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Tree Surveys

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<b>Title:</b>	<b>BS:5837 Tree Survey, Arboricultural Impact Assessment, Arboricultural Method Statement &amp; Tree Protection Plan</b>
<b>Client:</b>	<b>Durham University</b>
<b>Site:</b>	<b>Boldon House, Pity Me, Durham, DH1 5GJ</b>
<b>Surveyor:</b>	<b>Andrew Burden, HNDip.arb.</b>
<b>Date:</b>	<b>17 April 2023</b>

Forestry

[www.northeasttreesurgeons.co.uk](http://www.northeasttreesurgeons.co.uk)

Arboriculture

Environmental

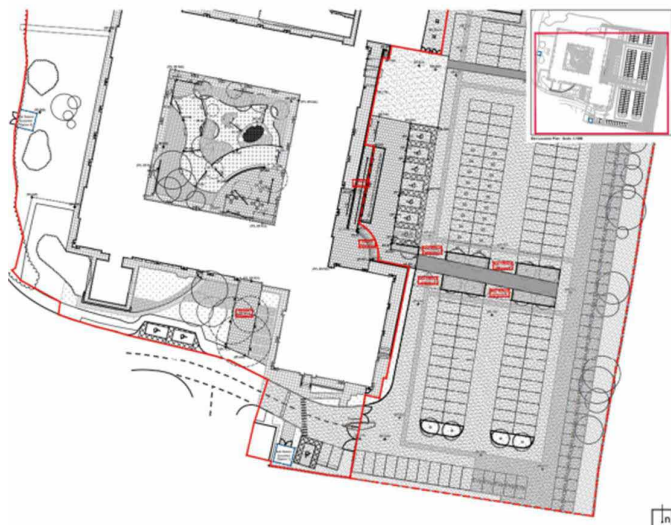
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## 1.0 Introductory details

- 1.1 The site was visited following a written request from Amy Shepherdson of Identity Consult on behalf of Durham University, the purpose of the visit being to collect arboricultural data to provide a tree survey based upon the guidelines set out within the document BS:5837 (2012) Trees in relation to design, demolition & construction recommendations (BSI London 2012).
- 1.2 The trees surveyed are situated within and outside the site boundary.
- 1.3 All trees were visually inspected and surveyed from ground level. Assessment of the trees condition is based upon visual tree assessment (VTA). Tree heights were measured using a Haglof digital clinometer, other measurements taken with the use of specialist tapes.
- 1.4 All trees surveyed are assessed in accordance with sections 4.4 & 4.5 of BS:5837 (2012). Trees are allocated a retention category and colour code reference based upon their quality and value within the existing context. These are:
- \* Category A – Trees of high quality with long term future potential –Green
  - \* Category B – Trees of moderate quality, medium term future potential –Blue
  - \* Category C – Trees of low quality, short term future potential –Grey
  - \* Category U – Trees in such condition they cannot be realistically retained for longer than ten years - Red

- 1.5 The surveyor Mr. Andrew Burden is an arborist with thirty four years industry experience, qualified to HND level in arboriculture and woodland management (Houghall Collage, Durham 1994 –96).
- 1.6 We have been provided with the current and proposed site drawings, the proposed development works are a fit out project of the main building, alterations to car parking, new paving, hard and soft landscaping and possible resighting of electric sub-station.
- 1.7 All individual trees and groups of trees surveyed on site have been number ID tagged.
- 1.8 Full details relating to the trees current physiological and structural condition are contained within the attached BS:5837 Tree Survey Data Sheets (Appendix 7.1).
- 1.9 This independent report is based upon arboricultural merit alone.
- 1.10 Survey area



## 2.0 Protected status of trees

2.1 Desk based study carried out on 17 April 2023 of the Durham County Council Protected Trees web page shows that there are no Tree Preservation Orders or Conservation Areas within or close to the survey area.

## 3.0 Discussion

3.1 A small number of Category B and C trees will require removal to facilitate the proposed development works. Four trees require removal on arboricultural grounds. The remaining trees being retained throughout the period of proposed development will require tree protection fencing.

3.2 Central Courtyard –Six trees will require removal to facilitate the proposed new paving and allow access for replacement windows (Tree No's: T 601, T 602, T 603, T 606, T 607 & T 608). These trees are situated close to the existing building with little scope for safe future growth. T 604 (Wild Cherry) will require access facilitation pruning to allow erection of scaffolding.

3.3 Shrub beds to North-eastern boundary, North East corner of main building & South of the main building – The two areas of low value mixed shrub planting (T 609 & T 610) and shrubs to the South of the main building will require removal to facilitate the proposed vehicular tarmac within this area and access facilitation to allow erection of scaffolding.

3.4 Trees within existing car park to the East of the main building –Five low value trees within the car park (Tree No's: T 612, T 613, T 614, T 615 & T 616) will require

removal to facilitate proposed new paving / hard landscaping. Thirteen new trees are to be planted within this area upon completion of hard landscaping works.

3.5 Trees to the South of the main building adjacent to Wheatlands Way –Seven trees will require removal to facilitate the proposed new paving and shrub planting (Tree No's: T 618, T 619, T 620, T 621, T 622, T 623 & T 626).

3.6 Four trees require removal on arboricultural grounds, 2 x White Poplar within the Northern section of the group T 611 have shed branch ends in storms. These trees overhang the car parking bays and are likely to cause future issues. 1 x small dead Western Red Cedar is present within the central courtyard (T 605), 1 x small dead Birch tree is present at the Southern end of the group T 627 adjacent to the public highway. All three of these trees have been spray marked on site.

3.7 All other existing trees and groups of trees are to be retained.

#### **4.0 Arboricultural Impact Assessment (AIA)**

4.1 The Arboricultural Impact Assessment (AIA) considers the following factors in relation to the proposed development:

- \* Tree location.
- \* Ground conditions
- \* Likely tree root morphology.
- \* Current dimensions & future growth

- \* The tolerance of the trees in relation to possible disturbance based on species, age and condition.

## 4.2 Above ground impacts

- 4.3 All trees being retained throughout the period of proposed development will require fenced protection to prevent any accidental interface from construction works or disturbance of the tree root protection areas (RPA's). The position of the tree protection fencing is detailed within the Tree Protection Plan appendix 7.5. The required specification for the tree protection fencing is given in appendix 7.6.
- 4.4 Care should be taken throughout the period of proposed development to prevent any spillage of liquid construction materials (fuel, cement / concrete washings etc) from entering the area of soil close to the tree protection areas. These materials can have a harmful effect upon a tree's health. Spill kits should be available on site, of a sufficient size to immediately deal with any accidental spillages. Any liquid construction materials should be stored and mixed well away from the tree protection areas.
- 4.5 The fenced tree protection areas are a construction works exclusion zone, the tree protection fencing should not be moved or altered without seeking arboricultural advice. The tree protection fencing should remain in place until all works are completed and signed off.
- 4.6 All construction staff working on the proposed development project should be clearly briefed on these recommendations prior to commencing works on site.

#### 4.7 Site specific Arboricultural Impacts & Solutions

- 4.8 **Potential Impact:** Damage to trees being retained throughout the period of proposed development.

**Solution:** Tree protection fencing will be required to prevent accidental interface from construction works with the Root Protection Areas (RPA's) of trees being retained. The Tree Protection Plan (appendix 7.5) shows the required position of the protective fencing. The specification for the required tree protection fencing is given in appendix 7.6

- 4.9 **Potential Impact:** Possible siting of sub-station to the West of the main building close to the shelterbelt T 627. (Not confirmed)

**Solution:** A site specific Arboricultural Method Statement (AMS) will be required should the proposed sub-station be sited in this position.

- 4.10 **Potential Impact:** Proposed Electric Vehicle Charging Points Eastern edge of car park adjacent to boundary group of trees T 611.

**Solution:** Although the theoretical Tree Root Protection Area (RPA) extends into this area by approximately 1m the main rooting environment will be within the tree plot. Trail area to be excavated under arboricultural supervision at the start of these works. Should any tree roots be encountered further arboricultural supervision may be required during works within this area. Care should be taken if using any Hi-ab crane arms, telescopic jibs or other lifting equipment during the installation of the



charging points to ensure there is no accidental damage to any tree canopies, a banksman will be required during any lifting operations.

#### **4.11 Underground Impacts**

4.12 It is assumed that any services required will tie into existing service runs, if any new utility service runs are required the following shall apply.

4.13 The National Joint Utilities Group (NJUG) document "Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees" should be strictly adhered to when considering the proposed routes of any underground service runs that may be required.

4.14 Service runs requiring to pass through any Root Protection Areas of trees being retained, either hand dig under arboricultural supervision or no dig technology should be utilised in strict accordance with NJUG Guidelines.

#### **5.0 General Arboricultural Method Statement (AMS)**

5.1 The following restrictions to site operations within or close to the tree root protection areas (RPA's) should be noted.

\* Any excavation within the RPA should be carried out by hand under arboricultural supervision.

- \* No lowering or raising of site levels within the RPA for any purpose, except removal of grass sward by hand tools.
  
- \* No storage of plant or materials within or adjacent to the RPA.
  
- \* No storage or handling of any chemical construction materials including cement within or adjacent to the RPA.
  
- \* No vehicle or construction staff access to the RPA.
  
- \* No substances injurious to tree health including fuels, oil, bitumen, cement, builders sand, chemicals or concrete mixing shall be carried out or stored, within or adjacent to the RPA.
  
- \* No fires should be lit on site at any time.
  
- \* All tree works and the installation of tree protection fencing shall be carried out prior to construction works commencing on site. \* All tree works to be carried out in accordance with BS:3998 (2010) British Standard For Tree Work (BSI London 2010).
  
- 5.2 All tree works to be carried out prior to construction site set up. Tree works should be undertaken by a suitably qualified contractor in accordance with BS:3998 (2010).

Table 1 Summary of required tree works

Required Tree Works	Cat A	Cat B	Cat C	Cat U
Tree Removal On Arboricultural Grounds				4
Tree Removal To Facilitate The Development		10	7	
Shrub Bed Removal To Facilitate The Development			4	
Access Facilitate On Tree Pruning		1		

5.3 Prior to site set up installation of tree protection fencing as indicated within the Tree Protection Plan (TPP) appendix 7.5 and Specification for protective fencing – appendix 7.6. is required. The tree protection fencing shall not be moved or altered without prior consultation with the project arboriculturist.

5.4 The following ground protection measures should be noted for any works or access that may be required within Tree Root Protection Areas:

5.4.1 For pedestrian movement only, a single thickness of scaffold boards placed on top of a compression resistant layer – 100mm depth of woodchip laid onto a geotextile membrane.

5.4.2 For pedestrian operated plant up to a gross weight of 2 tonne, proprietary, inter-linked ground protection boards placed on top of a compression resistant layer – 150mm depth of woodchip laid onto a geotextile membrane.

5.4.3 Should any wheeled or tracked construction traffic exceeding 2 tonne gross weight be required to enter the RPA of any tree being retained an alternative system (pre cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected will be required.

5.5 Avoiding physical damage to tree roots during any works within or close to the RPA's. To avoid damage to tree roots within the RPA existing ground levels should be retained. If any tree roots are encountered during any works the following shall apply: Roots smaller than 25 mm in diameter may be pruned back, making a clean cut with a suitable sharp tool (bypass secateurs or handsaw) except where they occur in clumps or of over 25 mm in diameter. These should only be severed following consultation with the project arboriculturist. Prior to backfilling, retained roots should be surrounded with either topsoil, sharp sand or other loose inert granular fill. These materials should be free of contaminants and other foreign objects which may potentially be injurious to tree roots.

5.6 Sequence of operations

Stages	Action	Arboricultural Input
<b>1. Approval</b>	Tree Survey, AIA, AMS, TPP submitted to and approved by the LPA.	Liaise with LPA if required.
<b>2. Tree Works &amp; Protection</b>	Tree Works in accordance with BS:3998 (2010) Install Tree Protection Fencing.	
<b>3. Site Meeting</b>	To inspect Tree Protection Fencing.	Inspect Tree Protection Fencing.
<b>4. Construction</b>	Undertake construction of proposed development.	Arboricultural supervision of initial excavation for Electric Vehicle charging points & works adjacent to T 625.
<b>5. Site Finishing</b>	Removal of Tree Protection Fencing only when all site traffic, plant & machinery has left site.	

## 5.9 Site Monitoring

5.9.1 Wherever trees on or adjacent to a site have been identified within the Tree Protection Plan for protective measures, there should be an auditable system of arboricultural site monitoring. This should extend to arboricultural supervision whenever construction and development activity is to take place within or adjacent to any Root Protection Area (RPA).

5.9.2 Arboricultural supervision will be required during the following phases of construction: Any construction works required within any RPA.

5.9.3 Start of installation of Electric Vehicle Charging Points adjacent to RPA of group T 611.

5.9.4 Erection of scaffolding within RPA of Tree No: 604

## 5.10 Site Contacts

Title	Name	Telephone	email
Client	Durham University		
Arboriculturist	Andrew Burden		
Project Management	Identity Consult		
Site Manager	TBC		

## 6.0 Conclusions

- 6.1 The small number of trees requiring removal to facilitate the proposed development works will have low amenity value impact due to the restricted visibility of the trees particularly the trees within the central courtyard and car park.
- 6.2 Replacement trees will be planted as mitigation.
- 6.3 By implementing the tree protection methods set out within this report the proposed development will have no impact upon trees and groups of trees being retained.

## 7.0 Appendices (attached)

- 7.1 BS:5837 (2012) Tree Survey Data Sheets
- 7.2 Site plan position of trees
- 7.3 Site plan crown spread of trees
- 7.4 Tree Root Protection Areas (RPA) plan
- 7.5 Tree Protection Plan

7.6 Specification For Protective Fencing

7.7 Site plan of trees requiring removal

Surveyor: Mr. Andrew Burden, HNDip.arb

Signed: A R Burden

Date: 17 April 2023 (Amended 18 December 2023)