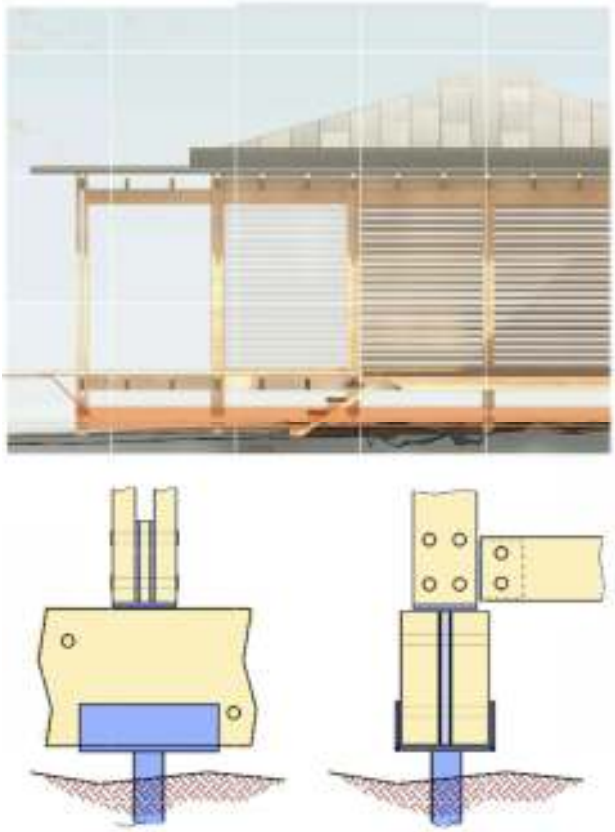
Hotham Hall - Proposed Spa

TREE REPORT
&
ARBORICULTURAL IMPACT ASSESSMENT



Prepared by :-

David C Houldershaw BSc
Northern Resource Consultants
22 Ethel Crescent
Knaresborough
North Yorkshire
HG5 0DJ
01423 868952
treelawexpert@aol.com

Consultants in arboriculture, forestry, ecology, landscape & the environment

Over 43 years experience in planning & litigation involving trees & wildlife

January 2024

SECTION A – INTRODUCTION

A1.0 Introduction

A1.1 This report accompanies a planning application for a modest spa development integral to the commercial activity underpinning the long term conservation of the Listed Hall, Stables, gardens and parkland.

A1.2 In this report I provide details of the trees, carry out a detailed arboricultural impact assessment of the proposals in accordance with BS5837:2012 *Trees in relation to design, demolition and construction*, outline the construction methodology and provide tree protection details including a Tree Protection Plan.

A1.3 Section B outlines the main tree features with details provided in the Appendix A Tree Schedule, locations are shown on accompanying plans, Section C assesses the arboricultural impact of the proposals and an Arboricultural Impact Assessment (AIA) Tree Protection Method Statement is being supplied separately.

A1.4 The trees are in the Hotham Conservation Area (CA) and protected under CA regulations with the same range of offences and penalties as for Tree Preservation Orders; and one veteran tree is present to which the English Nature standing advice is applied and the 15x diameter root protection area (RPA) is entirely avoided.

A2.0 Conclusions

A2.1 The need to be close to the stable block paying guest accommodation, heritage and landscape considerations severely limit options for siting; and whilst this location meets all other criteria, construction cannot entirely avoid RPAs without adversely impacting the Listed Buildings, landscape and Conservation Area

A2.2 Whilst the preference is to avoid RPAs, BS5837:2012 nonetheless allows construction in RPAs where justifiable, where there is a technical build solution which avoids tree damage, maintains tree viability, provides additional rooting area contiguous with the RPA and is accompanied by improvements to the rooting environment.

A2.3 With due regard to other criteria, as - on balance - there is no reasonable alternative location, construction in the RPAs of the four trees T2 to T5 on the west and south-west sides of the site is reasonably justifiable.

A2.4 The proposed spa occupies less than 20% of the RPA, narrow screw piles are to be used to support buildings elevated above the undisturbed ground below to maintain adequate soil ventilation and an automatic rain water-fed underfloor irrigation system laid to maintain soil moisture, irrigation extending beyond the RPA to provide additional rooting area contiguous with the existing, and pre-existing compaction in the RPA relieved together with other rooting environment improvements.

A2.5 The trees can be fully protected by a combination of fencing and ground protection matting; and works in the RPA only carried out under arboricultural supervision to ensure there is no damage.

A2.6 Pile locations will be investigated prior to screw piling to ensure roots are avoided, and there is no material reduction in existing rooting area and except for the piling, the ground in the RPA will remain entirely undisturbed, soil ventilation unhindered, and existing levels and patterns of rainfall maintained by underfloor irrigation.

A2.7 Lateral Pruning of the longest, lowest branches on the site side only is proposed for three trees, T2 to T4, but this is minor in nature similar to that commonly undertaken to allow grounds maintenance; and there is no material impact on appearance, health or longevity and the contribution to the Conservation Area is unaffected.

A2.8 All construction is entirely outside the veteran tree T7 21 m (15x stem diameter) RPA and excluded by robust tree protection fencing regularly checked including as part of an arboricultural watching brief with any breaches to be reported to the council.

A2.9 With the appropriate care and protection identified in the arboricultural impact assessment, I am satisfied that the spa can be constructed as proposed without damage to the trees and without affecting their viability, appearance and contribution to the setting of the Listed Buildings, Conservation Area and the wider locality, and all the requirements of BS5837:2012 including for construction in RPAs are met.

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David Houldershaw
January 2024

SECTION B – DESCRIPTION

B1.0 Introduction

B1.1 South of Hotham village, Hotham Hall is a rural estate with woodland, farmland, parkland, the Listed Hotham Hall, stable block, ancillary buildings and formal gardens; and is undergoing significant sympathetic restoration.

B1.2 The Hall, formal gardens, parkland and Orchard Plantation are in the village of Hotham Conservation Area; the existing private road access to the Hall forming the western boundary of this part of the Conservation Area; this road access forming part of a historic carriage drive running north-south through the estate and is a permissive right of way popular with walkers.

B1.3 At the southern end of the Conservation Area, the proposed spa site is a small paddock immediately south of the stable block, west of the formal Hall rear garden boundary wall and accessed via an existing field gate off the estate north-south carriage drive.

B1.4 The paddock includes a row of mature Beech, Horse chestnut and Turkey Oak trees along its southern and western boundaries; and whilst there is no Tree Preservation Order on these trees, the trees are legally protected by Conservation Area regulations with the same range of offences and penalties as for Tree Preservation Orders; and additionally fall within the Felling Licence regulations.

B1.5 The trees have been inspected in accordance with the requirements of BS5837:2012 *Trees in relation to design, demolition and construction*; and details of each including species, size, health, condition, quality, amenity value and longevity are provided in the Spa Paddock Tree Schedule and shown on the Tree Plan.

B1.6 In brief, the mature Yew T1 grows in a courtyard on the south-east side of the Listed Stable Block and is separated from the Spa paddock site by a tall wall sufficient to constrain rooting in this direction,; this tree was fully described in the previously-submitted and approved garage application 21/04380/PLB and 21/04379/PLF.

B1.7 The tall mature Turkey Oaks T2,T3 grow on the west side of the Spa paddock as part of a row with mature Horse Chestnut T4 and mature Beeches T5, T6 on the south side of the paddock; mature Beech T7 in the south-east corner of the paddock is a veteran tree with a 15x diameter multiplier and greater root protection area in which the standing advice for no changes is applied.

B1.8 The mature Beech T8 grows in the main garden area south of the Listed Hall, south-east of the proposed Spa and separated from the Spa paddock by a tall wall sufficient to constrain much of the rooting in thus direction.

B2.0 Development Proposals

B2.1 It is proposed to construct a modest low rise spa complex with pedestrian access north to adjacent proposed paying guest accommodation in the Stable Block and west to the carriage drive and previously-approved car park beyond.

B3.0 Arboricultural Impact

B3.1 The impact of the proposals on the individual trees and groups of trees is assessed in Section C of this report with reference to British Standard BS5837:2012 *Trees in relation to design, demolition and construction.*

B4.0 Root Protection Areas *(RPA)*

B4.1 The arboricultural impact assessment in Section C includes consideration of the BS5837:2012 Root Protection Area (RPA) distances and where there are existing constraints to root development sufficient to affect RPA distances this is taken into account in the relevant assessments.

B4.2 The Beech T7 has been assessed and included on the ancient tree inventory as a veteran tree (235048) and the Natural England and Forestry Commission ‘standing advice’ for ancient woodland, ancient trees and veteran trees applies. Specifically here, the 15x diameter multiplier is used to determine the unrestricted RPA distances within which no changes are allowable under the planning system and *for the avoidance of doubt* no changes are proposed in the T7 RPA; all construction activity will be excluded from the RPA and no new garden works undertaken in the RPA - all as fully in accordance with the standing advice.

B5.0 Tree Protection

B5.1 Tree protection measures identified as being required in the Section C arboricultural impact assessment are shown on the accompanying Tree Protection Plan.

SECTION C – ARBORICULTURAL IMPACT ASSESSMENT

C1.0 Introduction

C1.1 In this Section the potential impacts of the proposed works are considered against the various points set out in BS5837:2012 including root protection areas (RPA).

C1.2 Given the value of trees to the locality, any changes to the assessed layout will require further arboricultural assessment to ensure no additional impact on the trees.

Arboricultural impact assessment

C1.3 The relationship of the individual trees to the various proposed elements of the development with assessment of resulting impact and mitigation is set out in Tables 1 to 3 at the end of this section.

C1.4 Given the well-treed nature of the site, and the requirement to identify the various elements potentially impacting trees here, Tables 1 to 3 are necessarily lengthy and below I set out the main impacts with reference to the various elements of the proposed development to hopefully simplify.

C2.0 AIA Tree Protection Method Statement

C2.1 Given the proximity of significant works to trees of value to the locality, an AIA Tree Protection Method Statement prepared by an Arboriculturalist and agreed with the Council before any works begin is reasonably justifiable here; and this can be agreed during the planning process or Conditioned for Reserved Matters.

C2.2 The AIA Tree Protection Method Statement to compliment the Tree Protection Plan; both to be implemented throughout the duration of the works.

Arboricultural Monitoring and Supervision

C2.3 The Tree Protection Method Statement to include arboricultural supervision as and when appropriate and a watching brief with regular visits to monitor tree protection, provide advice and ensure compliance.

C3.0 Tree Works

C3.1 Tree works to be undertaken by appropriately trained, experienced, certified personnel working safely with all works fully compliant with BS3998:2010 *Tree Works.*

C3.2 Tree works to be fully in accordance with a Tree Works Schedule agreed in advance with the Council.

C3.3 All tree works to be completed before any other works of any kind begin on site.

Tree felling

C3.4 No trees require felling for the proposed Spa.

C3.5 Trees T1 to T8 are to be retained and protected during the works as described later in this section.

Tree pruning

C3.6 As identified in Table 1 later in this section, the westernmost Spa buildings impinge on the branch spread of T2,T3 and T4; moving the buildings out of the branch spread would adversely impact the setting of the Listed stable block, alternatively reducing floor plan to avoid adversely affects viability.

C3.7 The lateral reduction of longer lower branches of trees T2, T3 and T4 in the direction of the Spa is required to accommodate the building; this pruning is minor similar to that commonly undertaken for grounds maintenance, involving mainly smaller, more twiggy growth resulting in no large wounds liable to decay and, as minor and internal to the paddock, not particularly noticeable from external view.

Impact

C3.8 No trees require felling and the pruning will have no material impact on appearance, health and longevity; and the contribution of the trees to the setting of the Listed Buildings, character of the Conservation Area, appearance and amenity of the wider landscape is unaffected.

C4.0 Spa Buildings in RPA

C4.1 As identified in Table 3 later in this section, the west side of the Spa is located in the T2 to T5 RPAs.

C4.2 The usual requirement of BS5837:2012 is for no construction in RPAs; however, 5.3.1 of the British Standard allows for technical solutions to be explored that prevent damage to the tree(s) where there is an overriding justification for construction in the RPA.

C4.3 And where operations in RPAs are proposed, the project Arboriculturalist must be satisfied that the tree(s) can remain viable; and any area lost to encroachment can be compensated for elsewhere contiguous with the RPA and mitigated by improvements to the soil environment used by the tree for growth.

C4.4 Clause 7 of the British Standard providing additional requirements and guidance on design and construction.

Spa building

C4.5 The Spa forms part of the commercial activity underpinning the long term conservation of the Hall and associated Listed Buildings, historic parkland and gardens and part of the offering to paying guests occupying the proposed Stable Block accommodation.

C4.6 And with Conservation Area, open countryside, Listed Building considerations, the paddock is the only realistic location for a spa at Hotham Hall.

C4.7 This having been identified as the only feasible site and the trees posing a constraint on development sufficient to require some construction in RPAs, I have worked with the owner, architects and engineers to devise a low impact technical solution.

C4.8 The proposed Spa building is entirely outside the veteran tree RPA.

C4.9 The proposed Spa building is reduced in size from that initially envisaged and now as small as it can be for the intended uses.

C4.10 Excavation for basement and swimming pool is outside RPAs and elsewhere, other than for piling, the existing soil remains undisturbed.

C4.11 All parts of the building in RPAs are on pile foundation and the piling system allows for movement of pile locations to avoid roots; narrow screw piles are proposed to minimise soil disturbance and allow installation with small pedestrian operated machinery working from protected ground.

C4.12 The buildings have an underfloor void above the undisturbed soil for gaseous exchange and, in the RPA, this void will include an irrigation system fed by roof water to mimic rain interrupted by the buildings.

C4.13 The impingement into the RPAs is under 20% :- T2 : 19.5% (104 m^2 of 531 m^2); T3 : 18% (125 m^2 of 706 m^2); T4 : 14% (101 m^2 of 706 m^2); T5 : 4% (27 m^2 of 706 m^2); and below that indicated as potentially acceptable in the British Standard.

Construction

C4.14 Having arrived at a workable technical solution for the building that is sympathetic and non-damaging to the trees, significant effort has been put into developing a suitable build process that ensures the trees are fully protected at all times; and the methodology set out in Tables 2 and 3 later in this section ensures the trees remain undamaged and viable as required by the British Standard.

Soil mitigation

C4.15 As the design and construction includes an underfloor irrigated void with minimal root disturbance from the piling only, there has been no material reduction in the T2 to T5 RPAs and to maintain adequate growing conditions beyond the RPA under the building, the ground protection and irrigation extends beyond.

C4.16 In the uncovered T2 to T5 RPA, landscape works are to be carefully undertaken avoiding significant roots and soil aeration is to improve rooting conditions in any areas of pre-existing compaction; all details to be agreed with the council tree and landscape officers in advance.

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C5.0 Tree Protection

C5.1 Given the proximity of works to trees of significant value to the locality, significant care is required to avoid tree damage during construction; and the build has four stages with some variation in tree protection required.

Initial works entirely outside RPAs

C5.2 The temporary access, basement and swimming pool excavation and service provision is entirely outside RPAs and to avoid potential incursion into RPAs, these initial works should be finished and machinery removed from site before any work begins in the RPAs.

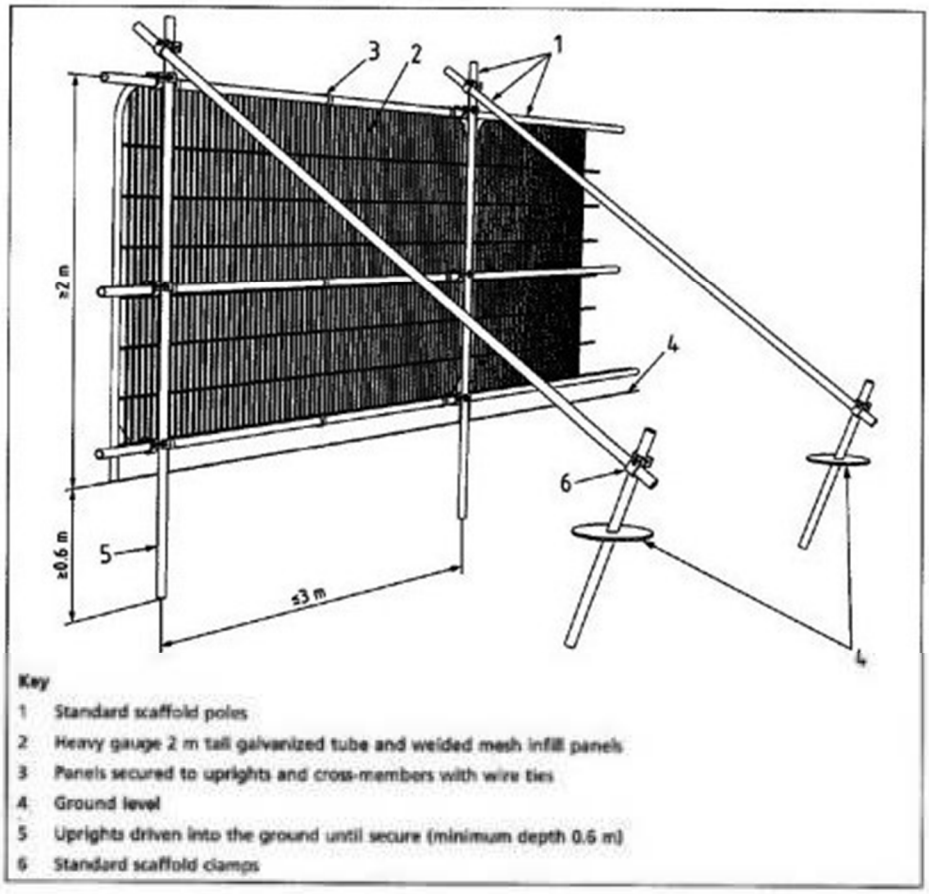
C5.3 The trees can be protected from damage during the initial works with tree protection fencing erected after the pruning but before any other works begin; all as set out in Table 2 later in this section.

C5.4 The fencing to be erected at the perimeter of the RPAs or greater distance as shown on the accompanying Tree Protection Plan; the fencing for T2 to T5 to extend beyond the RPA further into the site to protect additional ground under the building for future root growth.

C5.5 As the initial works involve heavy machinery at time operating close to the fencing, the default BS5837:2012 specification of 2 m high metal weld panels on a braced scaffold frame to be used (Figure 1 below).

Figure 1 :- Tree Protection Fencing Default Specification

BS5837 Default Specification Tree Protection Fence



Key

1 Standard scaffold poles
2 Heavy gauge 2 m 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 0.6 m)
6 Standard scaffold clamps

Reproduced from *BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations*. BSI Standards Institution 2012.

C5.6 Each panel to have a waterproof notice on site side “Tree Protection Zone – No Access – Stay Out”

C5.7 The fencing to remain in situ until the project Arboriculturalist issues written instructions to move or remove; and is to be maintained in an effective condition, checked daily by the Site Manager who is responsible for ensuring any defects are immediately rectified.

Main construction – piling and initial build in RPAs

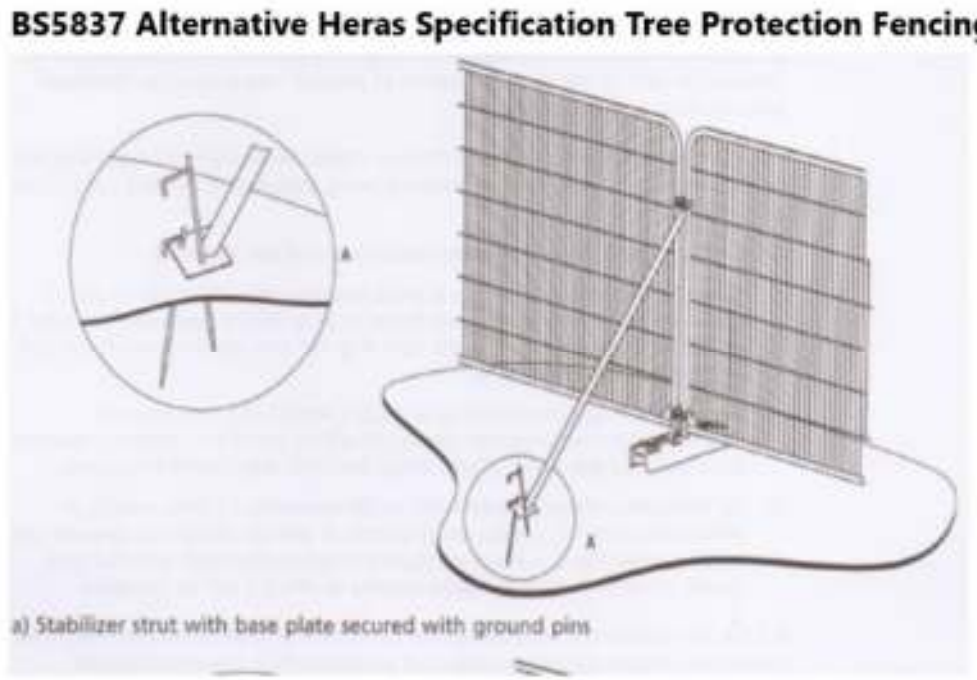
C5.8 Once the initial site works are complete and heavy machinery removed from site, the tree protection fencing erected before the initial site works began is to remain entirely in situ and is not to be moved or removed.

C5.9 This fencing forms part of a fenced box in which the initial works in the RPA will be undertaken.

C5.10 To complete the RPA works box, a second line of fencing is to be erected in the trees T2 to T5 RPA 1 m outside the Spa building line on the tree side as per the accompanying Tree Protection Plan.

C5.11 As there will be no heavy machinery operating in the RPA, the alternative of Heras fencing supported on feet pegged to the ground and braced on the tree side can be used as per BS5837:2012 and Figure 2 below.

Figure 2 – BS5837:2012 Alternative Heras Specification Tree Protection Fencing



C5.12 This fencing to be led out by hand and erected under arboricultural supervision.

C5.13 The ground within the fencing is then to be boarded to provide access for initial construction in the RPA whilst fully protecting the underlying roots from compaction and other damage.

C5.14 The ground boarding to be laid under arboricultural supervision leaving each provisional pile location sufficiently uncovered for pile confirmation works as described later in this section.

C5.15 As per BS5837:2012 6.2.3.3 b) to allow for pedestrian-operated plant up to a gross weight of 2 t, proprietary, ground protection boards placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), laid onto an air-and-water permeable biodegradable geotextile membrane to provide protection to the ground for the piling and initial construction in the T2 to T5 RPA as described later in this section.

Figure 3 – Ground Protection Boarding

C5.16 As the above ground framework is attached to the top of the piles (min 200 mm above ground) and the floor laid on the framework, the ground boards are to be progressively lifted within the footprint of the building as works move progressively off the ground and onto the laid flooring.

C5.17 The lifting of this boarding being planned and coordinated with Project Arboriculturalist to ensure appropriate monitoring and supervision.

C5.18 For the avoidance of doubt, the above is to provide protected access to the T2 to T5 RPAs only; the RPAs of T1, T6, T7 and T8 remaining entirely free of construction and construction-related activity.

Main construction – works inside and outside RPAs

C5.19 Once all that can reasonably be completed with the section of T2 to T5 tree protection fencing immediately east of the boarded area and dividing the footprint, this section of fencing ONLY will require removal.

C5.20 This dismantling and removal to be agreed in advance with the project Arboriculturalist who will issue written instructions and the work is to be carried out under arboricultural supervision to ensure that only the correct section of fencing is removed at this stage.

C5.21 As the T2 to T5 RPA ground protection boarding is for pedestrian and light pedestrian operated equipment only, any larger machinery operating outside the boarded area must remain outside the boarded area and a supervisor is to be designated whose sole task will be to monitor compliance.

C5.22 Once the framework is in place and the building floor laid, subsequent construction is above ground working from the laid floor.

C5.23 At all times, any lifting into the T2 to T5 RPA beyond manual is to be from the north and east with no machinery other than light pedestrian to enter the boarded area.

Site completion

C5.24 After all construction has been completed, including landscape works outside RPAs, the removal of the remaining ground boarding and tree protection fencing is to be agreed with the project Arboriculturalist who will issue written instructions for this and inform the council tree officer in advance of dismantling.

C5.25 The removal of the remaining ground boarding and tree protection fencing to be by hand under arboricultural supervision.

C5.26 Carry out landscape works in RPAs by hand under landscape architect supervision with arboricultural input and watching brief.

Impact

C5.27 Based on detailed assessment of the proposals, I am satisfied that the trees can be adequately protected against damage using a combination of tree protection fencing and ground protection erected and laid before works begin in the locations shown on the accompanying Tree Protection Plan with specialist build techniques, arboricultural monitoring and supervision being integral to this protection.

C6.0 Construction Outside RPAs - *T1, T6, T7, T8 RPAs*

All Spa construction activity - T1, T6, T7, T8

C6.1 All construction work is outside the Yew T1 RPA; the Yew T1 roots are constrained from entry into the Spa site by the tall wall between the tree and the site with this wall providing an adequate barrier to construction activity; and the Spa can be built without damage to T1.

C6.2 All construction work is outside the Beech T6, T7 and T8 RPAs, and after tree protection fencing has been erected at the perimeter of the T6, T7 RPAs in the Spa paddock with the tall garden wall providing protection beyond, the Spa can be built without damage to trees T6, T7 and T8.

Impact all Spa construction - T1, T6, T7, T8

C6.3 The proposed construction is entirely outside the RPAs of T1, T6, T7 and T8 and, where not already protected by tall walls, I am satisfied these RPAs can be robustly fenced for the duration of the Spa works; and there is no adverse impact on trees T1, T6, T7 and T8 from Spa construction.

C7.0 Initial Spa Construction Outside RPAs - *T2, T3, T4, T5 RPAs*

C7.1 Whilst part of the Spa is in the T2 to T5 RPA, much of the building is outside the RPA including all heavy machine access and excavation allowing the T2 to T5 RPAs to fully protected from damage by tree protection fencing erected at the perimeter of the RPA or greater before, and after tree protection fencing has been erected at the perimeter of the T2 to T5 RPA, initial Spa works outside the RPA including excavation for the basement, swimming pool and services can be completed without damage to the trees T2 to T5.

(The tree protection for this stage of construction extending beyond the RPA to protect a greater area for future rooting as described later in this section)

(After the initial works, the T2 to T5 RPAs will be protected from works outside the RPAs by the measures implemented to protect for works in the T2 to T5 RPAs as described later in this section)

Impact of initial Spa construction activity - T2, T3, T4, T5

C7.2 The initial Spa works are outside the RPAs of T2, T3, T4 and T5 and I am satisfied the RPAs can be robustly fenced for the duration of the excavation for the basement, swimming pool and services; and there is no adverse impact on trees T2, T3, T4 and T5 from these initial works.

(Trees T1, T6, T7 and T8 being robustly protected throughout as per C6 above)

C8.0 Construction Inside RPAs – *British Standard considerations*

C8.1 As previously discussed, the various constraints on development render this paddock the most suitable for a spa at Hotham with no reasonable alternative available; and the size and location of the trees makes it is very difficult to avoid root protection areas; relocating outside RPAs reduces the separation to the Listed Buildings adversely affecting their setting, maintaining the same separation and removing the footprint in the RPAs affects viability and necessitates a second storey to compensate for ground floor reduction increasing visibility in the landscape and the second storey adversely affecting the setting of the Listed Buildings.

C8.2 In brief, the preference is for no development in RPAs, BS5837:2012 *Trees in relation to design, demolition and* construction 5.3.1 nonetheless allows for construction in RPAs where this is justifiable and where the trees will remain viable and a technical build solution that avoids damage available (and capable of being implemented), areas for additional rooting contiguous with the RPA, improvements to the rooting environment and such other mitigation as may be appropriate; the associated Clause 7 of the British Standard setting out technical requirements for construction in RPAs.

C8.3 For a spa of single-storey and adequate size which entirely avoids the 21 m T7 veteran tree RPA, some construction is required in the RPAs of T2 to T5.

C8.4 BS5837:2012 7.5.1 advises that specially engineered structures in RPAs may be justified if this enables retention of a good quality tree that would otherwise be lost (usually categories A or B); T2 to T5 individually are category B trees.

C8.5 BS5837:2012 7.1.1 advises that construction within the RPA should accord to the principle that trees and soil structure take priority; and 7.2.1 advises existing ground levels should be retained and intrusion into soil (other than for piling) is generally not acceptable other than limited manual excavation, subject to justification, using hand-held tools and preferably by compressed air soil displacement.

C8.6 BS5837:2012 7.5.1 advises that root damage can be minimized by using piles with site investigation used to determine their optimal location whilst avoiding damage to roots important for the stability of the tree, by means of hand tools or compressed air soil displacement, to a minimum depth of 600 mm; and supporting beams, laid at or above ground level.

C8.7 BS5837:2012 7.5.3 advises that a slab for a minor structure in RPA such as a shed base laid on existing ground should not exceed 20% of the existing unsurfaced ground; and 7.5.4 advises slabs for larger structures be constructed with a ventilated air space between the underside of the slab and the existing soil surface (to enable gas exchange and venting through the soil surface) with a specialist irrigation system (e.g. roof run-off redirected under the slab). The design of the foundation should take account of any effect on the load-bearing properties of underlying soil from the redirected roof run-off.

C8.8 BS5837:2012 7.5.5 advises using the smallest practical pile diameter should be used to reduce the possibility of striking major roots, and smaller diameters reduce the size of the rig required to sink the piles.

C8.9 BS5837:2012 7.5.5 advises the pile type should be selected to protect the soil and adjacent roots from the potentially toxic effects of uncured concrete, with e.g. sleeved bored pile or screw pile preferred.

Spa design

C8.10 I have worked with the Architects, Engineers and others to incorporate the arboricultural requirements of construction in the RPA in the design as set out in C9 below.

C9.0 <u>Spa Construction in RPA</u>

C9.1 The proposed Spa buildings are single-storey on a piled foundation with an elevated above ground frame supporting the superstructure in the RPAs.

Ground protection

C9.2 As previously described, the works in the RPA to be undertaken in a fenced box to exclude other construction activity with ground boarding to protect the soil and roots from compaction.

C9.3 Changes are not required or proposed to the existing levels; and apart from piling, the existing soil is to remain undisturbed as per BS5837:2012 7.1.1 and 7.2.1 (C8.5 above).

C9.4 To assist piling, the existing vegetation in the building RPA footprint is to cut, treated with an appropriate herbicide safe for use under trees with arisings raked off by hand in advance of ground boarding.

Foundation investigation

C9.5 Before the ground protection boarding is laid, project Arboriculturalist and Engineer to mark the locations of the proposed piles so these points can remain clear for investigation.

C9.6 Then after ground protection laid, under arboricultural supervision and working from protected ground careful excavation by hand and air spade to min 600 mm depth to ascertain rooting and confirm each pile location in RPA, moving pile location within the parameters set by engineer if any significant roots identified and agree new pile location(s) with the engineer; all as per BS5837:2012 7.5.1 (C8.6 above).

Piling

C9.7 Narrow helical screw plies proposed as capable of being installed using hand operated equipment, and the least disruptive and easiest to install without the need for heavy equipment; and as no concrete is needed, no issues of toxicity thereby meeting the requirements of BS5837:2012 7.5.5 (C8.8, C8.9 above).

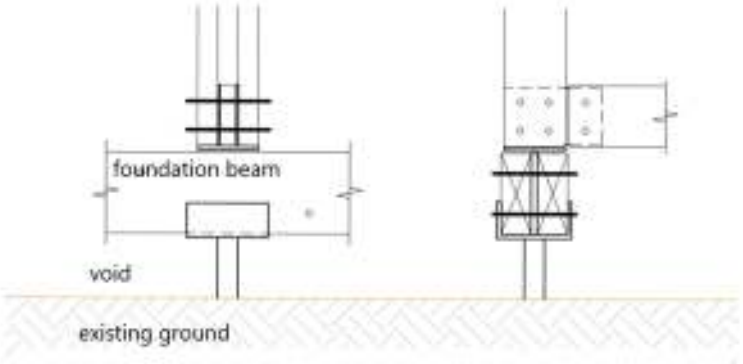
C9.8 The piles to extend below the potential rooting zone of influence to minimise the risk of building movement arising from future root growth and its impact on the soils particularly during more intense weather events.

Figure 4 – Examples of Helical Screw Piles

Foundation beams

C9.9 The piles will project above ground to support foundation beams elevated above ground to create an underfloor void in the RPA; a 25 mm gap is usually regarded as sufficient and here the void is greater varying between 200 mm and 700 mm depth above the undisturbed soil (variation in depth due to the very slight north-south gradient of the existing ground) providing good soil ventilation thereby meeting the requirements of BS5837:2012 7.5.3 (C8.7 above).

Figure 5 - Elevated Foundation Beam on Piles



Area of RPA occupied

C9.10 Whereas the proposed building is on piles with significant underfloor ventilation above undisturbed ground, the BS5837:2012 7.5.3 (C8.7) limit for minor, unventilated structures bearing directly on the ground in RPAs has nonetheless been applied to the design to allow for the maturity of the trees; the building occupying 19.5%, 18%, 14% and 4% of the T2, T3, T4 and T5 RPAs respectively.

Irrigation

C9.11 Underfloor irrigation is proposed consisting of a proprietary leaky pipe system laid on the soil surface at suitable intervals to mimic the rainfall pattern; the system to be fed by rain water to maintain existing PH levels and controllable to avoid under or over watering with soil access points provided in the building for periodic soil moisture content monitoring enabling the system to be adjusted as required and for servicing; and the requirements of BS5837:2012 7.5.3 (C8.7 above) are met.

C9.12 The underfloor irrigation system extending beyond the perimeter of the RPA under the building to maintain good conditions for future root growth in this area contiguous with the RPA.

Contiguous area

C9.13 The elevated building on pile foundations will have virtually no impact on rooting area given the narrowness of the piles; and this is more than mitigated by the extension of the underfloor irrigation beyond the RPA, and the retention of soft landscape areas free of development beyond the RPA external to the building, except for the access path external to the T2 RPA which is to be of an air-and-water permeable construction with a stone-filled, load-bearing Cellweb formation to facilitate future rooting under and beyond the path; and this requirement of BS5837:2012 5.3.1 (C8.2 above) is met.

Soil improvements

C9.14 When the ground protection boarding for works in the RPA is lifted, the wood chip will be left in situ to gradually breakdown adding organic material beneficially to the rooting environment below the building; and this requirement of BS5837:2012 5.3.1 (C8.2 above) is met.

C9.15 Externally, the RPA will be tested at 2 m intervals for existing compaction, and such areas air-injected to improve conditions for rooting; and this requirement of BS5837:2012 5.3.1 (C8.2 above) is met.

Other mitigation

C9.16 Whilst not specific to this application as stated in previous applications, the management of the trees on the estate including garden, park and woodland is to be included in a long term management plan to be agreed with the council.

C9.17 This plan to include various tree planting initiatives to restore lost tree cover, provide eventual replacements for failing trees and generally increase tree cover on the estate.

Impact of Spa construction in RPAs

C9.18 Significant effort has been put into the design to achieve a workable solution to construction of part of the Spa in the RPA of T2,T3, T4 and T5; and I am satisfied that the requirements of BS5837:2012 for construction in RPAs are met, and the trees can be adequately protected and the building constructed without damage to the trees, and the trees will remain viable and there is no adverse impact to T2, T3, T4 and T5 from Spa construction in their RPAs.

(Trees T1, T6, T7 and T8 being robustly protected throughout as per C6 above)

C10.0 <u>Other Impacts</u>

Branch spread

C10.1 As described previously, part of the Spa buildings are in the branch spread of trees T2, T3, T4 with minor pruning required and regrowth will require periodic shortening to maintain the buildings free of branch contact; this repetition pruning will be minor in nature and there will be no additional impact.

Shade

C10.2 Shade will be cast across the west of the Spa in the afternoon gradually building as the day progresses; and cast across the south for much of the day; however, these are commercial premises with no residential expectation of sunlight; the back to nature Spa setting amongst the trees is part of the offering to guests; the shade cools the building on hot days reducing the energy costs to cool; and the impact of shade here is identified and understood by the owner.

C10.3 In the event of a future operator wishing to increase sunlight, application to prune or fell to improve light conditions can be refused on the grounds that the shade and the impact of shade here is discernible and known; and I would expect any such refusal to be upheld on appeal

C11.0 Site Management

C11.1 The Spa site is close to an area used for contractors parking, deliveries and materials for works to the Hall; and this area can be used to support the Spa construction; site accommodation and welfare can be moved to the same area.

C11.2 Excavation arisings can be removed from the Spa site as produced to a temporary storage area on the arable field west of the carriage drive outside RPAs.

C11.3 And all of the above can be set out in the AIA Tree Protection Method Statement for agreement with the council as part of the planning process.

C12.0 AIA Tree Protection Method Statement

C12.1 Given the proximity of significant works to trees of value to the locality including works in RPAs, an AIA Tree Protection Method Statement prepared by an Arboriculturalist and agreed with the Council before any works begin is reasonably justifiable here; and this can be agreed during the planning process and Conditioned for implementation.

C13.0 Arboricultural Monitoring and Supervision

C13.1 Given the proximity of significant works to trees of value to the locality including works in RPAs, an arboricultural watching brief to include at least weekly visits at all times of site activity is reasonably justifiable here; similarly, arboricultural supervision for works in RPAs and at other times as and when appropriate; and this to be included in the AIA Tree Protection Method Statement referred to in C12 above.

C13.0 Changes To Layout

C13.1 Given the proximity to trees of value to the locality including works in RPAs, any changes to the scheme at any stage should be referred to the Arboriculturalist for impact assessment and, if acceptable, updating of the construction methodology and tree protection details.

C14.0 Individual Tree Impact Assessment

C14.1 Tables 1, 2 and 3 overleaf assess the impact of the various elements of the proposals on the individual trees.

Arboricultural Impact Assessment - Tree Works 1. Tree works necessary for Spa construction and subsequent use 2. To be carried out before site works of any kind begin						
TREE	SPECIES	CAT	RPA	DEVELOPMENT DISTANCE	MITIGATION MEASURES	IMPACT ON TREE (tree works)
Stable block environs						
T1	Yew	A2	3.6	8 m raised spa building 8.5 m pile *Beyond tall wall; minor spread into Spa site above 4 m*	*Retain & protect* *No tree works required or proposed for Spa*	No tree works required or proposed for Spa; no impact
Spa paddock						
T2	Turkey Oak	B2	15	8.5 m raised spa building 10 m pile 16 m temporary construction access *Lower branch spread c. 8 m from trunk; first branch c. 3 m height with lower more twiggy growth hangs to ground; upper branches above c. 20 m height spread more widely to c. 10 m*	*Retain & protect – tree works* i) Before any site works begin, east side of tree only, laterally reduce lowest growth below 4.5 m height by up to 1 m for Spa construction and adequate clearance to building	Spa building in branch spread *Very minor pruning of twiggy growth, unlikely to be noticeable to views from carriage drive and no large wounds liable to decay* *No material impact on health and longevity, appearance and amenity; and no impact on the Conservation Area*
T3	Turkey Oak	B2	15	5.5 m raised spa building 6.5 m pile *First branch at c. 3 m height, lower more twiggy growth hangs to ground level; branch spread c. 9 m towards site*	*Retain & protect – tree works* i) Before any site works begin, east side of tree, laterally reduce lowest growth below 4.5 m height by up to 4 m for Spa construction and adequate clearance to building	Spa building in branch spread *Minor pruning of twiggy growth and shortening of longest lower branches on east side only; barely noticeable to views from carriage drive and no large wounds liable to decay* *No material impact on health and longevity, appearance and amenity; and no impact on the Conservation Area*
T4	Horse Chestnut	B2	15	6 m raised spa building 7 m pile *First branch at c. 8 m height on Spa side, lower more twiggy growth hangs to c. 1.8 m; branch spread c. 8 m towards Spa*	*Retain & protect – tree works* i) Before any site works begin, north--east side of tree, laterally reduce lowest growth below 4.5 m height by up to 3 m for Spa construction and adequate clearance to building	Spa building in branch spread *Minor pruning of twiggy growth and shortening of longest lower branches on east side only; barely noticeable to views from carriage drive and no large wounds liable to decay* *No material impact on health and longevity, appearance and amenity; and no impact on the Conservation Area*

TREE	SPECIES	CAT	RPA	DEVELOPMENT DISTANCE	MITIGATION MEASURES	IMPACT ON TREE (tree works)
T5	Beech	B2	15	12,5 m raised spa building 13 m pile *Branch spread c. 9 m towards site*	*Retain & protect – tree works* *No tree works required or proposed for Spa*	No Spa construction in branch spread *No tree works required or proposed for Spa; no impact*
T6	Beech	B2	15	15 m base of steps 16 m raised spa building 17 m pile 17 m swimming pool excavation *Branch spread c. 6 m towards site*	*Retain & protect – tree works* *No tree works required or proposed for Spa*	No Spa construction in branch spread *No tree works required or proposed for Spa; no impact*
T7	Beech	A3	21	21.5 m spa building (corner) 22 m swimming pool excavation *Branch spread c. 10 m towards site*	*Retain & protect – tree works* *No tree works required or proposed for Spa*	No Spa construction in branch spread *No tree works required or proposed for Spa; no impact*
Hall southern garden						
T8	Beech	B2	15	10 m existing garden wall 30 m spa building *Branch* spread c. 10 m towards site	*Retain & protect – tree works* *No tree works required or proposed for Spa*	No Spa construction in branch spread *No tree works required or proposed for Spa; no impact*

Arboricultural Impact Assessment – Spa Buildings – Initial Site Works

1. Tree protection to exclude site activity from RPAs whilst initial site works are carried out external to RPAs
2. These initial works to include laying temporary construction access from existing carriage drive gateway in north-west corner of Spa paddock, excavation for basement and swimming pool, excavation and laying of services/ service connections from and to stable block, and such construction outside RPAs as can reasonably be undertaken at this stage
3. For the avoidance of doubt, initial site works to be entirely outside RPAs with no works of any kind other than tree works in RPAs

TREE	SPECIES	CAT	RPA	DEVELOPMENT DISTANCE	MITIGATION MEASURES	IMPACT ON TREE (initial site works)
				Stable block environs		
T1	Yew	A2	3.6	8 m raised spa building 8.5 m pile *Radial rooting constrained by foundations of existing tall wall with no rooting into Spa site*	*Retain & protect – initial site works* Protected by existing tall garden wall with no rooting into Spa site *No additional tree protection required*	No Spa works proposed in RPA *No adverse impact from Spa construction*
TREE	SPECIES	CAT	RPA	DEVELOPMENT DISTANCE	MITIGATION MEASURES	IMPACT ON TREE (initial site works)
				Spa paddock		
T2	Turkey Oak	B2	15	8 m new access path 8.5 m raised spa building 10 m pile 26 m basement excavation 16 m temporary road access for construction	*Retain & protect – initial site works* i) After pruning but before initial site works begin, erect 2 m high BS5837:2012 tree protection fencing at perimeter of RPA + 2 m further from tree to exclude all site activities from RPA & protect against damage ii) Tree protection fencing to form a continuous barrier for trees T2 to T7 iii) Arboriculturalist to inspect tree protection fencing before any site works begin iv) After Arboriculturalist inspection, lay temporary stone road from existing access gate in northwest corner for spa construction access v) Excavate for basement and swimming pool and remove arisings vi) Excavate and lay services from Stable Block vii) carry out such construction works as can reasonably be carried out in these initial works *(which for the avoidance of doubt are to be entirely outside RPAs)* viii) Daily check of tree protection fencing and Arboriculturalist to maintain watching brief	No <u>initial</u> site works required or proposed in RPA *(RPA + 2 m further from tree protecting greater area allows for pedestrian working in RPA whilst retaining a braced barrier to works outside RPA, as assessed later in this section)* *No adverse impact provided recommended mitigation tree protection measures to exclude initial site works from RPA fully implemented*

TREE	SPECIES	CAT	RPA	DEVELOPMENT DISTANCE	MITIGATION MEASURES	IMPACT ON TREE
T3	Turkey Oak	B2	15	5.5 m raised spa building 6.5 m pile 24 m basement excavation	*Retain & protect – initial site works* i) Entirely as for Oak T2 i) to iii) above, before any initial site works begin erect 2 m high tree protection fencing at perimeter of RPA + 2m further from tree; tree protection fencing to form a continuous barrier for trees T2 to T7 ii) Entirely as for Oak T2 iv to vii lay temporary construction access, excavate basement and swimming pool, lay services and other initial works *(which for the avoidance of doubt are entirely outside RPAs)*	No initial site works required or proposed in RPA *(RPA + 2 m further from tree protecting greater area allows for pedestrian working in RPA whilst retaining a braced barrier to works outside RPA, as assessed later in this section)* *No adverse impact provided recommended mitigation tree protection measures to exclude initial site works from RPA fully implemented*
T4	Horse Chestnut	B2	15	6 m raised spa building 7 m pile 22 m swimming pool excavation	*Retain & protect – initial site works* i) Entirely as for Oak T2 i) to iii) above, before any initial site works begin erect 2 m high tree protection fencing at perimeter of RPA + 2m further from tree; tree protection fencing to form a continuous barrier for trees T2 to T7 ii) Entirely as for Oak T2 iv to vii lay temporary construction access, excavate basement and swimming pool, lay services and other initial works *(which for the avoidance of doubt are entirely outside RPAs)*	No initial site works required or proposed in RPA *(RPA + 2 m further from tree protecting greater area allows for pedestrian working in RPA whilst retaining a braced barrier to works outside RPA, as assessed later in this section)* *No adverse impact provided recommended mitigation tree protection measures to exclude initial site works from RPA fully implemented*
T5	Beech	B2	15	12.5 m raised spa building 13 m pile 19 m swimming pool excavation	*Retain & protect – initial site works* i) Entirely as for Oak T2 i) to iii) above, before any initial site works begin erect 2 m high tree protection fencing at perimeter of RPA + 2m further from tree; tree protection fencing to form a continuous barrier for trees T2 to T7 ii) Entirely as for Oak T2 iv to vii lay temporary construction access, excavate basement and swimming pool, lay services and other initial works *(which for the avoidance of doubt are entirely outside RPAs)*	No initial site works required or proposed in RPA *(RPA + 2 m further from tree protecting greater area allows for pedestrian working in RPA whilst retaining a braced barrier to works outside RPA, as assessed later in this section)* *No adverse impact provided recommended mitigation tree protection measures to exclude initial site works from RPA fully implemented*

TREE	SPECIES	CAT	RPA	DEVELOPMENT DISTANCE	MITIGATION MEASURES	IMPACT ON TREE (initial site works)
T6	Beech	B2	15	15 m base of steps 16 m raised spa building 17 m pile 17 m swimming pool excavation	*Retain & protect – initial site works* i) Before any initial site works begin erect 2 m high tree protection fencing - entirely as for Oak T2 i) to iii) above except at perimeter of RPA and not beyond; tree protection fencing to form a continuous barrier for trees T2 to T7 ii) Entirely as for Oak T2 iv to vii lay temporary construction access, excavate basement and swimming pool, lay services and other initial works *(which for the avoidance of doubt are entirely outside RPAs)*	No initial site works required or proposed in RPA *(RPA + 2 m further from tree protecting greater area allows for pedestrian working in RPA whilst retaining a braced barrier to works outside RPA, as assessed later in this section)* *No adverse impact provided recommended mitigation tree protection measures to exclude initial site works from RPA fully implemented*
T7	Beech	A3	21	21.5 m spa building (corner) 22 m swimming pool excavation	*Retain & protect – initial site works* i) Before any works begin erect 2 m high tree protection fencing - entirely as for Oak T2 i) to iii) above except at perimeter of RPA and not beyond; tree protection fencing to form a continuous barrier for trees T2 to T7 ii) Entirely as for Oak T2 iv to vii lay temporary construction access, excavate basement and swimming pool, lay services and other initial works *(which for the avoidance of doubt are entirely outside RPAs)*	No initial site works required or proposed in RPA *No adverse impact provided recommended mitigation tree protection measures to exclude initial site works from RPA fully implemented*
Hall southern garden						
T8	Beech	B2	15	10 m existing garden wall 30 m spa building	*Retain & protect – initial site works* Separated from Spa construction by tall garden wall sufficient to have acted as at least a partial barrier to rooting in this direction with any rooting beyond protected by RPA fencing for Beech T7	No spa works proposed in RPA *Protected by existing tall garden wall and RPA fencing for Beech T7* *No adverse impact from Spa construction*

Main Spa Construction Works

1. Foundation works (apart from basement and swimming pool mostly piling)
2. Above ground superstructure construction (apart from basement and swimming pool mostly on stilts with void below to existing ground left mainly undisturbed)
3. Access path (no dig surface construction)
4. Landscape works

TREE	SPECIES	CAT	RPA	DEVELOPMENT DISTANCE	MITIGATION MEASURES	IMPACT ON TREE (main spa construction)
Stable block environs						
T1	Yew	A2	3.6	8 m raised spa building 8.5 m pile *Radial rooting constrained by foundations of existing tall wall with no rooting into Spa site*	*Retain & protect – main Spa construction works* Protected by existing tall garden wall with no rooting into Spa site *No additional tree protection required*	No Spa works proposed in RPA *No adverse impact from Spa construction*
Spa paddock						
T2	Turkey Oak	B2	15	8.5 m raised spa building 10 m pile 26 m basement excavation 16 m temporary road access for construction	*Retain & protect – main Spa construction works* 1. After initial site works completed, machinery to be removed from site 2. Tree protection fencing as erected for initial site works to remain in situ and maintained in an effective condition 3. To allow buildings to be erected in the RPAs on the west side of the Spa site, additional tree protection fencing to be led out by hand and erected 1 m from the building line on the tree side. 4. This fencing to form an additional continuous barrier for trees T2 to T5 effectively creating a fenced box controlling access to the T2 to T5 RPA for works as below 5. The project Arboriculturalist and project Engineer to meet on site to mark the individual pile locations in the T2 to T5 RPA 6. Ground boarding laid on woodchip to be led out by hand to cover the entirety of the T2 to T5 RPA inside the fenced box leaving the individual pile locations uncovered	Spa building partly in RPA *No adverse impact provided recommended mitigation tree protection measures to manage construction in RPA fully implemented; and contiguous area provided and rooting environment improved; all as proposed to meet the requirements of BS5837:2012*

TREE	SPECIES	CAT	RPA	DEVELOPMENT DISTANCE	MITIGATION MEASURES	IMPACT ON TREE (main spa construction)
T2 cont	Turkey Oak				*T2 – retain and protect – main Spa construction works – continued* 7. With compressor parked outside the RPA and under arboricultural supervision with pedestrian access only, working from the ground boards with a combination of air spade and careful hand digging determine the rooting at each pile location; rooting at each location to be recorded with annotated photographs 8. Where significant rooting is uncovered, an alternative pile location without significant rooting is to be identified and agreed with the project engineer 9. With compressor parked outside the RPA and under arboricultural supervision with pedestrian access only, working from the ground boards, lead out by hand narrow diameter metal screw piles and install using pedestrian operated piling equipment as per the manufacturer's specification and project engineer's instructions 10. Using lifting equipment parked outside the RPA to the north and east, lift steel beams into place for securing to piles 11. Using lifting equipment parked outside the RPA to the north and east, lift timbers for suspended floor into place for laying 12. As beam and flooring work progresses, under arboricultural supervision, progressively lift the ground boarding as the flooring is laid and there is no longer a requirement for ground level pedestrian working in the RPA	

TREE	SPECIES	CAT	RPA	DEVELOPMENT DISTANCE	MITIGATION MEASURES	IMPACT ON TREE (main spa construction)
T2 cont	Turkey Oak				*T2 – retain and protect – main Spa construction works – continued* 13. As beam and flooring works progress and ground boarding progressively lifted, progressively install underfloor void irrigation system; ground boarding external to building to remain for pedestrian access for external works 14. After as much as can reasonably be completed with the eastern RPA perimeter tree protection fencing for trees T2 to T5 in situ, this stretch of fencing can be removed under arboricultural supervision 15. The additional tree protection fencing for T2 to T5 to remain in situ ie to west and south of Spa building and the tree protection fencing for T6, T7 to remain with all fencing to remain 16. After the RPA fencing in the building footprint has been removed, the project Arboriculturalist is to be present during all works on site until the building in the RPA is fully floored and risk to these roots is prevented by the laid flooring 17. With the additional T2 to T5 tree protection fencing and the T6,T7 tree protection fencing in situ and maintained in an effective condition, complete construction of the Spa buildings 18. <u>For the avoidance of doubt</u>, there is to be no incursion into the tree T6, T7 RPAs for any construction-related activity including for the erection of ladders, scaffolding, etc and construction design and management <u>must</u> take this into account	

TREE	SPECIES	CAT	RPA	DEVELOPMENT DISTANCE	MITIGATION MEASURES	IMPACT ON TREE (main spa construction)
T2 cont	Turkey Oak				*T2 – retain and protect – main Spa construction works – continued* 19. As a result of the "on stilts" design, all surface water and foul water drainage is above ground running to the north and connected at the northern end outside RPAs 20. Connect rainwater storage to underfloor void irrigation system to mimic rainfall interrupted by the new building 21. After building completion, carry out all landscape works outside the fenced RPAs 22. Ensure at this stage that the levels external to the RPAs will match the undisturbed levels in the RPAs, adjust accordingly to ensure no requirement to raise or lower soil levels in RPAs 23. After all landscape works that can reasonably be completed outside RPAs with tree protection fencing in situ, project Arboriculturalist is to agree the removal of the tree protection fencing with the council 24. The project Arboriculturalist will then issue written instructions for the removal of tree protection fencing 25. Under arboricultural supervision, the tree protection fencing is to be dismantled and removed by hand and the remaining ground boarding similarly lifted and removed. 26. Under arboricultural supervision, carry out rooting environment improvements as agreed in advance with the Council and complete landscape works in RPA	

TREE	SPECIES	CAT	RPA	DEVELOPMENT DISTANCE	MITIGATION MEASURES	IMPACT ON TREE (main spa construction)
T2 cont	Turkey Oak				*T2 – retain and protect – main Spa construction works – continued* 27. Project Arboriculturalist and Landscape Architect to liaise with respect of planting and other works in RPAs and agree a suitable methodology for implementation that avoids damage with arboricultural considerations having primacy in tree RPAS 28. For the avoidance of doubt no landscape works other than cutting the existing grass is to be carried out in the Beech T7 29) Project Arboriculturalist to provide appropriate supervision as set out above and at all other times of site activity, maintain a suitable watching brief	
T3	Turkey Oak	B2	15	5.5 m raised spa building 6.5 m pile 24 m basement excavation	*Retain & protect – main Spa construction works* 1. Entirely as for Oak T2 1 to 29 above above, ensuring trees and their roots protected at all times and the works completed in the sequence set out above	Spa building partly in RPA *No adverse impact provided recommended mitigation tree protection measures to manage construction in RPA fully implemented; and contiguous area provided and rooting environment improved; all as proposed to meet the requirements of BS5837:2012*
T4	Horse Chestnut	B2	15	6 m raised spa building 7 m pile 22 m swimming pool excavation	*Retain & protect – main Spa construction works* 1. Entirely as for Oak T2 1 to 29 above above, ensuring trees and their roots protected at all times and the works completed in the sequence set out above	Spa building partly in RPA *No adverse impact provided recommended mitigation tree protection measures to manage construction in RPA fully implemented; and contiguous area provided and rooting environment improved; all as proposed to meet the requirements of BS5837:2012*

TREE	SPECIES	CAT	RPA	DEVELOPMENT DISTANCE	MITIGATION MEASURES	IMPACT ON TREE (main spa construction)
T5	Beech	B2	15	12,5 m raised spa building 13 m pile 19 m swimming pool excavation	*Retain & protect – main Spa construction works* 1. Entirely as for Oak T2 1 to 29 above above, ensuring trees and their roots protected at all times and the works completed in the sequence set out above	Spa building partly in RPA *No adverse impact provided recommended mitigation tree protection measures to manage construction in RPA fully implemented; and contiguous area provided and rooting environment improved; all as proposed to meet the requirements of BS5837:2012*
T6	Beech	B2	15	15 m base of steps 16 m raised spa building 17 m pile 17 m swimming pool excavation	*Retain & protect – main Spa construction works* 1. Tree protection fencing as erected for initial site works to remain in situ and maintained in an effective condition 2. Project Arboriculturalist and Landscape Architect to liaise with respect of planting and other works in RPAs and agree a suitable methodology for implementation that avoids damage with arboricultural considerations having primacy in tree RPAS 3. Project Arboriculturalist to provide appropriate supervision and at all other times of site activity, maintain a suitable watching brief	No spa works required or proposed in RPA *No adverse impact provided recommended mitigation tree protection measures to exclude site works from RPA fully implemented*
T7	Beech	A3	21	21.5 m spa building (corner) 22 m swimming pool excavation	*Retain & protect – main Spa construction works* 1. Tree protection fencing as erected for initial site works to remain in situ and maintained in an effective condition 2. <u>For the avoidance of doubt</u> no landscape works other than cutting the existing grass is to be carried out in the Beech T7 3. Project Arboriculturalist to maintain a suitable watching brief	No spa works required or proposed in RPA *No adverse impact provided recommended mitigation tree protection measures to exclude site works from RPA fully implemented*

TREE	SPECIES	CAT	RPA	DEVELOPMENT DISTANCE	MITIGATION MEASURES	IMPACT ON TREE (main spa construction)
T8	Beech	B2	15	10 m existing garden wall 30 m spa building	*Retain & protect – main Spa construction works* Separated from Spa construction by tall garden wall sufficient to have acted as at least a partial barrier to rooting in this direction with any rooting beyond protected by RPA fencing for Beech T7	No spa works required or proposed in RPA *No adverse impact provided recommended mitigation tree protection measures to exclude site works from RPA fully implemented*

APPENDIX A – TREE SCHEDULE

KEY

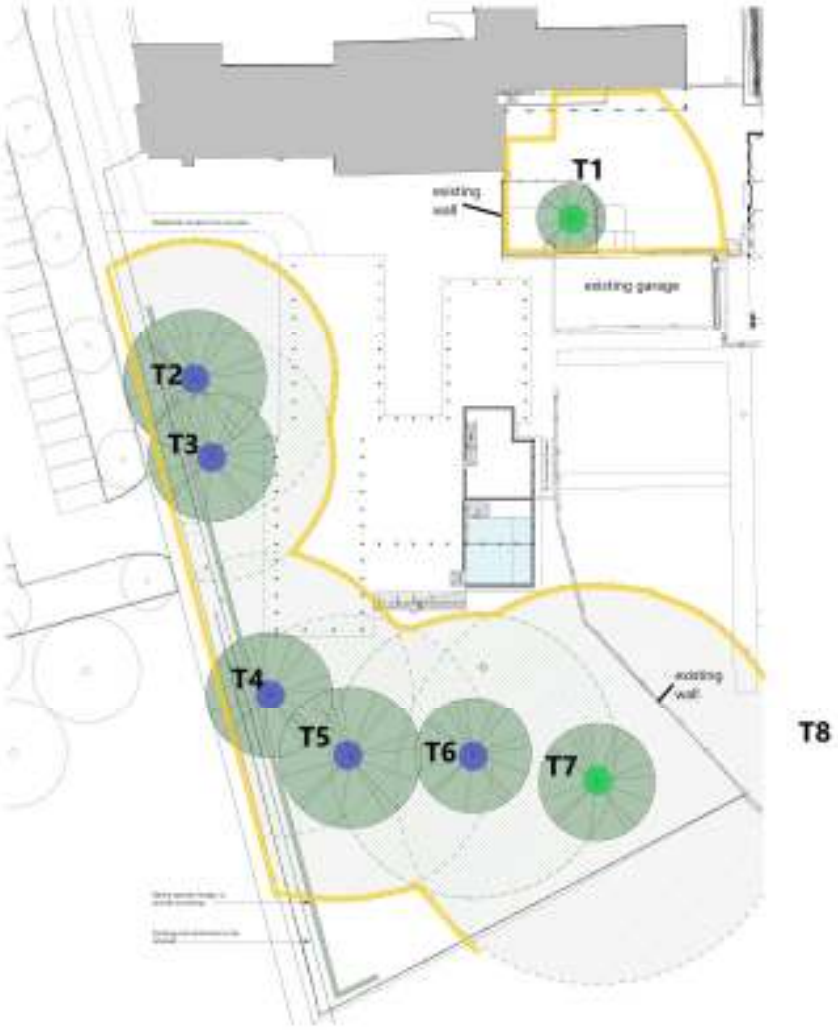
TREE	Tree tag number or Code letter
SPECIES	Common name
D	Diameter at breast height in cm
SP	Spread in m at the four cardinal points
HT	Overall height in m
A	Age stage :- Y, young; EM, early maturity; M, mature; LM; late maturity; S, Senile
LIFE	Estimate of remaining useful safe life in years
CAT	BS5837:2012 tree quality assessment category
RPA	BS5837:2012 root protection area distance (r) = radial from tree centre (a) = as adjusted to take account of existing rooting constraints (v) = veteran calculated as per Standing Advice 15x Dbh unlimited
DESCRIPTION	Brief description
RECOMMENDATIONS	Recommended work in existing & proposed use
COMMENTS	Any further comments

Notes

1. Latin names omitted for brevity.

NO	SPECIES	D	SP	HT	AGE	LIFE	CAT	RPA	DESCRIPTION	RECOMMENDATIONS	COMMENTS
							Stable Block				
T1	Yew	78 +46 +39	N 8 E 7 S 7 W 6	14	LM	40+	A2	11.9 (r) 3.6 (a) *(to wall)*	Large heavy mature tree; forked near base; some branch/stem interlocking; small amount of past branch breakage and pruning scars with superficial decay; grows in compound outside Spa site and separated from Spa site by existing tall wall; wall constrains rooting with differential rooting away from Spa site	*Retain; existing wall protects*	Large evergreen specimen tree of value to internal views and from the carriage drive
							Spa Paddock				
T2	Turkey Oak	108	N 10 E 11 S 5 W10	29	LM	30+	B2	13 (r) 15 (a)	Large heavy mature tree; healthy well-foliaged crown; heavy dead wood in crown; first branch at c. 3 m height with lower growth hanging to ground level; lower and mid canopy branch spread c. 8 m into site, increased branch spread above c.20 m height to c. 11 m over site	*Retain and protect* Deadwood as required for safety	Integral component of mature tree row on west side of paddock; very visible from carriage drive; group collectively Cat A2
T3	Turkey Oak	86	N 4 E 9 S 10 W10	24	LM	30+	B2	10.3 (r) 15 (a)	Large heavy mature tree; healthy well-foliaged crown; dead wood in crown; first branch at 3 m height with lowest growth hanging down to ground level	*Retain and protect* Deadwood as required for safety	Integral component of mature tree row on west side of paddock; very visible from carriage drive; group collectively Cat A2
T4	Horse Chestnut	119	N 7 E 9 S 8 W10	22	LM	30+	B2	14.3 (r) 15 (a)	Large heavy mature tree; healthy well-foliaged crown; first branch at c. 1.8 m height with lowest growth hanging virtually to ground; lowest branch site side at c. 8 m height however	*Retain and protect* Climbing inspection for splits and other defects not visible from ground	Integral component of mature tree row on west side of paddock; very visible from carriage drive; group collectively Cat A2
T5	Beech	168	N 9 E 10 S 14 W11	31	LM	30	B2	15	Large heavy mature tree; *Ganoderma* decay brackets at base of trunk; lower crown healthy and well-foliaged, upper crown healthy but with minor signs of lateral dieback; heavy dead wood in crown; large bough on west side recently spilt; lower growth hangs virtually to ground with first branch, site side, at c. 6.5 m height	*Retain and protect* Deadwood as required for safety	Integral component of mature tree row on south side of paddock; very visible from carriage drive; group collectively Cat A2

NO	SPECIES	D	SP	HT	AGE	LIFE	CAT	RPA	DESCRIPTION	RECOMMENDATIONS	COMMENTS
T6	Beech	132	N 6 E 8 S 16 W11	18	LM	30	B2	15	Large heavy mature tree; minor dead wood in crown; lowest growth hangs virtually to ground level	*Retain and protect*	Integral component of mature tree row on south side of paddock; very visible from carriage drive; group collectively Cat A2
T7	Beech	140	N 10 E 10 S 14 W 8	17	LM	30	A3	21 (v)	Large heavy mature tree; *Ganoderma* brackets at base; dead wood in crown; past bough breakage; lowest branch Spa side at c. 3.5 m	*Retain and protect* Deadwood/ deadwood shortening as required for safety	Integral component of mature tree row on south side of paddock; very visible from carriage drive; group collectively Cat A2; Cat A3 separately as veteran
T8	Beech	136	N 10 E 17 S 14 W10	23	LM	30	B2	15	Large heavy mature tree; wide-spreading; *Ganoderma* brackets at base; lower crown healthy and well-foliaged; upper crown healthy but with signs of foliar thinning at height; dead wood in crown; lowest growth hangs virtually to ground	*Retain; separated from Spa site by tall garden wall which provides adequate protection against damage*	Specimen tree in formal garden area south of Hall; prominent in landscape; forms visual group with T2 to T7 collectively Cat A2

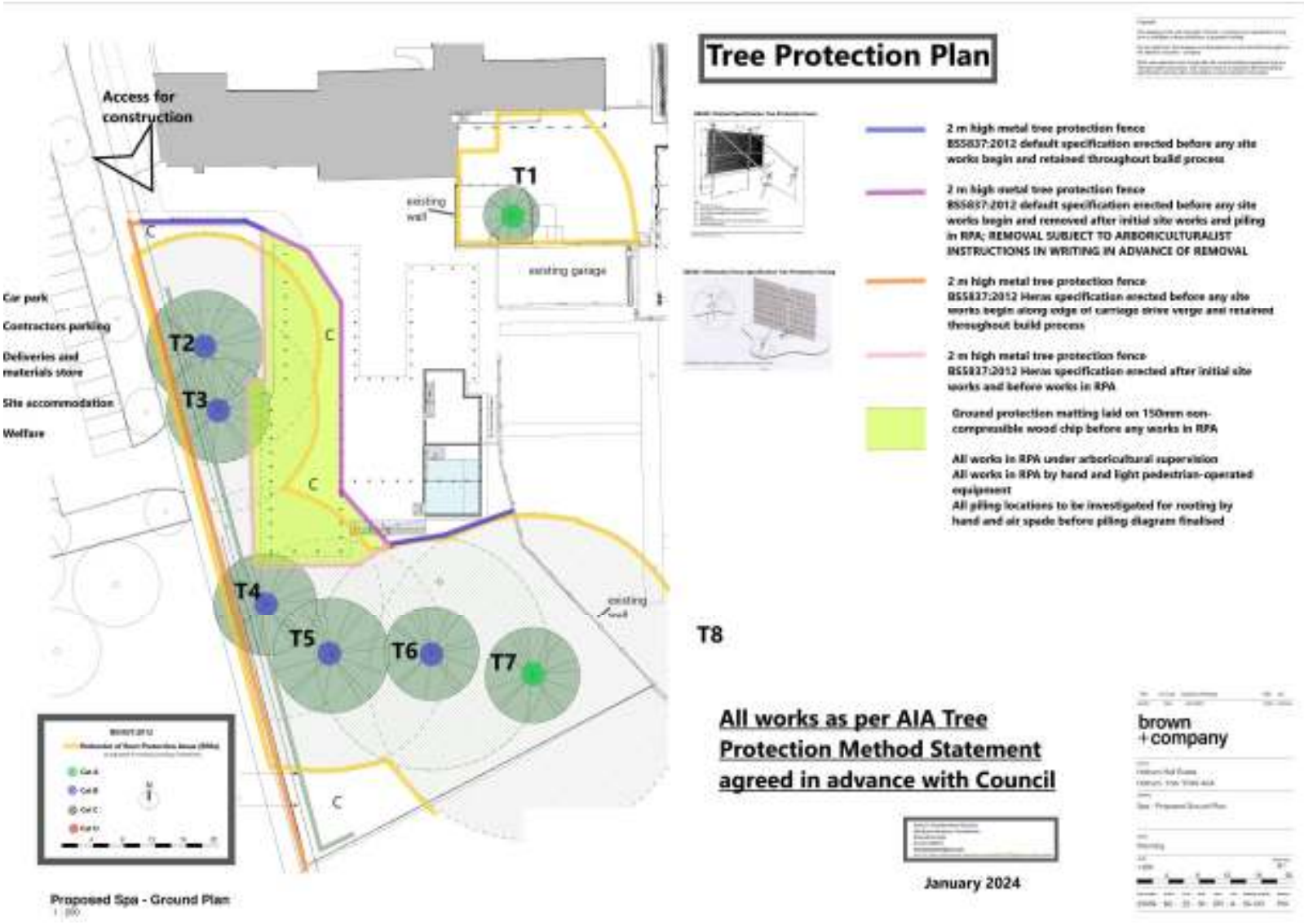


Proposed Spa - Ground Plan

Tree Plan

January 2024

brown +company


Tree Protection Plan
Access for construction
T1
existing wall
existing garage
Car park
Contractors parking
Deliveries and materials store
Site accommodation
Welfare
T2
T3
T4
T5
T6
T7
T8
C
existing
2 m high metal tree protection fence BS5837:2012 default specification erected before any site works begin and retained throughout build process
2 m high metal tree protection fence BS5837:2012 default specification erected before any site works begin and removed after initial site works and piling in RPA; REMOVAL SUBJECT TO ARBORICULTURALIST INSTRUCTIONS IN WRITING IN ADVANCE OF REMOVAL
2 m high metal tree protection fence BS5837:2012 Heras specification erected before any site works begin along edge of carriage drive verge and retained throughout build process
2 m high metal tree protection fence BS5837:2012 Heras specification erected after initial site works and before works in RPA
Ground protection matting laid on 150mm non-compressible wood chip before any works in RPA
All works in RPA under arboricultural supervision
All works in RPA by hand and light pedestrian-operated equipment
All piling locations to be investigated for rooting by hand and air spade before piling diagram finalised
All works as per AIA Tree Protection Method Statement agreed in advance with Council
January 2024
brown +company
Proposed Spa - Ground Plan