3/2020109

Arboricultural Impact Assessment

in Relation to Proposed Demolition of Existing Conservatory and Extension, and Construction of Side and Rear Extension and Sewage Treatment Plant at

Hydro Lodge, Sawley Road, Grindleton, Lancashire, BB7 4QS

Prepared by:

Bowland Tree Consultancy Ltd

September 2019

Control sheet

Project No.:	BTC1825
Site:	Hydro Lodge, Sawley Road, Grindleton, Lancashire, BB7 4QS
Agent:	Sunderland Peacock and Associates
Council:	Ribble Valley Borough Council
Survey Date:	2 August 2019
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Date of Issue:	6 September 2019
Status:	First Issue for Planning
Version No:	1

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DISCLAIMER

Survey Limitations: Unless otherwise stated all trees are surveyed from ground level using non-invasive techniques, in sufficient detail to gather data for and inform the design of the current project only. The disclosure of hidden crown and stem defects, in particular where they may be above a reachable height or where trees are ivy clad or located in areas of restrictive ground vegetation, cannot therefore be expected. Detailed tree safety appraisals are only carried out under specific written instructions. Comments upon evident tree safety relate to the condition of said tree at the time of the survey only. Unless otherwise stated all trees should be re-inspected annually in order to appraise their on-going mechanical integrity and physiological condition. It should, however, be recognised that tree condition is subject to change, for example due to the effects of disease, decay, high winds, development works, etc. Changes in land use or site conditions (e.g. development that increases access frequency) and the occurrence of severe weather incidents are also significant considerations with regard to tree structural integrity, and trees should therefore be re-assessed in the context of such changes and/or incidents and inspected at intervals relative to identified and varying site conditions and associated risks. For these reasons the tree assessment advice only remains valid for one year from the date that the trees were last inspected.

Where trees are located wholly or partially on neighbouring private third-party land then said land is not accessed and our inspection is therefore restricted to what can reasonably be seen from within the site. Stem diameters and other measurements of trees located on such land are estimated. Any subsequent comments and judgments made in respect of such trees are based on these restrictions and are our preliminary opinion only. Recommendations for works to neighbouring third-party trees are only made where a potential risk to persons and/or property has been identified during our survey or, if applicable, where permissible works are required to implement a proposed development. Where significant structural defects of third-party trees are identified and associated management works are considered essential to negate any risk of harm and/or damage then we will inform the relevant Council of the matter. Where a more detailed assessment is considered necessary then appropriate recommendations are set out in the Tree Survey Schedule.

Where tree stem locations are not included on the plan(s) provided then they are plotted by the arboriculturist at the time of the survey using, where appropriate and/or practicable, a combination of measurement triangulation and GPS co-ordination. Where this is not possible then locations are estimated. Restrictions in these respects are detailed in the report.

This document is intended as a guide to identify key tree related constraints to site development only, and the potential influence of trees upon existing or proposed buildings or other structures resulting from the effects of their roots abstracting water from shrinkable load-bearing soils is not considered herein. The tree survey information in its current form should not therefore be considered sufficient to determine appropriate foundation depths for new buildings. Accordingly, an updated survey, with reference to the current NHBC Standards Chapter 4.2 - Building Near Trees, must therefore be prepared for the specific purpose of informing suitable foundation depths subsequent to planning approval being granted. The advice of a structural engineer must also be sought with regard to appropriate foundation depths for new buildings.

Third Parties: Any disclosure of this document to a third party is subject to this disclaimer. The report was prepared by Bowland Tree Consultancy Ltd at the instruction of and for use by our client. This report does not in any way constitute advice to any third party who is able to access it by any means. Bowland Tree Consultancy Ltd excludes to the fullest extent lawfully permitted all liability whatsoever for any loss or damage arising from reliance on the contents of this report.

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APPENDICES

PLANS

1.0 INTRODUCTION

Terms of Reference

1.1 Bowland Tree Consultancy Ltd were instructed to:

a) Survey, as individuals or by group, all trees having reasonable potential to affect or to be adversely affected by the proposed development of the site under consideration;
b) Annotate the existing and proposed site plans to produce a Tree Constraints Plan and a Tree Impact Plan identifying tree retention category, crown spreads, Root Protection Areas, projected tree related impacts, trees proposed for retention, etc.
c) Prepare a tabulated Tree Survey Schedule for Arboricultural Impact Appraisal based on guidance specified BS5837:2012 - Trees in Relation to Design, Demolition and Construction – Recommendations;
d) Evaluate the potential tree related impacts and design conflicts of the proposals, based on the supplied development proposal plan(s);
e) Advise on removal, retention and management options for the trees in the current context and in the context of the proposed development;
f) Advise on suitable retained tree protection measures required during development; and
g) Produce an Arboricultural Impact Assessment report outlining the main tree related issues and reasonably foreseeable tree impacts in relation to the proposals and indicating suitable compensation and mitigation provisions and retained tree protection measures.

Scope and Purpose of Report

1.2 By detailing foreseeable tree related issues this report is intended to assist the Local Planning Authority (LPA), in this case Ribble Valley Borough Council, in their review of the proposed development and, as such, should be supplied to them in support of the planning application to which it pertains.

1.3 Essentially, it provides an initial analysis of the impacts that the proposed development is projected to have on trees located within the site and, where practicable, on land immediately adjacent to its boundaries. It also offers guidance on suitable retained tree management and compensation for projected losses, along with advice on appropriate tree protection measures in accordance with current guidance in the context of the proposals.

Site Visit, Data Collection and Tree Plans

1.4 Further to the instruction it is confirmed that a tree survey was carried out on 2 August 2019, in accordance with the preceding disclaimer, and all tree data collected on site is set out in the attached tabulated Tree Survey Schedule (TSS) at Appendix One which, for ease of interpretation, should be read alongside the appended BS5837:2012 Table 1.

1.5 The survey identified five individual trees (prefixed 'T') and seven groups (prefixed 'G') which have been numbered accordingly on the appended Tree Constraints Plan (TCP) and Tree Impact Plan (TIP). The TCP details the existing site with the readily definable tree constraints, whilst the TIP also has an overlay of the development proposals and the associated projected tree impacts.

1.6 The TCP and TIP were based on a topographical site survey plan which were provided in electronic format by the agent, Sunderland Peacock and Associates. In turn, for the purpose of this report, it is presumed that the provided plans' details are accurate and up to date.

2.0 STATUTORY PROTECTION IN RESPECT OF TREES AND ASSOCIATED WILDLIFE

Tree Preservation Orders and Conservation Area Designations

2.1 The Town and Country Planning Act (1990) (the Act) and associated Regulations empower Local Planning Authorities (LPAs) to protect trees in the interests of amenity by making Tree Preservation Orders (TPOs). The Act also affords protection for trees of over 75 mm diameter that stand within the curtilage of a Conservation Area (CA). Subject to certain exemptions, an application must be made to the LPA in question to carry out works upon or to remove trees that are subject to a TPO, whilst six weeks' notice of intention must be given to carry out works upon or to remove trees within a CA that are not protected by a TPO.

2.2 According to the Ribble Valley Borough Council planning department the site does not stand within a CA. However, from information provided by Ribble Valley Borough Council it is understood that a Tree Preservation Order (TPO number 26/1975 Grindleton) covers various trees within the property boundaries. As such, it is essential that the specific details regarding TPO protection at the site be checked directly with the Council's planning department prior to scheduling or carrying out any tree works that are not directly related to the implementation of a detailed (i.e. full) planning permission.

Protected Species

2.3 Nesting birds are afforded statutory protection under the Wildlife & Countryside Act (1981) (as amended) and their potential presence should therefore be considered when clipping hedges, removing climbing plants and pruning and removing trees. The breeding period for woodlands runs from March to August inclusive. Hedges provide valuable nesting sites for many birds and clipping should therefore be avoided during March to July. Trees, hedges and ivy should be inspected for nests prior to pruning or removal and any work likely to destroy or disturb active nests should be avoided until the young have fledged.

2.4 All bat species and their roosts are protected under Schedule 5 of the Wildlife & Countryside Act (1981) (as amended) and under Schedule 2 of the Conservation of Habitats & Species Regulations 2010 (as amended). In this respect it should be noted that it is possible that unidentified bat habitat features may be located high up in tree crowns and all personnel carrying out tree works at the site should therefore be vigilant and mindful of the possibility that roosting bats may be present in trees with such features. If any bat roosts are subsequently identified, then it is essential that works are halted immediately and that a suitably qualified and experienced ecologist investigates and advises on appropriate actions prior to works continuing.

2.5 In turn, any subsequent works in relation to protected species must be carried out under supervision from a suitably qualified and experienced ecologist and in strict accordance with the guidance in BS42020:2013 - Biodiversity – Code of Practice for Planning and Development and, with regard to bats, BS8596:2015 - Surveying for Bats in Trees and Woodlands.

Felling Licences

2.6 Subject to certain exemptions the Forestry Act (1967) requires that a 'Felling Licence' be obtained to remove growing trees amounting to more than five cubic metres of timber in a calendar quarter. A felling licence is, however, not required for the felling of trees immediately required for the purpose of carrying out development authorised by a full planning permission granted under the Town and Country Planning Act 1990, or for the removal of tree located within a private residential garden, as is the site under consideration.

3.0 THE SITE AND THE SURROUNDINGS

3.1 The site under consideration is located in an area of rural character to the east of the village of Grindleton, Lancashire, within the administrational boundaries of Ribble Valley Borough Council. It consists of a detached residential property with a conservatory and a two-storey extension, a driveway accessed from Sawley Road to the west, several hard-surfaced areas, and a landscaped garden with a steep rock face. There is also a running brook that flows in a north-east to south-west direction, that passes through a culvert beneath the residential property.

3.2 The site is bordered to the north-west by a lane which accesses a nearby secondary school, to the north-east by a neighbouring detached residential property with gardens, and to the south-east and south by Sawley Road. According to the topographical plan provided, the ground levels within the site vary by up to approximately four metres from the lowest point in the landscaped garden area close to the centre the site, to the highest point close to the lane to the north.

4.0 THE TREE POPULATION

4.1 As noted previously, a total of five individual trees (prefixed 'T') and seven groups (prefixed 'G') were surveyed for the purpose of this appraisal. The trees range from young-mature in age, with heights up to approximately 18 metres, maximum diametrical crown spreads of up to approximately 15 metres, and stem diameters of up to approximately 600 millimetres. Detailed tree dimensions and other pertinent information, such as structural defects and physiological deficiencies, are included in the Tree Survey Schedule (TSS) at Appendix One.

4.2 In respect of the survey it should be noted that tree quality is categorised within the existing context without taking site development proposals into account. However, recommendations for works included in the TSS take both current site usage into consideration and the proposed site development where there are definable development related issues with regard to specific trees.

4.3 Under the UK's planning system trees are a material consideration in the planning and development process. Nonetheless, only trees of a suitable quality and value should be considered a material constraint to development. In this respect the TSS includes a column ('Cat. Grade') listing the trees' respective retention values, where they are rated either 'A', 'B', 'C' or 'U', as per BS5837:2012 Table 1 (Appendix One). 'A' category trees are those considered to be of 'high quality' and, accordingly, the most suitable for retention, whilst 'B' category trees are those considered to be of 'moderate quality', and 'C' category trees are those considered to be of 'low quality' with a correlated low retention value. In turn, 'U' category trees are those that are considered to be 'unsuitable for retention'.

4.4 In turn, as detailed in Table A, below, all five of the surveyed trees and the seven surveyed groups were categorised as low quality ('C' category).

Table A: BS5837-2012 Retention Categories of the Surveyed Trees & Groups

	Ret. Cats.	Tree/Group Numbers	Totals
Those of a moderate or high quality that should be afforded appropriate consideration in the context of development	**'A'**	-	-
	'B'	-	-
Those of a low quality that should not be considered a material constraint to development	**'C'**	T1, T2, T3, T4, T5, G1, G2, G3, G4, G5, G6, G7	*5 Trees* *7 Groups*
Those that should be removed for sound management reasons regardless of site proposals	**'U'**	-	-
			= 5 Trees and 7 Groups in Total

* Tree(s) located on areas(s) of neighbouring land

5.0 THE DEVELOPMENT PROPOSAL AND ITS PROJECTED ARBORICULTURAL IMPACTS

The Development Proposal

5.1 From the information provided to date by the projected architects, Sunderland Peacock and Associates, it is understood that the proposal is for the demolition of the existing extension and conservatory, and the subsequent construction of a new two-storey extension to the north side of the property, a single-storey extension and retaining wall to its east side, a hard surface area for car parking off the lane to the north, and a septic tank with associated drainage connections in the landscaped garden area to the east of the property (see TIP).

Projected Arboricultural Losses Relating to the Proposal

5.2 In turn, as detailed in Table B, below, it is projected that construction of the development as proposed will require the removal of one group of low quality (i.e. category 'C') trees.

Table B: Arboricultural Impacts of Proposed Development & Other Tree Removal Proposals

	Ret. Cat.	Removals necessary to implement development	Removals recommended regardless of development	Total no. of removals
Those of a high quality that should be afforded appropriate consideration in context of development	'A'	-	-	-
Those of a moderate quality that should be afforded appropriate consideration in context of development	'B'	-	-	-
Those of a low quality that should be afforded appropriate consideration in context of development	'C'	G3	-	*1 Group*
Those that should be removed for sound management reasons regardless of plans	'U'	-	-	-
Totals		*1 Group*	-	***= 1 Group in Total***

Special Design, Construction and Protection Considerations in Relation to Retained Trees

5.3 With regard to the projected tree related impacts it should be noted that, as detailed on the TCP and TIP, the Root Protection Ares (RPAs – see paragraph 6.1) of two trees and three groups of trees have been offset due to the presence of various features, such as the lane to the north and the culverted brook running through the site.

5.4 However, as also detailed on the TIP, various development works are proposed close to retained trees' RPAs and canopies, being the demolition of the existing extension and conservatory, the removal of the existing hard-surfaces and retaining wall and the foul drainage system and soakaway. As such, it will subsequently be necessary to ensure that the trees under consideration are suitably protected in strict accordance with current government guidance through the use of special working and protection measures.

5.5 Nonetheless, it should be noted that such works are permissible under current government guidance (i.e. BS5837:2012) providing that they are planned and implemented whilst providing a suitable level of protection to the trees in question, such as through the use of appropriate hand-held tools, retaining existing ground levels within the tree's RPAs, and using designs that avoid localised ground compaction and root damage.

5.6 In respect of the necessary demolition works, inclusive of the removal of the hard surfaces, it is emphasised that all such works should be carried out in accordance with section 7 of BS5837:2012. With regard to the necessary building demolition works it should be noted that BS5837:2012 paragraph 7.3.4, which states that *"where trees stand adjacent to structures to be removed, the demolition should be undertaken inwards within the footprint of the existing building (often referred to as "top down, pull back")".*

5.7 In turn, with regard to the proposed hard-surface removal works BS5837:2012, it should be noted that paragraph 7.3.6 states that *"where an existing hard surface is scheduled for removal, care should be taken not to disturb tree roots that might be present beneath it"* and that *"hand-held tools or appropriate machinery should be used (under arboricultural supervision) to remove the existing surface, working backwards over the area, so that the machine is not moving over the exposed ground (see 7.2.2 for protection of exposed roots)."*

5.8 Therefore, in order to ensure adequate protection of the retained trees throughout the development, specific details regarding the timing, procedures, working methods and protective measures to be used in relation to the proposed construction works in close proximity to Root Protection Areas (RPAs – see paragraph 6.1) should be included in a Tree Protection Plan (TPP) and Arboricultural Method Statement (AMS), as discussed at paragraphs 6.6 and 6.7. In turn, the provision of and the adherence to an AMS can be conditioned to a planning approval.

Compensation for Projected Arboricultural Losses

5.9 As detailed on the TIP, the proposed development has sufficient outdoor amenity space to accommodate several newly planted trees of appropriate species and in suitable locations. In turn, it is projected that the provision of several new trees, as a component of the proposed development, would sufficiently compensate for the projected low quality tree losses required to accommodate the development.

5.10 Consequently, specific details regarding replacement tree planting should be prepared by a suitably qualified professional in accordance with the guidance listed herein at paragraphs 7.5 and 7.6. Accordingly, the provision of and adherence to a tree planting plan can be assured through the imposition of a suitably worded condition attached to a planning approval.

5.11 In turn, the tree planting plan should be prepared in strict accordance with any relevant government guidance, specifically BS8545:2014 - Trees: From Nursery to Independence in the Landscape – Recommendations, and section 5.6 and Table A.1 of BS5837:2012.

6.0 RECOMMENDATIONS FOR SUCCESSFUL TREE RETENTION IN THE CONTEXT OF DEVELOPMENT

Root Protection Areas and Construction Exclusion Zones

6.1 Adequate protection of the Root Protection Areas (RPAs) of retained trees during construction is essential if their long-term viability is to be assured. RPAs, which are calculated through a method provided in BS5837:2012, are ground areas that should be protected by temporary protective fencing as Construction Exclusion Zones (CEZs) throughout the development process, or by temporary ground protection measures thereby keeping the trees' root zones free from disturbance. Consequently, the RPA distances, as detailed in the TSS (see 6.2) and on the TIP, give an idea of the on-site below-ground constraints in respect of tree roots and assist in planning for appropriate tree retention in relation to feasible development.

6.2 The TSS includes two columns listing the RPAs of the individually surveyed trees and, where applicable, the largest of the trees in any surveyed groups as overall areas in square metres and as radial distances. The radial RPAs are indicated as magenta coloured circles on the TCP and the TIP.

6.3 With regard to CEZs the design, materials and construction of the fencing and ground protection should be appropriate for the intensity and type of site construction works, and should conform to at least section 6.2 of BS5837:2012, and should be secured by the imposition of a suitably

worded planning condition. A default Temporary Protective Fencing and Ground Protection Specification is included at Appendix Two.

Underground Utilities and Drainage

6.4 The installation of underground utilities in close proximity to trees can cause serious damage to their roots. As such, it is essential that utilities be routed outside RPAs unless there is no other available option. Where RPAs cannot be avoided then guidelines set out in the National Joint Utilities Group publication 'Volume 4: NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (Issue 2) – Operatives Handbook' should be followed (e.g. trenches of a very limited width to be hand dug or the use of directional drilling).

6.5 To date, the siting of the proposed septic tank and associated foul drainage routes has been provided (see TIP) in respect of the development under consideration, but a full service plan showing proposed service and/or drainage runs has not been provided. Nonetheless, the proposed site plan provided indicates that, if correctly planned, there should be sufficient space to run the services and drainage outside the RPAs of retained trees. In turn, in order to ensure that this advice is adhered to, the provision of a service plan, with all service runs and drainage routed outside retained tree RPAs, can be conditioned to a planning approval.

Arboricultural Method Statement and Tree Protection Plan

6.6 Government guidance recommends that, where considered expedient by the LPA, an Arboricultural Method Statement (AMS) and Tree Protection Plan (TPP) be prepared detailing construction issues pertinent to retained trees in relation to the development under consideration. Essentially, the AMS and TPP describe, in detail, the procedures, working methods and protective measures to be used in relation to retained trees in order to ensure that they are adequately protected during the construction process

6.7 In order to ensure that any such special working methods are followed, and that the retained trees are adequately protected throughout the development process, the production of and adherence to an AMS and TPP can be conditioned to a planning approval.

7.0 OTHER RECOMMENDATIONS

Non-Development Related Tree Works and Recommendations

7.1 Any general non-development related tree pruning works recommendation detailed in the TSS are recommended in accordance with prudent arboricultural management and should therefore be carried out regardless of any site development proposals and potential changes in land usage. All tree works should be carried out in accordance with BS3998:2010.

Tree Work Related Consents

7.2 No tree pruning or removal works should commence on site until necessary consents have been obtained from the LPA as part of a planning approval or in respect of any statutory tree protection.

Arboricultural Contractors

7.3 All tree works should be carried out by suitably qualified and experienced arboricultural contractors carrying appropriate public liability insurance cover and be implemented to the minimum current CE and UK industry standards and in accordance with industry codes of practice. Only certificated personnel should, in accordance with The Control of Pesticides Regulations, apply any pesticides.

Contractors and Subsequently Identified Tree Defects

7.4 Tree contractors should be made aware that, should any significant tree defects become apparent during operations that would not have been immediately obvious to the surveyor, then such defects should be notified immediately to the client and subsequently confirmed to the consultant within five working days.

New Tree Planting

7.5 Any new tree planting at the site should be carried out in accordance with BS8545:2014 Trees: from nursery to independence in the landscape – Recommendations, and in accordance with the guidance detailed in section 5.6 and Table A.1 of BS5837:2012.

Landscaping Within and Close to Retained Trees' RPAs

7.6 Any landscaping carried out within and close to retained trees' RPAs should be carried out in strict accordance with the guidance detailed in section 8 of BS5837:2012. As is the case with 7.5, above, a requirement for these works to conform with the current guidance detailed in BS5837:2012 can be conditioned to a planning approval.

Retained Tree Management

7.7 Any tree risk management recommendations made in this report were based on observations and site circumstances at the time of the survey, and even trees that evidently in good condition can succumb to damage and/or stress.

7.8 In this respect, it should be noted that, under the Occupiers' Liability Act (1957 & 1984), site occupants have a duty of care to take reasonable steps to prevent or minimise the risk of personal injury and/or damage to property from any tree located within the curtilage of the land they occupy. In turn, it is accepted that these steps should normally include commissioning a qualified and experienced arboriculturist to survey their trees in order to identify any risk of harm to persons or damage to property that they may present and, where unacceptable risks are identified, taking suitable remedial action to negate those risks.

8.0 SUMMARY AND CONCLUSIONS

8.1 Five individual trees and seven groups of trees were surveyed in respect of a proposal to demolish the existing extension and conservatory, and to subsequently construct a replacement two-storey side extension, single storey rear extension, new car parking area, and a septic tank at the site under consideration.

8.2 Accordingly, the five trees and the seven groups were categorised as low quality.

8.3 An appraisal of the proposal documentation provided identified that construction of the development as proposed will require the removal of one low quality group.

8.4 However, it is anticipated that the proposed development could accommodate several newly planted trees of appropriate species in suitable locations, the delivery of which can be guaranteed through the imposition of a suitably worded condition attached to a planning approval.

8.5 In turn, the provision of new tree planting as part of the development is projected to adequately compensate for the necessary losses.

8.6 Consequently, any new tree planting at the site, and any landscaping carried out within and close to retained trees' RPAs, should be carried out in strict accordance with current government guidance.

8.7 The appraisal also concluded that, in order to ensure successful existing tree preservation over the long-term, it is essential that the retained trees are protected in strict accordance with current Government guidance and the recommendations included herein.

8.8 In this respect various development works, such as the demolition of the existing extension and conservatory, the removal of existing hard surfaces, and the installation of a foul drainage run and soakaway, are proposed close to retained trees' RPAs and canopies, and it will subsequently be necessary to ensure that the trees under consideration are suitably protected in strict accordance with current government guidance through the use of special working and protection measures.

8.9 In turn, in order to ensure the protection of retained trees in accordance with these recommendations and proposals, the provision of and adherence to an Arboricultural Method Statement and Tree Protection Plan can be conditioned to a planning permission.

REFERENCES

BS42020:2013 - Biodiversity – Code of Practice for Planning and Development. BSI British Standards, London.
BS8596:2015 - Surveying for Bats in Trees and Woodlands. BSI British Standards, London.
BS8545:2014 - Trees: From Nursery to Independence in the Landscape – Recommendations. BSI British Standards, London.
BS3998:2010 - Tree Work - Recommendations. BSI British Standards, London.
BS5837:2012 - Trees in Relation to Design, Demolition and Construction – Recommendations. BSI British Standards, London.
National House Building Council (2017). NHBC Standards Chapter 4.2 - Building Near Trees. NHBC, Amersham.
National Joint Utilities Group (2007). Volume 4: NJUG Guidelines For The Planning, Installation And Maintenance Of Utility Apparatus In Proximity To Trees (Issue 2) – Operatives Handbook.

TREE SURVEY SCHEDULE FOR ARBORICULTURAL IMPACT APPRAISAL	
Site:	Hydro Lodge, Sawley Road, Grindleton, Lancashire, BB7 4QS
Agent for Client:	Sunderland Peacock & Associates

Surveyor:	Elizabeth Thompson BSc(Hons) TechArborA
Survey Date:	2 August 2019
Job Ref:	BTC1825

No.	Species	Height	Stem Diam.	Branch Spread		Branch & Canopy Clearances	Life Stage	PC	General Observation and Comments	Management Recommendations	ERC	Cat. Grade	RPA (m^2)	RPA Radius (m)
T1	Cherry	7	270	N E S W	7 6 7 7	1.5-NE 2	SM	M	▪ Growing in landscaped area adjacent to existing driveway. ▪ Stem bifurcates at approximately 2m high. ▪ Foliage in poor condition with shot holes consistent with effects of fungal Shot Hole Disease.	▪ Retain in context of proposed development. ▪ Ensure protection of Root Protection Area (RPA) and crown throughout course of proposed development, in accordance with Temporary Protective Fencing and Ground Protection Specification. ▪ Prune canopy in order to obtain a 2.5m ground clearance and a 1.5m branch clearance from proposed single storey rear extension.	10+	C1	33	3.24
T2	Cedar	9	180	N E S W	3 2 3 4	N/A 1-S	Y	G	▪ Growing at bottom of small slope adjacent to landscaped area. ▪ No significant visible defects.	▪ Retain in context of proposed development. ▪ Ensure protection of RPA and crown throughout course of proposed development, in accordance with Temporary Protective Fencing and Ground Protection Specification.	20+	C1	15	2.16
T3	Sycamore	15	430	N E S W	7 5 6 5	3-S 3	EM	M	▪ Growing within 1m of brook on bank. ▪ Epicormic growth obscuring stem base. ▪ Three primary branches arise at approximately 4m high. ▪ Central primary branch topped and decaying back.	▪ Retain in context of proposed development. ▪ Ensure protection of RPA and crown throughout course of proposed development, in accordance with Temporary Protective Fencing and Ground Protection Specification.	20+	C1	84	5.16
T4	Sycamore	16	460	N E S W	4 2 4 4	3.5-SE 7	EM	M	▪ Growing on bank close to brook. ▪ Base and stem obscured in vegetation. ▪ Has had a primary branch removed in past at approximately 5m high, resulting in a large dog leg primary branch to south-east.	▪ Retain in context of proposed development. ▪ Ensure protection of RPA and crown throughout course of proposed development, in accordance with Temporary Protective Fencing and Ground Protection Specification.	20+	C1	96	5.52

Headings and Abbreviations:

No. Allocated sequential reference number - Tree ('T'), Group ('G'), Woodland ('W') or Hedge ('H') reference number - refer to plan and to numbered tags where applicable
Species: Common name
Height: In metres, to nearest half metre – where possible approximately 80% are measured using an electronic clinometer and the remainder estimated against the measured trees. In the case of Groups and Woodlands the measurement listed is that of the highest tree
Stem Diam.: Stem diameter in millimetres, to nearest 10mm - measured and calculated as per Annex C of BS5837:2012. ms = multi-stemmed, ts = twin-stemmed
Branch Spread: Crown radius measured (or estimated where considered appropriate) from the four cardinal points (north, east, south and west) to give an accurate visual representation of the crown
Branch & Canopy Clearances: Existing height above ground level, in metres, of first significant branch and direction of growth (e.g. 2.5-n = 2.5 metres north) and of canopy at lowest point – to inform on crown to height ratio, potential for shading, etc.
Life Stage: Estimated age class - Y = young, SM = semi-mature, EM = early-mature, M = mature, PM = post-mature
PC: Physiological Condition - a measure of the tree's(s)' overall vitality, i.e. D = Dead, MD = Moribund, P = Poor, M = Moderate, G = Good
General Observations and Comments: Comments relating to the tree's(s)' overall condition and any other pertinent factors including structural defects, current and potential direct structural damage, physiological decline, poor form, etc.
Management Recommendations: Either Preliminary or In Consideration of the Proposal - In the case of Arboricultural Constraints Surveys the recommended management works only take exiting site and tree circumstances and conditions into account and not proposed developments. Arboricultural Impact Assessment and Method Statement related Surveys take the proposed development into consideration with recommendations made accordingly. More than one option may be given if considered appropriate
ERC: Estimated Remaining Contribution - in years as per BS5837:2012 (i.e. <10, 10+, 20+, 40+)
Cat. Grade: Category Grading - tree retention value listed as U, A, B or C - in accordance with BS5837:2012 Table 1
RPA m^2: Root Protection Area in m^2 - calculated area around the tree that must be appropriately protected throughout the development process in order avoid root damage
RPA Radius (m): Root Protection Area Radius - in metres measured from the centre of the stem to the line of tree protection
 # (Estimated Dimensions): Where trees are located off-site, or are inaccessible for any other reason, and accurate measurements or other information cannot be taken then the information provided is estimated and is duly suffixed with a "#" symbol

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Survey Date:	2 August 2019
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No.	Species	Height	Stem Diam.	Branch Spread		Branch & Canopy Clearances	Life Stage	PC	General Observation and Comments	Management Recommendations	ERC	Cat. Grade	RPA (m^2)	RPA Radius (m)
T5	Sycamore	18	500	N E S W	4.5 3 6 6	4-N 3	M	G	▪ Growing in shrub bed close to landscaped area. ▪ Stem bifurcates at approximately 3m high. ▪ Base and stem obscured in vegetation. ▪ Ivy covered stem and crown to approximately 7m high.	▪ Retain in context of proposed development. ▪ Ensure protection of RPA and crown throughout course of proposed development, in accordance with Temporary Protective Fencing and Ground Protection Specification.	20+	C1	113	6
G1	Cypress sp., Shrubs	≤ 4	≤ 180	N E S W	≤ 1.5 ≤ 1.5 ≤ 1.5 ≤ 1.5	N/A ≥ 0	Y	G	▪ Closely spaced linear group of young conifers and shrubs adjacent to road.	▪ Retain in context of proposed development. ▪ Ensure protection of RPAs and crowns throughout course of proposed development, in accordance with Temporary Protective Fencing and Ground Protection Specification.	20+	C1	≤ 15	≤ 2.16
G2	Cypress sp.	≤ 4	≤ 1x150 2x80 1x70 1x60 (ms)	N E S W	≤ 1.5 ≤ 1.5 ≤ 1.5 ≤ 1.5	N/A ≥ 0	Y	G	▪ Closely spaced pair adjacent to driveway. ▪ Roots evidently pushing up tarmac on driveway.	▪ Retain in context of proposed development. ▪ Ensure protection of RPAs and crowns throughout course of proposed development, in accordance with Temporary Protective Fencing and Ground Protection Specification.	20+	C1	≤ 20	≤ 2.51
G3	2no. Ash, 1no. Sycamore	≤ 18	≤ 600	N E S W	≤ 8 ≤ 7 ≤ 8 ≤ 7	N/A ≥ 4	M	P-G	▪ Closely spaced group growing close to brook bank near bridge. ▪ Understood that recently undertaken culvert survey showed tree roots to be damaging culvert walls under property. ▪ Bases and stems obscured in ivy and vegetation. ▪ Ivy covered stems throughout group to approximately 6m to 8m high. ▪ Sycamore has moderate amount of cankers at branch unions. ▪ Tree crowns biased due to proximity to each other and neighbouring trees. ▪ Both Ash have moderate stem curvature to south, starting at approximately 2m and 4m high gradually increasing. ▪ Ash trees have moderate dieback consistent with effects of Ash Dieback Disease.	▪ Remove in order to construct development as proposed.	10+	C1	≤ 163	≤ 7.2
G4	3no. Leyland Cypress	≤ 8	≤ 170	N E S W	≤ 2 ≤ 1 ≤ 3 ≤ 2	N/A ≥ 0	Y	G	▪ Closely spaced linear group on top of bank by lane running north of property. ▪ Bases and stems obscured in vegetation. ▪ Ivy covered stems to approximately 4m high.	▪ Retain in context of proposed development. ▪ Ensure protection of RPAs and crowns throughout course of proposed development, in accordance with Temporary Protective Fencing and Ground Protection Specification.	20+	C1	≤ 13	≤ 2.04

TREE SURVEY SCHEDULE FOR ARBORICULTURAL IMPACT APPRAISAL	
Site:	Hydro Lodge, Sawley Road, Grindleton, Lancashire, BB7 4QS
Agent for Client:	Sunderland Peacock & Associates

Surveyor:	Elizabeth Thompson BSc(Hons) TechArborA
Survey Date:	2 August 2019
Job Ref:	BTC1825

No.	Species	Height	Stem Diam.	Branch Spread		Branch & Canopy Clearances	Life Stage	PC	General Observation and Comments	Management Recommendations	ERC	Cat. Grade	RPA (m^2)	RPA Radius (m)
G5	2no. Ash	≤ 17	≤ 400	N E S W	≤ 7 ≤ 1 ≤ 4 ≤ 7	N/A ≥ 4	SM	M	▪ Closely spaced pair growing on bank close to lane running north of property. ▪ Western Ash has crown biased west due to partial suppression by neighbouring trees, and moderate dieback consistent with effects of Ash Dieback Disease, particular on west side. ▪ Eastern Ash has a slight stem lean to the north west with primary branches arising at approximately 8m high.	▪ Retain in context of proposed development. ▪ Ensure protection of RPAs and crowns throughout course of proposed development, in accordance with Temporary Protective Fencing and Ground Protection Specification.	10+	C1	≤ 72	≤ 4.8
G6	3no. Sycamore, 1no. Wych Elm	≤ 18	≤ 520	N E S W	≤ 5 ≤ 5.5 ≤ 6.5 ≤ 5	N/A ≥ 3	EM	G	▪ Closely to moderately spaced group growing to north of landscaped area. ▪ Bases and stems obscured in vegetation and ivy, with latter growing up to approximately 8m high. ▪ Crowns biased due to proximity to each other and neighbouring trees.	▪ Retain in context of proposed development. ▪ Ensure protection of RPA and tree crown throughout course of proposed development, in accordance with Temporary Protective Fencing and Ground Protection Specification.	10+	C1	≤ 122	≤ 6.24
G7	2no. Lawson Cypress	≤ 8	≤ 200	N E S W	≤ 1.5 ≤ 1.5 ≤ 1.5 ≤ 1.5	N/A ≥ 0	Y	G	▪ Moderately spaced pair growing in shrub bed by landscaped area. ▪ Bases and stems obscured in vegetation.	▪ Retain in context of proposed development. ▪ Ensure protection of RPA and crown throughout course of proposed development, in accordance with Temporary Protective Fencing and Ground Protection Specification.	20+	C1	≤ 18	≤ 2.4

BS5837:2012 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 BS5837:2012 paragraph 4.5.7.*			Red
	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)	Green
Category B Those of moderate quality and value: those in such a condition as to make a significant contribution. A minimum of 20 years is suggested.	Trees that might be included in the high category, but are downgraded because of impaired condition. Examples include the presence of remediable defects including unsympathetic past management and minor storm damage	Trees present in numbers, usually as groups or woodlands, so they form distinct landscape features which attract a higher collective rating than they might as individuals. But which are not, individually, essential components of formal or semi-formal arboricultural features. For example, trees of moderate quality within an avenue that includes better, A category specimens. Or trees which are internal to the site, therefore individually having little visual impact on the wider locality	Trees with clearly identifiable conservation or other cultural benefits	Blue
Category C Those trees of low quality and value: currently in adequate condition to remain until new planting could be established - a minimum of 10 years is suggested - or young trees with a stem diameter below 150 mm	Trees not qualifying in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit	Trees with very limited conservation or other cultural benefits	Grey
	Note – Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150mm should be considered for relocation			

Bowland Tree Consultancy Ltd

DISCLAIMER

Survey Limitations: Unless otherwise stated all trees are surveyed from ground level using non-invasive techniques. The disclosure of hidden crown and stem defects, in particular where they may be above a reachable height or where trees are ivy clad or in areas of ground vegetation, cannot therefore be expected. All obvious defects, however, are reported. Detailed tree safety appraisals are only carried out under specific written instructions. Comments upon evident tree safety relate to the condition of said tree at the time of the survey only.

Unless otherwise stated all trees should be re-inspected annually in order to appraise their on-going mechanical integrity and physiological condition. It should, however, be recognised that tree condition is subject to change, for example due to the effects of disease, decay, high winds, development works, etc. Changes in land use or site conditions (e.g. development that increases access frequency) and the occurrence of severe weather incidents are also significant considerations with regards tree structural integrity and trees should therefore be re-assessed in the context of such changes and/or incidents and inspected at intervals relative to identified and varying site conditions and associated risks.

Where trees are located wholly or partially on neighbouring private third-party land then said land is not accessed and our inspection is therefore restricted to what can reasonably be seen from within the site. Stem diameters of trees located on such land are estimated. Any subsequent comments and judgments made in respect of such trees are based on these restrictions and are our preliminary opinion only. Recommendations for works to neighbouring third-party trees are only made where a potentially unacceptable risk to persons and/or property has been identified during our survey. Where significant structural defects of third-party trees are identified and associated management works are considered essential to negate any risk of harm and/or damage then we will first attempt to inform the site occupier of the issues and, if not possible, then inform the relevant Council. Where a more detailed assessment is considered necessary then appropriate recommendations are set out in the Tree Survey Schedule.

Where tree stem locations are not included on the plan(s) provided then they are plotted at the time of the survey using, where appropriate and/or practicable, a combination of measurement triangulation and GPS co-ordination. Where this is not possible then locations are estimated. Restrictions in these respects are detailed in the report.

The tree survey and any report information provided is intended as a guide to identify key tree related constraints to site development only. As such, the potential influence of trees upon existing or proposed buildings or other structures resulting from the effects of their roots abstracting water from shrinkable load-bearing soils is not considered herein. The tree survey information in its current form should not therefore be considered sufficient to determine appropriate foundation depths for new buildings. Accordingly, an updated survey, with reference to the current NHBC Standards Chapter 4.2 - Building Near Trees, must therefore be prepared for the specific purpose of informing suitable foundation depths subsequent to planning approval being granted. The advice of a structural engineer must also be sought with regard to appropriate foundation depths for new buildings.

Third Parties: Any disclosure of this document to a third party is subject to this disclaimer. The report was prepared by Bowland Tree Consultancy Ltd at the instruction of and for use by our client, as named. This report does not in any way constitute advice to any third party who is able to access it by any means. Bowland Tree Consultancy Ltd excludes to the fullest extent lawfully permitted all liability whatsoever for any loss or damage arising from reliance on the contents of this report.

Statutory Tree Protection: It is the client's responsibility to check for the presence of any statutory tree protection measures, such as the site's location within a Conservation Area and/or the presence of any Tree Preservation Orders, directly with the applicable Council's planning department prior to scheduling or carrying out any tree works. In turn, it is also the client's responsibility to check for the need for a felling licence with the Forestry Commission prior to scheduling or carrying out any tree works. Bowland Tree Consultancy Ltd cannot be held responsible for any decisions made by the client to prune or remove trees where any such statutory protection exists.

- TEMPORARY PROTECTIVE FENCING SPECIFICATION -

Construction Exclusion Zones (CEZs), enclosed by **Temporary Protective Fencing**, as detailed below and to be agreed with the Local Planning Authority (LPA), shall:

1. be retained in place throughout the development process, as specified in the 'Temporary Protective Fencing Construction' section below and detailed in BS5837:2012 Figure 2 (overleaf);
2. be sited in the area(s) defined by the Root Protection Areas or, if applicable, the Construction Exclusion Zones, as detailed on the associated Tree Plan;
3. be erected prior to any construction, demolition or excavation works and remain in place for the duration of the project;
4. preclude any delivery of site accommodation and/or materials and/or plant machinery;
5. preclude all construction related activity, with the sole exception of specified arboricultural works and any other works to be carried out under supervision that have been agreed by all parties; and
6. preclude the storage of all development related materials and substances including fuels, oils, additives, cement and/or any other deleterious substance.

Any incursion into CEZs must be by prior arrangement, following consultation with the LPA.

Temporary Protective Fencing Construction

1. Temporary protective fencing panels shall be weldmesh "Heras" panels of at least 2.0 metres in height.
2. The panels shall butt together and be securely fixed to a scaffold framework, as per 3 to 5 below.
3. The scaffold framework shall comprise of upright poles of at least 3.0 metres in length driven no less than 0.6 metres into the ground at maximum 3.0 metre centres with horizontal and diagonal poles fixed to the uprights, as per 4 to 5 below.
4. The two horizontal rail poles shall be attached to the uprights at heights of 0.6 and 1.8 metres with 3 no. clamps to each joint.
5. The diagonal scaffold pole struts be clamped to the top rail of the scaffold framework at a 45º angle and extend back into the CEZ and clamped to a 0.7 metre length of scaffold tube that shall be driven no less than 0.5m into the ground.
6. No fixing shall be made to any tree and all possible precautions shall be taken to prevent damage to tree roots when locating posts.
7. A 600mm x 300mm warning sign reading "TREE PROTECTION AREA KEEP OUT" (see Figure 1, below) shall be fixed to every 10.0 metre length of protective fencing.
8. On completion and prior to any demolition or construction works, site preparation, excavation or delivery of plant and materials, the LPA shall inspect and approve the Temporary Protective Fencing.

Figure 1: CEZ Warning Sign

– TREE PROTECTION AREA –
KEEP OUT!

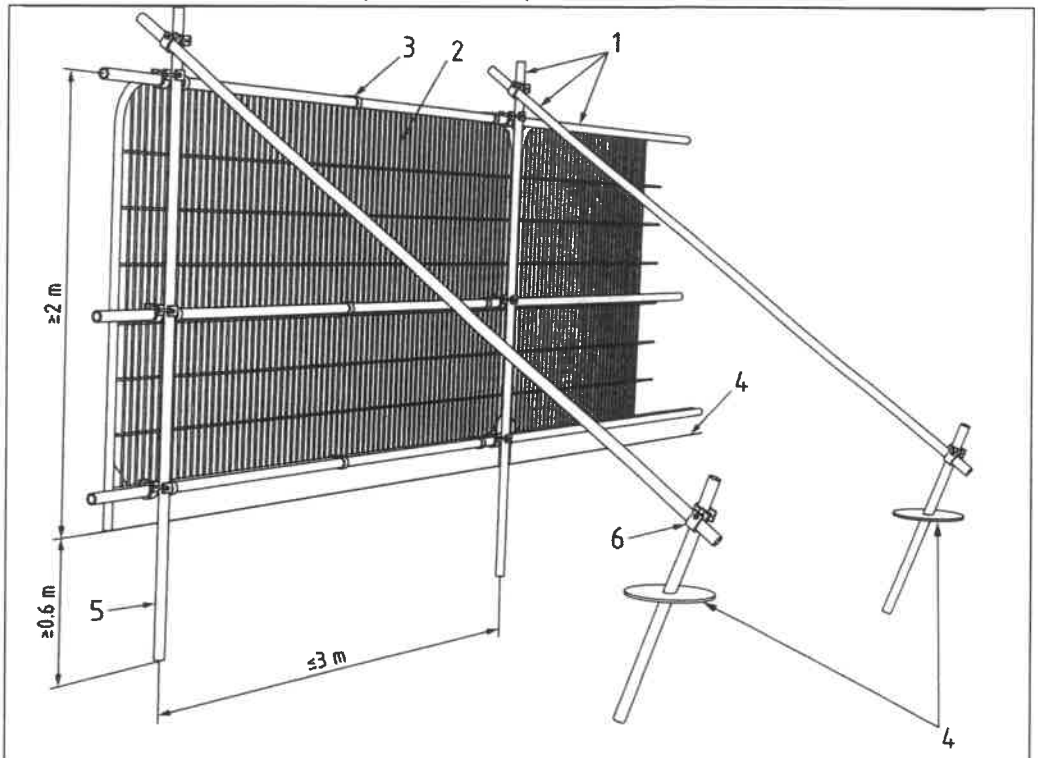
(TOWN & COUNTRY PLANNING ACT 1990)
THE TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR SUBJECTS OF A 'TREE PRESERVATION ORDER', THE CONTRAVENTION OF WHICH MAY LEAD TO CRIMINAL PROSECUTION

THE FOLLOWING MUST BE OBSERVED BY ALL PERSONNEL:

- **THE PROTECTIVE FENCING MUST NOT BE MOVED**
- **NO PERSON SHALL ENTER THE CONSTRUCTION EXCLUSION ZONE**
- **NO MACHINE, PLANT OR VEHICLES SHALL ENTER THE EXCLUSION ZONE**
- **NO MATERIALS SHALL BE STORED IN THE EXCLUSION ZONE**
- **NO SPOIL SHALL BE DEPOSITED IN THE EXCLUSION ZONE**
- **NO EXCAVATION SHALL OCCUR IN THE EXCLUSION ZONE**
- **NO FIRES SHALL BE LIT IN THE EXCLUSION ZONE**

ANY INCURSION INTO THE EXCLUSION ZONE MUST BE WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY

Figure 2: BS5837:2012 Default specification for protective barrier



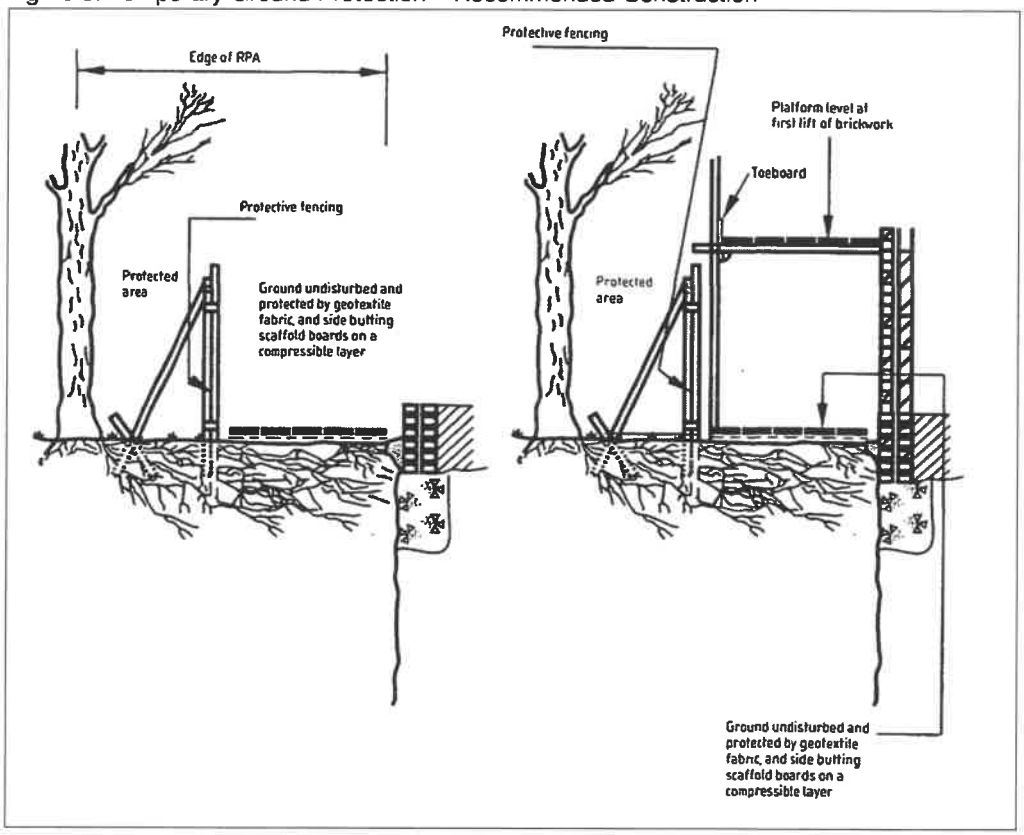
Key

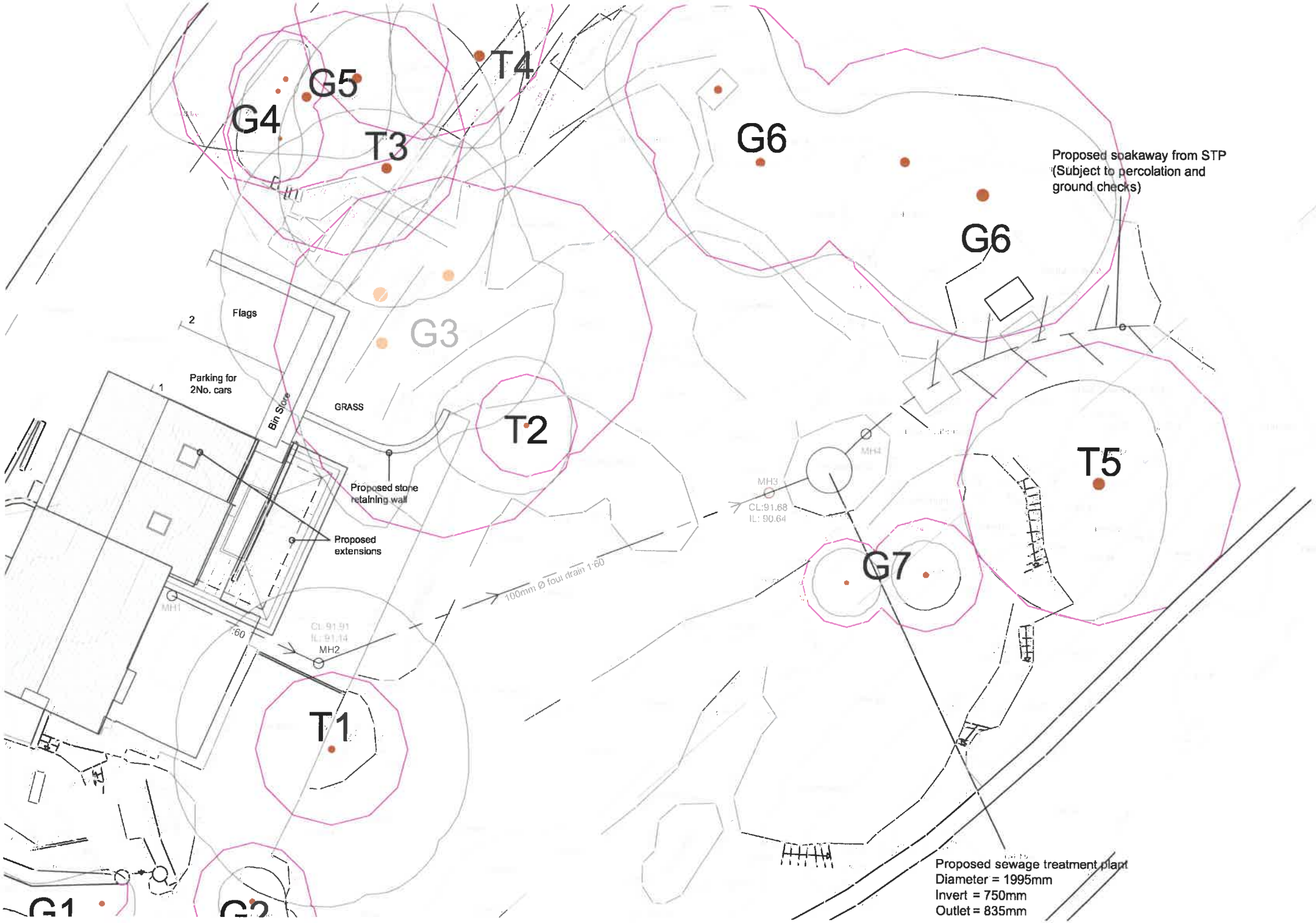
1. Standard scaffold poles.
2. Heavy gauge 2 metre tall galvanised tube and welded mesh infill panels
3. Panels secured to uprights and cross members with wires ties
4. Ground level
5. Uprights driven into the ground until secure (minimum depth 0.6 metres)
6. Standard scaffold clamps

Temporary Ground Protection

1. Any necessary Temporary Ground Protection areas shall conform to Figure 3, below, unless otherwise agreed with the LPA.
2. The Ground Protection Area shall be left undisturbed and covered by a semi-permeable geotextile membrane which shall, in turn, be covered by a compressible layer consisting of a material such as woodchip.
3. Side-butting scaffold boards shall then be fitted to cover the Ground Protection Area.
4. On completion of installation, and prior to any demolition or construction works, site preparation, excavation or delivery of plant and materials, the Consulting Arboriculturist or the LPA Tree Officer, as agreed, shall inspect the Temporary Ground Protection.
5. The Temporary Ground Protection shall remain in place until completion of the project and only removed following receipt of written permission from the LPA.

Figure 3: Temporary Ground Protection – Recommended Construction




G5
T4
G4
T3
G6
Proposed soakaway from STP
(Subject to percolation and
ground checks)
G6
G3
Flags
2
Parking for
2No. cars
1
Bin Store
GRASS
T2
T5
Proposed stone
retaining wall
MH4
MH3
CL:91.68
IL: 90.64
Proposed
extensions
G7
100mm Ø foul drain 1:60
MH1
:60
CL: 91.91
IL: 91.14
MH2
T1
Proposed sewage treatment plant
Diameter = 1995mm
Invert = 750mm
Outlet = 835mm