

Arboricultural Impact Assessment:

Land at Harbottle
Northumberland

Prepared for:

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Appended documents

Appendix 1 – Tree protection plan.

1.0 EXECUTIVE SUMMARY

1.1 Dendra Consulting Ltd was commissioned to undertake this impact assessment by Spence & Dower Architectural Services. The report was prepared in order to support a planning application for a proposed development of land at Harbottle, Northumberland. The proposals involve the construction of a detached dwelling. This will include a single garage and construction of a new access drive.

1.2 The site survey was undertaken on 11th January 2019 by Liam Robson.

1.3 Ten individual trees and one group were surveyed. Four trees require removal for development.

1.4 Impacts are predicted from the following activities:

- Dwelling within RPA of trees to be retained
- Site traffic within RPA of trees to be retained
- General construction works in proximity to trees being retained.

1.5 Mitigation has been recommended as follows:

- Initial root investigation. Low impact construction if roots are encountered.
- Ground protection measures to be installed
- The erection of protective fencing.

1.6 Overall the proposals are likely to have a minor negative impact at a site level only. A detailed summary table of the impacts before and after mitigation is provided in section 6.0.

2.0 INTRODUCTION

2.1 Background & Scope

2.1.1 Dendra Consulting Ltd was commissioned to undertake this survey and report by Spence & Dower Architectural Services. The scope of the contract was to undertake an arboricultural impact assessment for a proposed development of land at Harbottle, Northumberland. The survey and assessment was carried out in line with BS 5837 – Trees in Relation to Design, Demolition and Construction- Recommendations, 2012 (BSI 2012).

2.1.2 The proposals involve the construction of a detached dwelling. This will include a single garage and construction of a new access drive.

2.2 Personnel, Timing & weather conditions

2.2.1 The site visit was made on the 10th January 2019 by Liam Robson. The weather was cool and damp.

2.3 Survey methodology

2.3.1 All observations were from ground level. Height was measured, where possible, using a clinometer and is expressed in metres. Crown spread is also expressed in metres. In dense tree cover height and crown spread may have been estimated. Stem Diameter at 1.5 metres was measured using calibrated DBH tape and is expressed in millimetres.

2.3.2 A tree quality assessment is made for each tree or group of trees as recommended in BS 5837. A cascade chart based on the standard is provided as figure 1.

Figure 1 – Chart for tree quality assessment. Adapted from BS 5837.

Category	Criteria		
Category U Trees unsuitable for retention. Trees in such a condition that they cannot be realistically retained for longer than 10 years	<ul style="list-style-type: none"> • Dead, dying or dangerous trees • Trees with serious structural defects • Trees with serious physiological defects 		
	1. Mainly arboricultural values	2. Mainly landscape values	3. Mainly cultural & conservation values
Category A Tree of high quality with an estimated remaining life expectancy of at least 40 years.	Trees that are particularly good examples of their species. Particularly of rare or unusual species. Trees forming essential parts of a group	Trees, groups or woodlands of particular visual importance.	Trees, groups or woodlands of significant conservation, historical, commemorative or other value.
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.	Trees that might be categorised in the higher category but are downgraded because of impaired condition.	Trees present in numbers such that they attract a higher collective rating than they would as individuals.	Trees with material conservation or other cultural value.
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 15cms.	Trees not qualifying in higher categories	Trees present in groups or woodlands that do not possess significant landscape values.	Trees with no material conservation or cultural value

2.4 Root protection

2.4.1 The Root Protection Area (RPA) is represented by an area in m² around a tree which acts as a protective zone. In our schedule of trees it is expressed both as the RPA and as the Root Protection Radius (RPR). The RPR is a figure given in metres used to identify the radius of a circle around a tree which serves to act as the RPA. In certain circumstances the shape of the RPA may be altered to suit site specific factors such as the presence of buildings, roads, other trees etc.

3.0 REPORT FINDINGS

3.1 Survey summary

3.1.1 Ten individual trees and one group were surveyed. The full results of the survey are provided in section 8.0. The trees were examined for physiological and structural defects. Remedial works for such defects have been provided where appropriate, and this has been recommended regardless of development. **Please note that some of this work may be superseded by recommendations required for development purposes.** The results of the tree quality assessment are summarised in figure 2 below.

Figure 2 – Summary of tree quality assessment

Category	Tree/Group numbers
High	None
Moderate	T9
Low	T2, T4, T5, T6, T7, T10, G1
Unsuitable for retention	T1, T3, T8

3.1.2 T1, T3 and T8 have been recommended for removal regardless of development. These trees have therefore not been included within the impact assessment.

3.2 Limitations

3.2.1 G1, T5, T7 and T9 were all situated within an adjacent garden on neighbouring land. These specimens could therefore not be inspected fully.

3.2.2 Some trees were not accurately plotted on the topographical survey. We have adjusted the location of these trees and whilst we have made every effort to locate them as accurately as possible, the precision of their locations cannot be guaranteed.

4.0 IMPACT ASSESSMENT

4.1 Assessment process

4.1.1 This section of the report identifies and evaluates impacts in the absence of any mitigation. Mitigation is then detailed in section 5.0 of the report. Impacts are categorised into pre-development, development stage and post-development phases.

4.2 Pre-development impacts

4.2.1 The proposals require the removal of T2, T4, T6 and T10. All of these trees are of a low value and do not significantly contribute to the site.

4.2.2 Pruning of T7 and T9, situated on neighbouring land, will be required prior the commencement of development works. The trees should be pruned by 2m away from the proposed dwelling. Providing this is undertaken by a competent arborist, no impacts are predicted.

4.3 Development stage impacts

4.3.1 The proposed dwelling encroaches the RPA of T9, and to a lesser extent, T7. Both of these trees are situated on neighbouring land. Given the large open space in which these trees have to grow, it is difficult to know if the roots of these trees will actually be present within the proposed footprint of the dwelling without further ground investigation. However, it must be assumed at this stage that standard construction methods have the potential to cause root damage and decline of the trees in the years post development.

4.3.2 During the construction stage site traffic, both vehicular and pedestrian, will be moving constantly over the RPA of trees to be retained. This is likely to cause compaction of the rooting environment leading to the subsequent decline of the trees.

4.3.3 Generic development works on the site, such as operation of machinery, storage of materials, etc, could result in damage to the crowns, stems and root systems of trees to be retained. This could result in the decline and death of the trees in the years post development.

4.4 Post development impacts

4.4.1 Potential post development tree/resident conflicts such as encroachment, shading, leaf fall, honeydew, etc usually arise from the erection of residential properties close to large trees. Such problems are subjective and depend entirely on different attitudes to trees. Consequently the impacts are difficult to predict with any degree of accuracy. In this instance, given the location of the dwelling, it is inevitable that the property will be impacted by the retention of the trees situated to the west on neighbouring land. As the surrounding area is very open, however, these impacts are predicted to be limited and therefore low.

5.0 MITIGATION

5.1 Pre development impacts

5.1.1 No new plantings to be incorporated. The impacts will remain unmitigated.

5.2 Development stage impacts

5.2.1 Ground investigation should be undertaken to ascertain the extent of root cover within the footprint of the proposed dwelling. If no tree roots are encountered, then there will be no limitations with regards to foundation design. If roots are situated within the dwelling footprint, the foundations will be constructed using a low impact method. This area is hatched light blue on the tree protection plan. The exact specification will be appropriately designed by an engineer, though the following methods are recommended in BS5937:2012:

- Piled foundations with site investigation used to determine their optimal location in relation to tree roots.
- Beams laid at or above ground level and cantilevered as necessary to avoid tree roots.
- Slab laid on existing ground level with ventilated air space between underside of slab and existing soil surface

5.2.2 To mitigate for the likely compaction caused by vehicular and pedestrian movement on site, ground protection measures will be put into place prior to commencement of works. This will consist of scaffold boards overlying a compressible later, such as 150mm of woodchips or gravel, which in turn overlies a geotextile membrane. This area is hatched blue on the tree protection plan.

5.2.3 Protective fencing of the type specified in figures 3 or 4 below will be installed as shown on the tree protection plan. The fencing will be erected after all the pre-development tree works have been completed but prior to

the start of construction. Signs will be attached to the fencing to state that it is a protected area and that it should not be moved.

Figure 3 – Default protective fencing for trees on development sites.

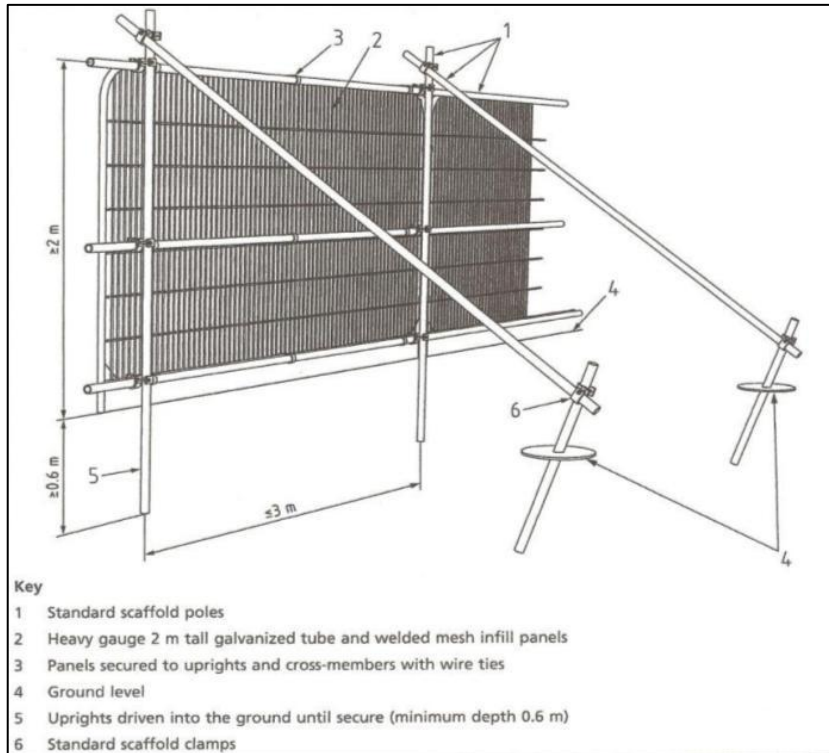
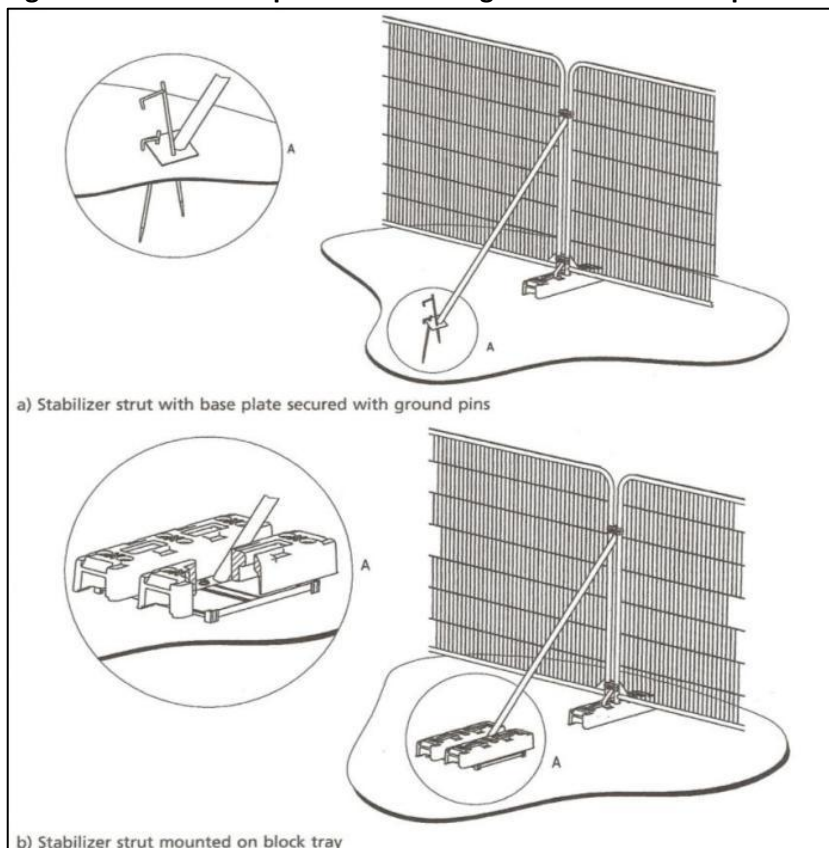


Figure 4 – Alternative protective fencing for trees on development sites.



[Figures 3 & 4 reproduced with the permission of the British Standards Institute].

6.0 SUMMARY OF IMPACTS AND MITIGATION

6.1 The impacts and mitigation criteria shown in figure 5 below have been used to assess the impacts of the proposed development, which is summarised in figure 6.

Figure 5 – Impact assessment parameters and predictions

Assessment parameters	Measure of impacts
Nature and Magnitude of impact	Major negative Negative Minor negative Neutral / Negligible Minor positive Positive Major Positive
Extent of impact	Site level Street level Local level District level County level National level
Probability that impact will occur	Certain / Highly likely Likely Possible Extremely unlikely

Figure 6 – Site impacts before and after mitigation.

Proposed activity	Predicted impact without mitigation	Assessment of impact without mitigation	Proposed Mitigation	Assessment of impact with mitigation
Trees to be removed	Loss of low value trees	Minor negative Site level	None	Minor negative Site level
Construction of dwelling within RPA of trees to be retained	Damage to roots of trees being retained. Possible decline of trees	Minor negative Street level	Low impact foundation construction (if required)	Neutral Highly likely
Site traffic within RPA of trees to be retained	Damage to roots of trees being retained. Possible decline of trees	Minor negative Street level	Ground protection measures to be installed	Neutral Highly likely
General construction works in proximity to trees being retained	Damage to stems, branches and roots of tree being retained. Possible decline of trees	Minor negative Street level Likely	Protective fencing to be erected	Neutral Highly likely

7.0 REFERENCES

BSI (2012) *BS5837:2012 Trees in relation to design, demolition and construction – Recommendations*. British Standards Institution. London.

8.0 SCHEDULE OF TREES

KEY

NR: Not recorded

Age: Y = Young, SM = Semi mature, EM = Early mature, M = Mature, OM = Over mature

Estimated Remaining Contribution: Expressed in years

Recommendations for health and safety reasons are not highlighted. Recommendations for development purposes are highlighted in **RED**

No.	Species	Height (m)	Stem diam. (mm)	Crown Spread (m)				Height of main canopy (m)	Height of first significant branch (m)	Direction of first significant branch	Age class	Estimated remaining contribution	Comments	Recommendations	Tree quality Assessment	RPA (m ²)	RPR (m)
				N	E	S	W										
T1	Ash	14.0	520	6.0	7.0	1.0	3.0	1.0	NR	NR	M	-10	Heavily asymmetrical. Limb loss evident in past. Deadwood in crown. Tree appears in decline	Fell	U	122	6.2
T2	Ash	20.0	620	4.0	8.0	8.0	4.0	1.0	NR	NR	M	10+	Asymmetric crown. Deadwood in crown. Twin stems from base. Western limb pollarded in past	Fell for development	C1	174	7.4
T3	Elder	4.0	150	1.0	2.0	1.0	1.0	0.5	NR	NR	OM	-10	Over mature specimen. Limited life expectancy	Fell	U	10	1.8
T4	Silver Birch	3.5	100	0.5	3.0	2.0	0.5	1.0	NR	NR	EM	10+	Asymmetric crown	Fell for development	C1	5	1.2

No.	Species	Height (m)	Stem diam. (mm)	Crown Spread (m)				Height of main canopy (m)	Height of first significant branch (m)	Direction of first significant branch	Age class	Estimated remaining contribution	Comments	Recommendations	Tree quality Assessment	RPA (m ²)	RPR (m)
				N	E	S	W										
T5	Hawthorn	5.0	200	2.0	3.0	2.0	2.0	0.5	NR	NR	M	10+	Located in neighbouring property. Not inspected in detail	No comments	C1	18	2.4
T6	Oak	6.0	200	2.0	3.0	3.0	2.0	0.5	NR	NR	EM	40+	No major defects	Fell for development	C1	18	2.4
T7	Rowan	7.0	350	4.0	3.5	3.0	3.0	1.0	NR	NR	M	20+	Located in neighbouring property. Not inspected in detail	No comments	C1	55	4.2
T8	Ash	16.0	800	9.0	5.0	2.0	4.0	0.5	NR	NR	OM	-10	Hollowing of base evident. Heavily asymmetrical	Fell	U	290	9.6
T9	Ash	20.0	750	5.0	6.0	5.0	6.0	0.5	NR	NR	OM	20+	Located in neighbouring property. Not inspected in detail. Limb loss evident	No comments	B1	254	9.0
T10	Ash	4.0	800	1.0	4.0	3.0	1.0	0.2	NR	NR	OM	20+	Regrowth from failed stem	Fell for development	C1	290	9.6
G1	Mixed	14.0	150	NR	NR	NR	NR	0.1	NR	NR	SM	40+	Located in neighbouring property. Not inspected in detail	No comments	C2	10	1.8

REPORT END

KEY	
Tree retention category	
Category A	●
Category B	●
Category C	●
Category U	●
Tree Constraints	
Crown Spread	○
Root Protection Area	○
Tree Protection	
Ground investigation/low impact foundation measures	▨
Ground protection measures	▨
Protective fencing	▨

Scale: 1:200 @ A3

The original of this plan was produced in colour - a monochrome copy should not be relied upon

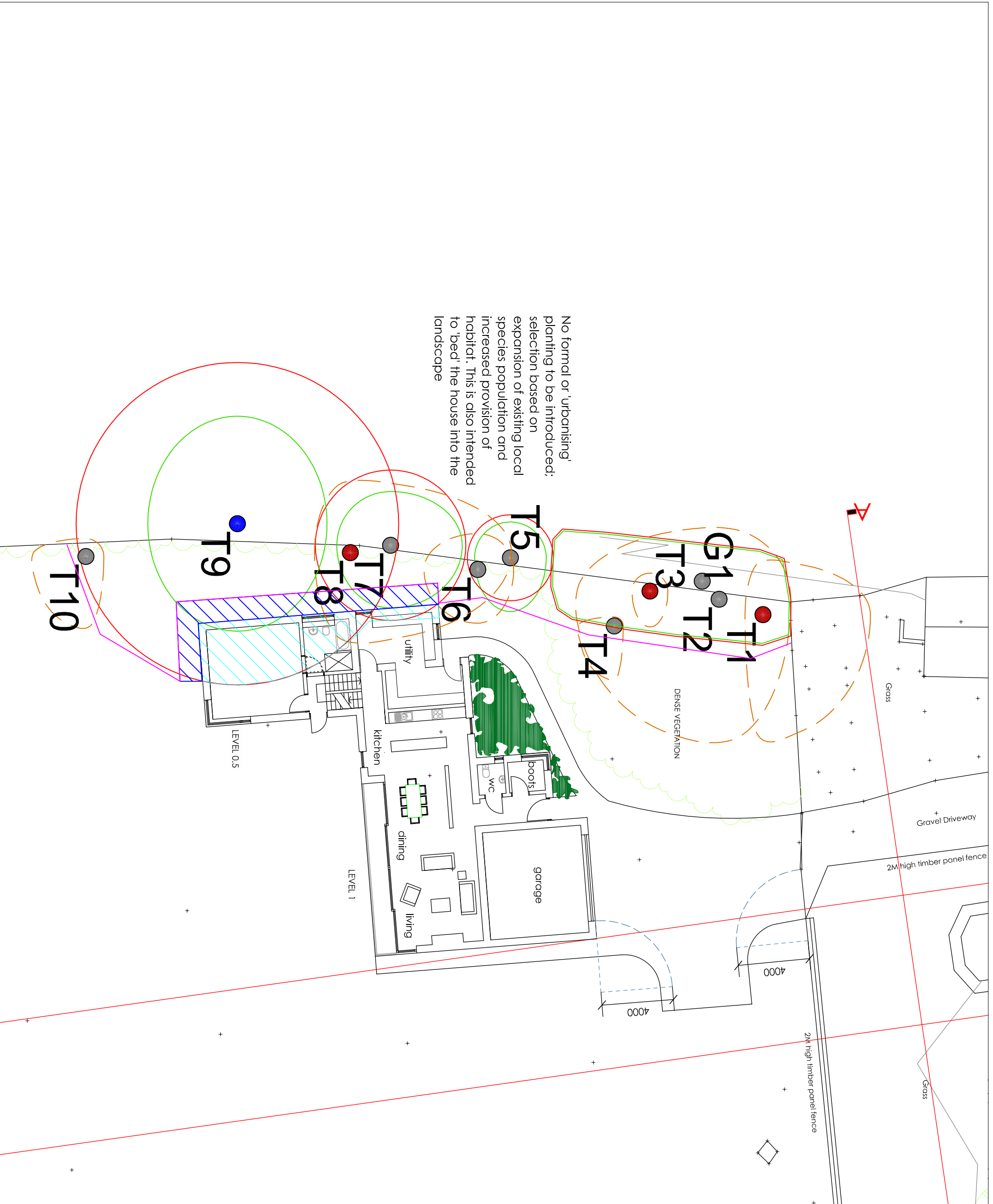
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No formal or 'urbanising' planting to be introduced; selection based on expansion of existing local species population and increased provision of habitat. This is also intended to 'bed' the house into the landscape