



Arboricultural Planning Statement

Willow Street, Bury

Date: February 2023

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Submitted to:

Irwell Valley Homes
c/o Steven Dempsey
JDA

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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK ADAS Ltd.

Version History

Version	Date	Amendment
-	February 2023	INITIAL REPORT

1 Executive Summary

ADAS was instructed by Irwell Valley Homes, in January 2023, to prepare an Arboricultural Planning Statement relating to the proposed development of land at Willow Street in Bury.

The proposed development of the site is the demolition of the existing light industrial buildings within the site and construction of a 13-bed apartment block and associated works.

Irwell Valley Homes have commissioned ADAS to provide arboricultural advice in relation to the proposed development in line with the requirements of 'BS5837:2012 Trees in Relation to Design, Demolition and Construction: Recommendations' (BS5837:2012). This report has been prepared to comply with the requirements set out in Table B.1 of Annex B of BS5837:2012.

An ADAS approved Arboricultural Consultant carried out a full arboricultural survey of the site on 31st January 2023. The tree survey recorded the presence of 18 arboricultural features, comprising 13 individual trees and five groups of trees, within influencing distance of the proposed development.

In accordance with section 4.5 and Table 1 of BS5837:2012 the existing trees on the site were categorised according to their quality and value as either Category U, A, B, or C.

Of the 18 features surveyed, 11 were of a moderate quality (Category B) and seven were of a low quality (Category C). No trees were assessed as being of a high quality (Category A) nor as being unsuitable for retention (Category U).

A search of Bury Council's online mapping system confirmed that there are no trees protected by a Tree Preservation Order (TPO) on the site, and that the site is not within a Conservation Area (CA).

The proposals will require the removal of three individual trees and four tree groups within the site. The individual trees to be removed comprise two Category B specimens (T9 & T10) and one Category C specimen (T15). The tree groups to be removed (G13, G16, G17 and G18) are all of Category C value.

The proposed development has been designed to sit largely within the envelope of the previously developed area of the site and where works are to occur within the RPAs of retained trees, they mainly affect areas where existing hard standing and development will have impaired, if not excluded, tree root development.

In order to ensure the successful integration of retained trees into the proposed development, various tree protection measures will be incorporated into the design which are intended to maintain the trees in a safe and healthy condition. Further details of these are contained in **Section 8** of this report.

2 Introduction

2.1 The Author

This document has been prepared by Edmund Lusk, an ADAS Principal Arboricultural Consultant. Edmund is a Professional Member of the Arboricultural Association, a Professional Member of the Consulting Arborist Society and holds the Higher National Diploma in Arboriculture. Edmund has 21 years of experience within the arboricultural industry, both in the Public Sector as a Tree Officer and in the Private Sector as an Arboricultural Consultant.

2.2 Client Instruction

ADAS was instructed by Irwell Valley Homes in January 2023 to prepare an Arboricultural Planning Statement relating to the proposed development of land at Willow Street, Bury.

For the purposes of this report, reference to ‘the site’ means land encompassed by the red line shown on the Existing Site Plan contained in **Appendix 1**.

2.3 Purpose of Report

The purpose of this document is to provide reference and clarification on aspects of tree protection and any necessary tree management works for the proposed development. It is proposed to achieve this by setting out a methodology for all proposed works that may affect trees which are to be retained on and adjacent to site.

This document is also intended as a reference point for all site operatives and a copy will remain with the site manager for the duration of the development.

This document may be used as a point of reference if there were to be a dispute over compliance with related planning conditions.

2.4 Site Description

The site under consideration is located to the west of Willow Street in Bury at Ordnance Survey Grid Reference SD 81806 11033, it extends to approximately 0.36 ha in size and has boundaries with Willow Street to the east, with Queensbury Place to the north, with residential development off Chestnut Avenue to the west and with residential development off Maple Avenue to the south.

The western half of the site comprises an area of car parking and a small garden area associated with Queensbury House and the eastern half comprises existing low rise light industrial / commercial buildings previously used by Bury Council’s leisure services division.

Existing hard standing is present to the perimeters of the existing buildings extending out to the site boundary. A linear group of established sycamore (*Acer pseudoplatanus*) trees are present along the

eastern boundary of the site with Willow Street with two further established sycamore trees, and an unmaintained Leyland cypress (*Cupressus × leylandii*) hedgerow, being present adjacent to the southern boundary. Elsewhere within the site vegetation comprised young and semi-mature trees, which were predominantly self-set sycamore.

A brief desk top study using the British Geological Survey’s website ‘Geology of Britain Viewer’ has revealed that the bedrock geology in this area is composed of Pennine Lower Coal Measures Formation - Mudstone, siltstone and sandstone with superficial deposits Devensian Till which may include some clay content. It is advised that a more detailed assessment is carried out to fully assess the soil type and if the soil is found to exhibit shrinkable characteristics, then careful consideration should be given to the design of any buildings and foundations within proximity to trees.

It is also recommended that particular attention is given to the guidance provided in the National House Building Councils (NHBC) Standard Chapter 4.2. Further arboricultural advice can be provided on this subject if required.

2.5 Description of Proposed Development

The proposed development of the site is the demolition of the existing light industrial buildings within the site and construction of a 13-bed apartment block and associated works.

2.6 Assumptions and Limitations

This assessment is based upon the information provided by the client in addition to information collected by ADAS during a survey of the site undertaken in January 2023. The documents and drawings considered are detailed within **Table 1**.

Table 1: Documentation Considered

Author	Document Title	Drawing / Document Number	Date
JDA	Existing Site Plan	1264-JDA-Z1-00-DR-A-0002	14.09.22
JDA	Proposed Site Plan	1264-JDA-Z1-00-DR-A-0004 P1	01.02.23
Margaret Twigg Dip LA CMLI – Chartered Landscape Architect	Soft Landscape Proposals	669.01Prelim	01.23
Shape	Initial Highways Plan	C-0004 P01	26.01.23

The Tree Protection Plans (TPP) contained in **Appendix 2** and **Appendix 3** have been developed from the tree survey information, the topographical survey and the Proposed Site Plan referenced in **Table 1**.

This report assumes that the “Proposed Site Plan” demonstrated on the TPP in **Appendix 3** is the final layout.

This report is only intended for use by the person(s) or company named on the front cover.

This report is not a full hazard or risk assessment of trees and should not be used as such.

Trees are living organisms and are constantly adapting to their ever-changing environment. No tree is completely safe and there is no guarantee that problems or deficiencies may not arise in the future, which have not been identified in this report. Therefore, this report is only valid for a period of 1 year from the date of the initial site inspection.

3 Methodology

3.1 Tree Survey Methodology

The tree survey was carried out by Matt Lally on behalf of ADAS on 31st January 2023. The tree survey was carried out in accordance with the recommendations contained within BS5837:2012.

All trees were visually inspected from ground level unless otherwise stated, with no climbing or boring tests being undertaken. The comments made on their condition are based on observable factors present at the time of inspection.

The information, shown in **Table 2** below, was recorded as part of the tree survey.

Table 2: Tree Survey Schedule heading descriptions

Column Heading	Description
Tree Ref No.	All individual trees and groups of trees have been given a unique reference number. Each number is prefixed by a letter. ▪ T = Individual tree ▪ G = Group of trees
Species	The English common name has been used.
Single or Multiple stem (S or M)	▪ 'S' represents a tree which has a single clear stem to at least 1.5m above ground level. ▪ 'M(a)' represents a tree where the main stem divides into two to five stems below 1.5m above ground level, and ▪ 'M(b)' represents a tree where the main stem divides into 6 or more stems below a height of 1.5m.
Height (m)	Where possible tree heights are measured using a laser. In some instances such as in close groups of trees, one height may be measured and other nearby trees estimated from this height. Measurements are provided in metres.
Stem Diameter (mm)	S _n represents the stem number. Measurements are provided in millimetres at 1.5m above ground level for single stemmed trees.
Branch Spread (m)	Measured in metres to the four cardinal compass points (N, E, S, W).
Crown Clearance	(1) Height in metres of the first significant branch, and the direction of growth. (2) Height in metres of lowest part of crown.
Life Stage	The stage at which the tree is within its lifecycle (Y = young, SM = semi-mature, EM = early-mature, M = mature, OM = over mature)
General Observations	Any relevant observations are recorded, with particular reference to structural and/or physiological condition.
Preliminary Management Recommendations	Recommendations are made where management work is required for reasons of health and safety or sound arboricultural management.

Column Heading	Description
Estimated Remaining Contribution (years)	An estimation of how long the feature will contribute to its surroundings. This is recorded in bands of either <10 years, 10+ years, 20+ years and 40+ years.
Tree Quality Grading	The trees are graded to the categories prescribed within BS5837:2012 (U, A, B & C). Details of this grading system can be found in Appendix 4 .
Root Protection Area (RPA)	Calculated as prescribed in section 4.6 of BS5837:2012, provided as an area (m ²) and a radius from the tree's stem (m).
Note: Those measurements shown in <i>italics</i> have been estimated, usually where access has restricted it being taken.	

4 Legislation

4.1 Planning Policy

Guidance within the National Planning Policy Framework states that “planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss”.

None of the trees surveyed were considered to be of ancient or veteran status.

4.2 Best Practice Guidance

BS5837:2012, provides guidance to the consideration of trees in relationship to proposed development. This document is recognised as best practice when assessing trees on a site that is being considered for development.

In respect of this it can be noted that Category A, B or C trees or tree groups are those that should be a material consideration in the planning process whilst Category U trees are those which would be lost in the short term for reasons connected to their physiological or structural condition and hence they should not be a consideration in the planning process.

4.3 Tree Preservation Orders and Conservation Areas

Local Planning Authorities (LPAs) have the power to preserve selected trees and woodlands through the making of Tree Preservation Orders (TPOs). Similarly, special provision is provided to trees located within Conservation Areas (CAs) which are not the subject of a TPO. The LPAs powers to do this are provided by the following Act of Parliament and its associated regulations:

- Town and Country Planning Act 1990
- Town and Country Planning (Determination of Appeals by Appointed Persons) (Prescribed Classes) (Amendment) (England) Regulations 2008
- Town and Country Planning (Trees) (Amendment) (England) Regulations 2012

The principal effect of a TPO is to prohibit the cutting down, uprooting, topping, lopping, wilful damage or wilful destruction of trees without first obtaining the consent of the relevant Local Authority.

Where works to trees within a CA are proposed, six weeks notification must first be given to the relevant Local Authority.

Unauthorised works to trees either protected by a TPO or those that are located within a CA, could result in an unlimited fine for each tree.

A search of Bury Council's online mapping system, on the 16th February 2023, confirmed that there are no trees protected by a Tree Preservation Order (TPO) on the site, and that the site is not within a Conservation Area (CA). A copy of the plan from the search is provided in **Appendix 5**.

4.4 Wildlife Legislation

The following Acts and Regulations are the main pieces of legislation that protect wildlife and habitats in England and Wales:

- Wildlife and Countryside Act 1981 (as amended)
- Conservation of Habitats and Species Regulations 2017 (as amended)
- Protection of Badgers Act 1992
- The Hedgerows Regulations 1997
- Countryside and Rights of Way Act 2000
- Natural Environment and Rural Communities Act 2006 & Environment (Wales) Act 2016

The Wildlife and Countryside Act 1981 provides statutory protection to wild birds, their nests (whether in use or being built), as well as other wild animals such as bats and their roosts. Under the Act it is a criminal offence to intentionally destroy any wild bird, its nest or eggs, or to harm any bat, damage or block access to its roost (even if it is not occupied at the time), or to disturb a bat whilst it is occupying a roost. For some birds listed in Schedule 1 of the Act, such as barn owl, it is also an offence to disturb them while they are nesting, building a nest, in or near a nest that contains their young, or to disturb their dependent young. Other wild animals afforded full legal protection under the Act, and which may be affected by tree works include otters and their places of shelter (often in exposed tree roots along river banks), hazel dormice, their breeding sites and resting places (well-structured woodland and scrub), and red squirrels and their nests (dreys). The Conservation of Habitats and Species Regulations 2017 provide additional legal protection to some species, including bats (all species), otters and hazel dormice. Badgers and their setts are specifically protected under the Protection of Badgers Act 1992, which makes it an offence to damage or block a sett, or to disturb badgers whilst they are using a sett. Where works might result in an offence being committed, advice will be required from a suitably experienced ecologist before they can be undertaken. For example, it may be necessary to programme tree work outside of the bird nesting period, typically March to August inclusive, or for an ecologist to undertake prior visual inspections of trees for nests and / or bat roosts.

Under the Wildlife and Countryside Act 1981 it is also illegal to plant or otherwise cause to grow in the wild certain invasive non-native plant species, including Japanese Knotweed, Himalayan Balsam, Giant Hogweed and Rhododendron. Any works that might cause the spread of these species could therefore result in an offence being committed. This might occur as a result of the incidental transportation of soil containing seeds or live root and stem fragments on the wheels of vehicles, or on the boots of personnel.

Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are strictly protected sites designated respectively under the EC Habitats Directive and the EC Birds Directive. In England and Wales, SACs and SPAs are given legal protection by The Conservation of Habitats and Species Regulations 2017, which transpose the EC Habitats Directive and EC Birds Directive into national law. The Regulations ensure that any plan or project that may damage an SAC or SPA can only proceed if certain strict conditions are met.

Sites of Special Scientific Interest (SSSIs) are areas notified under the Wildlife and Countryside Act 1981 as being of special interest for nature conservation or their geology with additional protection afforded to them by the Countryside and Rights of Way Act 2000. Under the legislation Natural England (NE) or Natural Resources Wales (NRW) must be notified of any planned works or operations that could potentially damage an SSSI or its features of interest before they are able to proceed. A search of the Natural England dataset confirmed that there are no SSSIs in proximity to the site.

The Natural Environment and Rural Communities Act 2006 and Environment (Wales) Act 2016 place a statutory duty on public authorities (public bodies and utility companies) to 'seek to maintain and enhance biodiversity' so far as it is consistent with the proper exercise of their functions.

The above provides only a brief summary of the legislation. It is advised that the original text of the relevant legislation is consulted for the exact wording. If necessary, advice should be sought from a suitably qualified ecologist prior to any tree works being undertaken.

5 Tree Survey Results

5.1 Overview

The site's tree stock comprises individual trees and groups of trees located around the boundaries of the site within small areas of amenity space.

Collectively the trees, particularly those adjacent to the southern and eastern boundaries of the site, are considered to provide a high level of visual amenity to the site and surrounding area serving to partially screen the site from the adjacent roads and acting as buffer between the site and neighbouring residential development.

During the survey it was noted that the established Sycamore trees along the southern and eastern boundaries had been extensively crown lifted in the past, to reduced conflict with overhead utility wires, and consequently they did not offer significant screening benefits at street level.

The findings of the tree survey are contained in the Tree Survey Schedule in **Appendix 6** which has been used to develop the Tree Protection Plans in **Appendix 2** and **Appendix 3**.

5.2 Species

The trees within the site are primarily young to early-mature specimens of sycamore which represented around 66% of the trees surveyed, with a Leyland cypress hedgerow (G15), an individual cherry (*Prunus* sp.) tree and an individual willow (*Salix* sp.) tree also being recorded.

The limited range of tree species across the site is demonstrated in **Figure 1** below.

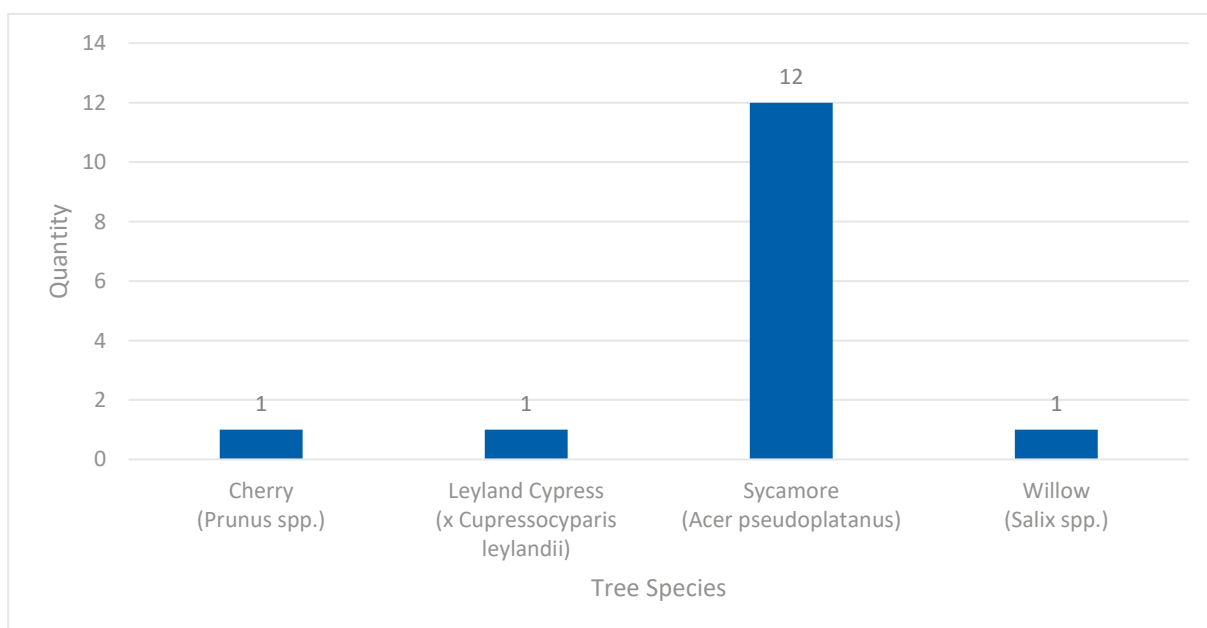


Figure 1: Range of Tree Species on site

5.3 Life Stage

The majority of the trees on the site were early-mature specimens, as is demonstrated in **Figure 2**.

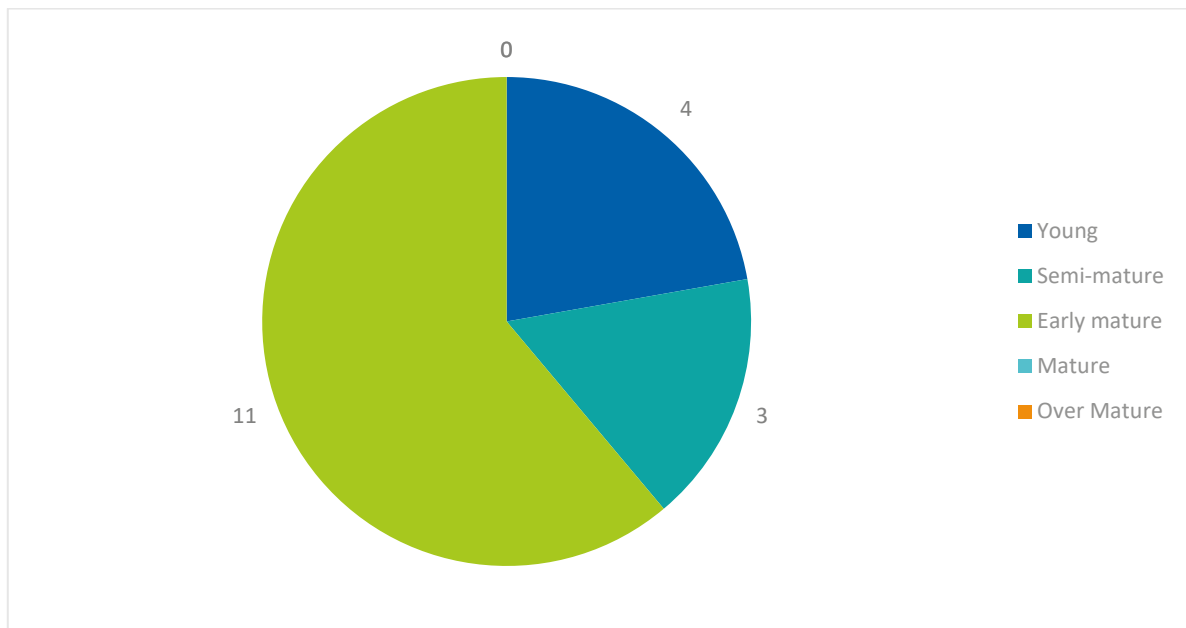


Figure 2: Life Stages of trees on site

5.4 Tree Quality

As demonstrated in **Figure 3** below, the trees across the site were predominately considered to be of a moderate quality, with a smaller proportion being assessed as being of a low quality. No trees of a high quality, or trees considered to be unsuitable for retention were recorded.

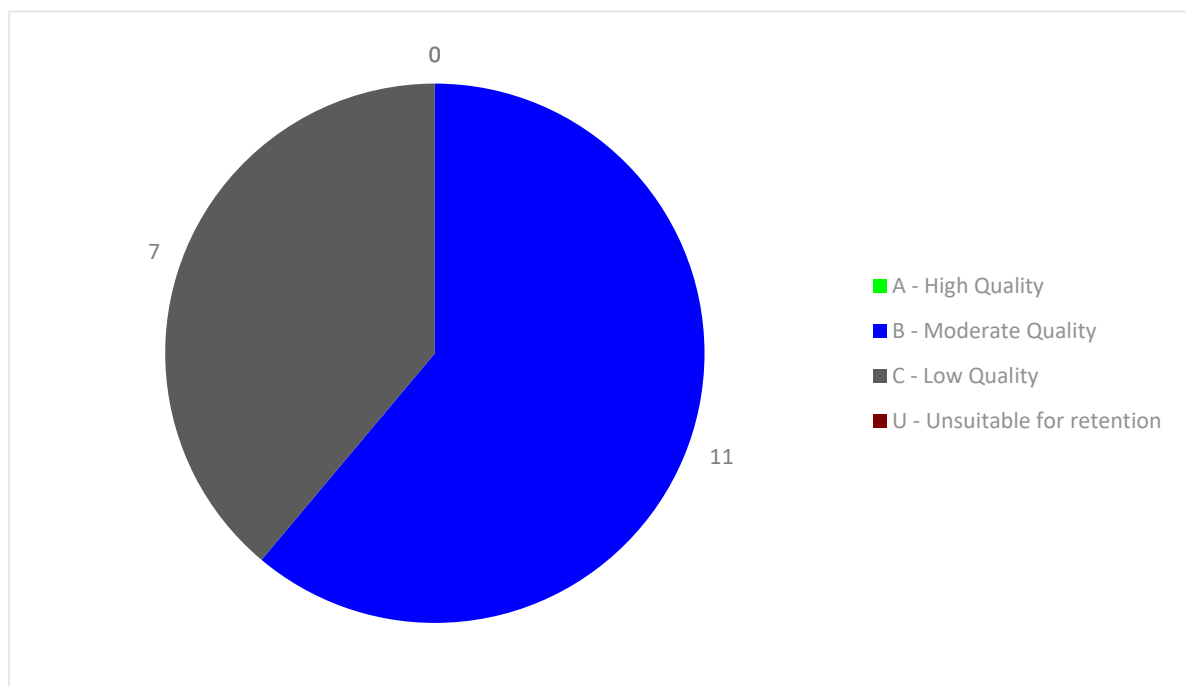


Figure 3: Tree quality grading across the site

6 Arboricultural Impact Assessment

6.1 Overview

This section of the report summarises the direct and indirect impacts that the proposed development may have upon the site's tree stock. An Arboricultural Impact Assessment plan, identifying impacts associated with the proposed development, has been provided in **Appendix 7**.

6.2 Tree Removal

The proposals will require the removal of three individual trees and four tree groups within the site. The individual trees to be removed comprise two Category B specimens (T9 & T10) and one Category C specimen (T15). The tree groups to be removed (G13, G16, G17 and G18) are all of Category C value.

The removal of the two Category B trees (T9 & T10) is required as construction of the proposed apartment block would require the formation of new foundations within the RPAs of the trees.

Whilst the impacts from this aspect of development could be mitigated by specialist engineering and taking into account constraints to root development presented by existing structures and surfacing within the site, it is evident that an ongoing conflict between the canopies of the trees and the proposed building will occur.

It is therefore considered that the retention of the trees is not sustainable in the context of new development and their removal, subject to compensatory tree planting within the site as indicated upon the Soft Landscape Proposals, is an appropriate course of action.

The removal of T9 and T10 will have a localised amenity impact as the trees are prominent in the Willow Road Street scene, however the extent of impact will not be significant due to the retention of the other established sycamore trees (T1- T8) located along the eastern boundary of the site.

The removal of the Category C willow tree (T15) is required to facilitate construction of new carparking within the site. This tree is a low-quality specimen of limited landscape value and is not of particular visual prominence. It is not considered that the removal of the tree will have a significant amenity impact and the proposal to plant a new tree within the proposed car park will adequately mitigate its loss.

The removal of the tree groups (G13, G16, G17 and G18) are proposed to accommodate construction of the proposed carpark and an associated access ramp, and in the case of G13, to provide space for new landscape enhancement. These tree groups are all composed of immature self-set sycamore trees of very limited value and their loss would be fully mitigated by the proposed new soft landscaping.

6.3 Tree Pruning

Some minor access facilitation pruning works, comprising localised crown lifting, to the crown of T12 will be required to minimise the potential for branch damage during construction and to aid in the establishment of proposed new landscaping. The proposed works are of a minor extent and are routine in nature and will not have a significant impact upon the amenity contribution or condition of the tree.

6.4 Works within Root Protection Areas (RPAs)

The proposed development is located substantially within the footprint of the currently developed area of the site. As such the potential for significant impacts to the root systems of retained trees are considered to be minimal as the existing development will have restricted root development within the sections of tree RPAs that extend to encompass the previously developed land.

Nonetheless, there are areas where development operations will be required within the RPAs of retained trees. The works to be undertaken within the RPAs of retained trees are summarised in **Table 3**, along with details of recommended mitigation measures.

Table 3: Summary of potential damage to retained trees

Tree Number	Species	Potential Cause of Damage	Mitigation
T1, T2, T3, T4, T5, T6, T7, T8, G11, T12	Sycamore, Leyland Cypress	Demolition of existing hard surfaces	- Root development within affected areas may have been impaired by existing development. - Demolition of existing surfaces to follow precautionary methodology specified within Section 8.
T1, T7, T8	Sycamore	- Construction of new building encroaches into RPAs. - The proposed new building will encroach into the RPA of T1 by <3% of the overall area. Encroachment into the RPAs of T7 and T8 is <1% of overall areas. All affected areas are currently hard surfaced.	- Root development within affected areas will have been impaired by existing development. - Precautionary approach to foundation excavation within RPA of tree to minimise ancillary root damage as detailed in Section 8.
T1	Sycamore	Construction of replacement hard surfaces within RPA.	- Root development within most of the affected area will have been impaired by existing development. - New hard surfaces must provide for moisture infiltration and aeration of

Tree Number	Species	Potential Cause of Damage	Mitigation
			underlying soils within RPAs of trees. ▪ New hard surface construction should be designed in accordance with no-dig principles to be built up from existing soil levels prevailing following removal of existing hard surfaces.
T8	Sycamore	▪ New drainage connection (TBC). ▪ It is understood foul drainage for the site will connect to the existing services in the vicinity of the existing inspection cover located south of T8.	▪ The proposed connection point is located within the existing highways crossover and root development within the affected area is likely to have been significantly impaired. ▪ Excavation for installation of new services should follow precautionary methodology detailed in section 8.
T1, T2, T3, T4, T5, T6, T7, T8	Sycamore	▪ Resurfacing of existing footpath and removal of existing vehicle crossovers.	▪ Root development within most of the affected area will have been impaired by existing development. ▪ New hard surfaces must provide for moisture infiltration and aeration of underlying soils within RPAs of trees. ▪ New hard surface construction should be designed in accordance with no-dig principles to be built up from existing soil levels prevailing following removal of existing hard surfaces.

Overall, it is considered that the proposed development will have minimal potential to cause significant harm to the root systems of retained trees. Where demolition and construction operations are to occur within the RPAs of most trees within the site the affected areas are already hard surfaced and root development is likely to have been significantly impaired if not excluded. The potential harm to the trees identified as at risk from these operations in **Table 4** can be adequately controlled by the adoption of precautionary working practices, specified in **Section 8** of this report, during implementation of the development.

It is considered that, subject to the adoption of the working methodologies specified in **Section 8**, the trees will adapt successfully to the extent of root damage likely to occur and significant impacts upon their long-term health can be avoided.

6.5 Impacts from construction related operations

6.5.1 Site Access

During the initial phases of development it is anticipated that construction access will be provided via the existing vehicular access points on the northern and eastern boundaries of the site using the existing road network. Where retained trees are present in proximity to the access points they will require protection by the installation of tree protection barriers prior to the commencement of any phase of the development.

6.5.2 Delivery and Storage of Materials

Material deliveries to the site will utilise the access points described in section 6.5.1 above.

There are various areas within the site where materials could be stored without impacting retained trees, and in all cases materials must only be stored in areas outside of the RPAs of retained trees, such as within one of the existing hard surfaced car park areas.

6.5.3 Site Compound and Welfare Facilities

The proposed location for a site compound, and associated welfare facilities has not been determined at this stage. There are various locations within the site where these elements could be accommodated outside of the RPAs of retained trees, such as within one of the existing hard surfaced car park areas.

6.5.4 Contractors Parking

It is considered that contractor's parking could be accommodated within the existing hard surfaced site car park. This approach would avoid any potential impacts on retained trees.

7 Preliminary Tree Work

7.1 Tree Work Schedule

The proposed development will require the removal of three individual trees and of four tree groups within the site.

In addition to the proposed tree removal access facilitation pruning works to the crown of T12 are recommended.

The trees, and tree groups, to be removed have been identified in red on the Tree Protection Plans, **Appendix 2** and **Appendix 3**, and a schedule of tree work has been provided within **Appendix 7**.

All tree work will be carried out prior to commencement of construction activities and prior to the erection of the tree protection measures.

7.1.1 Standard of Tree Work

All tree work and felling operations will be carried out in accordance with BS3998:2010 'Recommendations for Tree Work'; current arboricultural industry guidelines and best practice; and all relevant Health & Safety standards. Tree work is a specialist task that requires operatives to be appropriately qualified, skilled, and adequately insured. Guidance on selecting an appropriate contractor can be obtained from the Arboricultural Association, who also maintains a directory of Approved Contractors. The Arboricultural Association can be contacted on 01242 522152 or via their website <http://www.trees.org.uk>.

7.1.2 Wildlife Constraints

As mentioned in **Section 4.3** of this report, all tree work operations must comply with The Wildlife and Countryside Act 1981 as amended by the Countryside and Rights of Way Act 2000, which provide statutory protection to birds, bats and other species, all of which could inhabit trees. Where works may constitute an offence, advice will be acquired from a suitably qualified person before works are able to proceed. For example, it may be necessary to programme tree work outside of the main bird nesting period, typically March through to August inclusive.

7.1.3 Modification to Tree Work Schedule

Should the recommended work schedule require modification, for whatever reason, this will be agreed with the appointed Arboricultural Consultant (when applicable), and also approved in writing by Bury Council. Under no circumstances will the appointed contractor deviate from the Tree Work Schedule contained in **Appendix 7**, unless approved in writing by Bury Council.

8 Tree Protection Measures

8.1 Overview

Although these methodologies set out the precautions to be followed to ensure the retained trees are protected, the final responsibility for their installation lies with the site supervisor who must ensure that all current legislation and best practice is followed and that they are installed in a safe manner.

8.2 Construction Exclusion Zone (CEZ)

The CEZ is defined around the retained trees by the tree protection barriers shown by a brown line on the TPP. Where possible the CEZ is positioned to protect both the crowns and the RPAs of the retained trees. Guidance on RPAs is contained in **Appendix 8**.

8.3 Barriers

In line with Section 6.2.2 of BS 5837:2012, which requires that the tree protection barriers be fit for the purpose of excluding construction activity and that they provide adequate protection to the trees and hedge, it is proposed that they will consist of 2m tall welded mesh panels supported on scaffold poles driven into the ground. Each panel will be secured to its neighbour with a minimum of 2 anti-tamper couplers secured so that they can only be undone from inside the CEZ. The panels will be further supported by stabilizer struts which will be pinned to the ground.

An example of this type of barrier is contained in **Appendix 9**.

The location of the tree protection barriers during the demolition phase of development is provided on the TPP contained in **Appendix 2** and those proposed for the construction phase of development are shown on the TPP contained in **Appendix 3**.

The precise location and construction of the tree protection barriers will be agreed on site between the appointed arboricultural consultant and Bury Council before any site works commence.

Inside the CEZ the following prohibitions will be complied with:

- No excavations, including by hand; unless approved by Bury Council;
- No storage of machinery;
- No storage or handling of building materials, fuel, chemicals or spoil;
- No fires;
- No vehicular access;
- No pedestrian access; unless approved by Bury Council;
- No alteration, increase or decrease, to existing ground levels; unless approved by Bury Council;
- No excavation or installation of services; unless approved by Bury Council.

In order to ensure that the CEZ remains intact, the tree protection barriers will not be moved or temporarily dismantled except in the situations previously mentioned.

To enable site operatives to appreciate the purpose of the protective fencing and reduce the risk of operatives attempting to move them, all-weather notices will be erected on the barriers similar to the example in **Appendix 10**. The barriers will only be adjusted or removed if prior written approval is obtained from Bury Council.

8.4 Removal of Existing Surfaces within RPAs

The proposed development will require the removal of existing hard surfaces within the RPAs of retained trees.

The following guidance will be adhered to for the removal of any hard surfaces within the RPAs of retained trees and works should be supervised by the appointed arboricultural consultant:

1. The initial 'breaking up' of the hard surfaces will be done with handheld power tools or, under supervision of the appointed arboricultural consultant, with a hydraulic breaker attached to plant machinery.
2. Removal of the surface will occur in 1.0m bands working from the undisturbed surface. Any roots that are exposed whilst undertaking removal of the surface will be covered with good quality topsoil or high-grade compost to avoid desiccation and make the levels good.
3. The debris resulting from breaking up the hard surface and the exposed sub-base will be excavated and removed by hand. Should mechanical means be required due to the size of the debris then a small (<1.5 tonne) digger may be used providing the bucket does not cause any damage to the underlying soil surface and it operates from existing hard surfaces or areas of temporary ground protection. No reduction in levels of the underlying soil will occur.
4. If any roots are damaged during the removal of hard surfaces, then they will be cut using a sharp knife or secateurs to leave a clean wound with as small a surface area as possible.

Upon removal of the existing hard surfaces those areas that are to be finished as soft landscaping are to be covered with good quality topsoil and the tree protection barriers are to be realigned to prevent encroachment into the areas.

Where new hard surfacing is to be provided, or where for operational purposes access during the course of the development is required within the affected areas, ground protection measures are to be installed and maintained in position until such time that final hard and soft landscaping operations are to be undertaken.

8.5 Hard Surfacing within RPAs

The proposed development indicates that existing hard surfaces forming the highway footpath within the RPAs of T1, T2, T3, T4, T5, T6, T7 and T8 are to be replaced. Additionally, some replacement hard surfacing is proposed within an amenity space within the site which is proposed within the RPA of T1.

The affected areas within the RPAs of these features are covered with existing hard surfacing that will be demolished as part of the development.

Where new hard surfacing is to be provided within the RPAs of retained trees, this shall maintain a growing environment which is able to support the long-term growth of the retained trees certain precautions will be followed. In this respect, root severance and soil compaction must be avoided.

In addition, it is important that the new hard surface does not block the movement of air and moisture into and out of the soil.

As such, it is recommended that the new hard surfaces are designed to be built up from the prevailing ground level following the demolition of the existing surfaces incorporating construction techniques involved in no-dig construction and that the final surface construction detail is designed by an engineer in association with the retained Arboricultural Consultant. Though where the existing sub-base is suitable for reuse new surfaces could be built up from this.

The construction and design of these hard surfaces must comply with the recommendations contained within section 11 of BS5837:2005 and as outlined below:

- *Existing ground vegetation will be killed using an appropriate herbicide which is not likely to leach through the soil to the tree roots. Specialist advice should be sought in this matter.*
- *The new hard surfaces will be built up on existing ground levels, under no circumstances will the existing ground levels be skimmed or scraped to produce a level surface as this has the potential to cause root damage. Loose organic matter and/or turf will be removed carefully using either hand tools or pedestrian operated machinery (such as a turf stripper).*
- *Any build-up of levels (e.g. to accommodate dips and level changes in the existing ground levels, or to create the sub-base for the hard-surface) will be achieved through the use of a no-fines granular material which does not inhibit gaseous diffusion. Examples of suitable granular materials include, no-fines gravel, washed aggregate, or cobbles.*

The new hard surfaces will therefore be built on top of ground levels prevailing following demolition of the existing surface and their construction should be engineer designed. Providing surface water is not liable to be contaminated by salt or toxic run-off from oil or petrol, a permeable surface and sub-base

should be employed. In order to avoid compaction of the existing soil it may be necessary to incorporate a load suspension system such as a 3D cellular confinement system, such as that detailed in **Appendix 12**.

Prior to installing the new hard surfacing, where necessary, the tree protection barriers will be moved to their temporary location and where necessary ground protection will be installed. The site supervisor and the retained Arboricultural Consultant shall then agree the exact location of the new hard surfacing on the ground.

The Site Supervisor shall ensure the prepared surface meets the necessary strength requirements prior to installation.

Excess water in the RPA should be avoided, particularly on clay soils where water logging can occur. In these cases, the hard surface should slope away from the tree to avoid ponding.

The excavation needed for the placement of kerbs, edgings and their associated foundations and haunching can damage tree roots. This should be avoided within the RPA by the use of alternative methods of edge support. The Site Supervisor shall provide the setting out of any edging requirements. Suitable edge supports may consist of but are not limited to:

- *Peg and board edging*
- *Sleepers pinned to the ground*
- *Gabions*
- *Other proprietary structures*

Consideration will be given to the placing of drainage gullies and these will be located outside of the RPAs of the retained trees.

8.6 Soft Landscaping within RPAs

There are a number of areas on site where soft landscaping works will be required within the RPAs of retained trees. Any soft landscaping within the exclusion zone will be undertaken by hand. A 500 mm radius from any tree stem will remain uncovered by turf or other planting to allow penetration of water and air into the soil.

Additionally, where cultivation is required within or in proximity to the RPAs of retained trees, the following working methodology shall be adhered to:

- Existing ground cover and vegetation shall be carefully removed, using handheld tools. No machine tools are to be used for any aspect of these works.
- The topsoil will then be cultivated to the desired depth using hand-held tools. No machine tools are to be used for any aspect of these works.

- Root presence will be ascertained by careful scraping of topsoil in 50 mm increments, in order to prevent excessive damage occurring to tree roots.
- Uncovered roots less than 25mm in diameter may be severed, making clean cuts with suitable sharp tools such as secateurs.
- Exposed roots larger than 25mm in diameter expose roots must be wrapped or covered with damp hessian or similar material, as soon as possible, to prevent desiccation and to protect from rapid temperature changes.
- Prior to backfilling all root coverings shall be removed and retained roots shall, where possible, be surrounded with topsoil and compacted sharp sand, or other loose inert granular fill, before soil or suitable material is replaced into the excavated area. The fill material shall be free of containments and other foreign objects potentially injurious to tree roots.
- Post-development planting, if required, shall proceed according to the guidance detailed in British Standard 8545:2014.

8.7 Utility Connections

At the time of producing this report ADAS have not been made aware of the final locations of any underground utility connections. However, it has been indicated that new foul drainage will connect into an existing manhole present within the RPA of T8.

To minimise the potential for harm to occur to the root systems of this tree, from excavation necessary to install the new foul drainage, it is recommended that the excavation necessary is completed using a vacuum excavator in accordance with the methodology set out below:

1. The route of the proposed trenches to be vacuum excavated shall be marked out on site in conjunction with the appointed arboricultural consultant.
2. Upon commencement of the excavation works the aim will be to excavate the soil along the route of the proposed service trench to the required depth for service installation whilst retaining as many tree roots as feasible.
3. Due to the depth of excavation required provision for retaining the walls of the open trench may be required depending upon soil conditions. Trench boxes will not be able to be utilised in areas where tree roots are present, unless they can be slid into position beneath tree roots from areas where root growth is absent, and in these locations, if required, alternative soil retention systems will need to be derived.
4. Whilst roots smaller than 25mm in diameter may be pruned back to permit access for the vacuum excavator nozzle, such works shall only be completed if there is no viable alternative and can only proceed at the direction of the appointed arboricultural consultant. A photographic record of the roots

encountered and severed will be maintained. Details should include the diameter of the root, the depth encountered and whether it appeared to be alive or dead.

5. All exposed roots to be retained must be wrapped or covered with damp hessian or similar material, as soon as possible, during the summer months to prevent desiccation, or dry hessian or similar during winter months to protect them from rapid temperature changes. **Plate 1** below shows an example of protected tree roots in a situation where vacuum excavation is occurring.
6. Once the trench is completed the proposed services can be inserted into the trench below the network of retained tree roots. **Plate 2** below shows an example of pipe installation below a network of retained tree roots.
7. Prior to backfilling all root coverings shall be removed and retained roots shall, where possible, be surrounded with topsoil and compacted sharp sand, or other loose inert granular fill, before soil or other suitable material is replaced into the excavated area. The fill material shall be free of contaminants and other foreign objects potentially injurious to tree roots.
8. All works will be supervised by the appointed arboricultural consultant.



Plate 1: Use of Vacuum Excavator - Tree Roots protected by Hessian Wraps



Plate 2: Installation of Services below retained Tree Roots

For other planned services within the site, to avoid root damage, the following should be designed to avoid the RPAs of retained trees:

- Surface water drains
- Land drains
- Soakaways and drainage attenuation crates
- Gas
- Oil
- Electricity
- Telephone
- Lighting
- Signage

If additional services must unavoidably be installed within the RPAs of retained trees, the locations of these will be chosen in consultation with the retained Arboricultural Consultant and will be agreed in writing with Bury Council.

The works will be carried out following the methodology above, by using trenchless techniques such as moling, laser guided boring and/or in accordance with advice contained within Streetworks Volume 4 'Street Works UK Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees'.

8.8 Soil Remediation

At the time of producing this report ADAS have not been made aware of any proposals for the remediation or removal of contamination from existing soils within the site.

The removal of soils within the RPAs of retained trees to provide remediation of contamination has the potential to cause significant root damage and would potentially result in the removal of additional trees within the site.

Similarly, the import of fill material to cap areas of contamination within the RPAs of retained trees could result in a detrimental impact upon root development and function resulting in decline of affected trees.

It is recommended that once details of any soil remediation works are known that the retained arboricultural consultant is contacted to review and advise upon any impacts that may occur as a consequence of such works.

8.9 Arboricultural Input

8.9.1 Sequence of Events

The sequence of events taken from the flow diagram within Figure 1 of BS5837:2012 has been provided in **Appendix 12**. This is to demonstrate the key timings for arboricultural input on a development site once planning permission has been approved.

8.9.2 Site Monitoring

The developer should appoint an Arboricultural Consultant to monitor the tree protection measures on site. The purpose of this is to ensure the protection measures remain in situ and continue to provide sufficient protection to the trees.

This role will initially entail the Arboricultural Consultant liaising with the developer and Bury Council to ensure the recommended protection measures are suitably installed. Once the tree protection measures have been installed, and construction activity commences, the extent of any on-going site monitoring is at the discretion of Bury Council.

A formal record of these supervisory visits should be recorded and kept on file; a copy should also be circulated to all relevant parties, including Bury Council.

8.9.3 Key Contacts during Development

A list of key contacts relevant to this site that may be required throughout the duration of the development has been included in **Appendix 13**.

9 Conclusions

The tree survey undertaken by Matt Lally on behalf of ADAS on 31st January 2023 identified 18 arboricultural features, comprising 13 individual trees and five groups of trees, within influencing distance of the proposed development of the site known as Willow Street, Bury.

The proposed development of the site has been designed to sit largely within the envelope of the previously developed area of the site and as such the potential for significant harm to be caused to retained trees as a consequence of development is reduced.

The proposals will require the removal of three individual trees and four tree groups within the site. The individual trees to be removed comprise two Category B specimens (T9 & T10) and one Category C specimen (T15). The tree groups to be removed (G13, G16, G17 and G18) are all of Category C value.

Replacement tree and landscape planting is proposed to mitigate the proposed tree removal. The incorporation of new landscaping within the scheme will further enhance the overall tree cover across the site, as well as increase species and tree age class diversity within the site which will help to provide succession of the existing tree stock which is dominated by just one species.

Where works are to occur within the RPAs of retained trees, they mainly affect areas where existing hard standing and development will have impaired, if not excluded, root development.

Where works are proposed within the RPAs of retained trees, it is considered that, subject to the works being completed in accordance with the precautionary methodologies detailed in this report, the trees will adapt successfully to the changes in their growing environment and can be retained.

ADAS are satisfied that, providing the recommendations contained within this report are followed, the proposed development of the site can be successfully achieved without causing undue harm to those trees identified for retention.

Appendix 1: Site Location Plan

See following page.



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Notes

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Appendix 2: Tree Protection Plan (Demolition Phase)

See following page.



LEGEND

TREE CATEGORIES - NOTE: Quality class description derived from BS5837:2012

- Category A**
Tree / Groups of high quality, with an estimated remaining life expectancy of at least 40 years.
- Category B**
Tree / Groups of moderate quality, with an estimated remaining life expectancy of at least 20 years.
- Category C**
Tree / Groups of low quality, with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.
- Category D**
Tree / Groups: in such a condition that they cannot realistically be retained as living trees in the context of current land use for longer than 10 years.

Root Protection Area (RPA)

TP#
Trees not included in original site survey and therefore positions are indicative only.

Trees To Be Removed
Tree / Groups, which are to be removed.

Tree Protection Fence

Hard Surface Demolition

Based on IGA drawing 'Existing Site Plan' number '1264-IGA-Z1-00-DR-A-0002'.
(1264-IGA-Z1-00-DR-A-0002 - Existing Site Plan.dwg). Please see original for details.

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Appendix 3: Tree Protection Plan (Construction Phase)

See following page.



LEGEND

TREE CATEGORIES - NOTE: Quality class description derived from BS5837:2012

- Category A**
Tree / Groups of high quality, with an estimated remaining life expectancy of at least 40 years.
- Category B**
Tree / Groups of moderate quality, with an estimated remaining life expectancy of at least 20 years.
- Category C**
Tree / Groups of low quality, with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.
- Category U**
Tree / Groups: in such a condition that they cannot realistically be retained as living trees in the context of current land use for longer than 10 years.
- Root Protection Area (RPA)**
- T#***
Trees not included in original site survey and therefore positions are indicative only.
- Trees To Be Removed**
Tree / Groups, which are to be removed.
- Tree Protection Fence**
- Ground Protection**
- Zone of Precautionary Excavation / Hand Dig**
- No Dig Hard Surface Construction**

Based on IGA drawing 'Proposed Site Plan' number 1264-IGA-Z1-00-DR-A-0001.
(1264-IGA-Z1-00-DR-A-0004 - Proposed Site Plan.dwg). Please see original for details.

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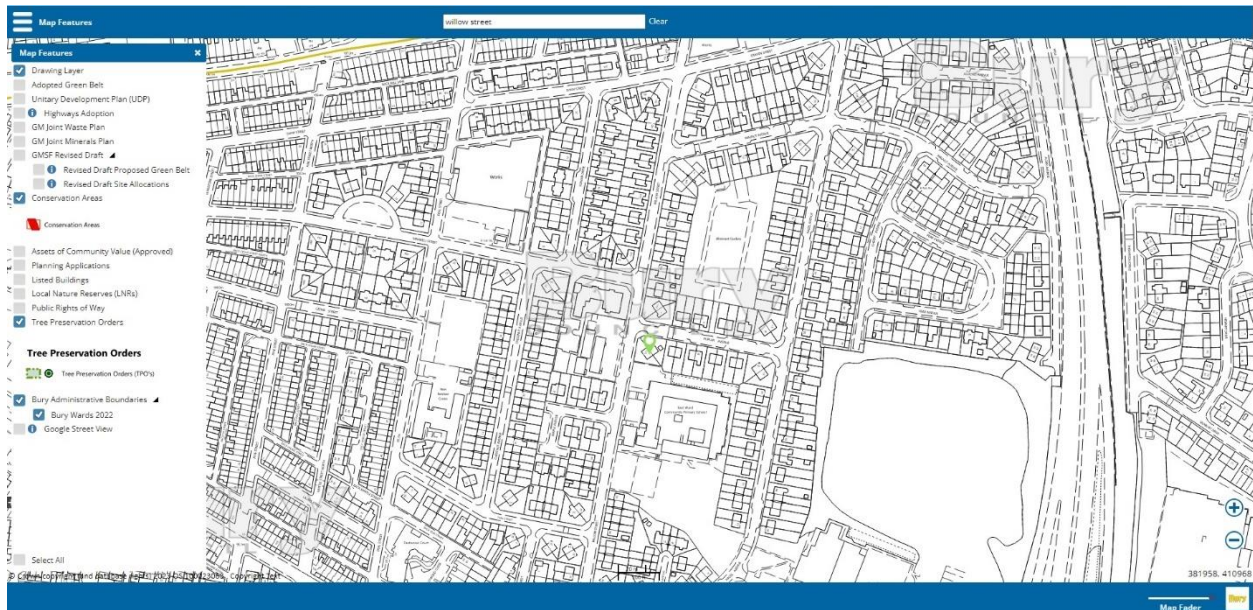
Appendix 4: Cascade Chart for Tree Quality Assessment

See following page.

Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)	Identification on plan
Trees unsuitable for retention (see Note)		
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 <i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i>	See Table 2
1 Mainly arboricultural qualities		
2 Mainly landscape qualities		
3 Mainly cultural values, including conservation		
Trees to be considered for retention		
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
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 so as to make little visual contribution to the wider locality
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 with material conservation or other cultural value
	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

Appendix 5: TPO and Conservation Area Plan



Appendix 6: Tree Survey Schedule

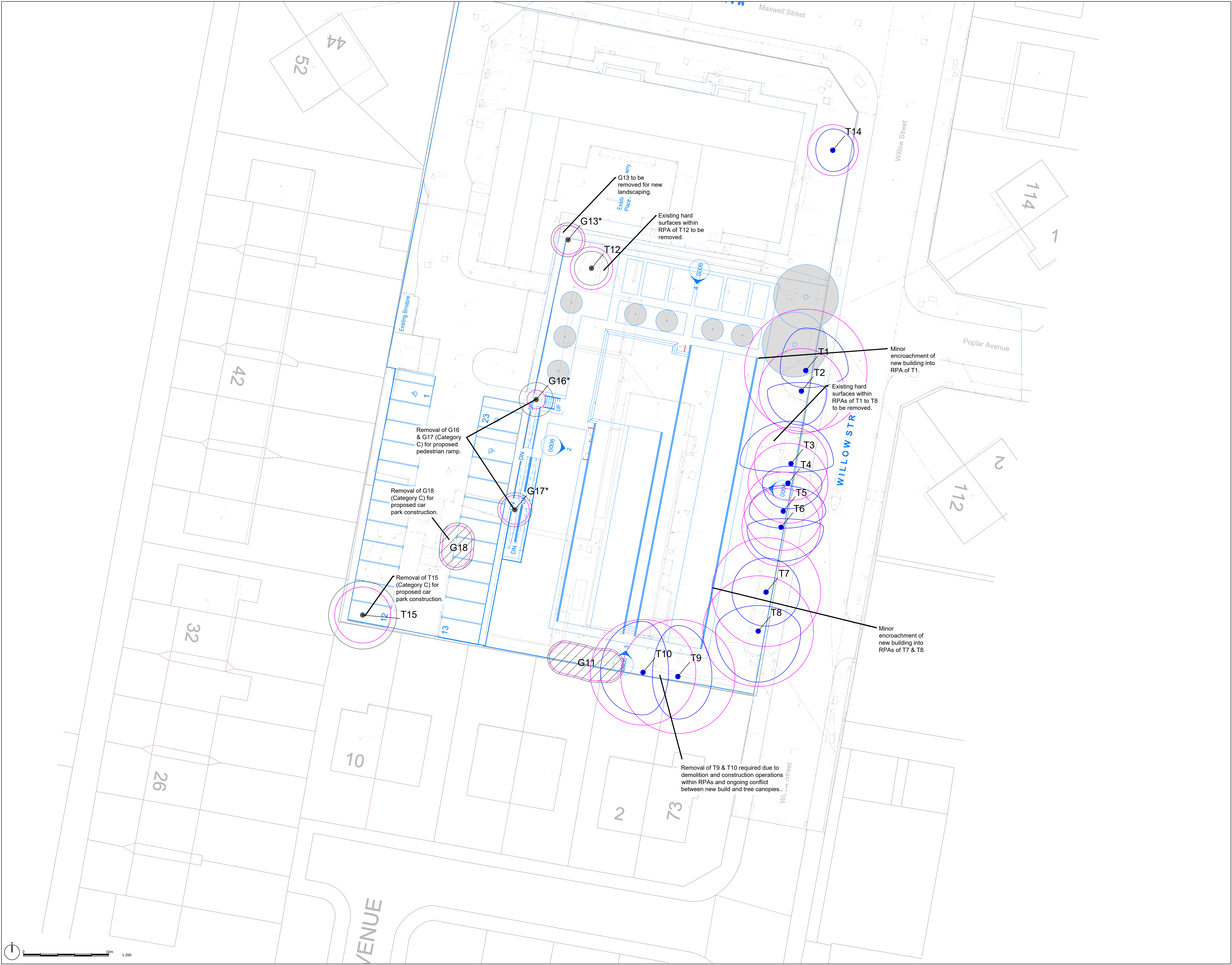
See following page.



Tree Ref No.	Species	Single or Multiple Stem	Height	Stem Diameter												Very Large Girth	Ancient, Veteran or Notable	Branch Spread				Crown Clearance		Life Stage	General Observations (structural / physiological condition)	Preliminary Management Recommendations	Estimated Remaining Contribution	Tree Quality Grading	Root Protection Area		
				(mm)														(m)				(m)							(years)	(m ²)	(radius in m)
				S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	N	E			S	W	(1)	(2)										
				(S or M)	(m)	(Y / N)	(A, V or N)	N	E	S	W	(1)	(2)																		
T1	Sycamore	S	16	600											N		5	5	2	3	7N	10	EM	Codominant form. Included union at 2m but of little concern. Heavily crown lifted. Asymmetrical crown. Vitality appears normal. Tree appears stable. Highly visible from public viewpoints.	No action	40+	B2	162.9	7.2		
T2	Sycamore	M(a)	16	300	290										N		1	3	4	4	7S	9	EM	Codominant form. Asymmetrical crown. Heavily crown lifted. Epicormic growths on main stem. Vitality appears normal. Tree appears stable. Highly visible from public viewpoints.	No action	40+	B2	78.8	5.0		
T3	Sycamore	S	15	360											N		5	5	1	6	7N	7	EM	Codominant form. Asymmetrical crown. Heavily crown lifted. Epicormic growths on main stem. Vitality appears normal. Tree appears stable. Highly visible from public viewpoints.	No action	40+	B2	58.6	4.3		
T4	Sycamore	S	17	390											N		2	4	3	3	9E	11	EM	Asymmetrical crown. Heavily crown lifted. Epicormic growths on main stem. Vitality appears normal. Tree appears stable. Highly visible from public viewpoints.	No action	40+	B2	68.8	4.7		
T5	Sycamore	S	15	380											N		3	5	2	4	6E	7	EM	Codominant form. Asymmetrical crown. Heavily crown lifted. Epicormic growths on main stem. Vitality appears normal. Tree appears stable. Highly visible from public viewpoints. Basal stem wound from historically removed tree, no significant decay evident.	No action	40+	B2	65.3	4.6		
T6	Sycamore	S	15	380											N		1	5	4	4	8E	9	EM	Asymmetrical crown. Heavily crown lifted. Epicormic growths on main stem. Vitality appears normal. Tree appears stable. Highly visible from public viewpoints. Basal stem wound, minor cavity formation but of little concern.	No action	40+	B2	65.3	4.6		
T7	Sycamore	S	16	530											N		4	4	4	4	9E	12	EM	Codominant stems. Heavily crown lifted. Epicormic growths on main stem. Vitality appears normal. Tree appears stable. Highly visible from public viewpoint.	No action	40+	B2	127.1	6.4		
T8	Sycamore	M(a)	17	380	390										N		3	5	6	5	9E	9	EM	Codominant form. Asymmetrical crown. Heavily crown lifted. Epicormic growths on main stem. Vitality appears normal. Tree appears stable. Highly visible from public viewpoints.	No action	40+	B2	134.2	6.5		
T9	Sycamore	S	17	560											N		6	4	5	3	9S	11	EM	Codominant form. Asymmetrical crown. Heavily crown lifted. Epicormic growths on main stem. Vitality appears normal. Tree appears stable. Highly visible from public viewpoints.	No action	40+	B2	141.9	6.7		
T10	Sycamore	S	17	520											N		6	3	5	5	8S	9	EM	Asymmetrical crown. Heavily crown lifted. Epicormic growths on main stem. Vitality appears normal. Tree appears stable. Highly visible from public viewpoints.	No action	40+	B2	122.3	6.2		
G11	Leyland Cypress	S	8	150											N		2	2	2	2	0N	0	SM	An unmanaged boundary hedge group. Good vitality. Low arboricultural value.	No action	40+	C2	10.2	1.8		
T12	Sycamore	M(b)	9	90	90	80	80	80	70	50	50				N		2	2	2	2	0N	0	SM	Multi stemmed tree. Good vitality. No significant risk features observed.	No action	40+	C1	19.7	2.5		
G13	Sycamore	S	5	140											N		2	2	2	2	2N	1	Y	Self set trees on site boundary. Low arboricultural value.	No action	40+	C2	8.9	1.7		
T14	Cherry	S	8	250											N		2.5	2.5	2.5	2	1.5N	2	SM	Good form and vitality. No significant risk features observed. Highly visible from public viewpoints.	No action	40+	B1	28.3	3.0		
T15	Willow	M(a)	5	250	120										Y		4	4	4	4	2N	2	EM	Good form and vitality. No significant risk features observed.	No action	40+	C1	34.8	3.3		
G16	Sycamore	S	5	90	90	100									N		2	2	2	2	2N	1	Y	Self set trees on site boundary. Low arboricultural value.	No action	40+	C2	3.7	1.1		
G17	Sycamore	S	5	140											N		2	2	2	2	2N	1	Y	Self set trees on site boundary. Low arboricultural value.	No action	40+	C2	8.9	1.7		
G18	Sycamore	S	5	140											N		2	2	2	2	2N	1	Y	Self set trees on site boundary. Low arboricultural value.	No action	40+	C2	8.9	1.7		

Appendix 7: Arboricultural Impact Assessment Plan

See following page.



LEGEND

TREE CATEGORIES - NOTE: Quality class description derived from BS5837:2012

- Category A**
Tree / Groups of high quality, with an estimated remaining life expectancy of at least 40 years.
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- Category C**
Tree / Groups of low quality, with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.
- Category D**
Tree / Groups: in such a condition that they cannot realistically be retained as living trees in the context of current land use for longer than 10 years.

Root Protection Area (RPA)

T#*
Trees not included in original site survey and therefore positions are indicative only.

Existing Site Layout

Proposed Site Layout

Based on (DA drawing 'Proposed Site Plan' number 1264-DA-Z1-00-DR-A-001, 1264-DA-Z1-00-DR-A-004 - Proposed Site Plan.dwg). Please see original for details.

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Project: Willow Street, Bury	
Drawing Title: Arboricultural Impact Assessment Plan	
Drawing No: ADAS_1051694_Irwell Valley Homes_Willow Street_AIAP	
Scale: 1:200	
Drawn by: EL	Date: 17.02.23
Checked by: TF	Date: 17.02.23
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Appendix 8: Tree Work Schedule

Tree No:	Species	Recommended Management Work
T9	Sycamore	Fell and remove.
T10	Sycamore	Fell and remove.
T12	Sycamore	Crown lift to provide 3.5m clearance above ground level.
G13	Sycamore	Fell and remove.
T15	Willow	Fell and remove.
G16	Sycamore	Fell and remove.
G17	Sycamore	Fell and remove.
G18	Sycamore	Fell and remove.

Accompanying Notes:

- All tree work and felling to be carried out in accordance with BS 3998 (2010) 'Recommendations for Tree Work', current industry guidelines and best practice, and all relevant Health & Safety standards.
- All operatives to be appropriately qualified, skilled, and adequately insured, for the task they are undertaking.
- All tree work and felling must comply with The Wildlife and Countryside Act 1981 as amended by the Countryside and Rights of Way Act 2000.
- Modification to, or deviation from, the above schedule must first gain approval from Bury Council.

Appendix 9: RPA Guidance

The Root Protection Area (RPA) is calculated from the stem diameter of the tree, in accordance with the guidance contained in section 4.6 of BS 5837:2012.

These areas are normally sacrosanct, and should not be entered, by traffic or foot, during construction, or used to store materials, fuel or chemicals.

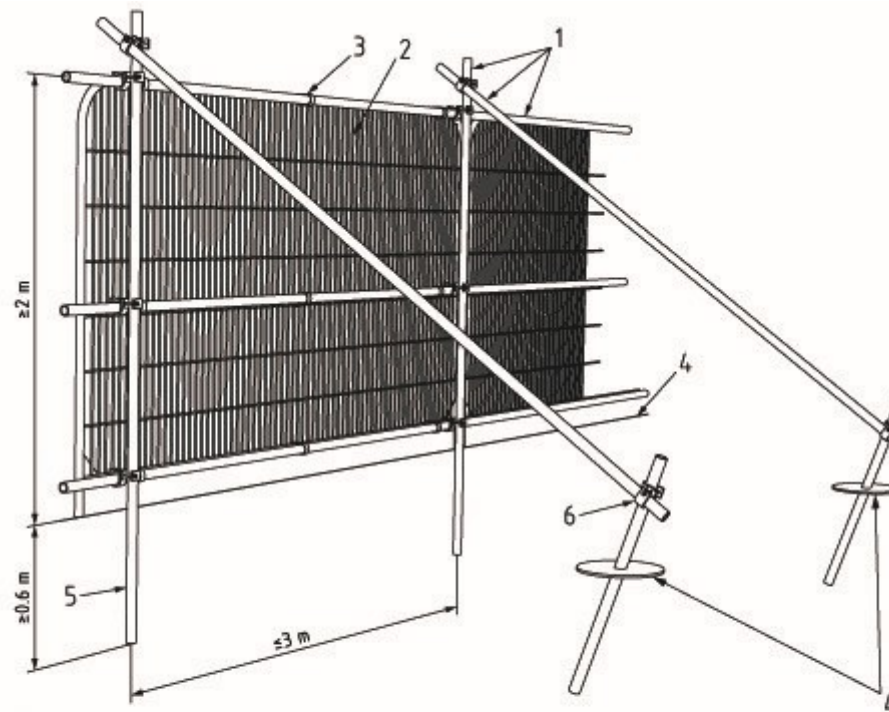
Protective fencing should be erected along the edge of the RPA, before construction begins, and should not be moved until after all construction has finished and vacated the site. The type of fencing used should be fit for purpose, and ordinarily conform to the recommendations given in section 6.2.2 of BS 5837:2012 and be erected similar to the example shown in Figure 2 of the same standard.

Where underground services cannot be routed outside the RPA, these should be installed by trenchless technology, such as a directional drill. Where this technology is used the underground channel created should be no less than 600mm below normal ground level, or the base of the tree. Also, the starting and receiving excavations should not be within the RPA. Drill channel lubricant should be avoided, other than water, unless precautions are taken to prevent contamination of soil and possibly water. Hand digging may be an alternative to trenchless excavation, but this is less desirable, and not always practical.

When determining the workable space around the RPA of a tree or trees, it is also important to maintain a working zone of one metre (which is usually sufficient) between the edge of construction and the protective fencing.

Appendix 10: Example Tree Protection Barrier

See following page.



Key

- 1 Standard scaffold poles
- 2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
- 3 Panels secured to uprights and cross-members with wire ties
- 4 Ground level
- 5 Uprights driven into the ground until secure (minimum depth 0.6 m)
- 6 Standard scaffold clamps

Appendix 11: Example Tree Protection Barrier Sign



Appendix 12: Cellular Confinement System

See following page.

CI/SfB

Common Arrangement R12

Uniclass
L81208/L81210



CellWeb™



Tree Root Protection System



Geosynthetics

CellWeb™

Tree Root Protection System



The CellWeb™ TRP cellular confinement system protects tree roots from the damaging effects of compaction and desiccation, while creating a stable, load-bearing surface for vehicular traffic.

CellWeb™ offers an alternative to the traditional methods of constructing roadways and building foundations that involve excavation, which can result in tree root severance and soil compaction from the passage of vehicles. Such damage can severely influence tree health, and in extreme cases leads to death. CellWeb™ can be sensitively installed close to and under the canopies of trees without negative effects.

Trees are valuable landscape features and a vital environmental resource. Increasingly, contractors are being required to ensure the health and survival of trees during and beyond the construction period. Although this is enshrined in BS 5837: Trees in Relation to Construction: Recommendations (2005) and Tree Preservation Order legislation, it presents several issues when implementing construction projects near to trees:

- Root severance caused by excavation, leaving trees open to decay, less stable and with a diminished capacity to utilise soil water and nutrients.
- Destruction of soil structure and compaction due to the passage of heavy vehicles, restricting the flow of water and air to tree roots.
- Need for construction access, new roadways and hard surfaces that require engineering-standard load-bearing foundations that meet building regulations.
- Need for high-performance, cost-effective driveways and roadways in the vicinity of tree roots.



Potential loss of existing tree due to poor construction techniques.

The CellWeb™ system overcomes these issues and helps contractors to comply with tree health guidelines by creating a load-bearing base that is water-permeable, stable and durable.

With no need for excavation, the system is quick and easy to install, reducing construction time and saving costs and making it suitable for temporary and permanent solutions.



Glynebourne Wood.

Pedestrian path to recreational woodland built using a CellWeb™ foundation which was covered with DuoBlock and then filled with woodchip to create a porous surface.

Product features



CellWeb™ comprises an expandable cellular mattress that is then filled with a clean stone sub-base and above a Treetex T300 Geotextile.

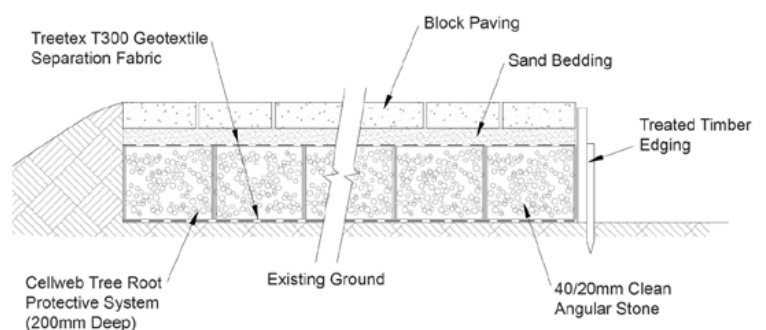
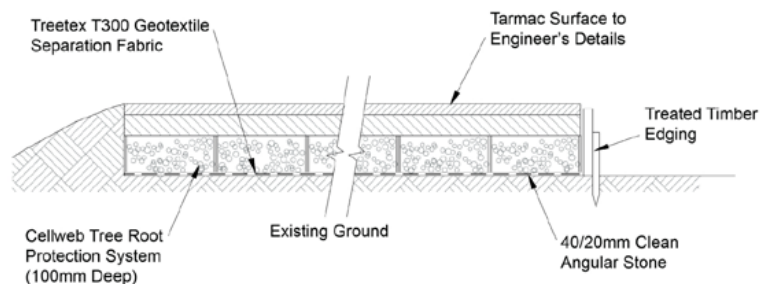
The honeycomb-like structure is made of robust high-density polyethylene (HDPE) that is simply stretched out and filled with clean angular material. Just like traditional roadways, the strength of the structure comes from the binding together of the infill, but with CellWeb™ this is achieved without compaction and without reduction in permeability.

Perforated cell walls allow the angular infill to bind with the contents of the adjacent cell, but with sufficient space for the movement of water and air to nearby tree roots. As the infill contains no fines and the geotextile layers prevent clogging from particles washing into the system, the structure remains permeable to water over time and protects the roots for the lifetime of the tree.

As well as being quick and easy to install, CellWeb™ also dramatically cuts down the depth of sub-base required, in most cases by as much as 50%, further reducing costs. CellWeb™ significantly reduces surface rutting, increasing the long-term performance of the finished surface and ensuring that tree roots remain protected from vertical loads.

CellWeb can be used as a permanent solution or alternatively the system can be used in a temporary situation. In a temporary application the system can be used for the required period of time, then removed for use on another site or recycled, thereby adding to CellWeb's green credentials.

- No excavation – Soil structure remains undisturbed; risk of root damage minimised.
- Porous infill – Allows tree roots to conduct moisture and gas exchange.
- No compaction – No need to compact the infill to achieve a load-bearing structure.
- Lateral stability – Structure remains rigid to vertical loads.



Please call
01455 617 139

or email sales@geosyn.co.uk
for further information.

Wide
product
range

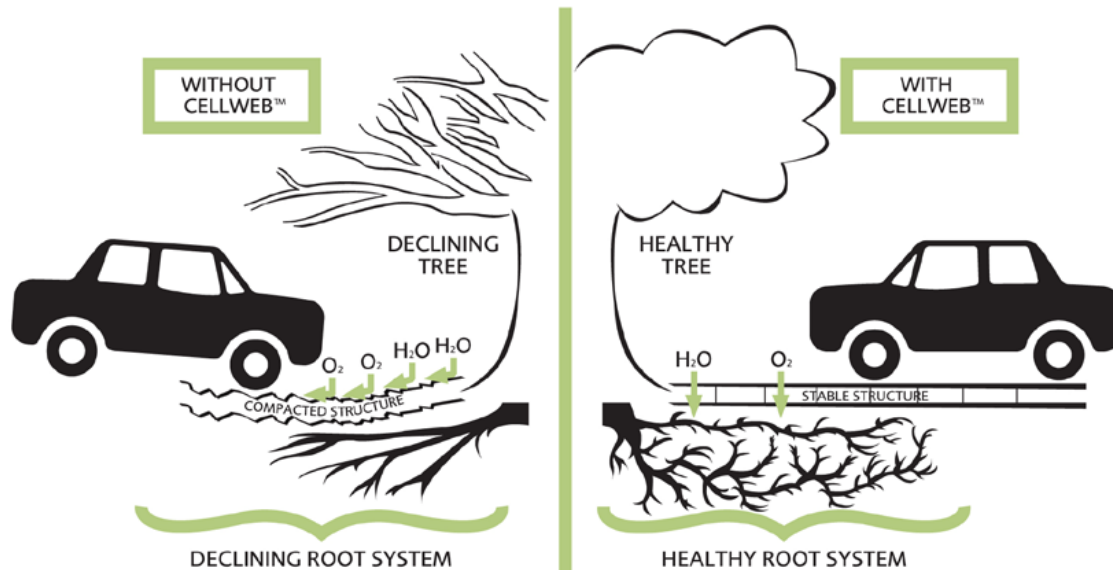
Large
stock
holding

Next day
delivery

Hydrological benefits

Water is a shrinking resource in the urban environment. As the extent of the built environment increases, more and more ground is being covered by impermeable hard surfaces that repel rainwater runoff, preventing it from reaching the roots of vegetation, and in particular trees. Rapid water runoff stretches the capacity of stormwater drains and frequently results in drainage management issues that are rarely resolved in favour of adjacent trees.

Using CellWeb™ mitigates these issues by promoting both the vertical and the lateral movement of water, whether the system is installed above or below ground. The 'pores' that are created by the spaces between the infill stones and the cell perforations even allow water to flow to adjacent tree roots that are effectively 'trapped' under areas of impermeable hard standing. CellWeb™ therefore helps to promote root growth and allows roots to continue to grow within areas of hard surfacing.



Design
service

Onsite
support



Geosynthetics



Design & installation

Final surfacing

The benefits of the CellWeb™ system to trees can only be maintained if a suitably porous final surface is selected. An ideal surfacing is the DuoBlocks grass reinforcement and gravel retention system, a visually attractive surface that has the advantage of being fully porous. Alternatives include block paviers, porous asphalts and loose or bonded gravel.

Call the Geosynthetics sales team on 01455 617 139 for more advice on surfacing options and other products and systems.

Advice and product selection

Geosynthetics Limited has been supplying the CellWeb™ system for many years and has acquired solid experience in its application. No two contracts are the same, and we understand the factors that need to be taken into account to specify the right CellWeb™ product.

We provide a FREE consultation, design and advisory service to find the solution that is most cost-effective and beneficial for your site. Our service includes product selection, CAD drawings and full instructions to help you from project conception to completion.

Call our sales office on 01455 617 139 for specification details and project-specific design assistance.

CellWeb™ in action:

Access road for the Lake District National Parks Authority.



Site before construction pictured above.



Installation of the CellWeb™ system.



Four years later.

Technical specification

Product Specifications

Properties	Standard Cell
Material	Virgin HDPE
Wall thickness	1.25mm
Seam welding	Ultrasonic to 100% of seam length
Cell depth	75, 100, 150, 200 and 300mm
Width of expanded panel	2.56m
Length of expanded panel	8.1m
Cell diameter (expanded)	259 x 224mm

Certified Quality

CellWeb™ is manufactured in accordance with the ISO 9001 Quality Management System in a comprehensive range of cell diameters and depths.



Geosynthetics Ltd



Geosynthetics

Geosynthetics Limited

Fleming Road, Harrowbrook Industrial Estate
Hinckley, Leicestershire LE10 3DU.

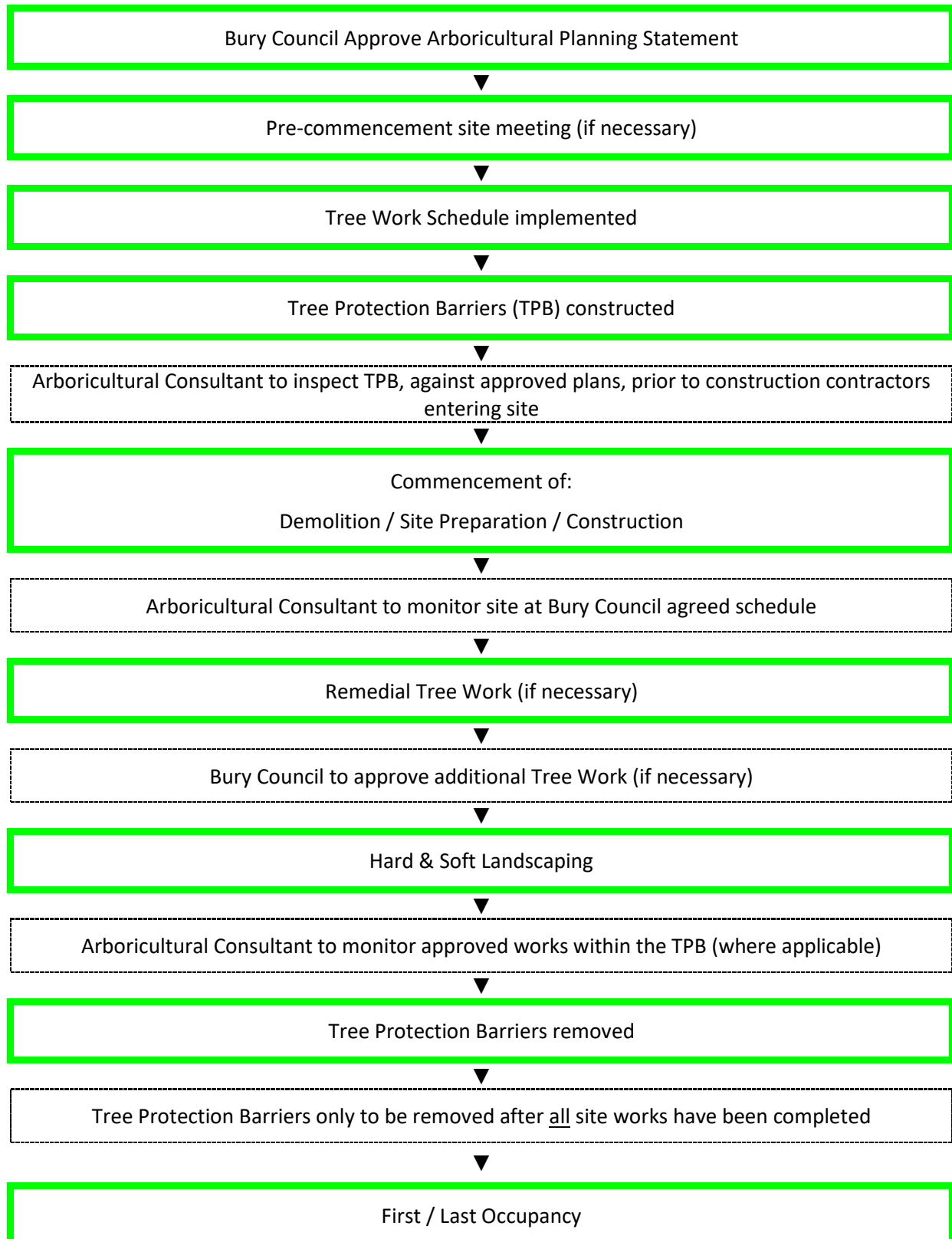
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Appendix 13: Key Sequence of Events after Planning Approval



Appendix 14: Contact Details

	Name	Main Contact and Details
Site Details	Willow Street	Willow Street Bury BL9 7QZ
Developer	TBC	
Site Manager	TBC	
Arboricultural Consultant	Edmund Lusk	RSK ADAS Ltd Abbey Park Humber Road Coventry CV3 4AQ M: 07503 166016 E: ed.lusk@adas.co.uk
Local Authority:	Bury Council	Bury Council Town Hall Knowsley Street Bury Lancashire BL9 0SW T: 0161 253 5000