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4. Arb Impact Assessment (AIA)

- 4.1** Once a design is in place, an arboricultural impact assessment will be required to assess the impacts of the proposals on the existing arboricultural resource. The AIA will identify which survey items are to be removed due to existing structural and physiological condition, that are to be removed due to the development proposals, and which survey items will be retained.
- 4.2** With reference to BS5 837:2012 'Trees in relation to design, demolition and construction', this AIA evaluates the direct and indirect effects of the proposed design on the site's arboricultural resource.
- 4.3** The AIA considers the effects of any tree loss required to implement the proposals as well as any potentially damaging activities proposed in the vicinity of retained trees. BS5837:2012 suggests that such activities might include:
- Removal of existing structures and hard surfacing;
 - Installation of new hard surfacing;
 - Installation of services;
 - Location and dimensions of all proposed excavations and changes in ground level (including those that might arise from the implementation of recommended mitigation measures); and
 - The 'buildability' of the scheme in terms of access, adequate working space, provision for storage of materials including topsoil.
- 4.4** With reference to BS5837:2012, the AIA includes the following information:
- tree retention/removal and protection plan (Appendix 4)
 - an evaluation of the impact of proposed tree losses
- 4.5** An arboricultural impacts assessment schedule is included at Appendix 5. This provides a tree-by-tree assessment of the potential impacts of the proposals. It also evaluates the degree of impact and sets out mitigation measures as may be necessary. This overall assessment is expanded on below:

Evaluation of effects of proposed tree losses

- 4.6** The tables and comments below summarise the tree retention from development across the site.

	Total	Number loss	Number retained	Partially retained
Category A	1	0	1	0
Category B	18	3	15	0
Category C	19	5	12	2
Category U	1	1	0	0
Total	39	9	28	2

Impact of proposed development on surveyed items

- 4.7** Of the 39 items that were surveyed, 28 will be retained, 9 removed, and 2 partially removed as part of the development proposals.
- 4.8** The proposals will require the removal of 9 survey items; T8 -B1, G9 -C2, T10 -B1, G12 -C2, T13 -B1, T14-U, T16 -C1, T23-C1, and T38 -C1. The trees being removed are of variable arboricultural merit and/or need to be removed to facilitate the construction of the development.
- 4.9** Items within G35 -B2, G37 -B2 and individual items including T36 B1, T3 -C1, T4 -C1, T5 -B1 and T6 - C1 will require canopy raising to allow construction traffic and future operation of the road network.
- 4.10** The access road from Cooper’s Lane to the main house may require widening in places. If so, road widening should take place on the southern side of the access road, utilising a no-dig solution within the rpa of T36 -B1.
- 4.11** Repairs to the brick wall to the north-east of the main house will be unable to use the existing foundations as T24 -B1 and T25 -B1 have partially overgrown the foundation. If the wall is to be repaired, a pile and beam solution should be incorporated allowing space for future root growth, and the wall built slightly south of the original location.
- 4.12** Construction of the proposed vehicle access road will require a no-dig solution in places, to minimise the impact on trees flanking the proposed access routes. These are mainly trees within G34 -34 and G37 -C2, (see Appendix 4 sheets 1 and 2).

- 4.13** In general, the site will be improved as part of the proposals, with the existing woodland/shrub areas being tidied, and managed to benefit the retained items. G37 – C2 will be managed to improve the existing tree stock quality. Bramble undergrowth to be maintained, self-sown ash and sycamore partially cleared to favour the best stems, and the tree mix to be adjusted with planting of species such as oaks (including red oak, holm oak and English oak) and small-leaved lime.

Tree Protection

- 4.14** For the most part, the protection for the retained survey items within site will rely on tree protection fencing (to BS.5837:2012 compliance) and site operatives being briefed in advance of construction works.
- 4.15** Tree protection fence panels (to BS.5837:2012 compliance) shall be installed to protect the retained trees during the construction period, to avoid damage to the stems and lower canopy.
- 4.16** Main areas of root protection and protection barriers are indicated on the tree retention/loss and tree protection plan at appendix 4.

Demolition of existing structures and hard surfacing

Anticipated Impacts

- 4.17** Most of the demolition of structures would be taking place away from conflict with existing trees and their respective rpa. The structures to be removed are mainly partially demolished or derelict sheds and brick-built buildings adjacent to or to the east of the walled garden.
- 4.18** To the south of G7 -C2, there is a rectangular brick building and a brick wall adjacent to the gravel track that are to be demolished. The proposed tree protection fencing will prevent damage occurring to the stems of T4 and T6.
- 4.19** Given that the above structures are well away from the canopies of T4 and T6, there are no significant impacts anticipated with their removal.

Site Construction Access

Anticipated Impacts

- 4.20** The access to the site will be along the existing access road to Northaw House.
- 4.21** The proposals include potentially widening this road for construction traffic. This could cause direct damage to trees within G37 and to G35. Damage including root severance and damage to the lower canopy.

- 4.22** Other parts of the road network may require construction access, and lower canopy may be damaged, i.e. the shorth length of existing tarmac road between T3, T4 and T5, T6.
- 4.23** For vehicle access to the walled garden area the old track that runs from the access road associated with the White House, in an easterly direction towards the main house will require resurfacing and some vegetation clearance. There is potential for root compaction, root severance and damage to the lower canopies of trees on the southern edge of G37.

Mitigation/Avoidance

- 4.24** Avoid damage to lower canopies by raising the canopies of overhanging trees to 4.5m ground clearance.
- 4.25** If the main access road requires an increase in width, this will be achieved on the southern side of the access road. A No-Dig solution must be used within the rpa and vicinity of T36 (see Appendix 4 Tree Retention, Loss and Protection Plan). Tree Protection Fencing will be installed either side of the main access track.
- 4.26** A No-Dig solution will be used for the proposed surfacing of the old track running east from the White House access track. Tree protection fencing will be erected either side of the proposed surfacing. If the lower canopy within trees flanking the proposed access track requires raising, the canopy must be raised no more than 4.5m from ground level (following BS 3998:2010 recommendations).

Delivery and Storage of materials

Anticipated Impacts

- 4.27** Materials will be stored within an area clear of rpa and outside of the Construction Exclusion Zone (CEZ), such as near the entrance to the main house.
- 4.28** No impacts are anticipated in relation to the trees.

Construction of hard standing areas

Anticipated Impacts

- 4.29** The access road construction from the eastern entrance to the main house will potentially cause direct damage to the existing trees flanking the proposed surfacing. There may be damage to the canopy from the construction process.
- 4.30** The proposed parking area in front of the main house encroaches within the rpa of T30. There is potential for root severance as well as damage to the canopy from the construction process.

- 4.31** The construction of the section of access road to be resurfaced that runs east from the White House access track, to the north of the walled garden will potentially sever tree roots and construction vehicles may damage adjacent tree canopies within G34, and trees adjacent to the northern wall of the walled garden.

Mitigation/Avoidance

- 4.32** A No-Dig solution will be used for the proposed surfacing of the old track running east from the White House access track. Tree protection fencing will be erected either side of the proposed surfacing. If the lower canopy within trees flanking the proposed access track requires raising, the canopy must be raised no more than 4.5m from ground level (following BS 3998:2010 recommendations).

Service Requirements

Anticipated Impacts

- 4.33** There is no information for services installation within the site at the time of writing.

Excavations and site gradients

Anticipated Impacts

- 4.34** There are little or no anticipated requirements proposed for level changes within the site.
- 4.35** No excavations or level changes are to be undertaken within rpa without notifying the project arboriculturist.

'Buildability'

- 4.36** Provided that tree protection measures are put in place prior to the commencement of works on the site, it is considered that there is adequate space to enable the proposals without damage occurring to retained surveyed items.

Briefing for site operatives

- 4.37** An important element of the protection measures that form part of this report are that site operatives be properly briefed in advance of site works commencing. The operatives will be briefed on the importance and function of No-Dig construction, installation of ground guards, and sensitive building construction. The site operatives will also be fully briefed before site clearance and landscaping begins.

Tree Protection Plan (TPP)

4.38 The Tree Retention, Loss and Protection Plan is attached in Appendices 4.

4.39 In accordance with BS5837:2012 the TPP is superimposed onto the proposed site layout plan. Any hard surfacing and structures within the RPAs of trees to be retained are shown on the TPP. In addition, where relevant, the TPP shows the following information, accompanied by descriptive text as required:

- Ground protection.

4.40 The preparation of the TPP has considered the following factors where relevant:-

- Site construction access;
- intensity and nature of construction activity;
- phasing of construction works;
- availability of special construction techniques;
- spatial requirements for:
 - a) temporary and permanent apparatus and service runs;
 - b) foundation excavations and construction works;
 - c) plant scaffolding and access during works;
 - d) site huts, toilets (including drainage) and other temporary structures;
 - e) storage (either temporary or long-term) of materials, spoil, fuel and mixing of concrete.
- All changes in ground levels including location of retaining walls, steps and adequate allowance for foundations of such walls and backfilling.

4.41 The tree protection measures shown on the Tree Protection Plan demonstrate the feasibility of the proposed development in relation to the retained trees.

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5. Arboricultural Method Statement(AMS)

- 5.1** The aim of this AMS is to prevent and/or minimise the impacts of demolition and construction works approved by planning permission on the trees that are to be retained as part of the development. It gives step-by-step guidance for works which have the potential to result in loss of, or damage to, retained trees.
- 5.2** This AMS has been prepared with reference the November 2019 tree survey information and Arboricultural Impact Assessment contained within this document and submitted as part of the application submission.
- 5.3** In the interests of practicality and efficiency, it is proposed within this AMS that the tree removals as identified on the submitted removals plans are done at the same time from the outset. A retention and loss plan, showing proposed tree removals are set out within Appendix 4. An arboricultural contractor can then remove the required trees, paving the way for protective barriers to be installed to provide site wide protection during any initial site demolition. This site wide protection will protect retained survey items from site wide demolition, and potential damage from construction vehicles accessing the site to commence construction of proposed properties and renovation of Northaw House and subsequent construction.
- 5.4** Once tree removals are completed, and site demolition is completed, protection barriers will remain in place as shown on the demolition protection plan until such time that the construction program progresses. The protection barriers will protect retained survey items whilst allowing access to implement the proposals.
- 5.5** These protection plans are set out in appendix 4. In relation to the above site, it is anticipated that arboricultural working methods are likely to be quite straightforward. A draft, 'heads of terms' is set out below:
- Pre-commencement site meeting (s) – site briefing;
 - Installation of tree protection measures;
 - Main construction phase - schedule of monitoring and supervision, as necessary; and
 - Removal of tree protection measures

How the AMS must be used

- 5.6** The AMS must be used as a reference source for site operatives in order to guide tree-related aspects of the demolition/clearance and construction process. A precautionary approach is required.
- 5.7** The AMS must be referred to by Lee Williamson of LW Developments Limited and any other site operatives during the demolition/clearance and construction process itself. A copy of this document must therefore be kept available in the main Site Office for quick and easy reference.

Contacts and responsibilities

- 5.8** Client and Main Contractor: Lee Williamson of LW Developments Limited.
Contact: 01992 447713 lee@lwdevelopments.com
- 5.9** Welwyn Hatfield Borough Council – Planning Support Officer
Contact: 01707 357 232 a.helmke@welhat.gov.uk
- 5.10** Project Arboriculturist – Landscape Collective
Stuart Hocking – stuart@landscapecollective.co.uk 07801887823
- 5.11** Lee Williamson of LW Developments Limited shall hold overall responsibility for the project and shall appoint professionals and delegate responsibility in relation to the scheme of Tree Protection as follows:
- 5.12** Construction Manager – Lee Williamson of LW Developments Limited will undertake the role of Construction Manager for the project. Lee shall hold responsibility to ensure that any contractors or subcontractors employed to assist on the project have a responsibility to be aware of trees and to abide by tree protection procedures set out within the Scheme of Tree Protection and the Arboricultural Method Statement.
- 5.13** Lee Williamson of LW Developments Limited has responsibility for overseeing all contractor's operations to ensure they are compatible with the agreed method statements and with all project requirements and specifications.
- 5.14** It will be the responsibility of Lee Williamson of LW Developments Limited to ensure that this method statement for tree protection measures is adhered to at all times and that a monitoring regime with regards to tree protection is adopted on site.
- 5.15** Lee Williamson of LW Developments Limited shall be responsible for contacting the Local Planning Authority at any time should issues arise related to the trees on site.

- 5.16** If at any time, pruning works (in addition to what is proposed as part of the planning submission) are required, permission must be sought from the Local Planning Authority first and then carried out in accordance with BS: 3998 Recommendations for Tree Works 2010.
- 5.17** Lee Williamson of LW Developments Limited shall ensure the build sequence is appropriate to ensure that no damage occurs to the trees during the demolition/clearance and construction processes. Protective Heras barriers will remain in position until completion of all demolition/clearance and construction works on the site.
- 5.18** The Heras barriers and waterproof signs must be maintained in position at all times and checked on a regular basis by an onsite person designated that responsibility.
- 5.19** Lee Williamson of LW Developments Limited shall also be responsible for ensuring sub-contractors do not carry out any process or operation that is likely to adversely impact upon any tree on site.
- 5.20** Project Arboriculturist - shall be responsible for independently monitoring the effectiveness of tree protection at regular intervals and report all findings in writing back to the developer, the project site manager and the local planning authority. They shall also be instructed to provide additional advice should unforeseen circumstances develop.

Site induction and pre-commencement site meeting

- 5.21** This meeting provides an opportunity for all relevant parties within the development team to meet, to become aware of and become familiar with the requirements of the AMS, and to agree a co-ordinated approach to the project and during the demolition/clearance and construction process.
- 5.22** Relevant parties are;
- LPA (should they wish to attend)
 - Site manager – Lee Williamson of LW Developments Limited
 - Any additional contractors
 - Other relevant parties
- 5.23** Prior to the commencement of works on site, Lee Williamson of LW Developments Limited and any additional site operatives will be briefed by the project arboriculturist, in relation to site procedures and rules that relate to retained trees as well as the content of the AMS. Lee and any additional site operatives will sign to confirm that they have understood the content of the AMS and that they will

abide by the requirements of the AMS (appendix 10). Lee Williamson of LW Developments Limited will retain copies of the site induction statements for future reference.

Work phases and order of site operations

- 5.24** Site operations must be sequenced in accordance with the timetable of work stages set out within this AMS. The Project Arboriculturist must be consulted should any change to the sequence of operations be necessary, or if any other incidents occur. The Project Arboriculturist will then evaluate any potential arboricultural impacts that could arise and specify additional tree protection/remediation measures as required. Confirmation that the proposed changes are acceptable within the context of relevant planning permission must be obtained in writing from the local planning authority prior to any new operations on site.
- 5.25** Where site operations have potential to result in more substantial impacts on retained and protected trees, an arboricultural watching brief shall be required.

Work Stages

- 5.26** The table below lists the sequence of works that must be followed in order to minimise damage to retained trees.

Work stage	Job description	Project Arboriculturist Action
1	Pre-commencement site meeting	Notify LPA of meeting for agreement in writing prior to the meeting. Meet with LPA, arboriculturist and Client/Contractor and address any specified matters.
2	Tree Removals	Project arboriculturist to confirm tree removals with site manager, appointed tree surgeon, and report to LPA before and after proposed removals. Removals to accord with submitted removals schedule and removals plan.
3	Installation of demolition/clearance tree protection barriers and notices	Attend site to check and confirm the set out positions of tree protection barriers in advance of demolition/clearance and subsequent construction activities, as shown on the

Work stage	Job description	Project Arboriculturist Action
		demolition protection plan. Check locations to install areas of ground protection and ground guards. Report to LPA that tree protection is in place according to the Tree Protection Plan.
4	Construction	Re-align protection barriers to locations shown on construction protection plan. Install areas of no dig as shown on the tree protection plans in accordance with the Cellweb methodology.
5	Removal of tree protection measures	Project Arboriculturist to assess site conditions prior to decision to remove protection barriers. Gives required notice to LPA. Reports to LPA to confirm correct removal.

General Site Rules

- 5.27** Root Protection Areas essentially become 'Construction Exclusion Zones (CEZ)' in which there must not be any construction activities without prior liaison with the project arboriculturist and written consent from the local planning authority.
- 5.28** The Heras protection barriers should be spaced as shown on the protection plans. No works shall be undertaken within any CEZ. The CEZ's are to be afforded protection at all times and will be protected by Heras protection barriers as shown on the tree protection plans. The protection barriers shall be erected prior to the commencement of any site works e.g. before site demolition, and any materials or machinery are brought on site, development or the stripping of soil commences. The protection barriers shall have signs attached to them stating that this is a Construction Exclusion Zone and that NO WORKS are permitted within these areas. The protection barriers may only be removed following completion of all construction works.
- 5.29** The protection barriers are required to be located in accordance with the Tree Protection Plans enclosed with this method statement and must be fit for purpose, with rear stabilising struts as shown on the protection plans.
- 5.30** Any activities that are at odds with the scheme of tree protection measures as set out in this AMS must be avoided.
- 5.31** The list below is non-exhaustive, providing examples of activities that must not occur within the CEZ.
- **No** excavations for services or installation of services;
 - **No** soil/turf stripping, raising/lowering of ground levels, deposit or excavation of soil or rubble;
 - **No** storage of materials, machinery fuel, chemicals or other materials of any other description;
 - **No** parking/use of tracked or wheeled machinery;
 - **No** siting of temporary structures including hard standing areas, portalos, site huts;
 - **No** fixtures or fittings such as signs, cables or the like being attached to any part of a retained tree;
 - **No** mixing of cement.

Contractors car parking and access

- 5.32** Construction access to the site will make use of existing access point off Coopers Lane and use the existing internal access road to access the site. The contractor's site storage and parking area has not been confirmed yet, however it will be outside any tree's rpa and construction exclusion zone.

Storage Space

- 5.33** All storage of materials shall be outside of any CEZ and tree's rpa. Storage areas yet to be determined.
- 5.34** Given the nature of the scheme, there is plenty of space available for storage of any materials or machinery that will not cause impact to any retained trees.

Demolition

- 5.35** The built form to be demolished are generally located far enough away from existing retained trees. However protection barriers will be set out in advance of demolition as shown on the tree protection plan.

Hard Surfaces

- 5.36** The existing tarmac surfacing of the access road and areas adjacent Northaw House will remain in situ and act as a protection of any roots beneath these areas. The existing tarmac access alignment is to be generally retained, with minor deviations as part of the proposals. The build program will focus on Northaw House and proposed built form areas first, with the access road upgrade being undertaken in the latter phases. The existing construction depth is to be retained, with the surfacing upgraded as part of the proposals.
- 5.37** **(NB alternative surface dressing may be used for the access roads upgrade, as in 40/20mm gravel) See Appendix 14.**
- 5.38** When upgrading the access, the existing surfacing is to be used as a working platform, to protect any roots beneath, working back across the existing tarmac. These areas have been shown as no dig construction for all road and path areas within RPA's. The no dig Cellweb construction methodology for no dig construction appended to this report will be used and fully adhered too. The areas as shown on the tree protection plan will be constructed using the no dig construction method, with the project arboriculturist overseeing work to ensure the correct method is being adopted.

- 5.39** To minimise the potential for harm to occur to the trees, the works should be completed by hand, and using the existing sub grade depth. During upgrading of the existing access, no exposed sub base will be subject to any storage of materials, excavations or any disturbances.

Tree Works

- 5.40** Tree works, for the purposes of this AMS refers to the required removals that were identified as part of the removals schedule and tree retention and removals plan. The trees identified for removal will be carried out in advance of any site demolition and subsequent construction. With the removals done at the outset, it will negate the requirement to re-align demolition protection barriers to facilitate tree removals, and another realignment to erect barriers in advance of construction activities. It is also more efficient in terms of practicality (removing all trees in one operation as opposed to over 3 phases) as well as being more financially beneficial.
- 5.41** Only tree works that are set out within the removals schedule and plan will be undertaken. If any further tree works do become required for any reason, no tree works will be undertaken without first notifying the LPA and the project arboriculturist. All tree works are to be carried out in accordance with BS 3998 (British Standard Recommendations for Tree Work 2010).

Monitoring

Day to day monitoring

- 5.42** The monitoring for the project will require photographic evidence to be gathered weekly by Lee Williamson of LW Developments Limited (in addition to project arboriculturist pre-programmed site visits) to ensure the quality of the project delivery in accordance with this arboricultural method statement. In some weeks, activity on site will vary to a greater or lesser degree to the next. It is proposed that Lee Williamson of LW Developments Limited will keep in regular contact with the project arboriculturist and make use of digital cameras/smart phones to take weekly progress photos which will be stored as record of site progress. Lee Williamson will provide regular photo updates by taking photos of installed protection barriers, tree removals, storage compound areas and hard standing installation.
- 5.43** Lee Williamson of LW Developments Limited will update the project arboriculturist by telephone and email as appropriate on a weekly basis and report any issues relating to trees. The project arboriculturist will update the LPA at regular intervals to coincide with site construction activities. The project arboriculturist will be available to attend site if required and as advised by Lee Williamson if any

situations change for any reason and the project arboriculturist's presence on site becomes necessary.

Pre programmed site monitoring schedule

5.44 Below are the anticipated site visits required to monitor the progress of protection implementation as the demolition and construction phases of the build program progress;

- 1) Installation of protection barriers in advance of demolition activities (to be carried out once barriers are installed as shown on the tree protection plan).
- 2) Installation of protection barriers in advance of construction activities.
- 3) Overseeing all areas of no dig construction to ensure correct alignment, timing of installation in correct sequencing (in line with the Cellweb methodology).
- 4) Removal of protection barriers (to be carried out once site construction activities are completed and before barriers are removed).

5.45 In addition to the above pre programmed site visits, there is an anticipation that there may well be a requirement for additional visits, largely dictated by the build program, in relation to the multiple areas of 'no-dig' construction within the development.

5.46 The AMS schedule of monitoring sets out a pre programmed sequence of visits which will evolve as the build program progresses, allowing for an element of monitoring and reviewing of the build program and an allowance for any issues which may potentially arise. The LPA will be updated throughout the process.

Removal of tree protection barriers

5.47 All construction site operations other than final landscaping must be completed prior to the commencement of the removal of tree protection. The construction protection plan identifies secondary barrier locations which allow for final landscaping to be undertaken in back garden areas.

5.48 The Project Arboriculturist shall be briefed so as to be able to provide the LPA with 5 working days' notice of commencement of tree protection removal.

5.49 All works associated with protection removal must take place from outside of CEZs. Barriers must be removed by hand. Any mechanical plant used must not enter into CEZs.

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6. Summary and Conclusions

- 6.1** In total 39 items were surveyed. 1 item was considered to be good quality, 18 surveyed items were considered to be moderate quality and 19 surveyed items were considered to be low quality, with 1 item considered unsuitable for retention.
- 6.2** The tree schedule in Appendix 2 shows the trees (in red) that have blown over or missing since the survey undertaken in 2018. The trees in green have been added
- 6.3** The development proposals will require the removal of 3 x B grade moderate quality items, 5 x C grade low quality survey items and the U grade item.
- 6.4** 28 of the surveyed items will be retained with 2 items partially retained, to facilitate the construction of the development proposals. The tree and shrub planting within the proposed landscape design (to be agreed with the LPA tree officer) will be sufficient mitigation to offset the proposed tree removals. Site operatives will be briefed to ensure that demolition and construction activities are done sensitively and with tree protection in mind.
- 6.5** Overall, provided that the temporary protection measures and briefing for site operatives are put in place it is reasonable to conclude that the proposals are feasible from an arboricultural perspective.