



Arboricultural Impact Assessment & Arboricultural Method statement

Conway Park

A321 Tunnel

June 2026

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Non-Technical Summary

Origin Arb Ltd/Practicality Brown were commissioned to undertake an Arboricultural Impact Assessment (AIA) in accordance with BS5837:2012 in relation to the proposed tunnel construction, access roads, boathouse and associated infrastructure at Conway Park, Strowdes Estate, Berkshire. The development comprises a tunnel linking the main estate to land adjacent to the River Thames, with works extending across the Northern Portal and Southern Portal areas of the site.

The survey identified 32 individual trees and 8 tree groups within the area of influence of the proposed works, including a mixture of Category B, C and U arboricultural features. Previous tree felling operations undertaken during spring 2026 have already removed a substantial proportion of the trees directly affected by the development; however, several retained trees remain subject to direct and indirect impacts associated with excavation, construction access and altered wind exposure.

The assessment concludes that the proposed development can proceed without causing unacceptable arboricultural harm, provided that the recommendations contained within the Arboricultural Method Statement are fully implemented. Key mitigation measures include BS5837-compliant tree protection fencing, no-dig cellular confinement systems within Root Protection Areas (RPAs), trunk protection, arboricultural supervision during excavations and targeted management pruning of retained trees affected by increased wind loading following recent woodland clearance. Removal of a limited number of low-quality, declining or structurally compromised trees is also recommended as part of the development proposals and wider estate management objectives.

Subject to the implementation of the prescribed arboricultural protection measures, root protection methodologies and ecological safeguards, the proposed tunnel and associated infrastructure can be delivered whilst retaining the principal arboricultural features and maintaining the long-term health, condition and landscape contribution of the remaining tree population.

Surveyor Information

Adam Young has worked within the arboricultural industry since 2002 during which time he has undertaken roles within all elements of arboriculture, from tree work operations, tree planting, machine operation and data collection. Adam has also been a licensed bat ecologist since 2008, which has permitted him to undertake a range of ecologically sensitive work from aerial tree inspections and habitat creation to hibernation surveys within underground structures. Adam currently holds a Level 4 Diploma in Arboriculture along with Professional Tree Inspection, Quantified Tree Risk Assessment and VALID certification. Adam is also a technician member of the Arboricultural Association.



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1 Introduction

- 1.1 Practicality Brown was commissioned to undertake an Arboricultural Impact Assessment (AIA) in accordance with British Standard BS5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations (BS5837 hereafter) of Conway Park, Strowdes Estate, Culham Lane, Berkshire, RG9 3HR. The main focus of the survey is the area impacted by the proposed tunneling works located at the southwestern portion of the estate.
- 1.2 The purpose of the survey is to gather data on trees/groups present, cataloging the species, size, crown spread and condition of each tree or group. The gathered data will identify any impacts on trees that the proposed excavations may have.
- 1.3 The proposed works will involve the excavation of a tunnel to link the main estate to an area of land adjacent the River Thames. This involves the tunneling under Wargrave Road. The site is split into two parcels; parcel 1 is titled 'Northern Portal,' which is to the north of Wargrave Road and parcel 2 is titled, 'Southern Portal,' which is located to the south of Wargrave Road.
- 1.4 The reason for a BS5837 survey is to comply with The Town and Country Act 1990 legislation, requiring consultation on trees that will or may be affected by construction processes.
- 1.5 This report accompanies a Section 73 application which seeks to vary extant planning consent 240832. This consent gave permission for the proposed works and the S73 application seeks to make minor amendments to the design of built elements. As such, amended documents are being submitted which set out and consider the latest scheme. This report provides information and recommendations based on the information provided by the client, and is to be used as an updated AIA of the site. Previous AIA's have been conducted and submitted to the LPA for the proposed works with the most recent being conducted by ACD (Arboricultural Impact Assessment) which was revised on 29th July 2024 for consent 240832. This report therefore does not provide any additional information of methodology, site specifications and constraints, and is to be used alongside the previous AIA submitted.
- 1.6 Recent felling operations have removed several wooded areas conducted under permission from Wokingham Borough Council (WBC). Additional information on these areas will be provided within this report.
- 1.7 Any alterations in the site layout, conditions, proposal, and any other changes that may cause an impact to trees present on site, may cause this report to become void. Additional surveys post alterations may be required to ascertain the potential impacts to trees, both direct and indirect.
- 1.8 The requirement of the survey:
 - To record relevant information about the trees on the topographical plan survey.
 - Include any trees or groups not included on the plan.
 - To recommend any trees that require pre-construction management or removal.

Site Description and Proposals

- 1.9 The site is located at Strowdes Estate, Culham Lane, Upper Culham RG10 8NR, NGR: SU782809 and W3W: ///executive.droplet.walks.
- 1.10 The site forms part of a larger area of wood pasture and parkland which forms the majority of the Strowdes Estate. The proposal involves the excavation of a tunnel to extend from Strowdes Estate located to the north of Wargrave Road (A321) to the south of Wargrave Road. This will permit the free movement of the residents and guest to travel to new riverside pavilion proposed adjacent the River Thames, without the requirement to cross the busy A321.
- 1.11 Additionally the proposal involves the construction of a boat house and adjoining boardwalk to be situated on the bank of the River Thames.

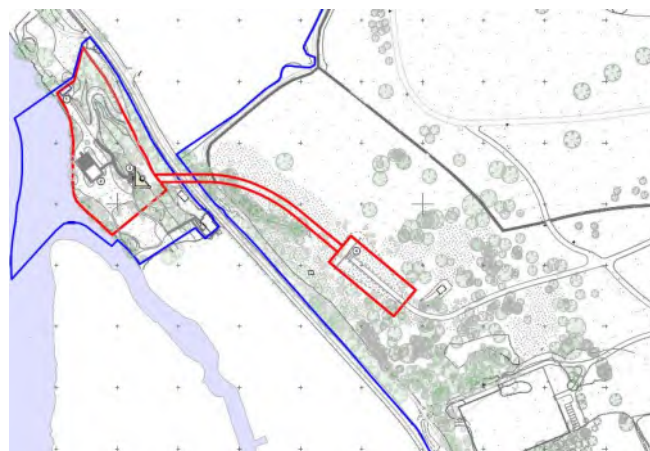
Figure 1: Site Location



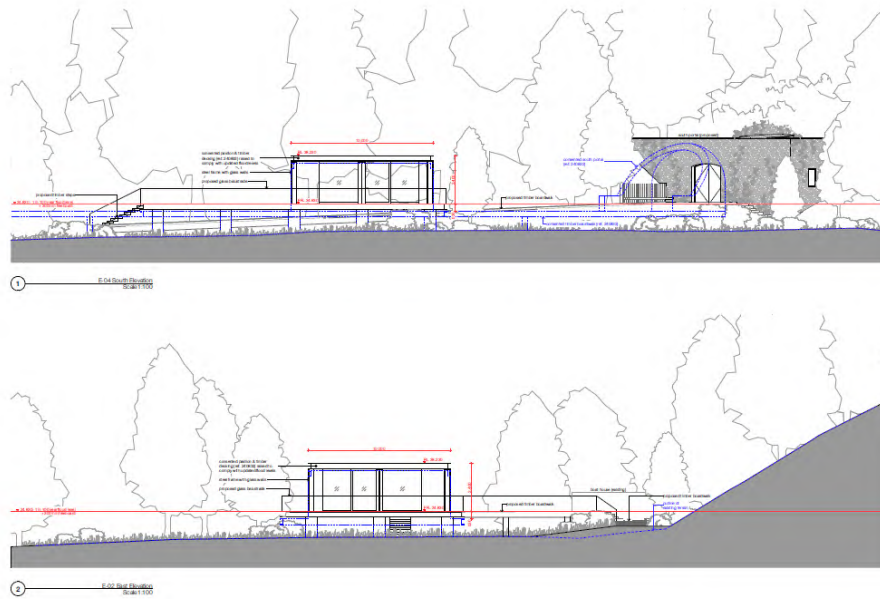
Source: Streetmaps

- 1.12 The site is located to the north and south of the A321 with domestic properties nearby.

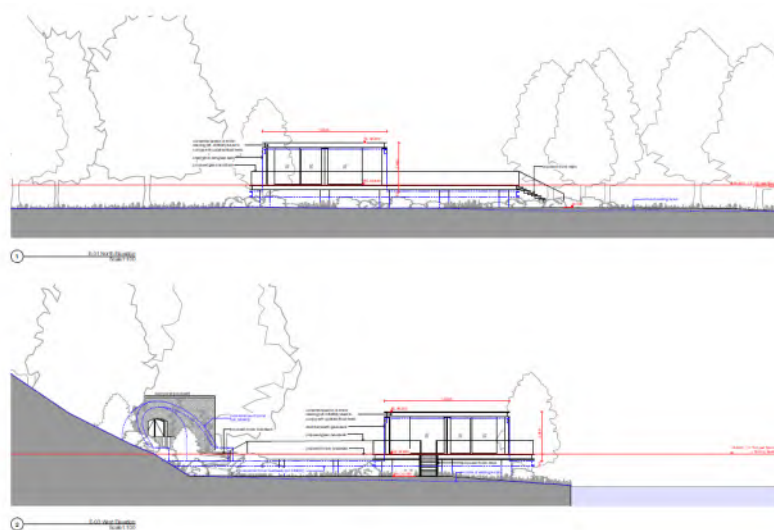
Figure 2: Proposed Construction Plans



Source: LA London Archotects PCY - LAL - RP - ZZ - DR - A P0001



Source: LA London Architects PCY - LAL - RP - ZZ - DR - A - P0008



Source: LA London Architects PCY - LAL - RP - ZZ - DR - A - P0009

- 1.13 The site is split into two separate areas/sites, the north of the A321 is listed as, Northern Portal and to the south of the A321 is listed as, Southern Portal. These titles will be reference throughout this report.

2 Methods

- 2.0 The site survey was carried out by arboricultural consultant, Adam Young (L4 DipArb), on the 1st June 2026, with the use of PocketGIS software to plot all tree data. Information regarding the tree species, stem diameter, tree height, crown spread and condition along with tree location was collected as part of the survey.
- 2.1 The weather conditions during the survey were sunny with light wind and no rain. There was 40% cloud cover at the time of the survey. Juniper Global Navigation System (GNS) was used to accurately plot the locations of each tree, groups and hedges within the impact zone of the proposed works. This provides sub 300mm accuracy, however, this can be affected by dense foliage.

- 2.2 The survey relates to trees that are over 175mm diameter at 1.5m height. Groups and hedges may include trees with a smaller diameter. Variations in the measurement height are implemented when measuring trees with low branching, irregular stem swelling or trees located on a slope. Measurements were acquired with the use of a diameter tape and a Haglof Laser Geo. The laser measurement equipment is accurate to the nearest centimetre, however, conditions such as dense vegetation and terrain may impede an accurate log of a measuring point.
- 2.3 The survey method is based around a 'Visual Tree Assessment system' (VTA) that is ratified by the Arboricultural Association and is based on the VTA by *Matteck, C Breloer, H* (1994), '*Visual Assessment of Trees*'. The trees condition was ascertained via visual cues provided by the tree in the form of foliage shape and coloration along with the condition of the stem and limbs. To enable the non-invasive method of inspecting for hollows and/or cavities, the use of an acoustic hammer was implemented, although, this equipment does have limitations which may prevent the precise identification of such features.
- 2.4 No soil samples were taken whilst undertaking the survey. The tree inspection was carried out from ground level. The tools used were a Haglof laser height measuring device, a rubber hammer, a steel probe, a diameter tape and the use of binoculars.
- 2.5 All the data recorded was in line with those required within BS5837. Some trees formed groups which were categorised as a group due to the close grouping or consistent growth habit. ¹ *"The term "group" is intended to identify trees that form cohesive arboricultural features either aerodynamically (e.g. trees that provide companion shelter), visually (e.g. avenues or screens) or culturally, including for biodiversity (e.g. parkland or wood pasture), in respect of each of the three subcategories"*
- 2.6 All the tree species were recorded, and the trees were categorised in conjunction with the Cascade Chart within the BS5837 document.

3 Limitations

- 3.1 There were no limitations that prevented the full assessment of the trees present within the survey area.
- 3.2 Trees are living organisms which means their health and vitality can change over time and with climatic conditions. The assessment of risk because of unpredictable events, recognises that the tree surveyed can only be judged upon factors evident at that time of inspection by a suitably qualified arboricultural inspector. Certain Fungal Fruiting Bodies (FFB) are only present during certain climatic conditions, which can result in them not being present during the survey period. Every effort is made to identify evidence of FFB when conducting onsite inspections.

- 3.3 The survey was a preliminary assessment undertaken from ground level and observations have been made solely from visual inspections for the purposes of assessment in terms relevant to planning and development. Only binoculars, nylon mallet, a probe and other small hand tools have been used to aid tree assessment. No invasive or non-invasive internal decay detection devices have been used in assessing tree condition.
- 3.4 When conducting surveys within an environment where tree crowns merge and there is limited opportunity to identify the height and spread of the individual tree, a level of tolerance is to be adopted within such conditions.

4 Results

Site Survey

- 4.1 In total there are 32 trees and 8 groups present within the site. These have been categorised into 4 categories. A detailed list of the trees can be found within Appendix A, which states the above information. The cells are colour coded to assist with ease of observation of tree categories A & B being illustrated in **Blue**, C category trees in **Grey** and U category trees illustrated in **Brown**. Below is additional information with regards to the criteria for each category.
- 4.2 There are 18 new trees plotted throughout the site, which were identified as being within the impact zone of the proposed works. These have been highlighted in orange within Appendix A (Tree Schedule) for ease of identification.

Category A

Trees of high quality with an estimated remaining life expectancy of at least 40 years. Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi formal arboricultural features (e.g., the dominant and/or principal trees within an avenue). Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features. Trees, groups, or woodlands of significant conservation, historical, commemorative, or other value (e.g., veteran trees or wood-pasture)

Category B

Trees of moderate quality with an estimated remaining life expectancy of at least 20 years. Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation. Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives, but situated to make little visual contribution to the wider locality. Trees with material conservation or other cultural value.

Category C

Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm. Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories. Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits. Trees with no material conservation or other cultural value.

Category U

Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

- Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning).
- Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline.
- Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality.

NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve;

Trees are also placed into sub-categories which considers certain qualities they may offer to the landscape, cultural values or arboricultural. These categories are listed below:

- 1 Mainly arboricultural qualities
- 2 Mainly landscape qualities
- 3 Mainly cultural values, including conservation.

An assessment of a tree's physiological condition is defined as:

- **Good** – fully functioning biological system showing expectant vitality for the species i.e., normal bud growth, leaf size, crown density and wound closure.
- **Fair** – fully functioning biological system showing below average vitality i.e., reduced bud growth, smaller leaf size, lower crown density and reduced wound closure.
- **Poor** – a biological system with limited functionality showing clear physiological decline, disease or significantly below average vitality i.e., limited bud growth, small and chlorotic leaves, low crown density and limited wound closure.

An assessment of a tree's structural condition is defined as:

- **Good** – no significant structural defects.
- **Fair** – structural defects which could be alleviated through remedial tree surgery or Arboricultural management practices.
- **Poor** – structural defects which cannot be alleviated through tree surgery or Arboricultural management practices.

Estimated Remaining Contribution (ERC) in Years

The Estimated Remaining Contribution (ERC) for each tree is based on species and existing and apparent physiological and structural condition of the tree. The ERC may affect the proposed development layout, since the longer the tree is likely to live the greater the contribution it will make and the greater the need for retention.

- **<10** - Unsuitable for retention
- **10 - 20** - Can be retained in the short term
- **20 – 40** - Will continue to offer benefits for the foreseeable future
- **40+** - Good longevity potential

4.3 As recommended in BS5837; each tree or group was inspected and allocated an identification number as indicated in the tree schedule (Appendix A). For each tree the following information was collected:

- 1 Species
- 2 Height (m)
- 3 Stem diameter (mm)
- 4 Average radius of crown to 4 cardinal points (m)
- 5 Crown height to 4 cardinal points (m)
- 6 Life stage
- 7 Observations regarding condition
- 8 Estimated remaining contribution
- 9 Category of retention

4.4 In total there is 10 B category trees, 13 category C trees and 4 category U trees, three of which have been removed as part of the 2026 felling operations. Additionally there are 2 category B groups and 5 category C groups and groups present in and around the site. Group G1 and G4 have been removed entirely and G2 and G3 have partially been removed as part of the 2026 felling operations. Appendix A provides additional information of the trees, groups and hedges surveyed.

4.5 The 2026 felling operations focused on the Northern Portal and the Southern Portal areas. With the felling of the access road and corresponding tunnel entrances, to accommodate the proposed construction. These have been highlighted in purple within Appendix A.

4.6 There are several trees remaining that either require removal or management pruning prior to works commencing. A more detailed methodology is provided within the Arboricultural Method Statement (AMS) and Appendix A.

Northern Portal

4.7 Trees T252 and T253 are both Yew trees (*Taxus Baccata*) which are situated either side (T252 north and T253 south) of the proposed tunnel approach road. Both trees have crowns that extend over the proposed road, which would require pruning prior to any works commencing.

4.8

Evidence of Ash Dieback Disease (ADD) is visible on certain ash trees throughout the site. *Hymenoscyphus fraxineus* also known as ADD this results in leaf loss and breaks down the trees defense to permit other pathogens to enter the cells such as *Inonotus hispidus*. Trees affected by ADD are split into 4 classes;

Class 1: Has 100%–75% (or 76%) remaining canopy

Class 2: Has 75%–50% (or 51%) remaining canopy

Class 3: Has 50%–25% (or 26%) remaining canopy

Class 4: Has 25%–0% remaining canopy



The following trees contain evidence of ADD: T254, T255 & T263 (Southern Portal).

- 4.9 T254 contains minor and major deadwood, which requires removal to ensure the safety of road users. T255 and T263 are a class 4 ADD specimens which requires the removal of the northern stems to ground level.
- 4.10 The felling operations resulted in the removal of the northern portion of Group 2 (G2) to facilitate the tunnel mouth. The roots of the felled trees have been removed below ground level, however, root structures may still be present. The remaining trees will experience changes in wind loading, which is to be considered when planning tree management of the site. Several trees of interest have been included within this report, however additional survey effort may be required.
- 4.11 Due to the loss of the northern portion of G2 the risk of partial or whole tree failure of retained trees may occur. Tree T545 requires removal due to the presence of a compression union along with its newly exposed condition. T258 and T535 require end weight reductions, to reduce the lever arm affect on the main stems, which will be exacerbated by the new wind load direction.
- 4.12 T259 is a semi-mature Field Maple (*Acer campestre*) which is positioned on the northern boundary of the proposed access road. The stems are intertwined with little potential to form a suitably formed tree. The Root Protection Area (RPA) also extends into the access road, and would therefore require the removal of T259.
- 4.13 T260 is a mature small leafed lime (*Tilia cordata*) which is located to on the southern border of the tunnel access road. The RPA extends into the proposed access road, which would require mitigation as part of the proposal.

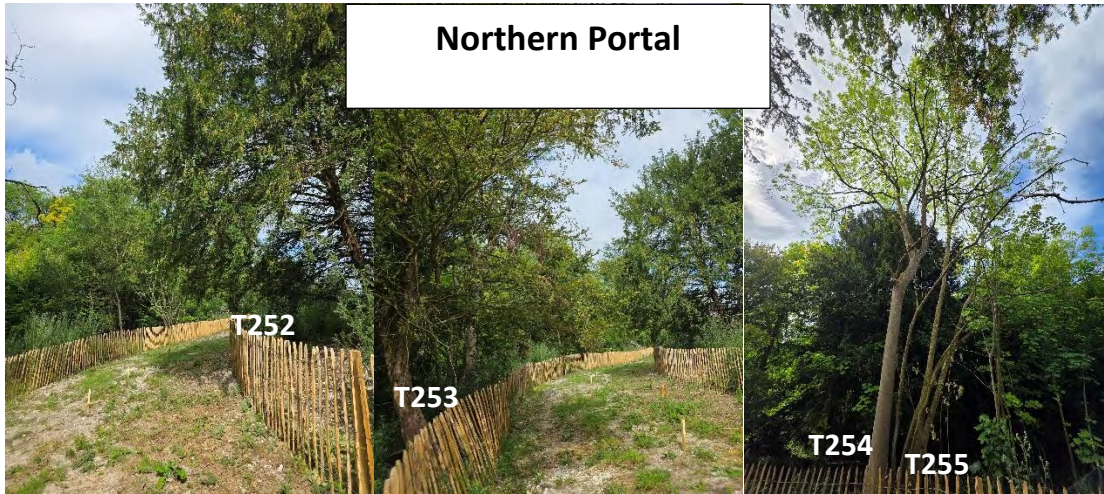
- 4.14 T261 is a mature Horse chestnut (*Aesculus hippocastanum*) which is located adjacent T260 on the northern border of the tunnel access road. T261 contains major deadwood which extends over the access road. There are Potential Roost Features (PRF's) present within the dead limb and the southwestern extending limb. The southwest extending limb contains heavy branch weight which would require management prior to any works commencing.
- 4.15 The northern portion of G3 has been removed as part of the 2026 felling operations, with approximately 15 trees remaining. The entirety of G4 has also been removed as part of the recent felling operations.
- 4.16 T158 and G4 have also been removed as part of the 2026 felling operations.

Southern Portal

- 4.17 The felling operations within the Southern Portal site required the use of a previously constructed temporary access track extending southeast from the main entrance. This was used for timber extraction and plant/machinery movements. The access track has been constructed with soil movements (chalk) from within the site, to enable a steady gradient to be achieved, it is not clear as to the time these ground works were completed with evidence dating back to 2017. These works have resulted in the raised soil levels around trees T262, T265 and T266, which will affect the gaseous exchange and therefore affect the physiological condition of these trees.
- 4.18 Naturally occurring stem damage due to storm fallen trees has resulted in the stem damage of trees T262, T266 and T267, although T267 has evidence of historic stem damage, evident by the reaction wood around the wound.
- 4.19 T263 is a dead standing young ash tree which is located within the River Thames bank. T264 is also an ash tree, but at the semi-mature life stage. T264 shows no evidence of the presence of ADD within the crown, however, it does have an asymmetric crown to the south of the River Thames.
- 4.20 G119 is a group of 6 mature white Willows (*Salix alba*) which are growing from the river bank. These have been downgraded to category C specimens due to the slightly thinning crowns and collapsing stems.
- 4.21 G1 was removed during the 2026 felling operations with no remnants of the group remaining. This is located within the location of the proposed tunnel mouth positioned within the south sloping bank, south of Southern Portal. G5 has been added to provide a boundary to the tunnel mouth construction, which consists of mixed broadleaved species with approximately 30 trees present within the group.

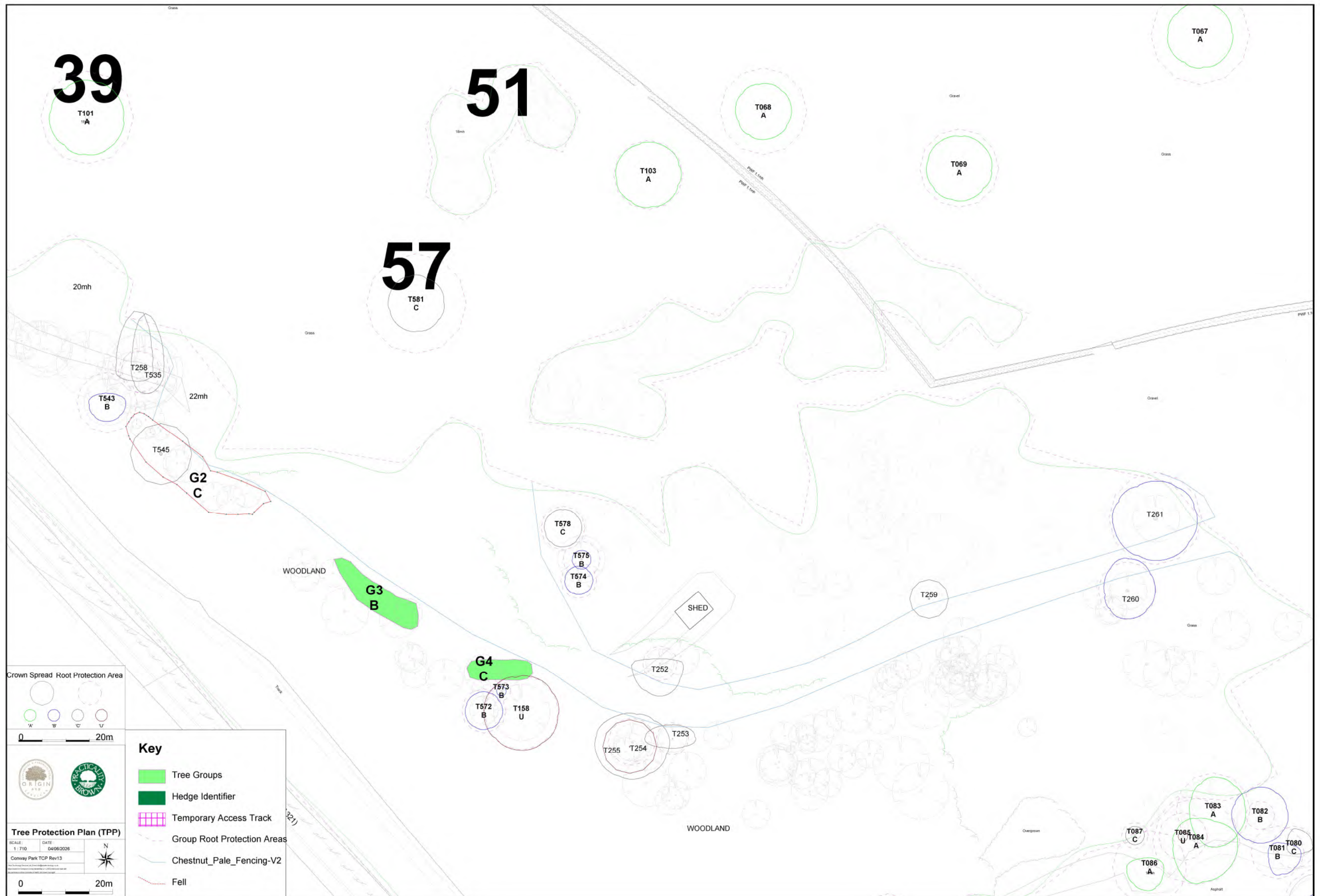
Site Photos

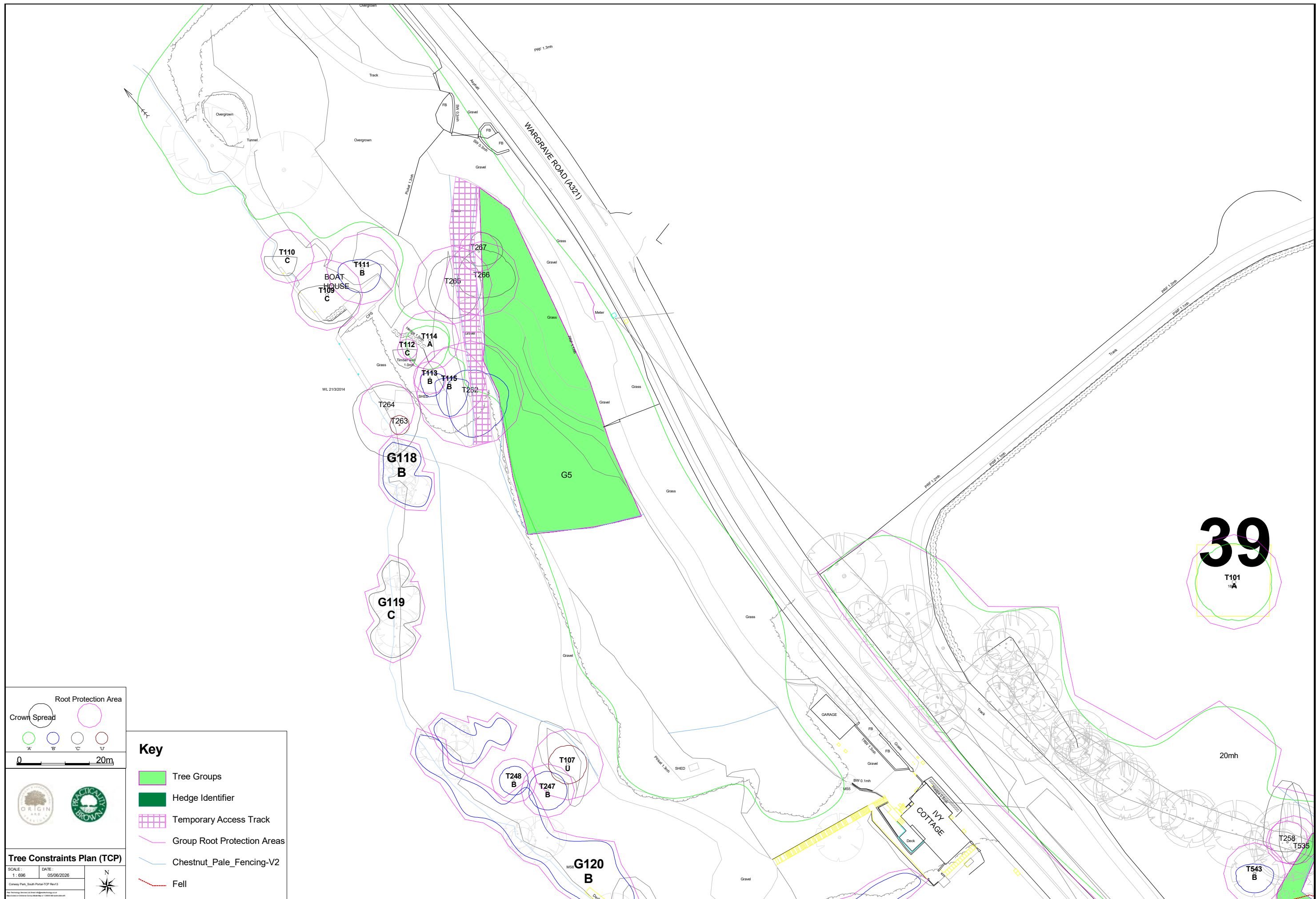
Northern Portal



Southern Portal







Tree Preservation Orders (TPO)

- 4.22 There are no TPO's present within the site that will be impacted by the works, the site is also not located within a conservation area. There are also no notable trees listed within the Ancient Tree Forum (ATF) within the affected areas.

5 Habitats and Conservation

- 5.1 Under Regulation 41 of the Conservation of Habitats and Species Regulations 2010 it is illegal to:
- Deliberately capture, injure, or kill any wild animal of a European Protected Species (EPS) deliberately disturb wild animals of an EPS (affecting ability to survive, breed or rear young) disturbance of animals includes in particular any disturbance which is likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young,
 - Deliberately disturb wild animals of an EPS (impairing ability to migrate or hibernate)
 - disturbance of animals includes in particular any disturbance which is likely to impair their ability in the case of hibernating or migratory species to hibernate or migrate,
 - Deliberately disturb wild animals of an EPS (affecting local distribution and abundance) disturbance of animals includes in particular any disturbance which is likely to affect significantly the local distribution or abundance of the species to which they belong,
 - Deliberately disturb wild animals of an EPS (whilst occupying a structure or place used for shelter or protection) – intentionally or recklessly disturb any wild animal while it is occupying a structure or place which it uses for shelter or protection,
 - Damage or destroy a breeding site or resting place of a wild animal an EPS.
- 5.2 Under the Wildlife and Countryside Act 1981 (as amended) it is illegal to:
- Recklessly or intentionally kill, injures, or take any wild animals included in Schedule 5.
 - Recklessly or intentionally damage or destroy, or obstruct access to any structure or place which any wild animal included in Schedule 5 uses for shelter or protection,
 - Recklessly or intentionally disturb any such animal while it is occupying a structure or place which it uses for shelter or protection.
- 5.3 A number of UK bat species are also included on the list of habitats and species which are of principal importance for the conservation of biodiversity in England as required under Section 41 of the Natural Environment and Rural Communities (NERC) Act. The S41 list is used to guide decision-makers, including local planning authorities, in implementing their duty under section 40 of the Act, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.
- 5.4 Potential Roost Features (PRF's) are categorised into four categories; ³Confirmed, PRF-M, PRF-I and Negligible.
- **Confirmed** - PRF's that either have bats in residence or evidence such as droppings present within the feature or around the ingress point.
 - **PRF-M** - Features that have internal dimensions large enough to contain multiple bats (2+) which can be used by maternity colonies. Features such as woodpecker holes, knot holes and hazard beams can all support a PRF-M feature.

- **PRF-I** – PRF's that have internal dimensions that are only large enough to support individual or very small numbers of bats. Features such as delaminating bark, tear outs and shear cracks can support a PRF-I feature.
- **Negligible** – PRF's that do not provide sufficient shelter for a PRF, however, they may develop in time.

- 5.5 Although a ground based assessment for the presence of nesting birds was conducted, this was not the main focus of the survey. No nesting sites were identified as part of the survey, although their presence must not be ruled out.

6 Arboricultural Impact Assessment (AIA)

- 6.1 The recent felling operations have removed the majority of trees that would be directly impacted by the proposed works, however, several remain with RPA's encroaching within the proposed footprint. The proposed tunnel construction and subsequent approach roads will have a direct impact on trees T259-T262, T265-T267 and G119. This is to be mitigated by following the recommendations listed in the Arboricultural Method Statement (AMS). Although the loss of T259 and G119 (Both Category C specimens) is unavoidable due to the proposed location of the pavilion and the tunnel approach road. These are shown in the Tree Constraints Plan (TCP).
- 6.2 The proposal will result in the removal of 4 trees (T255, T259, T263 & T545) and 2 groups (G118 & G119). Trees T255, T545 & T263 would require removal as part of general tree management, although the loss of neighboring trees has exacerbated the requirements, along with the increased target areas due to the presence of the proposed works.

Northern Portal

- 6.3 Due to the limited available space for the tunnel approach road, additional mitigation is to be implemented in the form of root protection. This is to be installed within the RPA's of retained trees T260 and T261. The AMS provides additional information on the specification of the root protection and the requirements.
- 6.4 Due to the loss of the northern portion of G2 and the subsequent stump removal, there is the potential for roots to still be present within the tunnel approach road footprint. This would required an experienced Arboricultural Clerk of Works (ACoW) to be present during the excavations within the vicinity of retained trees and groups. This will enable the identification of certain roots that may originate from the retained trees.
- 6.5 Due to the newly exposed position of the retained trees, it is recommended that tree management pruning is conducted prior to any works commencing. This would involve the following;
- T252: Raise lower crown on the southern aspect to a height of 4m above ground level

- T253: Raise lower crown on the northern aspect to a height of 4m above ground level
- T254: Remove minor and major deadwood from within north aspect of crown, retaining southern deadwood as habitat
- T255: Fell northern dead stems to ground level
- T258: Reduce end weight on northern aspect by 30%
- T535: Reduce end weight on northern aspect by 30%
- T545: Fell to ground level
- T259: Fell to ground level

Southern Portal

- 6.6 The removal of G1 has resulted in the clearance of the required area to accommodate the tunnel mouth. The addition of G5 has been included within the TCP which is to be retained as part of the works.
- 6.7 Due to the position of the temporary access track extending from the main entrance to Southern Portal being located with the RPA's of retained trees, ground and stem protection is required prior to any further works being undertaken. The AMS provides additional information on the specification.
- 6.8 G118 and G119 require removal as part of the proposal due to their position and condition not viable for retention. Mitigation for river bank stabilisation is to be implemented to ensure bank erosion does not occur. The Environmental Agency (EA) is to be consulted prior to any works commencing.
- 6.9 T107 and T263 require removal due to their poor physiological condition resulting in a low or negligible life expectancy.
- 6.10 Tree T262 is covered in ivy which is prevent the foliage of the inner crown from developing. It is therefore recommended to severe and remove the icy from the main stem.

7 Arboricultural Method Statement (AMS)

Pre-construction

- 7.1 Pre-development tree work may be undertaken before the installation of tree protection, where required. Any tree work is to be undertaken outside the nesting season which is between March and September. Every effort must be made to ensure that no active nesting sites are present when undertaking tree works outside of nesting season, as the presence of ivy and the mild weather conditions may permit the nesting season to commence early or terminate later than the nesting guidelines. If works are required within nesting season, then an Ecological Clerk of Works (ECOW) is to be present, to carry out pre-works inspections and monitor during the works.
- 7.2 Considerations for trees must be taken when planning site operations to ensure that wide or tall loads, or plant with booms, jibs and/or counterweights can operate without coming into contact with retained trees. Such contact can result in serious damage to them and may make their safe retention impossible.

Initial Site Preparations

- 7.3 Guidance contained within 'Tree Roots in the Built Environment' identifies soil compaction and root damage as significant causes of tree decline during construction activity. Particular care is therefore required to avoid unnecessary disturbance to retained rooting environments.
- 7.4 Due to the RPA of trees T260 and T261 extending within the proposed access road to the tunnel, there is the requirement to install ground protection to prevent soil compaction and root damage. This is to be constructed of a porous material inserted within a 3D cellular root protection system such as Cellweb™ ([Cellweb-Installation-Guide.pdf](#)). This system involves a no-dig methodology and permits the moisture infiltration and gaseous exchange required to maintain a healthy tree. This is to be installed at the earliest possible stage, as any increases in vehicular activity within the RPA of trees T260 and T261 will result in adverse damage to the trees vitality. The installation of ground protection is to be carried out under the supervision of the project arboriculturalist to monitor the location and installation methods used.
- 7.5 The north portal access road is NOT be used as a means of access for heavy plant machinery as this will cause adverse damage to the Cellweb™ cells, thus preventing adequate weight distribution to prevent soil compaction when works conclude. Other means of site entry are to be sourced with the recommended use of trackway matting, with the route located outside any RPA's of retained trees.

- 7.6 Additionally, the temporary access track to the Southern Portal site will require amendments if it is to be used as a means of plant/machinery access to the site. The newly deposited soil (chalk) is to be removed with a non-toothed bucket attached to an excavator, removing in an uphill direction (Northwest). This is to be removed down to the original topsoil level, and may require hand digging around the main stems of retained trees. This is to enable the installation of ground protection (Cellweb), which is to be installed following the same methods mentioned in para. 7.4. Additional stem protection is to be installed on trees T262, T265, T266 & T267. This must be in the form of trunk protecta® [Trunk Protecta® - canvas tree trunk guard for site and vehicle damage | Green Grid Systems](#). Specification is provided within Appendix D.
- 7.7 As part of the construction works, the erection of Tree Protection Fencing (TPF) is required. This is to be installed at the positions indicated by the Tree Protection Plan (TPP) within Appendix B. The TPF will act as a physical barrier to prevent entry, excavations and storage of materials within the RPA, therefore, ensuring the health of the retained trees is maintained. Appendix C provides a specification for the TPF, however, the addition of tie lines and or Haras feet may be required to ensure the TPF is secure. The TPF must contain signs informing all personnel of the importance of the fencing and the requirements to maintain the TPF within erected position. Appendix C provides examples of such signage. The TPF is to be installed upon completion of the aforementioned ground protection, to ensure the adequate protection of retained trees is achieved. The aforementioned ground protection will act as a secondary protection method to prevent soil compaction occurring.
- 7.8 To facilitate the access of construction traffic there is the requirement to raise the southern aspect of tree T252 and the northern aspect of T253 to a height of 4m. This is to be conducted in accordance to British Standard BS:3998 2010 'Tree works – recommendations'.
- 7.9 The removal of G118 and G119 is required to accommodate the proposed construction of the boathouse and adjoining boardwalk. This will result in the possible bank erosion over time, which is to be mitigated. Consultation with the EA is recommended to ensure compliance with regulations is followed.

Site Storage

- 7.10 All construction material, plant/machinery and the site compound are to be located outside the RPA's of retained trees.
- 7.11 The location of liquids such as fuel or chemicals are to be positioned downhill of any retained trees positions, and must include secondary containment systems such as a bunded area and/or drip trays. These must be impermeable to the liquids stored and must be included within the sites drainage plan.

Foundation construction

- 7.1 There are no foundation required within the RPA's of retained trees, however, there is the potential for roots to become exposed during the construction of the approach road to within the North Portal site. An ACoW is therefore required during any excavation within the vicinity of retained trees/TPF, including tree groups which have been partially removed during the 2026 felling operations. This is to aid in the controlled pruning of certain roots <25mm. Retention of individual roots and clumps greater than 2.5cm in width is to be implemented where possible and only cut if agreed with the supervising arboriculturist.
- 7.2 Any temporarily exposed roots are to be protected from direct sunlight, drying out, and extremes of temperature, by an appropriate covering such as dampened hessian sacking and/or boards over the area. This can remain in situ when infilling works are carried out, as the material will degrade materially.
- 7.3 When back-filling, place an inert granular material mixed with top soil or sharp sand around retained roots greater than 2.5cm in width before light compaction. Aggregates with a low salt content are to be prioritised, to avoid root desiccation.

Future Pressure on Arboricultural Features as a Result of Development

- 7.4 To facilitate the construction of the proposed works several groups were removed to accommodate the footprint of the tunnel approach road. This has resulted in the trees which were originally located as part of a group to become exposed to wind loading, therefore tree pruning operations are required to retain certain trees. The AIA provides additional information on the pruning requirements. This is to be in accordance with BS3998 as mentioned in paragraph 7.7.

Routing of Services and Utilities

- 7.10 Details of the routing of services have not been provided at this stage. When details of the routing of services become available, they will be reviewed by the project arboriculturalist. The arboriculturalist shall then confirm to the local authority arboricultural officer either that no works will be carried out within root protection areas, or provide details of the methodology required to ensure the works are carried out in accordance with NJUG Vol. 4 'Guidelines For The Planning, Installation And Maintenance Of Utility Apparatus In Proximity To Trees' and BS5837: 2012.

Arboricultural impacts on the site

- 7.11 The size and position of retained trees within the Southern Portal site will result in the shadow cast of the crowns to impact the Boathouse. However, the removal of G118 and G119 will reduce the shade cast experience, whilst also improving the visibility of the River Thames.
- 7.12 In the event that roots are exposed for extended periods (2-3 hours) or overnight, the roots are to be wrapped in a damp hessian material to prevent desiccation. This can

remain in situ when infilling works are carried out, as the material will degrade materially.

- 7.13 No building materials such as aggregates are to be stored within the RPAs, as doing so may result in salts leaching into the soil, which will result in the decline in vitality of retained trees.

Ecological Considerations

- 7.14 If not already carried out, a site wide ecological survey must be conducted prior to any construction works commencing.
- 7.15 The removal of the ivy from T262 is to be conducted outside of bird nesting season or if not feasible under the supervision of an experience Ecological Clerk of Works (ECoW), to ensure no nesting birds are present at the time of the works.

Arboricultural Improvements

- 7.16 This report does not form part of a planting plan, and therefore does not offer specific species to be incorporated within the development.

8 The Importance of Trees

- 8.1 Trees provide an array of benefits to a site from aesthetics and landscape value to ecological importance. They are an essential part of our environment and therefore must be considered when proposing any form of development. Certain trees provide more benefits to the landscape than others such as ancient and veteran specimens. These trees offer ecological, environmental and heritage benefits to the landscape and must therefore be retained for future generations. Every effort must be made to ensure the health and vitality of such specimens is maintained, and where applicable improvements are to be implemented to further enhance the physiological condition of each tree.

REFERENCES

- British Standard 5837 Trees in relation to design, demolition and construction-Recommendations
- HMSO (2010). *The Conservation of Habitats and Species Regulations 2017*.
- Collins, J (ed) (2023) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th Edition)*. The Bat Conservation Trust, London.
- Harris, S *et al.*, (1995) *A review of British mammals: population estimates and conservation status of British mammals other than cetaceans*
- Wildlife and Countryside Act 1981 (as amended)
- British Standard 3936-1 1992 Nursery stock —Part 1: Specification for trees and shrubs
- British standard 3998:2010 Tree work-Recommendations
- NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees
- British Standard 8545:2014 Trees from nursery to landscape recommendations



Appendix A

Tree Schedule



Ref.	Species	Full Structure	Height (m)	Stem Diam. (mm)	Spread				Crown clearance	Life Stage	Rem. Contrib	Condition	Observations	Quality category	Recommendations
					N	E	S	W							
T107	White Willow (Salix alba)	Tree	13	600	4	4	4	4		Mature	<10 years	Fair/poor	Topped at 4m many years ago, regrowth now c8m some of which is breaking out.	U	Proposed removal due to poor condition
T158	Beech (Fagus sp.)	Tree	22	650	8	8	8	8	4	Mature	<10 years	Very poor	Advanced basal decay with Kretzschmaria deusta. Moderate dieback	U	Removed as part of 2025 felling operations
T247	Willow	Tree	13	450	4	4	4	4	2	Semi mature	20+	Fair	No significant visible defects	B1	No work required
T248	Willow	Tree	9	380	3	3	3	3	2	Semi mature	20+	Fair	No significant visible defects	B1	No work required
T252	Common Yew (Taxus baccata)	Tree	10	300	1	5	7	6	2	Semi-mature	20 to 40 yrs	Good	No significant visible defects	C1	Raise crown to 4m over proposed tunnel access on southern aspect
T253	Common Yew (Taxus baccata)	Tree	8	280	3	5	2	6	2	Semi-mature	20 to 40 yrs	Good	Sparse crown with foliar chlorosis throughout crown	C1	Raise crown to 4m over proposed tunnel access on northern aspect and monitor
T254	Common Ash (Fraxinus excelsior)	Tree	18	410	6	8	8	8	8	Mature	10 to 20 yrs	Fair	Class 1 ADD specimen	C1	Remove minor and major deadwood from over tunnel access track
T255	Common Ash (Fraxinus excelsior)	Tree	12	190	3	0.1	10	8	5	Semi-mature	<10 yrs	Decline	Class 4 ADD specimen	U1	Fell northern stems due to risk of failure on proposed tunnel access
T258	Common Hornbeam (Carpinus betulus)	Tree	17	360	13	3	2	5	5	Mature	10 to 20 yrs	Good	18 degree lean to the north with heavy branch weight.	C1	Reduce weight by 20% to reduce lever arm affect.
T259	Field Maple (Acer campestre)	Tree	10	290	4	2	4	4	4	Semi-mature	10 to 20 yrs	Good	Intertwinned stems with poor structural development	C1	Fell due to close proximity to tunnel access with impact to RPA
T260	Small-Leafed Lime (Tilia cordata)	Tree	19	500	7	6	6	5	1	Semi-mature	20 to 40 yrs	Good	No significant visible defects	B1	Remove basal epicormic growth
T261	Common Horse Chestnut (Aesculus hippocastanum)	Tree	19	800	8	9	9	9	2	Mature	20 to 40 yrs	Good	Major deadwood present over proposed tunnel access track with multiple PRF's present throughout crown	B1	End weight SW limb by 30% to reduce lever arm affect on union. Wound present on upper surface of limb with evidence of reaction growth. Remove major deadwood over tunnel access track retaining PRFs where practical. Undertake an aerial tree assessment prior to works commencing due multiple PRFs located throughout crown.
T262	Field Maple (Acer campestre)	Tree	18	900	5	8	9	5	4	Mature	20 to 40 yrs	Good	Located south of access track. RPA protection required. Evidence of stem damage on northern aspect.	B3	Severe and remove ivy from crown



Ref.	Species	Full Structure	Height (m)	Stem Diam. (mm)	Spread				Crown clearance	Life Stage	Rem. Contrib	Condition	Observations	Quality category	Recommendations
					N	E	S	W							
T263	Common Ash (Fraxinus excelsior)	Tree	10	240	2	2	2	2	5	Dead	n/a	Dead	Standing dead tree	U1	Fell
T264	Common Ash (Fraxinus excelsior)	Tree	15	470	5	7	10	7	5	Semi-mature	10 to 20 yrs	Good	Growing from river Bank with asymmetric crown to the south	C1	No works required
T265	Sycamore (Acer pseudoplatanus)	Tree	21	660	6	6	7	5	5	Mature	20 to 40 yrs	Good	Raised ground on northern aspect upto main stem, with no buttress flare present.	C1	RPA protection required.
T266	Sycamore (Acer pseudoplatanus)	Tree	20	630	6	7	4	5	8	Mature	20 to 40 yrs	Good	Raised ground on southern aspect upto main stem, with no buttress flare present. Impact damage on western.	C1	RPA protection required.
T267	Sycamore (Acer pseudoplatanus)	Tree	17	340	4	5	3	2	5	Young	10 to 20 yrs	Fair	Evidence of impact damage throughout stem and upper scaffold lose.	C1	RPA protection required.
T535	Common Hornbeam (Carpinus betulus)	Tree	9	380	12	4	5	3	1.5	Semi-mature	10 to 20 yrs	Good	18 degree lean to the north with heavy branch weight.	C1	Reduce weight by 20% to reduce lever arm affect.
T543	Lime (Tilia sp.)	Tree	18	520	2	4	4	4	3	Semi mature	20+	Fair	Basal growth, heavy mistletoe growth	B1	No works required
T545	Sycamore (Acer pseudoplatanus)	Tree	19	530	9	5	4	6	9	Semi-mature	10 to 20 yrs	Good	Bifurcated at 5m with asymmetrical crown bias to the north and west. Compression union with evidence of bark ingress.	C1	Fell
T572	Yew (Taxus sp.)	Tree	14	380	4	4	4	4	1	Semi mature	20+	Good	No significant visible defects	B1	No works required
T573	Hazel	Tree	8	160	1	1	1	1	0	Semi mature	20+	Fair	Coppice stool	B1	No works required
T574	Yew (Taxus sp.)	Tree	12	310	3	3	3	3	1	Semi mature	20+	Good	No significant visible defects	B1	No works required
T575	Sycamore (Acer pseudoplatanus)	Tree	17	320	2	2	2	2	2	Semi mature	20+	Fair	No significant visible defects	B1	No works required
T578	Sycamore (Acer pseudoplatanus)	Tree	12	380	4	4	4	4	1	Semi mature	10+	Poor	Suppressed.	C1	No works required

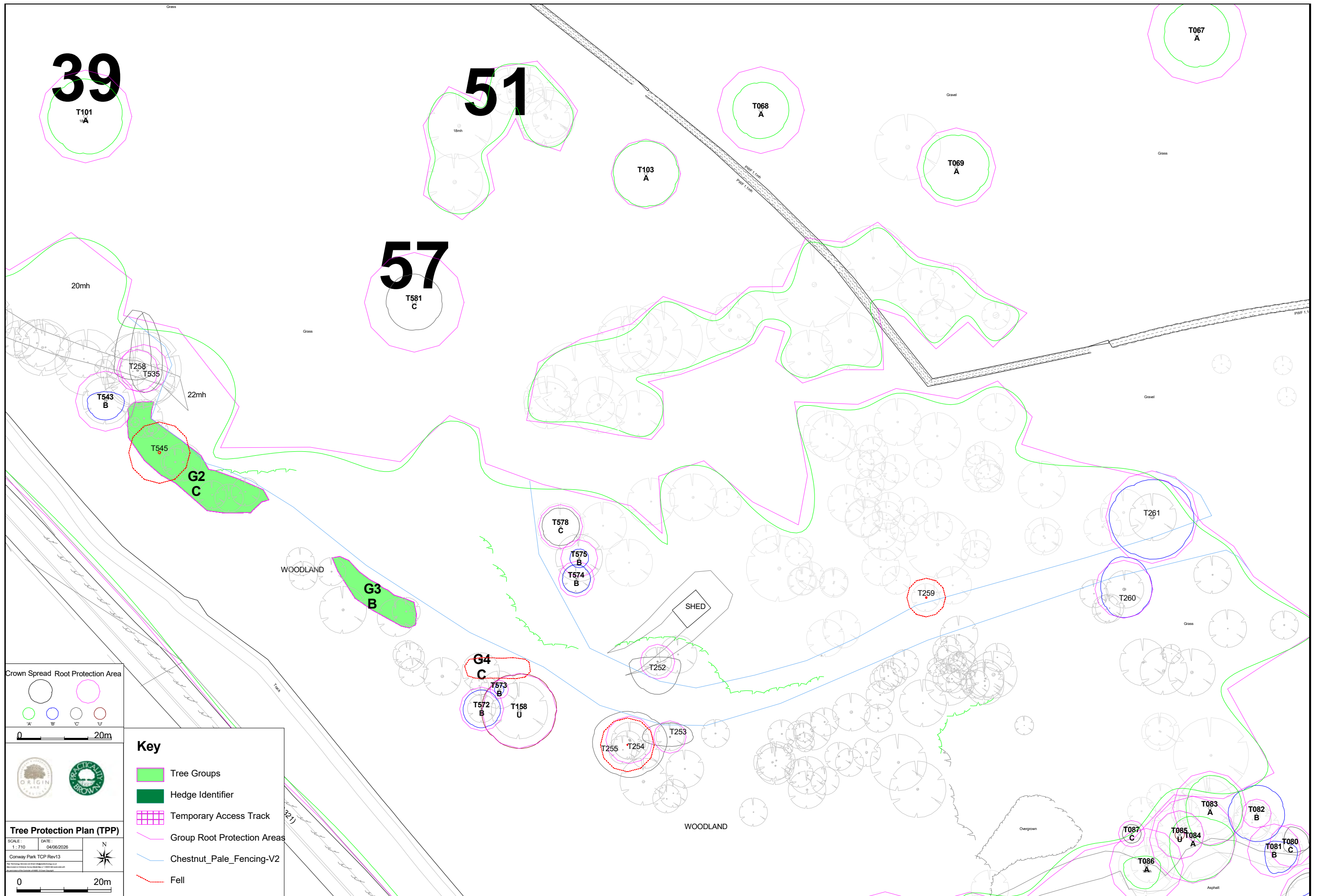


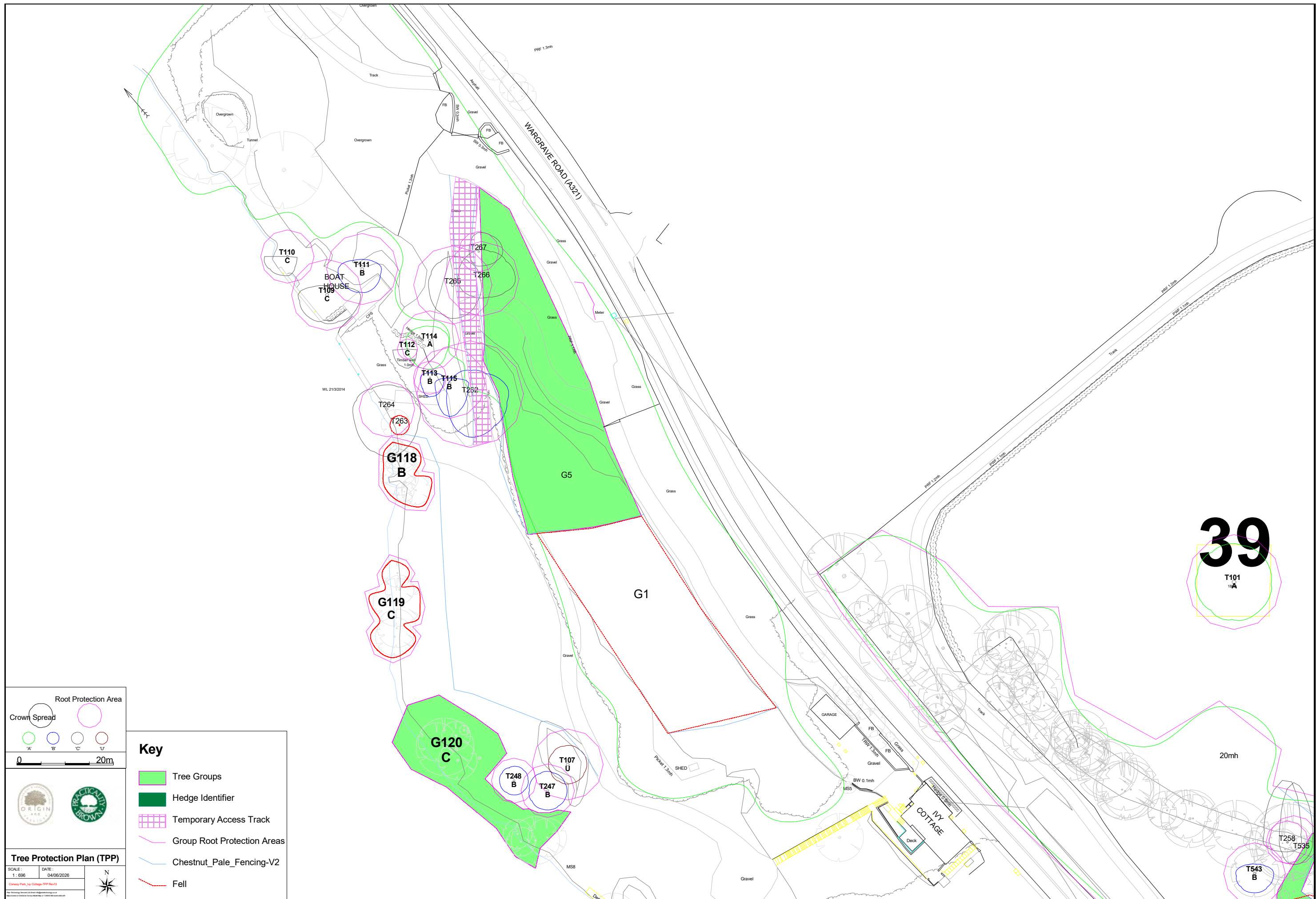
Ref.	Species	Full Structure	Height (m)	Stem Diam. (mm)	Spread				Crown clearance	Life Stage	Rem. Contrib	Condition	Observations	Quality category	Recommendations
					N	E	S	W							
T581	Lebanon Cedar (Cedrus libani)	Tree	17	860	6	6	6	6	2	Mature	10+	Fair	Low vitality, rabbit holes at base.	C1	No works required
G1	Mixed Broadleaves x30 (Mixed Broadleaves)	Group	18	300	3	3	3	3	2	Semi mature	20+	Fair	Ivy well established.Ash dieback on several Ash.	B1	Removed as part of 2025 felling operations
G2	Mixed Broadleaves x15 (Mixed Broadleaves)	Group	14	250	2	2	2	2	2	Semi mature	10+	Fair	Varying levels of Ash diebackwith some significant dieback. 4 x Dead pine. Hornbeam with root heave hung up in adjacent tree.	C1	Northern portion removed as part of 2025 felling operations
G3	Mixed Broadleaves x20 (Mixed Broadleaves)	Group	17	300	3	3	3	3	2	Semi mature	20+	Fair	Varying levels of Ash diebackwith some significant dieback	B1	Partial removal of northern portion
G4	Ash x3 (Fraxinus sp.)	Group	15	300	3	3	3	3	2	Semi mature	10+	Fair	Minor Ash dieback present	C1	Removed as part of 2025 felling operations
G5	Mixed Broadleaves x30 (Mixed Broadleaves)	Group	15	350	3	3	3	3	1	Semi mature	10+	Fair	Varying levels of Ash diebackwith some significant dieback	C1	No works required
G118	Mixed Broadleaves x11 (Mixed Broadleaves)	Group	11	300	2	2	2	2	1	Early Mature	20+	Fair	Closely spaced small group on river bank. Ash, hawthorn, field maple and sycamore. One dead Ash	C1	Remove to accommodate boathouse. Bank stabilisation to be implemented.
G119	White Willow x6 (Salix alba)	Group	9	400	2	2	2	2	1	Mature	20+	Fair	Partially collapsing old riverside pollards	C1	Proposed removal due to poor condition. Mitigation for bank stabilisation required post removal.
G120	White Willow x5 (Salix alba)	Group	10	500	2	2	2	2	1	Mature	20+	Fair	Lapsed management of riverside willows, snapped branches	C1	No works required



Appendix B

Tree Protection Plan







Appendix C

Tree Protection Specification

Figure 2 Default specification for protective barrier

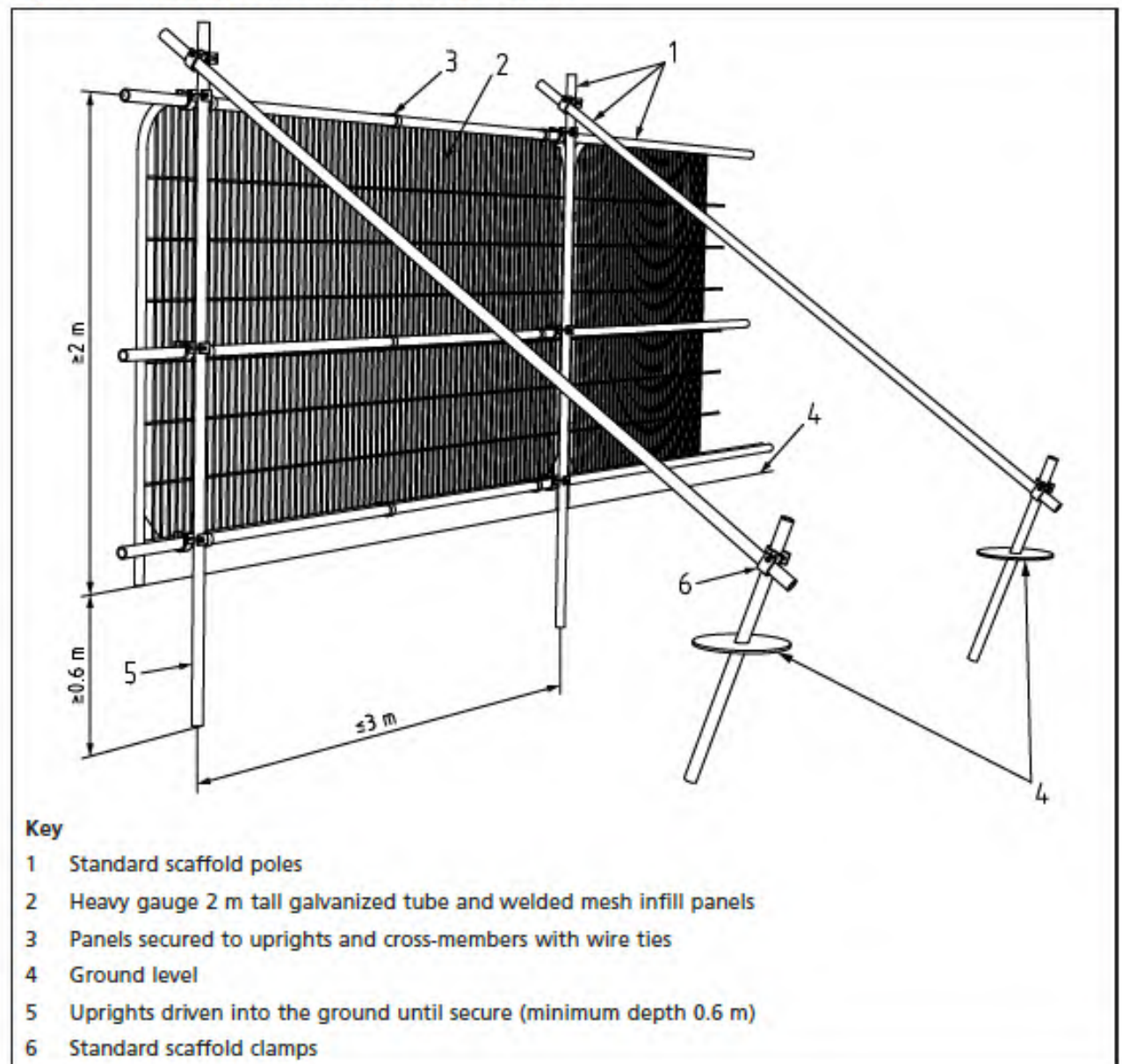
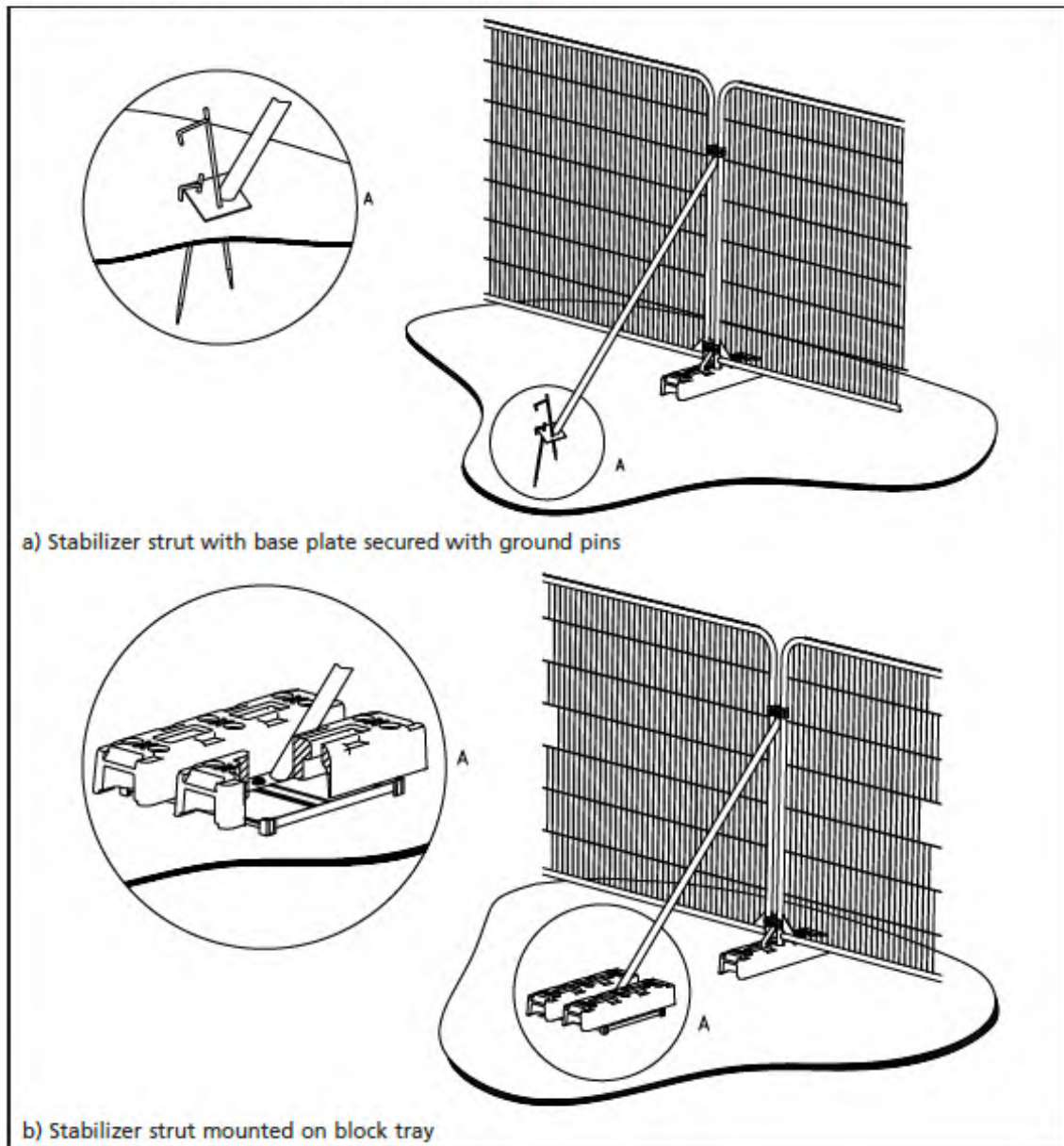


Figure 3 Examples of above-ground stabilizing systems



TREE PROTECTION AREA KEEP OUT!

TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND ARE SUBJECTS OF A
TREE PRESERVATION ORDER
(TOWN & COUNTRY PLANNING ACT 1990)

CONTRAVENTION OF TREE PRESERVATION ORDER MAY LEAD TO CRIMINAL PROSECUTION

THE FOLLOWING **MUST** BE OBSERVED BY ALL PERSONS:-

- THE PROTECTIVE FENCING MUST NOT BE REMOVED
- NO PERSON SHALL ENTER THE PROTECTED AREA
- NO MACHINE OR PLANT SHALL ENTER THE PROTECTED AREA
- NO MATERIALS SHALL BE STORED IN THE PROTECTED AREA
- NO SPOIL SHALL BE DEPOSITED IN THE PROTECTED AREA
- NO EXCAVATION SHALL OCCUR IN THE PROTECTED AREA

ANY INCURSION INTO THE PROTECTED AREA MUST BE
WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY



**TREE
PROTECTION
AREA**

**DO NOT
REMOVE**



PROTECTIVE FENCING. THIS
FENCING MUST BE
MAINTAINED IN ACCORDANCE
WITH THE APPROVED PLANS
AND DRAWINGS FOR THIS
DEVELOPMENT.

MUT182



**TREE PROTECTION AREA
KEEP OUT!**

(TOWN & COUNTRY PLANNING ACT 1990)
TREES ENCLOSED BY THIS FENCE ARE PROTECTED
BY PLANNING CONDITIONS AND/OR ARE THE
SUBJECTS OF A TREE PRESERVATION ORDER.
CONTRAVENTION OF A TREE PRESERVATION ORDER
MAY LEAD TO CRIMINAL PROSECUTION.
ANY INCURSION INTO THE PROTECTED AREA MUST
BE WITH THE WRITTEN PERMISSION OF THE
PLANNING AUTHORITY

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Appendix D

Trunk Protecta® Specification

Trunk Protecta®

Tree Trunk Protection

Spec Text

- 1.2m/1.8m Trunk Protecta® by Green Grid Systems for temporary tree trunk protection

The Green Grid Systems Trunk Protecta is designed for use on trees at roadside site entrances, or on trees located near roadways with passing traffic. These are areas where it is not possible to fence off the tree, or where ground protection and vehicles are present in the root protection area.

Features

- Easy-to-install
- Abrasion and accidental damage protection
- Wraps around the trunk at ground level, protecting the first 1.2m of the trunk.
- Higher level protection achieved using a 1.8m variant, or by stacking units
- Prevents wounds and tear injuries that could allow disease and decay to enter the tree.



The protecta is made from waterproof canvas to prevent the unit from holding water and starting rot. The canvas is hi-vis orange and banded with two stripes of reflective tape to ensure it is highly visible, even in low light situations. The protecta can be used on trees with a diameter (DBH) between 100-160cm, quick release straps enable the protecta to be tightened for the smaller trees, and multiple protecta's can be used for trees larger than 160cm.



Trunk Protecta®

Tree Trunk Protection

Model:	TP-1.2
Height:	1200mm
Length:	1.9m
Weight:	16kg
Trees up to circumference:	1.6m
Colour:	Hi-vis Orange

Model:	TP-1.8
Height:	1800mm
Length:	1.9m
Weight:	22kg
Trees up to circumference:	1.6m
Colour:	Hi-vis Orange

