

Bury Hospice Car Park Upgrade

Arboricultural Impact Assessment

Bury Hospice

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1 Introduction

1.1 Background

- 1.1.1 AECOM has been instructed by Bury Hospice (The Applicant) to carry out an Arboricultural Impact Assessment of the development proposals at Bury Hospice, Rochdale Old Rd, Bury, BL9 7RG (hereafter referred to as 'the Site' and 'Proposed Development') in support of a planning application. This report identifies the likely direct and indirect impacts of the Proposed Development along with suitable mitigation measures, as appropriate. The Tree Protection Plan (included within Appendix E) identifies trees to be removed and how retained trees are to be successfully protected.

1.2 Trees and the Planning Process

- 1.2.1 The National Planning Policy Framework (NPPF, 2021) seeks to ensure that new development is sustainable and underlines the importance of Green Infrastructure, of which trees form an integral part. This encompasses a recognition of the importance of trees in relation to the management of air, soil and water quality along with other associated ecosystem services and climate change adaption. The NPPF also seeks to achieve the protection and enhancement of landscapes and a net gain in biodiversity. Finally, it specifically identifies veteran and ancient trees and woodland as a highly valuable and irreplaceable habitat.
- 1.2.2 'BS5837:2012 *Trees in relation to design demolition and construction – Recommendations (BS5837:2012)*' provides a framework which sets out how trees should be considered in this context and also explicitly applies to development where planning consent is not required.
- 1.2.3 BS5837:2012 recommends that a tree survey is undertaken to identify the quality and benefits of trees and the spatial constraints associated with them. This is then used to produce a Tree Constraints Plan showing the above and below ground constraints associated with trees. This drawing is used to inform the design process and to allow the retention of good quality trees where appropriate.
- 1.2.4 An Arboricultural Impact Assessment is then developed to identify the likely direct and indirect impacts of the Proposed Development, and a Tree Protection Plan is prepared to identify trees to be removed or retained and to illustrate how retained trees are to be protected. An Arboricultural Method Statement is often required as a condition of planning consent to detail how sensitive operations are to be achieved in proximity to retained trees. These elements are the minimum normally required for a planning application and are intended to ensure both a sustainable and harmonious relationship between trees and new development.

1.3 Local Policy Context

- 1.3.1 Local Planning Authorities (LPA) in the UK have a statutory duty to consider both the protection and planting of trees when considering planning applications. The potential impact of development on all trees (including those not protected by a Tree Preservation Order or other statutory designation) is therefore a material consideration.
- 1.3.2 The Site is within the planning authority of Bury Council (BC).
- 1.3.3 A desktop review of BC's planning policies relating to trees was undertaken 6th July 2023, including: the Bury Unitary Development Plan (UDP)¹, the Bury Local Plan² Topic Paper 7 Natural Environment, and Supplementary Planning Documents (SPD) 11 (Development Control Policy Guidance Note 11 Parking Standards in Bury), and 16 (Development Control Policy Guidance Note 16 Design and Layout of New Development in Bury).
- 1.3.4 The Bury UDP was adopted by the Council in 1997 and, although soon likely to be replaced with the Bury Local Plan, it is currently used to make planning decisions. Within the UDP, Part 2, Chapter 6, Environment one of the main objectives is stated as;

Objective 4: To retain trees and encourage new tree planting.

- *The retention of woods, copses and trees.*

¹ <https://www.bury.gov.uk/planning-building-control/policy-and-projects/planning-policy/adopted-bury-unitary-development-plan>

² <https://www.bury.gov.uk/planning-building-control/policy-and-projects/planning-policy/bury-local-plan>

- *The encouragement of new and replacement tree planting.*
- *The support of the Red Rose Forest initiative.*

1.3.5 This is supported in the UDP by policy EN8- Woodland and Trees which states;

The Council will support the retention of trees, woods, copses and hedgerows and encourage natural regeneration and new and replacement tree planting throughout the Borough.

E-8/1 - Tree Preservation Orders

The Council will make Tree Preservation Orders where they are needed to protect trees and woodlands.

EN8/2 - Woodland and Tree Planting

The Council will support and encourage new woodland and tree planting in the Borough. In considering development proposals, the Council will encourage the planting of hedges, trees and woodlands using locally native species.

EN8/3 - Red Rose Forest

The Council will seek an increase in tree cover in the Borough as part of its contribution to the development of the Red Rose Forest. In particular, this will be achieved and promoted through the following measures

- *the Council undertaking tree planting on its own land;*
- *private land owners being encouraged to undertake tree planting and participate in partnership schemes;*
- *the Council seeking the planting of trees or hedges as part of development proposals, where appropriate;*
- *the inclusion of tree planting as part of environmental improvement or derelict land reclamation schemes, where appropriate.*

1.3.6 Section 2.5 of the Bury Local Plan (yet to be adopted) identifies the importance of the NPPF regarding trees and development proposals, highlighting *“recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland”*

1.3.7 Development Control Policy Guidance Note 11 Parking Standards in Bury identifies the importance for the protection of trees and hedgerows in policy H2/2 *“The Layout of New Residential Development. New residential development will be required to demonstrate acceptable standards of layout. Factors to be considered when assessing proposals will include:*

...g) protection/provision of trees and hedgerows;”

1.3.8 Appropriate development layout in relation to green infrastructure is identified within the Development Control policy Guidance Note 16 Design and Layout of New Development in Bury, stating:

“3d. Development should be well designed and visually attractive in order to encourage civic pride.

Integrate trees and other soft landscape elements with elements of street furniture and paving in a coordinated way.”

“4d. Development should integrate car parking in a sensitive manner.

The introduction of street trees and landscaping provide the opportunity to frame the street and prevent cars from dominating”

1.4 Methodology

1.4.1 The tree survey has been based on the topographical survey plan provided (ref: 23D103/001 produced by Survey Operations).

1.4.2 A small number of trees were not included on the topographical survey plan and have been plotted indicatively with reference to site features and publicly available aerial photography. Such trees have been marked with an “*” on the Tree Survey Schedule included as Appendix B. As such all positions for these trees must be considered to be indicative only and the relative distances of features must be measured out on the Site as required.

- 1.4.3 The survey was otherwise conducted in accordance with the requirements of *BS5837:2012*.
- 1.4.4 The initial fieldwork was undertaken on 29th June 2023, during which dimensional data and observational information were collected. A diameter tape measure was used to measure stem diameters where feasible.
- 1.4.5 The fieldwork informing this report has comprised a preliminary, non-intrusive, visual survey undertaken from ground level with the specific intention of evaluating the quality and benefits of trees on the Site.
- 1.4.6 Where further inspection is deemed appropriate to ascertain the condition of the tree or other arboreal features, this has been identified within the preliminary management recommendations. Average dimensions or dimensional ranges have occasionally been used, where appropriate, to best describe features.
- 1.4.7 The Root Protection Area (RPA) is the notional extent of what is considered to be the key rooting area for tree health and function. This is generally depicted as a circle but can be amended to a polygon with an equivalent area in accordance with Section 4.6.2 of *BS5837:2012* where the RPA is likely to have developed asymmetrically. The RPAs of all surveyed trees are depicted as a circle and no RPAs have been amended.
- 1.4.8 A Tree Constraints Plan showing the position of trees and the spatial constraints associated with them is included as Appendix A of this report, which corresponds with the Tree Survey Schedule presented in Appendix B.
- 1.4.9 The tree categorisation process recommended by *BS5837:2012* is summarised in the table below and corresponds with the tree canopy outline shown on the Tree Constraints Plan (Appendix A) and the information in the Tree Survey Schedule (Appendix B).

Category	Definition
A	High quality, minimum of 40+ years remaining contribution
B	Moderate quality, minimum of 20+ years remaining contribution
C	Low quality, minimum of 10+ years remaining contribution
U	Unsuitable for retention, <10 years remaining contribution
1	Arboricultural value
2	Landscape value
3	Conservation or cultural value

Table 1. BS5837:2012 Tree categorisation process.

2 General Arboricultural Principles

2.1 General Principles

- 2.1.1 Trees are dynamic living organisms which provide essential benefits to society and the wider environment. Any Proposed Development with the potential to impact on trees must take into consideration the value of trees on the Site; the impact of any proposed activity along with any potential future conflicts on the Site. Suitable measures to safeguard retained trees or mitigate the loss of trees (to be removed) will need to be fully considered and may be subject to a condition of planning consent.
- 2.1.2 Tree branches and roots frequently grow across site boundaries and off-site trees can pose a significant constraint, and should be carefully considered when assessing the developable space within a site.

2.2 Below Ground Constraints

- 2.2.1 Below ground tree roots and the soil environment in which they grow need to be protected if the tree is to be retained. Trees grow in association with fungi and other soil organisms which are of key importance to tree health. Roots are essential for anchorage, the uptake of water and nutrients, and the storage of energy (carbohydrates) for the future growth and function of the tree.
- 2.2.2 Roots can be damaged by physical severance or wounding (e.g., following excavation of the soil) which can lead to the development of decay and a decline in vitality and/or instability. Raising the soil level can bury tree roots at a depth where suitable conditions for growth are less available. Toxic materials discharged into the soil (such as cement-based aggregates, fuel and chemicals) can lead to root death and dysfunction. Soils can be compacted to levels inhospitable to tree growth with even a single pass of machinery, regular pedestrian traffic or the storage of plant and materials. Relieving compaction can be problematic and may require costly remedial works. Changes in drainage/water levels can also have significant long-term impacts for tree health.
- 2.2.3 The effects of these incursions may take many years to manifest, with a resulting decline in amenity value and potentially the death or failure of the tree. It should be noted that older trees are particularly sensitive to damage and changes in conditions.
- 2.2.4 The Root Protection Area (RPA) is a notional area considered to be the minimum zone that must be protected to avoid any adverse impacts on retained trees. This area is deemed to be particularly important for tree stability, growth, function and health. However, roots may extend far greater distances, with the distribution of the root system relating directly to the availability of suitable conditions for growth (namely oxygen, water and nutrients). It is generally accepted that tree roots are predominantly located in the upper 1000mm of soil; however, roots may develop at deeper levels where conditions allow.
- 2.2.5 RPAs are calculated as per BS5837:2012 Annex C, D and Section 4.6 in the BS5837:2012 Document.
- 2.2.6 The RPA of the existing tree stock is an important material consideration when considering site constraints and planning development activities. The RPA of significant trees on the Site are shown on the Tree Constraints Plan (Appendix A).
- 2.2.7 The default position must be that all development, including any associated services will occur outside the RPAs of retained trees. Where this is unavoidable, it may be appropriate to use special measures to install structures, services or surfacing within RPAs which allow the protection of roots and soil structure which are essential for tree growth and keep any incursion to a minimum.
- 2.2.8 Further steps to improve or increase the useable rooting area available to the tree may also be required.

2.3 Soils

- 2.3.1 No on-site soil assessment has been undertaken at this stage. The following details a desk-based assessment undertaken on 6th July 2023.
- 2.3.2 The British Geological Survey's Geology Viewer³ identifies bedrock geology on the Site as Pennine Lower Coal Measures Formation - mudstone, siltstone and sandstone with superficial deposits of Till, Devensian – Diamicton.
- 2.3.3 Cranfield university's Soilscales map viewer⁴ was accessed. Soils are described as freely draining, slightly acid, loamy soils.

³ [BGS Geology Viewer \(BETA\)](#)

⁴ [Soilscales soil types viewer - Cranfield Environment Centre. Cranfield University \(landis.org.uk\)](#)

- 2.3.4 On shrinkable soils, tree growth can lead to the differential movement of structures as moisture is removed from the soil during the growing season. Soils must be carefully assessed, and any foundations must be installed following the recommendations of National House Building Council (NHBC) Standards Chapter 4.2: *Building Near Trees (2023)* to avoid potential future damage. Where trees which predate existing structures are to be removed, this can result in heave as the soils are re-wet.
- 2.3.5 The advice of a suitably qualified engineer must be obtained to inform any potential issue of heave.
- 2.3.6 Specific advice in relation to these issues is beyond the scope of this report.

2.4 Above Ground Constraints

- 2.4.1 Tree stems and branches can restrict available space on a site. Damage or wounding (including excessive pruning) can significantly reduce the amenity contribution of the tree and may lead to the development of dysfunction and decay, with significant long term implications for tree health. The future impact of existing trees should be carefully considered, including individual species characteristics (such as potential future size, fruit fall, shade etc.) and how the tree will interact with any proposed development and future land use. Annual tree growth can lead to direct damage if stems/branches (or roots) come into physical contact with structures and this must also be taken into consideration.

2.5 Trees and Risk in the Context of Development

- 2.5.1 Tree owners/managers have a legal duty to prevent foreseeable harm. It is generally accepted that this duty can be fulfilled by undertaking proactive inspections of significant trees to identify obvious defects and by taking appropriate remedial action or gaining further advice as appropriate.
- 2.5.2 Further guidance is available from the National Tree Safety Group⁵.
- 2.5.3 The tree survey carried out as the basis of this report is primarily for planning purposes, focusing on the quality and benefits of the trees and is not specifically designed to assess the safety of trees on the Site. However, when obvious issues have been identified recommendations have been included in the Tree Survey Schedule.
- 2.5.4 The Construction (Design and Management) Regulations (2015) states that developers and contractors have responsibilities for health and safety as a result of their actions. Should trees be left in an unstable or hazardous condition the Health and Safety Executive (HSE) could seek to prosecute those responsible along with the potential for further Civil claims for damages.

2.6 Trees and Wildlife

- 2.6.1 Full consideration must be given to the presence of species protected under the Wildlife and Countryside Act (1981 - as amended), the Countryside Rights of Way Act (2000) and the Conservation of Habitats and Species Regulations (2017), in particular the presence of bats and nesting birds. It is recommended that wherever possible, significant tree/hedge works take place outside of the typical bird nesting season of March to September. The advice of a suitably qualified Ecologist is recommended in relation to any potential impacts on protected species.

2.7 Tree Works

- 2.7.1 Any tree surgery recommendations contained within this report are to be undertaken in accordance with BS3998: 2010 Tree work – Recommendations (BS3998:2010) by suitably qualified and insured contractors. Significant pruning works are best undertaken when trees are dormant or outside periods of high functional activity to reduce the overall impact on energy available to the tree for growth and processes. In general, the optimum period for works is between November to February and July to August (subject to the presence of protected species) when the tree is less active and better placed to respond to wounding and a reduction in leaf area.

⁵ National Tree Safety Group (NTSG), 2011. Common sense risk management of trees. Forestry Commission.

3 Field Work Observations

3.1 The Site

- 3.1.1 The Site boundary is shown on the Tree Constraints and Protection Plans.
- 3.1.2 The Site is located at Bury Hospice, north of Rochdale Road. The existing use of the Site is an active hospice, with associated infrastructure (e.g., structures, parking, overhead lighting etc.) and ornamental landscaping.
- 3.1.3 Topography is generally level with minor undulation around built features and paths, with no dominant aspect.

3.2 The Trees

- 3.2.1 In total, 18 tree features were identified during the fieldwork, formed of 14 individual trees, one tree group and three hedgerows.
- 3.2.2 The trees on the Site are identified between the age ranges of young to mature and in a fair to good structural and physiological condition. An approximate age range distribution is shown in the Figure below.

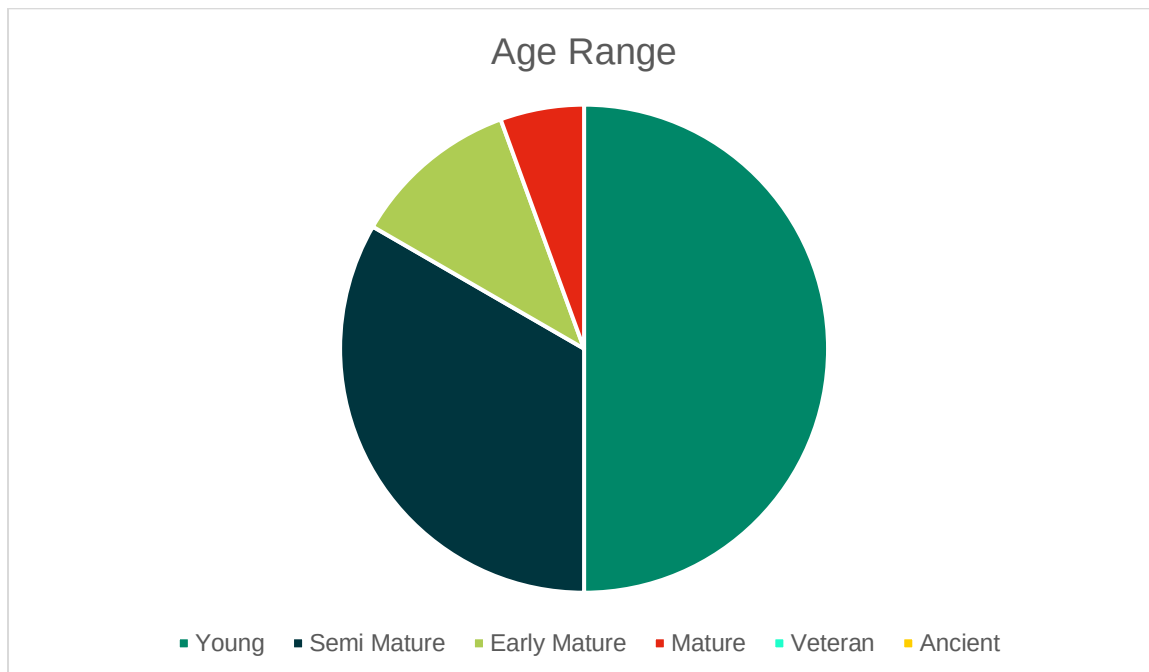


Figure 1. Approximate age range of trees on and immediately adjacent to the Site.

- 3.2.3 Species identified on and immediately adjacent to the Site are shown in Table 2.

Species Common Name (<i>Scientific Name</i>)
beech (<i>Fagus sylvatica</i>)
common ash (<i>Fraxinus excelsior</i>)
common lime (<i>Tilia x europaea</i>)
downy birch (<i>Betula pubescens</i>)
flowering cherry (<i>Prunus sp.</i>)
goat willow (<i>Salix caprea</i>)

Species Common Name (<i>Scientific Name</i>)
hawthorn (<i>Crataegus monogyna</i>)
holly (<i>Ilex aquifolium</i>)
Lawson cypress (<i>Chamaecyparis lawsoniana</i>)
Leyland cypress (X <i>Cupressocyparis leylandii</i>)
sessile oak (<i>Quercus petraea</i>)
sycamore (<i>Acer pseudoplatanus</i>)

Table 2. Genera and species identified on and immediately adjacent to the Site.

3.2.4 Table 3 below summarises the number of trees in each quality category recorded within or adjacent to the Site.

Quality Category	A	B	C	U
Number of tree features	1	3	13	1

Table 3. Summary of tree features in each quality category.

- 3.2.5 The most significant tree included within the survey is T1, a white poplar identified as high quality (category A), forming the eastern-most edge to a mature poplar tree group, providing high amenity and landscape contribution, in addition to the inherent ecosystem services of mature trees.
- 3.2.6 To the north within the Site, a low quality (category C) scrub group (H6) forms boundary hedging and subsequent screening to the public footpath immediately beyond. Trees are present within this hedgerow as emergent features and are typical of self-set wild trees.
- 3.2.7 Beyond the Site boundary to the north, three third-party tree features are identified, of moderate quality (category B) and one of low quality (category C).
- 3.2.8 To the southeast outside of the Site boundary, flowering cherries are established within formal planting areas, typical of commercial landscaping.
- 3.2.9 To the west, the scrub group tapers to the mature poplar boundary feature.
- 3.2.10 Site photography can be found at Appendix D located to the rear of this report.

3.3 Statutory and Non-Statutory Designations

Statutory Designations

- 3.3.1 Bury Council's online Tree Preservation Order (TPO) and Conservation Area (CA) mapping⁶ was accessed on 6th July 2023. No TPOs or CAs are identified on or immediately adjacent to the Site.

⁶ <https://maps.bury.gov.uk/externalwebmap/Map.aspx?MapName=PA>

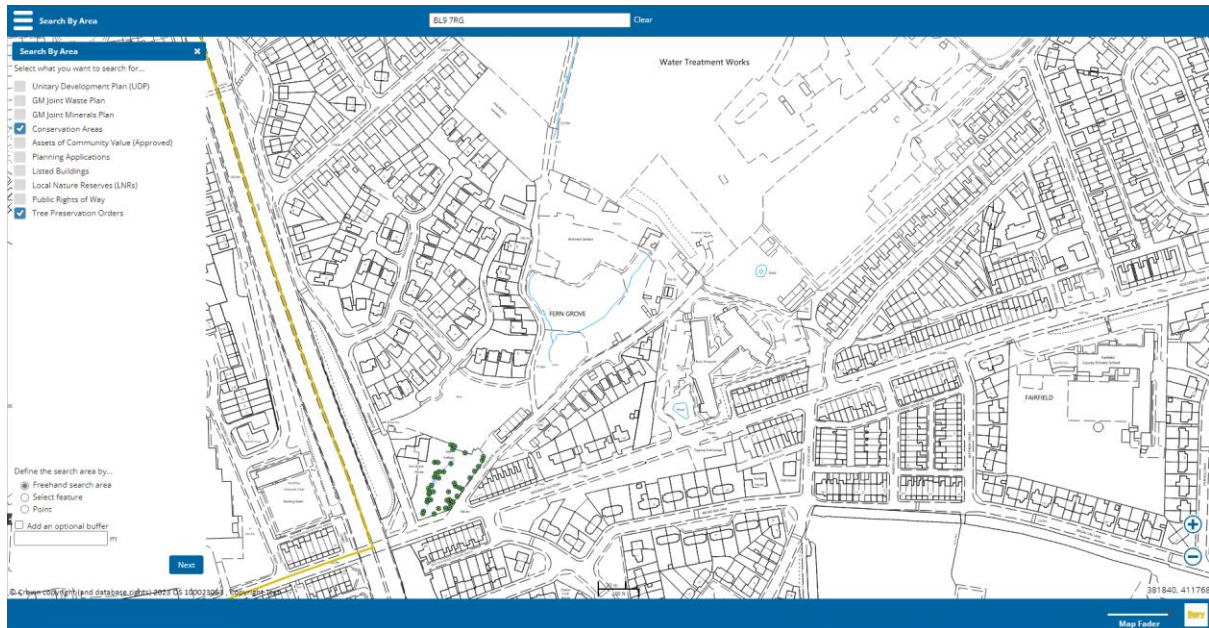


Figure 2. Excerpt of BC's online mapping showing no TPOs or CAs on or immediately adjacent to the Site.

- 3.3.2 Magic Map was checked on 6th July 2023 for the presence of Sites of Special Scientific Interest (SSSI) and none were identified on or immediately adjacent to the Site.
- 3.3.3 The Hedgerow Regulations (1997) protect agricultural or countryside hedgerows which meet the requirements of an 'important hedgerow'. These include a minimum length of 20m (or meets another hedge at each end) and a minimum age of at least 30 years. A wide range of other ecological and archaeological/heritage features can constitute an important hedgerow and further advice from a qualified ecologist is recommended in advance of any planned works which could impact established hedgerows on or bordering agricultural or countryside land. Prior to the removal or destruction of a protected hedgerow an application must be made to the Local Planning Authority. Full planning consent is an exemption to this requirement.
- 3.3.4 A felling licence may be required by the Forestry Commission to fell more than 5m³ in any calendar quarter (subject to relevant exceptions including trees in gardens, designated public open spaces or churchyards).
- 3.3.5 Full planning consent is an exemption from the need to apply for consent for works to trees protected by a Tree Preservation Order, the need to give notice of the intention to undertake works within a Conservation Area and the need to apply for a Felling Licence with the Forestry Commission (to fell more than 5m³ per calendar quarter). Prior to any tree works the status of trees to be removed or pruned must be verified with the LPA and the Forestry Commission as appropriate.

Non-Statutory Designations

- 3.3.6 Following a review of Magic Map on 6th July 2023, the Site includes no ancient semi natural woodland, replanted ancient woodland, or any priority habitat inventory designations which could affect trees.

MAGiC

Bury Hospice

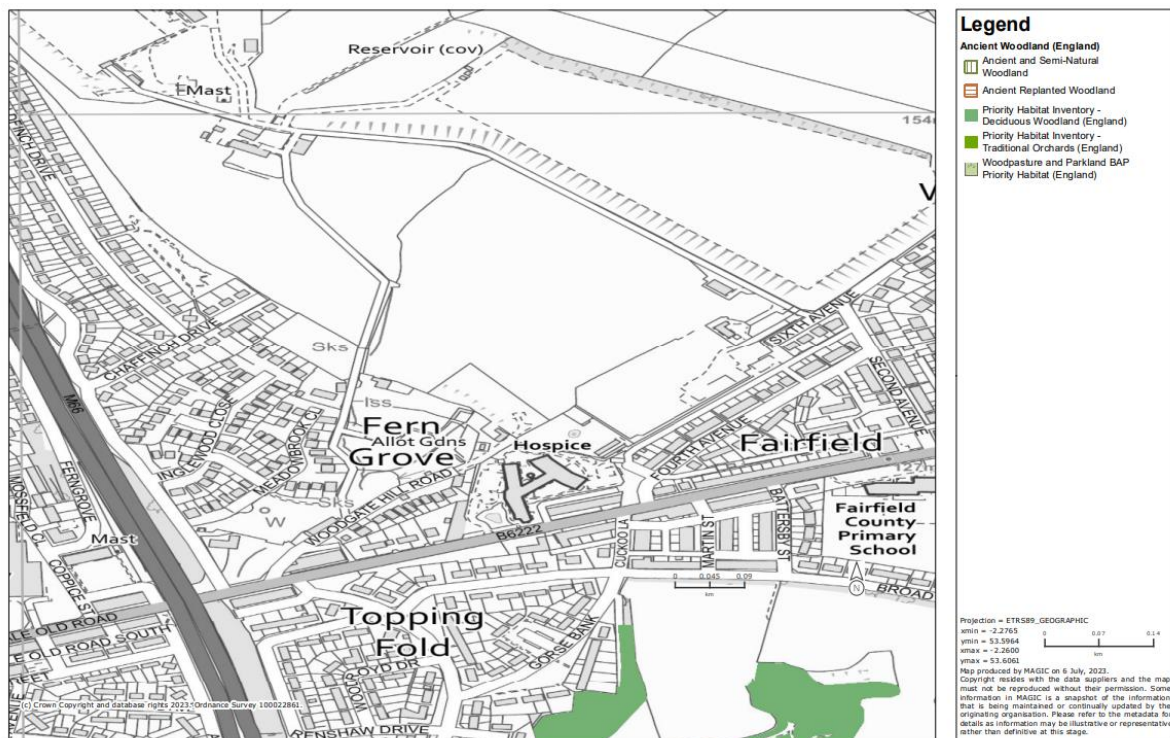


Figure 3. Magic Map.

- 3.3.7 Following a review of the Woodland trust's Ancient Tree inventory on 6th July 2023, no recorded ancient, veteran or notable trees are identified on or immediately adjacent to the Site.
- 3.3.8 No ancient or veteran trees were identified during the fieldwork.

4 Arboricultural Impact Assessment

4.1 The Proposed Development

- 4.1.1 The Proposed Development is detailed on the Tree Protection Plan included as Appendix E (ref 08240054-ACM-XXX-XX-DR-AR-00002) and includes the development of additional car parking with associated hard and soft landscaping, and infrastructure (e.g., utilities) within the boundary of Bury Hospice.

4.2 Purpose

- 4.2.1 This impact assessment sets out the likely principal direct and indirect impacts of the Proposed Development on the tree features on or immediately adjacent to the Site and suitable mitigation measures to allow for the successful retention of significant trees or to compensate for tree features to be removed, where appropriate.
- 4.2.2 A brief summary of tree features to be removed, tree works and incursions related to the Proposed Development are detailed within the table below.

Table 4: Summary of Removals, Incursions and Pruning to Facilitate the Proposed Development

Impact	Category A	Category B	Category C	Category U
Tree features to be removed to facilitate the Proposed Development	0	0	H4 (part), H6, H7 and T8.	0
Total	0	0	Two Hedgerows, one part Hedgerow and One Individual Tree.	0
Trees which may require some incursion into their construction exclusion zone to allow the Proposed Development.	0	T10, T11 and T12.	T13	0
Total	0	Three Individual Trees.	One Individual Tree	0
Trees to be pruned to facilitate the Proposed Development	0	T10 and T12.	T13	0
Total	0	Two Individual Trees.	One Individual Tree	0

4.3 Trees to be Removed

- 4.3.1 One individual tree, two hedgerows and part of a third hedgerow are proposed for removal to facilitate the Proposed Development, all of which are classified as of low arboricultural quality (category C).
- 4.3.2 All of the tree features to be removed are within the Bury Hospice Site boundary.
- 4.3.3 Tree removals are required due to a direct conflict with the proposed new hard surfacing's footprint, and to avoid inappropriate tree retention close to the proposed new surfacing where onerous ongoing tree management would be necessary to maintain appropriate clearances.
- 4.3.4 Due to the arboriculturally low quality of the tree features proposed for removal, tree removals may be mitigated with a high-quality scheme of new tree planting and associated landscaping works which will represent an opportunity to enhance the quality, benefits and resilience of trees on the Site.
- 4.3.5 All of the remaining recorded trees can be retained and protected.

4.4 Tree Works

- 4.4.1 Tree removals and tree pruning works to facilitate the Proposed Development are detailed in the Tree Survey Schedule included as Appendix B.
- 4.4.2 Third party trees T10 and T12 (category B) are to be pruned back to the Site boundary. These works are necessary to prevent direct contact to any low hanging branch apices over the Site. This level of pruning will not have a negative impact on the health or amenity of these trees. As these trees are owned by third

parties the pruned branches must be offered back to the tree owner. Careful pruning of overhanging branches is permitted via established rights in common law (subject to planning approval).

- 4.4.3 Some minor reduction pruning may be required to T13 to allow access. This level of pruning will not have a negative impact on the health or amenity of this tree.
- 4.4.4 No additional works to retained trees are likely to be required. All tree work is to follow the principles of *BS3998: 2010 Treework – Recommendations* and must be carried out by suitably qualified and insured contractors. The Arboricultural Association provides a list of contractors who meet these requirements which can be found at www.trees.org.uk.
- 4.4.5 Should the requirement for additional tree works be identified, this will be discussed with an arboriculturist and no works will be undertaken without the consent of Bury Council.

4.5 New Hard Surfacing within RPAs

- 4.5.1 Standard construction methodologies for the installation of new hard surfacing within the RPAs of retained trees is likely to require significant access and excavation. This may lead to premature tree death through the compaction of soils and the severance of roots enabling colonisation of the inner wood substrate (e.g., by wood decay fungi); a reduction of water uptake and energy storage; hydraulic dysfunction of sapwood and a potentially significant negative affect on tree stability.
- 4.5.2 Root death may be seen where soil levels are increased within RPAs causing a reduction in the normal exchange of soil gases, soil water and a significant increase in mechanical resistance within the soil. Furthermore, the compaction of soil from construction access within RPAs is likely to lead to root death through the aforementioned impacts.
- 4.5.3 New hard surfacing is proposed within the RPA of T10, T11 and T12. Prior to the commencement of works on the Site, trial pits will be excavated by hand dig methodologies only (e.g., using hand tools or an air spade and soil vacuum) to determine the presence or absence of significant roots (generally >25mm in diameter or clumps of smaller roots) at the edge of the proposed new hard surfacing's footprint within the RPAs of T10, T11 and T12 and will be supervised by an arboriculturist. Where individual roots present are under 25mm in diameter, these may be severed back to the face of the excavation with a sharp hand-tool (preferably 100mm beyond the face of the excavation to a lateral root, but no further). Root pruning may only be undertaken with the consent of Bury Council. Construction works may then utilise standard installation methods.
- 4.5.4 Where significant roots (>25mm in diameter) or bundles of roots are present, roots must be preserved (e.g., by back filling the trial holes). The new hard surfacing will then be constructed within RPAs utilising a proprietary three-dimensional cellular raft system (such as Cellweb or ArborRaft), filled with inert angular material and installed on the existing ground level utilising 'no dig' techniques. The raft will be utilised as a subbase for any new hard surfacing, mitigating the requirement for excavation.
- 4.5.5 Edging is typically not a structural requirement of raft systems, however, where required, edging may be cast directly on the raft or utilise pinned supports.
- 4.5.6 This methodology is likely to increase the final level of the hard surfacing and this must be taken into consideration.
- 4.5.7 Soil levels may not be increased within RPAs where compaction of the medium is required. It may be possible to increase levels within RPAs (e.g., to batter the edge of new surfacing to ensure an even transition to adjacent ground) through the use of compaction resistant materials, such as sand, three-dimensional cellular rafts or equivalent. Material must be free draining and uncompacted, utilising materials such as sharp sand (without contamination e.g., builder's sand which contains salts), avoiding contact with the bases of trees.
- 4.5.8 All new hard surfacing works must be supervised by the Site Arboriculturist.

4.6 Soft Landscaping within RPAs

- 4.6.1 Mechanical stripping and cultivation of soil is highly likely to sever roots creating a potential ingress for wood decay fungi, reduce physiological health and potentially significantly affect tree stability. Where impacts are significant, premature tree loss is likely.
- 4.6.2 Soft landscaping is likely required within the RPAs of trees, T15, T16 and T17.
- 4.6.3 No mechanical cultivation of soils may be undertaken within the RPAs of any retained trees. Access should be by pedestrians only. Where isolated cultivation is required, this shall be undertaken by hand dig methodologies only. Where any raising of topsoil is required, this shall not exceed 100mm in depth and will be of good quality and freely draining, installed without significant compaction and avoiding the area immediately surrounding the base of a tree.

4.7 Boundary Fencing within RPAs

- 4.7.1 Installation of boundary fencing may sever roots and compact ground within RPAs leading to aforementioned negative impacts to physiological and structural health.
- 4.7.2 Where required, fence post excavations within the RPAs of retained trees will be undertaken by hand dig methodologies only (such as utilising hand tools or compressed air), with any significant roots (>25mm in diameter) retained and worked around.
- 4.7.3 Where significant roots (>25mm in diameter) or bundles of roots are encountered, fence post excavations should be sensitively repositioned.
- 4.7.4 Fence post excavations should be lined with robust impermeable sheeting to prevent the leaching of toxic chemicals into the surrounding soil.
- 4.7.5 Appropriate ground protection will be required for all access and temporary materials storage within any RPA during installation works.

4.8 Proposed Services

- 4.8.1 The proposed electrical works associated with the Proposed Development, which includes flood lights, electrical charging points and associated connections, have been considered in relation to the tree features to be retained. Some of the proposed works are within proximity of T13. However, works should be aligned outside of the RPA of this tree with its RPA fully protected by temporary fencing. Some pruning may be required as necessary to allow access. However, this will be less than 1m reduction from the northwest side only which will have a minimal impact on the tree.

4.9 Site Organisation, Storage and Use of Materials, Plant and Machinery.

- 4.9.1 All construction site facilities including site huts, staff and contractor parking and areas for storage will be located outside of the RPA or crown spread of retained trees, including those not specifically covered in this report. Space is likely to be constrained on the Site and will need to be carefully considered. The Construction Exclusion Zones identified on the Tree Protection Plan must be fully respected and their location and significance is to be highlighted to all site staff and contractors during the formal site briefing.
- 4.9.2 The use, mixing and washing of materials can lead to run off or inadvertent spillage into tree root zones. Many substances often used on construction sites can be toxic to tree roots (such as concrete, fuels, salts, builders sand and herbicides) and can result in the death of tree roots and beneficial soil organisms and can have a significant impact on the future health and appearance of the tree.
- 4.9.3 The storage of materials and arising's can result in an effective raised soil level. This buries tree roots at depths where air and water are less available and can lead to the decline or death of the tree.
- 4.9.4 For these reasons the storage of materials and any washing, mixing or refuelling will take place in agreed allocated areas at least 5m from the edge of the RPA of retained trees.
- 4.9.5 Any slope effect must be taken into account and where there is a potential for run off, heavy duty polythene sheeting and sandbags must be in place as bunding to prevent toxic materials reaching RPAs.
- 4.9.6 Particular care is required where high sided vehicles, long reach machinery and plant with jibs, booms and counterweights are to operate with in proximity to retained trees. A banksman will be used where the movement of plant or long reach machinery occurs within 5m of any part of a retained tree to ensure no damage is sustained.

4.10 Services

- 4.10.1 It is assumed that no further works to services will be required as part of the Proposed Development. However, where any works to services are required the following guidance should be followed.
- 4.10.2 Where existing services become redundant within the RPA of a retained tree, the default position must be that they be decommissioned and left in situ. Where this is not feasible the following principles are to be observed.

- 4.10.3 Existing services are to be removed by winching out from an access/inspection chamber located outside of an RPA. It may be acceptable to fill redundant pipe work with an inert material or undertake pipe bursting where necessary within the RPA of retained trees.
- 4.10.4 Excavation to install services has the potential to result in unacceptable root severance which could result in instability, dysfunction, or the death of trees. Repeated incursions are particularly damaging and must be avoided by bundling services wherever possible.
- 4.10.5 The default position will therefore be that all services be routed outside of the RPA of retained trees. The following general principles will apply and where services must be routed within the RPA of a retained tree this process will be subject to a detailed method statement with approval from the Planning Authority. The principles of the National Joint Utilities Group (NJUG) Volume 4 guidance must be adhered to.
- 4.10.6 All services must be bundled as far as possible and installed within RPAs using hand/compressed air excavation (e.g. for shallow service runs) or trenchless techniques such as impact moling (thrust boring) with all access pits and inspection chambers being located outside of the RPA. The route must run as far from the main stem of a retained tree as possible and must be at a minimum depth so that the upper 1m of the soil profile is undisturbed. The depth of the run may need to be adjusted to account for soil type and species variation and this must be determined subject to the advice of an arboriculturist.
- 4.10.7 This operation must take place as specified in a Method Statement. Any water pipes must be constructed so as to be resistant to ingress by tree roots (both existing trees, and newly planted trees) which could include the use of root barriers where appropriate.

4.11 Tree Protection

- 4.11.1 Retained trees are vulnerable to damage from construction activities which can include physical damage to stems and branches following impacts with plant. Root severance following trenching, root death or dysfunction following damage to soil structure (caused by the movement of people or machinery on unsurfaced ground) or via the spillage of materials toxic to tree health. The default position is that the RPA and Canopy spread of trees to be retained will form an effective Construction Exclusion Zone, secured with robust fencing where no access will be permitted. Where access is necessary within this area special measures such as the use of ground protection and arboricultural supervision are generally required.
- 4.11.2 Outline tree protection measures are considered in Appendix F of this report. An Arboricultural Method Statement is often required as a condition of planning consent to set out the phasing of site operations, the finalised tree protection measures for the Site and to provide detail on how sensitive elements of work are to be achieved in proximity to retained trees. Issues to be addressed by the Method Statement are listed in the Conclusion of this report.

4.12 Tree Planting

- 4.12.1 Existing areas of unsurfaced ground must be protected during the demolition and construction phases if they are to be re-used for new plantings. Protection can be achieved using fit for purpose ground protection measures as set out in BS5837:2012 Section 6.2.3 or by creating a fenced exclusion zone. Where protection is not feasible, soil amelioration or replacement works will be required to ensure suitable growing conditions for new trees to fully establish.
- 4.12.2 Where new trees are to be planted, the minimum planting distances detailed in Annexe A, Table A.1 of BS5837:2012 must be adhered to, to prevent direct damage to services and structures from future tree growth.
- 4.12.3 New tree planting should be implemented in accordance with the guidance set out in BS8545: 2014 Trees: from nursery to establishment in the landscape – Recommendations.

5 The Future Impact of Trees

5.1 Background

- 5.1.1 The future impact of trees on the Site has been considered in relation to the development proposals. BS5837:2012 indicates that where trees are to be retained the objective must be to achieve a harmonious and sustainable relationship between trees and new development for the long term.

5.2 Honeydew, Leaf and Fruit-fall

- 5.2.1 Lime trees such as T2, are often associated with aphids which secrete a sticky liquid called 'honeydew'. This can be a nuisance for parked cars and potentially areas of hard surfacing and structures as the deposits can lead to the development of sooty moulds and staining. This can be easily cleaned with warm soapy water or equivalent and is likely to be less visible on darker surfaces.
- 5.2.2 Deciduous trees (which includes all the trees surveyed with the exception of G9 and T11) will drop leaves each autumn and this is likely to result in a maintenance requirement to manage leaves on hard surfaced footways and to clear gutters where tree canopies extend over or immediately adjacent to roofs. Leaf fall can be easily cleared as required from hard surfacing. Nonslip surfacing can reduce the frequency that this is required. Measures such as Gutter Guards or equivalent can be used to reduce the potential for leaves to block guttering and these should be employed where trees overhang or grow in close proximity to structures.
- 5.2.3 Evergreen trees (which includes G9 and T10) will deposit leaves/needles, seeds and other detritus throughout the year.
- 5.2.4 Seed, fruit and cone (strobili) fall should be expected from the majority of trees.
- 5.2.5 Honeydew and leaf fall (including seeds, cones etc) are not considered likely to have a significant impact on the future use of the Site or to result in significant pressure to fell trees or undertake damaging pruning works.

5.3 Future Growth

- 5.3.1 Trees and groups to be retained must be afforded suitable space to ensure they remain viable in the long term. Trees which are currently not fully grown will increase in size and this must be considered in conjunction with the Proposed Development and future use of the Site. This is most notable for young to semi mature trees, which includes the majority of the tree features identified during the fieldwork. Future growth of trees is not considered to have a significant negative impact on the Proposed Development.

5.4 Future Land Use and Tree Management

- 5.4.1 The future land use has been fully considered in relation to the trees on and immediately adjacent to the Site. Tree management is not considered to be a significant constraint to developing the Site.
- 5.4.2 During the construction cycle, all staff operating on the Site are to be made aware of the need to look out for obvious signs of tree defects and to report them to the site manager who will seek further advice as required.

6 Conclusions

6.1 Summary

- 6.1.1 One individual tree, two hedgerows and a section of hedging are proposed for removal to facilitate the Proposed Development, all classified as of low arboricultural quality (category C).
- 6.1.2 All of the tree features to be removed are within the Bury Hospice Site boundary.
- 6.1.3 The removal of the tree features is required due to a direct conflict with the proposed new hard surfacing's footprint, and to avoid inappropriate tree retention close to the proposed new surfacing where onerous ongoing tree management would be necessary to maintain appropriate clearances.
- 6.1.4 Due to the arboriculturally low quality of the tree features proposed for removal, tree removals may be mitigated with a high-quality scheme of new tree planting and associated landscaping works which will represent an opportunity to enhance the quality, benefits and resilience of trees on the Site.
- 6.1.5 Third party trees T10 and T12 are to be pruned back to the Site boundary. These works are necessary to prevent direct contact to any low hanging branch apices over the Site. This level of pruning will not have a negative impact on the health or amenity of these trees. Pruned branches must be offered back to the adjacent landowner.
- 6.1.6 Minor reduction pruning may be required to T13 to enable access for the proposed electrical installation works. However, the level of pruning would not impact on the long-term health and amenity value of this tree.
- 6.1.7 No additional works to retained trees are likely to be required. All tree work is to follow the principles of *BS3998: 2010 Treework – Recommendations* and must be carried out by suitably qualified and insured contractors. The Arboricultural Association provides a list of contractors who meet these requirements which can be found at www.trees.org.uk.
- 6.1.8 Should the requirement for additional tree works be identified, this will be discussed with an arboriculturist and no works will be undertaken without the consent of Bury Council.
- 6.1.9 Three moderate quality trees will be subject to an RPA incursion to facilitate the Proposed Development. This can be achieved without a significant negative impact on tree health or amenity via the use of the careful working methods detailed in this report.
- 6.1.10 Soil structure for areas of new tree planting where the ground is currently unsurfaced will either be protected using ground protection or fenced exclusion zones; or the soil structure will be ameliorated or replaced following the construction operations.

6.2 Issues to be addressed by an Arboricultural Method Statement:

- Conditions of planning consent
- Pre commencement meeting and site briefing
- Order and phasing of operations
- Tree works
- Tree protection fencing
- Ground protection
- Site storage and facilities
- Movement of people, plant and materials
- Enabling works
- Trial hole investigations within the RPAs of T10, T11 and T12
- Installation of new surfacing
- Installation of new services and/or diversion of existing services
- Installation of boundary fencing.
- Soft Landscaping
- Removal of tree protection measures

References

British Standards Institution (BSI), BS5837:2012. Trees in relation to design, demolition and construction – Recommendations.

British Standards Institution (BSI), BS3998:2010. Tree work – Recommendations.

British Standards Institution (BSI) BS8545: 2014 Trees: from the nursery to independence in the landscape – Recommendations

Ministry of Housing, Communities and Local Government (MHCLG), 2021. National Planning Policy Framework (NPPF). MHCLG

National House Building Council (NHBC) Standards, (2023). Chapter 4.2: Building Near Trees

National Joint Utilities Group (NJUG) Volume 4, Issue 2, (2007). NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees.

National Tree Safety Group (NTSG), 2011. Common sense risk management of trees. Forestry Commission.

Appendix A Tree Constraints Plan



Appendix B Tree Survey Schedule

Tree ID	Species	Est Height (m)	Stem Diameter (mm)	Canopy N	Canopy S	Canopy E	Canopy W	First Significant Branch (m)	Canopy Clearance (m)	Physiological Condition	Life Stage	Structural Condition	Condition Comments	Preliminary Management Comments	Tree Works to Facilitate the Proposed Development	Estimated Remaining Contribution in Years	Category	Root Protection Area Radius (m)	Area M²
T1	White Poplar (<i>Populus alba</i>)	21	550#	7	7	5	7	10.0/N	11	Fair	M	Good	No access to base. Codominant in canopy. Minor leaf sparsity, branching pattern and leaf quality visually normal.			40+	A2	6.6m	131.5
T2	Common Lime (<i>Tilia X europaea</i>)	7	130#	1	3	1	2	1.5/S	1	Good	SM	Good	High future potential. Emergent.			10+	C1	1.56m	9.4
T3	Goat Willow (<i>Salix caprea</i>)	5	40	3	2.5	2.5	1	0.5/E	2	Good	Y	Good	Rose to immediate west resulting in continuity of hedgerow feature. Immediately north of Site fence.			10+	C1	0.48m	15.1
H4	Beech (<i>Fagus sylvatica</i>)	1	<20	0.5	0.5	0.5	0.5	n/a	0	Good	Y	Good	Managed hedgerow. Considered easily replaceable with a like for like feature within a short timeframe.		Remove section as shown on TPP.	10+	C2	0.24m	20
T5*	Goat Willow (<i>Salix caprea</i>)	5	110	2	2	2	2	1.0/E	1	Good	Y	Fair	Established immediately north of Site fence. Stems in contact - direct damage to fence through radial expansion and dynamic forces likely.	Request tree removal from tree owner (when funds allow).		<10	U1	1.32m	12.5
H6	Hawthorn (<i>Crataegus monogyna</i>), Goat Willow (<i>Salix caprea</i>), Sessile Oak (<i>Quercus petraea</i>), Sycamore (<i>Acer pseudoplatanus</i>), Ash (<i>Fraxinus excelsior</i>), Holly (<i>Ilex aquifolium</i>)	5	50	1	1	1	1	n/a	0	Good	Y	Good	Young hedgerow at Site boundary. Stem exclusion stage. Likely appropriate for laying. Seedlings within becoming emergent. Pyracantha and dog rose throughout.		Remove.	10+	C2	0.6m	299.3
H7	Beech (<i>Fagus sylvatica</i>)	1	20	0.5	0.5	0.5	0.5	n/a	0	Good	Y	Good	Managed hedgerow. Considered easily replaceable with a like for like feature within a short timeframe.		Remove.	10+	C2	0.24m	21.7
T8	Goat Willow (<i>Salix caprea</i>)	6	50,50#	2	2	2	2	3.0/S	3	Good	Y	Good	No access. Emergent in hedgerow. Two willow emerging in proximity - individual locally dominant.		Remove.	10+	C1	0.85m	12.5
G9	Lawson Cypress (<i>Chamaecyparis lawsoniana</i>)	7	<250#	2	2	2	2	n/a	2	Good	SM	Fair	No access. Group subdominant to emergent individuals. Likely planted as screening.			10+	C2	3m	14.6
T10*	Leyland Cypress (<i>X Cupressocyparis leylandii</i>)	12	350#	3	3	3	3	3.0/S	3	Good	SM	Good	No access. Form and leaf density typical of cultivar.		Prune back to Site boundary as required. Pruning points back to nearest lateral branch or branch collar. Offer arisings back to tree owner.	20+	B2	4.2m	28.2
T11*	Downy Birch (<i>Betula pubescens</i>)	10	250,250#	3	0	2	2	3.0/N	5	Good	EM	Fair	No access to base. Poor visibility, viewed from south. Codominant union from circa 1.3m with minor inclusion and adaptive growth.			20+	B2	4.24m	9.4

Tree ID	Species	Est Height (m)	Stem Diameter (mm)	Canopy N	Canopy S	Canopy E	Canopy W	First Significant Branch (m)	Canopy Clearance (m)	Physiological Condition	Life Stage	Structural Condition	Condition Comments	Preliminary Management Comments	Tree Works to Facilitate the Proposed Development	Estimated Remaining Contribution in Years	Category	Root Protection Area Radius (m)	Area M²
T12*	Ash (<i>Fraxinus excelsior</i>)	12	300,300#	6	6	6	2	5.0/S	4	Good	SM	Fair	Lean east, likely positive phototropic growth caused by neighbouring Leyland cypress suppression. High live leaf retention. No obvious symptoms of ash dieback visible.		Prune back to Site boundary as required. Pruning points back to nearest lateral branch or branch collar. Offer arisings back to tree owner.	20+	B2	5.09m	75.2
T13	Flowering Cherry (<i>Prunus sp.</i>)	6	180	3	2	3	2	2.0/E	2	Fair	SM	Good	Upper crown with minor lean east. Unknown cause - suspected previous suppression with tree now removed. Minor leaf sparsity, likely cause of drought. Branching pattern and leaf quality normal. Minor deadwood. Leaf curl present, likely caused by aphids (black fly).		Minor crown reduction by up to 1m from northwest only to allow access for electrical installation. Pruning points back to nearest lateral branch or branch collar.	10+	C1,2	2.16m	19.6
T14	Flowering Cherry (<i>Prunus sp.</i>)	3	80	1	1	1	1	2.0/E	2	Poor	Y	Good	Circa 50% leaf sparsity. No deviation in branching pattern. Retained leaf quality normal. Minor deadwood west due to dieback.			10+	C2	0.96m	3.1
T15	Downy Birch (<i>Betula pubescens</i>)	3	60	1	1	1	1	0.5/S	0	Good	Y	Good	Established within ornamental shrub planting. Likely self sown. Circa 500mm from kerb edge. Good future potential.			10+	C1	0.72m	3.1
T16*	Goat Willow (<i>Salix caprea</i>)	7	60,60,60#	2	2	2	2	2.0/SE	3	Good	Y	Fair	No access due to hedgerow. Three stems in immediate proximity, no visibility of base. Emergent.			10+	C1	1.25m	12.5
T17*	Ash (<i>Fraxinus excelsior</i>)	11	250,250	5	5	5	5	n/a	3	Fair	EM	Good	No access to base. Viewed from north and south. Apical tip dieback in upper crown, notably central, east and south. Dieback to visibly nearest lateral branch. Symptom of ash dieback. Downgraded to C for potential rapid loss.			10+	C1,2	4.24m	78.3
T18	Flowering Cherry (<i>Prunus sp.</i>)	6	140	3	3	3	3	2.0/E	2	Good	SM	Good	700mm from curb edge. 4m live crown.			10+	C1,2	1.68m	28.2

Key to Abbreviations Used in the Survey

Ref No	Specific identification number given to each tree or group. T=Tree/H=Hedge/G=Group/W=Woodland.
Species	Common name followed by scientific name shown in <i>italics</i> .
RPA	Root Protection Area (As defined by BS5837:2012)
Stem diameter	Diameter of main stem, measured in millimetres at 1.5 m above ground level. (MS = Multi-stem tree measured in accordance with BS5837 Annexe C).
Spread	The width and breadth of the crown. Estimated on the four compass points in metres.
Crown clearance	The estimated height (in metres) above ground level of the lowest significant branch attachments.
#	Estimated dimensions.
*	Indicates estimated position of tree (not indicated on topographical survey).
Av	Indicates an average representative measured dimension for the feature.
Category	Categorisation of the quality and benefits of trees on Site as per Table 1 and 2 of BS5837:2012. 1=Arboricultural quality/value 2=Landscape quality/value 3=Cultural quality/value (including conservation) A=High quality/value 40yrs+ (light green). B=Moderate quality/value 20yrs+ (mid blue) C=Low quality/value min 10yrs/stem diameter less than 150mm (grey). U=Unsuitable for retention (dark red).
Life stage	Young (Y): Newly planted tree 0-10 years. Semi-Mature (SM): Tree in the first third of its normal life expectancy for the species (significant potential for future growth in size). Early Mature (EM): Tree in the second third of its normal life expectancy for the species (some potential for future growth in size) Mature (M): Tree in the final third of its normal life expectancy for the species (having typically reached its approximate ultimate size). Over Mature (OM): Tree beyond the normal life expectancy for the species. Veteran (V): Tree which is of interest biologically, aesthetically or culturally because of its condition, size or age.
Structural condition	Good: No significant structural defects Fair: Structural defects which can be resolved via remedial works. Poor: Structural defects which cannot be resolved via remedial works. Dead: Dead.
Physiological condition	Good: Normal vitality including leaf size, bud growth, density of crown and wound wood development. Fair: Lower than normal vitality, reduced bud development, reduced crown density, reduced response to wounds. Poor: Low vitality, low development and distribution of buds, discoloured leaves, low crown density, little extension growth for the species. Dead: Dead Fair/Good = Indicates an intermediate condition Fair – Good = Indicates a range of conditions (e.g. within a group)
Preliminary management recommendations	Works identified during the tree survey as part of sound arboricultural management, based on the current context of the Site (where relevant reference has been made to tree management based on the potential future context of the site).

Appendix C Site Photography



Figure 4. H6 looking north.



Figure 5. T15, T16 and T17 looking northeast.



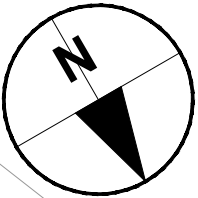
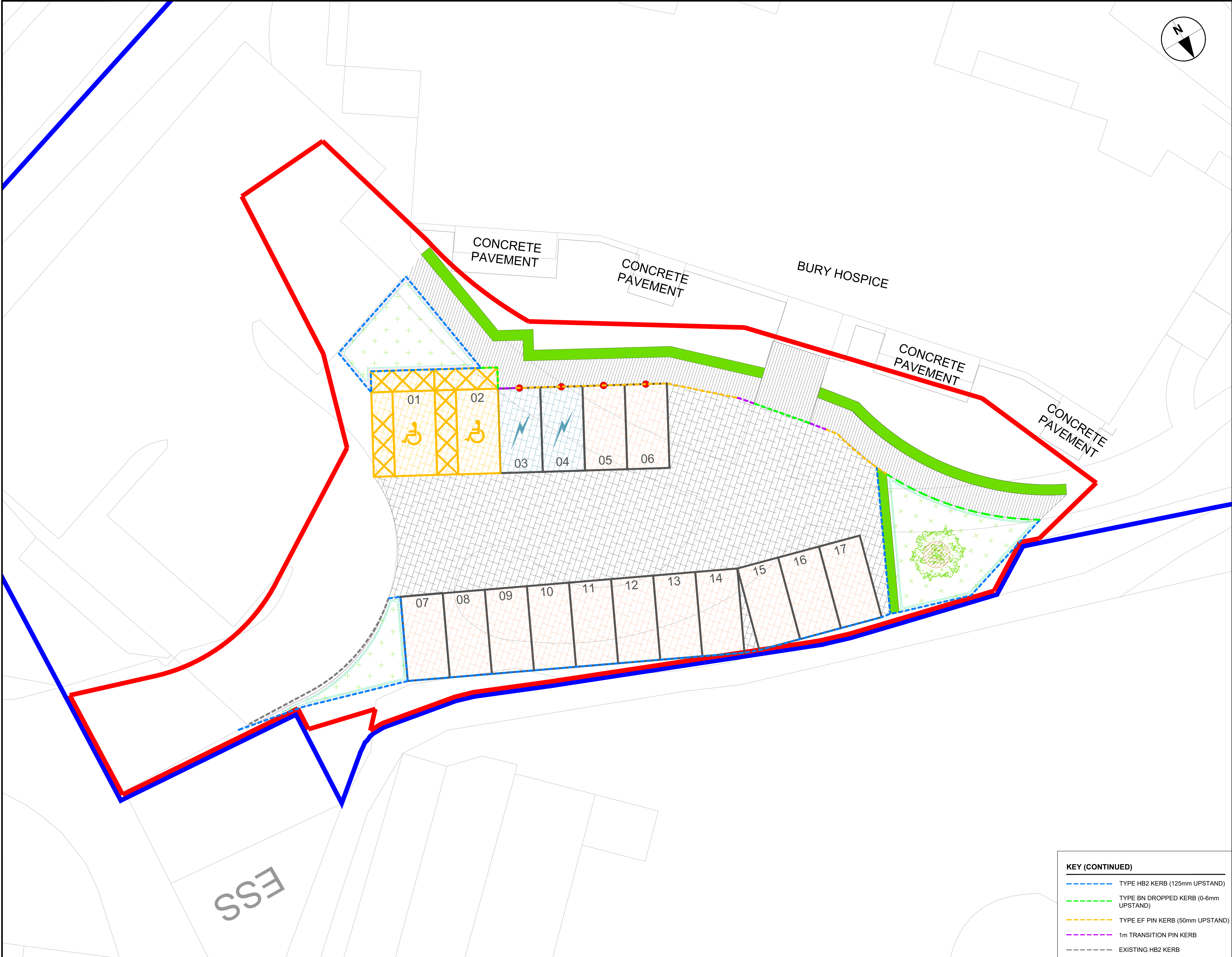
Figure 6. Public footpath immediately north of the Site boundary.



Figure 7. G9, T10, T11 and T12.

Appendix D Development Proposals

ISO A1 594mm x 841mm
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NOTES

- ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS NOTED OTHERWISE.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER SCHEME DRAWINGS AND DOCUMENTS.
- THIS DRAWING IS TO BE USED FOR THE STATED PURPOSE OF ISSUE ONLY AND MUST NOT BE USED FOR ANY OTHER PURPOSE THAN THAT INDICATED.
- ONLY WRITTEN DIMENSIONS SHALL BE USED. CRITICAL DIMENSIONS AND LEVELS SHALL BE VERIFIED ON SITE BY THE CONTRACTOR PRIOR TO WORK COMMENCEMENT.
- ANY DISCREPANCIES IN DIMENSIONS OR DETAILS ON OR BETWEEN THESE DRAWINGS SHALL BE DRAWN TO THE ATTENTION OF THE PROJECT MANAGER FOR CLARIFICATION.
- FOR FURTHER INFORMATION REGARDING CONSTRUCTION IN PROXIMITY TO TREES REFER TO AIA - 08240054-ACM-XXX-XX-RP-AR-00001 ARBORICULTURAL IMPACT ASSESSMENT.

KEY

- ADJOINING LAND OWNED BY THE APPLICANT
- PROJECT BOUNDARY
- PROPOSED PERMEABLE STANDARD PARKING BAY
- PROPOSED PERMEABLE DDA PARKING BAY
- PROPOSED PERMEABLE ELECTRIC CHARGING BAY
- PROPOSED LANDSCAPE AREA
- PROPOSED PERMEABLE PAVING
- PROPOSED ASPHALT FOOTPATH
- PROPOSED 1.7m HIGH HEDGEROW
- PROPOSED CIRCULAR BENCH
- PROPOSED PROTECTION BOLLARD

ISSUE/REVISION

P01	02/08/2023	PLANNING ISSUE	NM	JL	VB
I/R	DATE	DESCRIPTION	BY	CK	AP

SUITABILITY

S2 - Suitable for information

PROJECT NUMBER

08240054

SHEET TITLE

BURY HOSPICE
GENERAL ARRANGEMENT

SHEET NUMBER

08240054-ACM-XX-XX-DR-CE-00003

SCALE

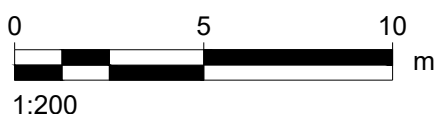
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REVISION

P01

KEY (CONTINUED)

- TYPE HB2 KERB (125mm UPSTAND)
- TYPE BN DROPPED KERB (0-6mm UPSTAND)
- TYPE EF PIN KERB (50mm UPSTAND)
- 1m TRANSITION PIN KERB
- EXISTING HB2 KERB



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DATE RECEIVED
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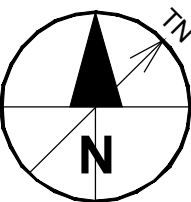
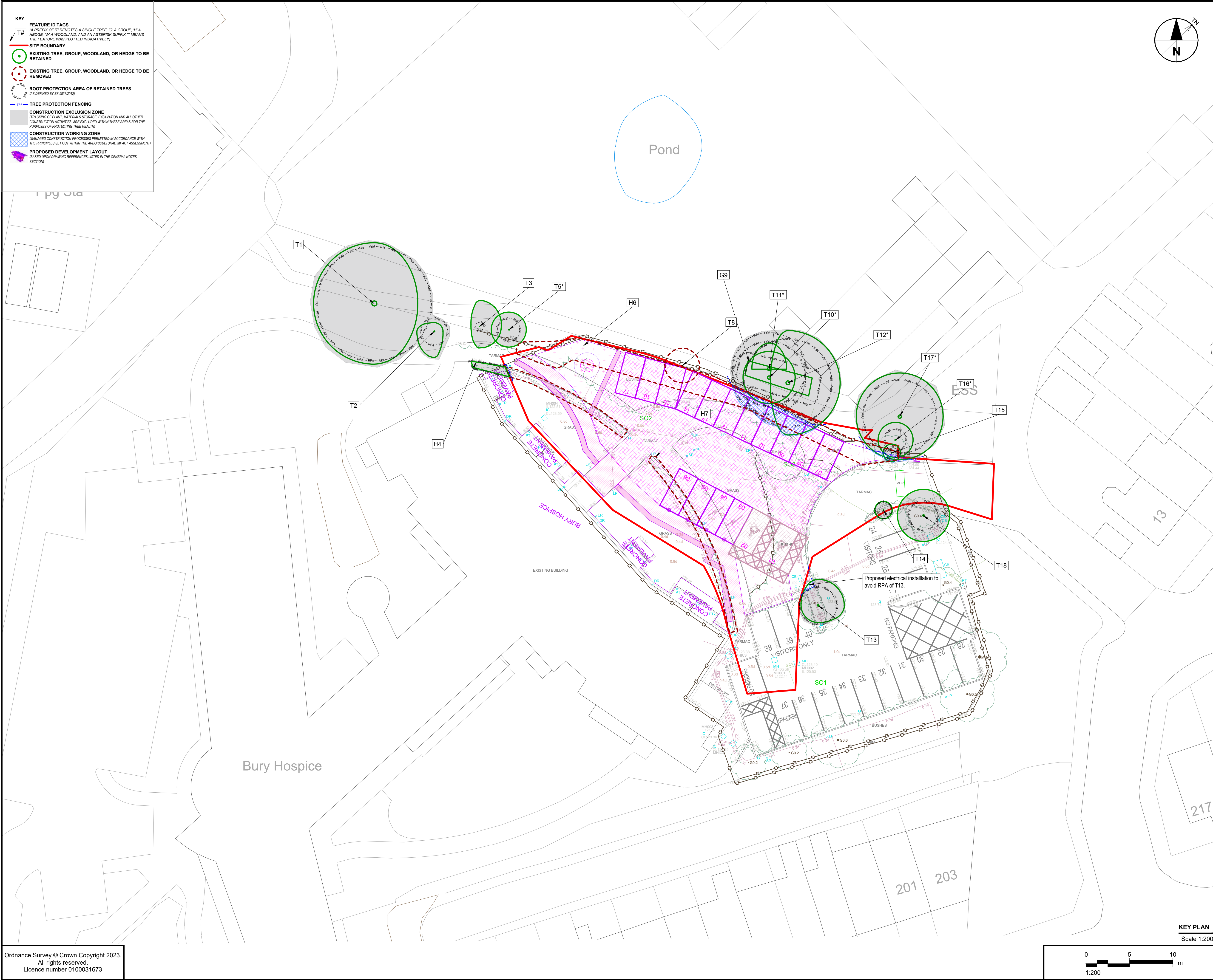
THIRD PARTY INFORMATION

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REFERENCE

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Appendix E Tree Protection Plan



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KEY

FEATURE ID TAGS
(A PREFIX OF 'T' DENOTES A SINGLE TREE, 'G' A GROUP, 'H' A HEDGE, 'W' A WOODLAND, AND AN ASTERISK SUFFIX '*' MEANS THE FEATURE WAS PLOTTED INDICATIVELY)

SITE BOUNDARY

EXISTING TREE, GROUP, WOODLAND, OR HEDGE TO BE RETAINED

EXISTING TREE, GROUP, WOODLAND, OR HEDGE TO BE REMOVED

ROOT PROTECTION AREA OF RETAINED TREES
(AS DEFINED BY BS 5837:2012)

TREE PROTECTION FENCING

CONSTRUCTION EXCLUSION ZONE
(TRACKING OF PLANT, MATERIALS STORAGE, EXCAVATION AND ALL OTHER CONSTRUCTION ACTIVITIES ARE EXCLUDED WITHIN THESE AREAS FOR THE PURPOSES OF PROTECTING TREE HEALTH)

CONSTRUCTION WORKING ZONE
(IMMEDIATE CONSTRUCTION PROCESSES PERMITTED IN ACCORDANCE WITH THE PRINCIPLES SET OUT WITHIN THE ARBORICULTURAL IMPACT ASSESSMENT)

PROPOSED DEVELOPMENT LAYOUT
(BASED UPON DRAWING REFERENCES LISTED IN THE GENERAL NOTES SECTION)

AECOM

PROJECT

BURY HOSPICE CARPARK UPGRADE

CLIENT

BURY HOSPICE

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- NOTES**
- ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS NOTED OTHERWISE.
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER SCHEME DRAWINGS AND DOCUMENTS.
 - THIS DRAWING IS TO BE USED FOR THE STATED PURPOSE OF ISSUE ONLY AND MUST NOT BE USED FOR ANY OTHER PURPOSE THAN THAT INDICATED.
 - ONLY WRITTEN DIMENSIONS SHALL BE USED. CRITICAL DIMENSIONS AND LEVELS SHALL BE VERIFIED ON SITE BY THE CONTRACTOR PRIOR TO WORK COMMENCEMENT.
 - ANY DISCREPANCIES IN DIMENSIONS OR DETAILS ON OR BETWEEN THESE DRAWINGS SHALL BE DRAWN TO THE ATTENTION OF THE PROJECT MANAGER FOR CLARIFICATION.
 - TREE CATEGORIES AS DEFINED BY BS 5837:2012
 - TREE LOCATIONS ARE BASED ON THE TOPOGRAPHICAL SURVEY, AERIAL IMAGERY, AND GPS CO-ORDINATES FROM ON SITE WALKOVER.
 - * INDICATES A TREE / GROUP WHOSE POSITION IS APPROXIMATE AS BASED UPON AERIAL PHOTOGRAPHY AND ON SITE OBSERVATIONS.
 - PLANS SHOULD BE READ IN CONJUNCTION WITH THE AECOM ARBORICULTURAL REPORT.
 - THE ORIGINAL OF THIS DRAWING WAS PRODUCED IN COLOUR - A MONOCHROME COPY SHOULD NOT BE RELIED UPON.
 - DRAWING REFERENCES:
23D103/001

ISSUE/REVISION					
P02	02.08.2023	RLB UPDATE	LH	GA	GT
P01	25.07.2023	First Issue	TR	GA	GT
I/R	DATE	DESCRIPTION	BY	CK	AP

SUITABILITY

S2 - Suitable for information

PROJECT NUMBER

08240054

SHEET TITLE

BURY HOSPICE
Tree Protection Plan

SHEET NUMBER

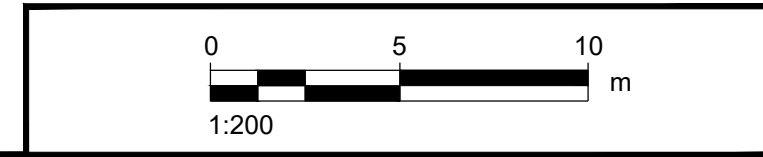
08240054-ACM-XX-XX-DR-AR-00002

SCALE

1:200 @ A1

REVISION

P02



KEY PLAN
Scale 1:200

Appendix F Outline Tree Protection Measures

F.1 Outline Tree Protection Measures

The default position as set out by BS 5837:2012 is that retained trees must be protected from construction operations with the erection of robust protective fencing positioned on the outer edge of the RPA or crown spread (whichever is greatest). All site operations will be restricted to the area outside of tree protection fencing and this area will form a Construction Exclusion Zone (CEZ) unless agreed otherwise. Protection measures will be installed as set out in the Tree Protection Plan included as Appendix E of this report.

The area inside the fence and any additional tree protection measures will be sacrosanct and must not be removed or altered without the prior approval of the LPA Tree Officer. Any damage to tree protection measures must be reported immediately.

Fencing shall be constructed with robust vertical and horizontal scaffold framework with weldmesh panels firmly attached as per BS 5837:2012 Figure 2 (included below). Vertical support poles and bracing poles must be located with care to avoid underground utility services and will be sited to avoid the structural roots of retained trees.

Alternative equivalent robust and immovable fencing specification including site hoarding will also be appropriate.

Suitable all weather signage will be fixed to fencing to notify site staff and visitors of the construction exclusion zone and its purpose (example included as Appendix G).

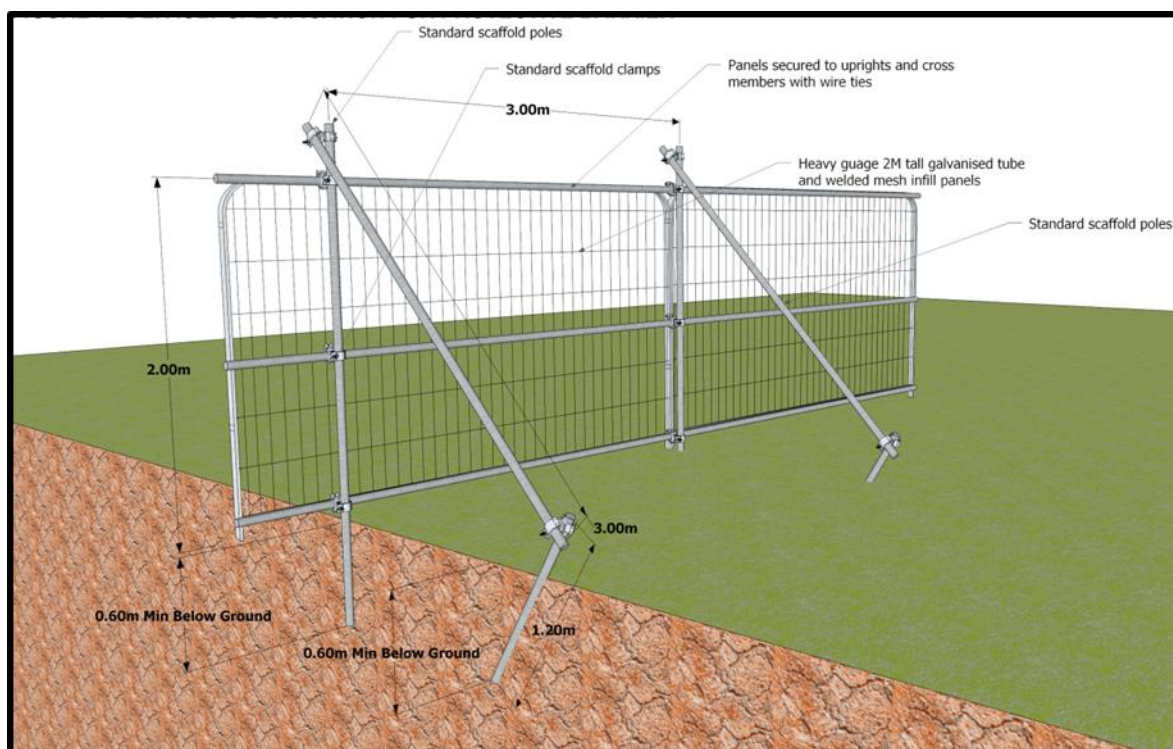


Figure 8 Default specification for protective barrier

When entering and exiting the Site the fencing contractor must avoid the production of ruts on the unprotected surface of the ground.

Protective fencing and ground protection shall stay in place until all development operations have been completed and the prior consent of the LPA Tree Officer and/or an arboriculturist has been obtained.

F.2 Ground Protection

Should access be unavoidable within the RPA of a retained tree, fit for purpose ground protection must be in place which is sufficient to protect the structure of the soil from damage based on the heaviest anticipated load.

As set out in section 6.2.3.3 of BS5837:2012 the following ground protection measures will be appropriate:

- Suitable ground protection for pedestrian only access will comprise a single thickness of scaffold boards set on a compressible layer of 100mm of woodchip on a geotextile separation layer.
- Pedestrian operated plant up to two tonnes in weight would require the use of a proprietary ground protection system (such as Ground Guards or Eve Trakway or equivalent) set on a minimum depth of 150mm woodchip or sharp sand.
- Heavier loads will require ground protection to an engineering specification in conjunction with arboricultural advice.

As a guide the threshold beyond which root development is significantly affected is a bulk density ranging from 1.4g per cm³ for clay soils, to 1.75g per cm³ for sandy soils.

Tree protective measures shall stay in place until all construction operations are completed and removal is agreed with the Site arboriculturist and/or the Local Authority Tree Officer as appropriate.

F.3 General guidance for the management of exposed roots

Excavation must only take place within the RPA of a retained tree with the prior agreement of an arboriculturist and the Local Authority Tree Officer. All excavation must be undertaken using hand tools or compressed air (such as an air spade).

The following general principles will apply:

- Individual or small groups of roots less than 25mm in diameter will be retained where possible but can be severed with a sharp tool such as secateurs or pruning saws to leave a clean cut end (ideally 100mm back from the face of the excavation to account for future regrowth) where they pose an obstruction.
- Where roots are encountered which are larger than 25mm in diameter or where significant groups of smaller roots are found, the advice of an arboriculturist must be sought to decide an appropriate course of action (following consultation with the Local Authority Tree Officer where appropriate).
- Roots must only be exposed for the minimum period possible. In the interim period any exposed roots must be completely covered with dampened hessian sacking (which may require ongoing re wetting) to avoid drying out and exposure to light (which can result in the death of roots). Backfill for excavations should utilise the parent material and must not be significantly compacted.

F.4 Storage, use and mixing of materials

The use, mixing and washing of materials can lead to run off or inadvertent spillage into tree root zones. Many substances often used on construction sites can be toxic to tree roots (such as concrete, fuels, salts, builder's sand and herbicides), can result in the death of tree roots and beneficial soil organisms; and have a significant impact on the future health and appearance of trees.

The storage of materials can result in an effective raised soil level. This buries tree roots at depths where air and water are less available and can lead to the decline or death of the tree.

For these reasons the storage of materials and any washing, mixing or refuelling must take place in agreed allocated areas at least 5m from the edge of the RPA of retained trees.

Any slope effect must be taken into account and where there is a potential for run off, heavy duty polythene sheeting and sandbags must be in place as bunding to prevent toxic materials reaching RPAs.

Appendix G Tree Protection Signage (Example)

