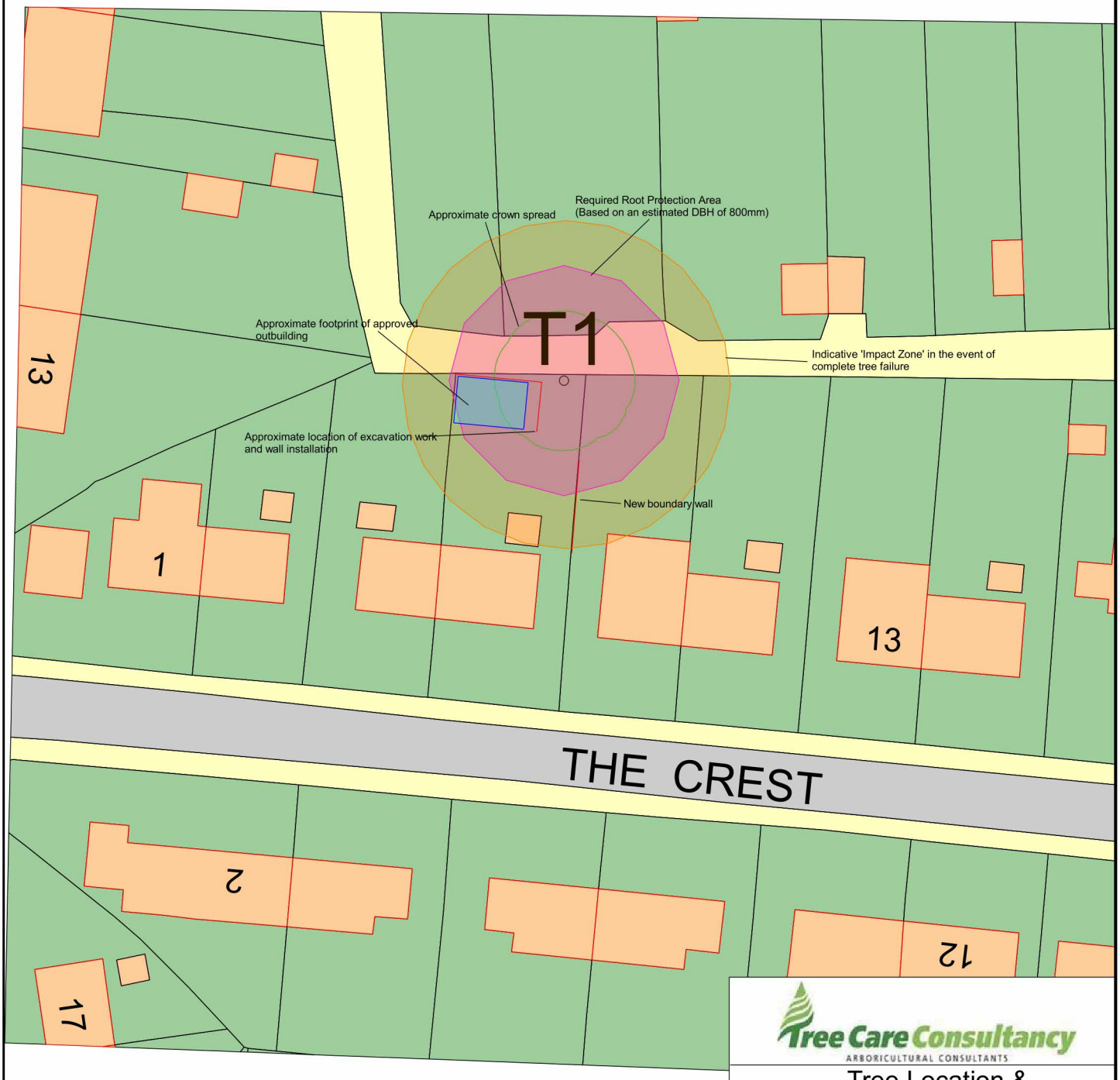
3.1.5. We trust the information provided within this report is sufficient. In the event of any queries, please do not hesitate to contact the author.

Signed

[redacted]

Mike Shackleton H.N.D Arb (M.Arbor.A)

Appendix 1



Tree Care Consultancy
ARBORICULTURAL CONSULTANTS

Tree Location & Damage Identifcation Plan

SCALE :	DATE :	N
500@ A4	04/10/2023	
MAP FILENAME : TCC-1621-1		

Tree Care Consultancy Ltd, Clifton Villa, 37 Hall Cliffe Road
Horbury, Wakefield, West Yorkshire, WF4 6BY
[redacted]

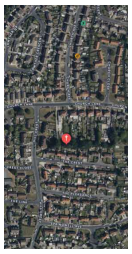
Summary

Risk

English Oak (T1)

Highest Risk	**Not Tolerable**
Risk Reduction	
Tree Management	Crown reduce by 3m in height and 2m in spread.
Review Year	**1**
Date Assessed	2023-10-03 09:40
Assessed By	
Phone Number	
Email	

Tree Details and Location



Species	Height (m)	Stem Ø (cm)	Crown Ø (m)
English Oak Quercus robur	16	800	7

7 The Crest
Swillington
Leeds

Risk Inputs

Likelihood of Occupation

No Image Provided

Structure

Parked

Services

Train | Tram

O

O

Consequences

No Image Provided

Tree

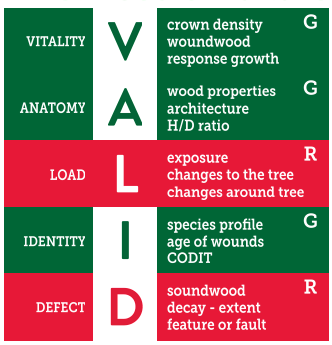
Stem

Branch

Deadwood

C

Likelihood of Failure



In strong vitality though likely to deteriorate.

Significant root loss likely to jeopardise structural integrity.

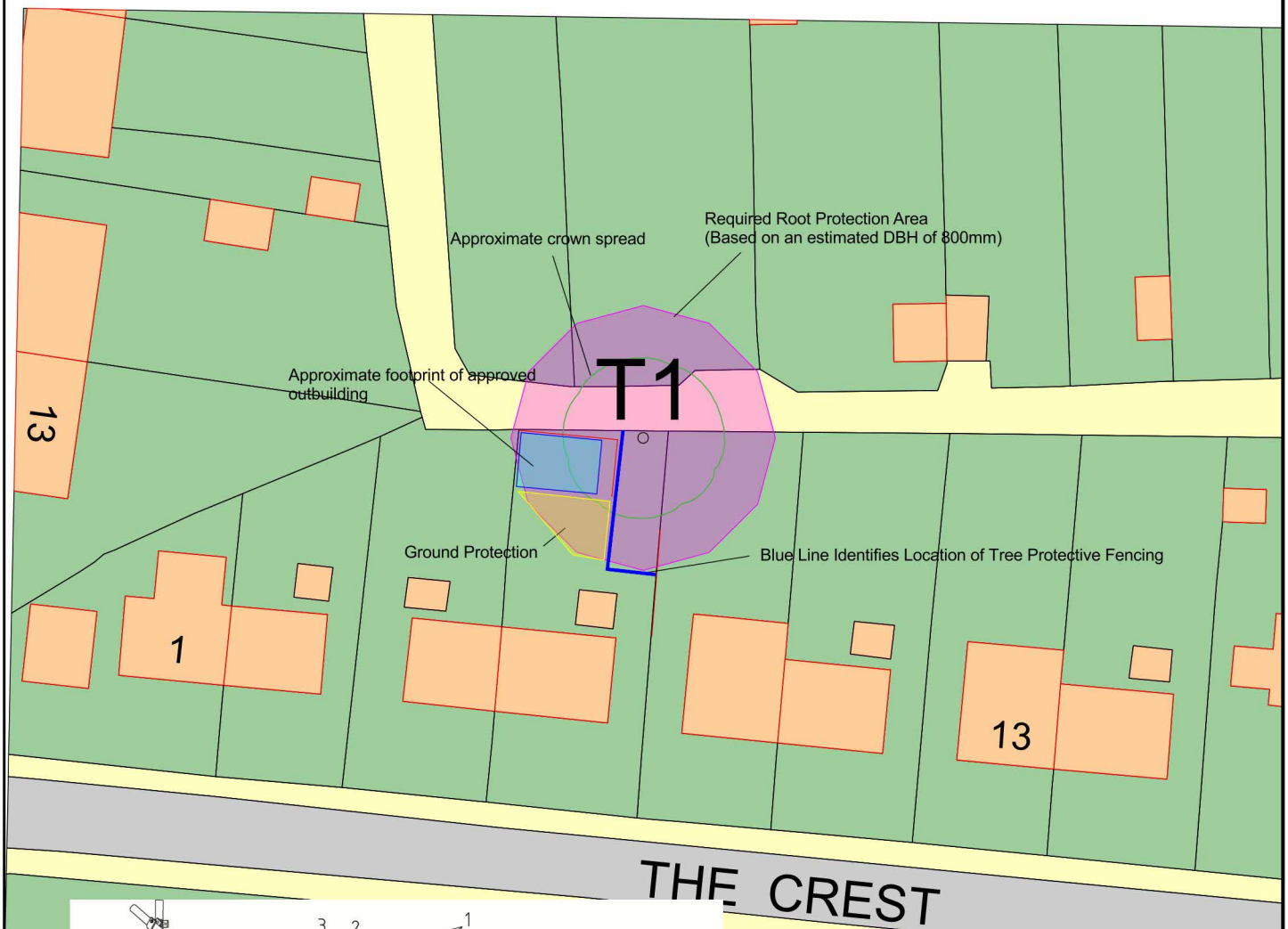
Species tolerant of abiotic and biotic factors.

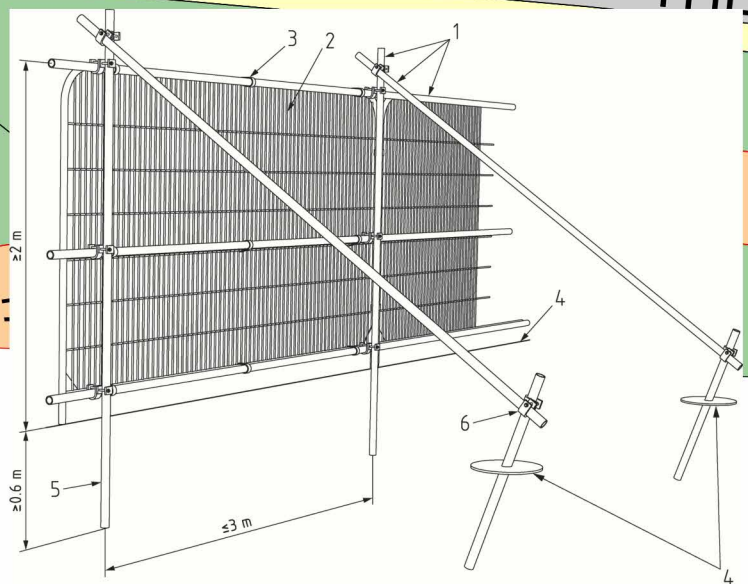
Significant root loss likely to impact on stability.

C

Notes

The highest risk is wind throw resulting in failure onto new outhouse building.





Default Specification for a Protective Barrier

Tree Care Consultancy
ARBORICULTURAL CONSULTANTS

Tree Protection Plan

SCALE :	DATE :	N
500@ A4	03/10/2023	
MAP FILENAME : TCC-1621-1		

Tree Care Consultancy Ltd, Clifton Villa, 37 Hall Cliffe Road
Horbury, Wakefield, West Yorkshire, WF4 6BY
[redacted]