



# Arboricultural Impact Assessment & Arboricultural Method Statement

## Land off Ash Road, Wrexham Industrial Estate

|                                  |                                                                                                            |
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| <b>Applicant</b>                 | Ipsen Biopharm Ltd                                                                                         |
| <b>Agent</b>                     | AXIS P.E.D LTD                                                                                             |
| <b>Site Address</b>              | Land off Ash Road, Wrexham Industrial Estate                                                               |
| <b>Arboricultural Consultant</b> | Mike Wood <i>Dip Arb. PTI, TechArbor A</i>                                                                 |
| <b>Local Authority</b>           | Wrexham County Borough Council (WCBC)                                                                      |
| <b>Proposal</b>                  | Construction of a new manufacturing facility, located off Ash Road North at the Wrexham Industrial Estate. |
| <b>Survey Date</b>               | 30 <sup>th</sup> March 2023                                                                                |
| <b>Report Date</b>               | 15 <sup>th</sup> May 2023                                                                                  |
| <b>Report Reference</b>          | 230516-1.1-AIA-WIE-T21-MW                                                                                  |



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- Appendix A: Tree Schedule
- Appendix B: Tree Constraints Plan
- Appendix C: Tree Protection Retention and Removal Plan
- Appendix D: Tree Protection Measures
- Appendix E: Drainage General Arrangement



## Executive Summary

- This report provides an assessment upon the impact of trees and a proposal to construct of a new manufacturing facility, located off Ash Road North at the Wrexham Industrial Estate.
- A tree survey in accordance with BS5837:2012 was undertaken on March 30<sup>th</sup>, 2023, to inform this assessment. The survey recorded a total of 37 tree records which may be influenced by the Proposed Development. The report was undertaken in accordance with BS5837:2012 *Trees in Relation to design, Demolition and Construction - Recommendations*.
- The tree records recorded include 32 individual trees, 4 tree groups and 1 woodland. The woodland group (W07, Erlas Black Wood) has been recorded as category 'A', 15 tree records have been recorded as category 'B', 38 as category 'C' and 1 as category 'U', in accordance with British Standard BS5837:2012.
- Two trees (T28, T29) and one tree group (G030) have been identified for removal to facilitate a new manhole and drainage connection to the existing outfall basin to facilitate this proposal.
- No tree pruning works to retained trees is anticipated to facilitate the proposal and/or the installation of tree protection barriers.
- Tree protection measures have been set where considered appropriate to ensure the impact upon retained trees is as low as possible.
- An Arboricultural Method Statement has been provided within this report at section 13.0 to help ensure tree protection installation and tree removal is managed correctly and that any potential impact to retained trees is minimised.



## 1.0 Qualifications and Experience

- 1.0.1 The survey and report have been prepared by Mike Wood *Dip Arb. TechArborA*, Principal Arboricultural Consultant of Tree 21 Limited. Mike Wood has 25 years' experience in arboriculture, with over 15 years' experience in providing BS5837 surveys and reports and is a certified LANTRA Professional Tree Inspector, a registered Quantified Tree Risk Assessment (QTRA) user and a member of the Arboricultural Association.

## 2.0 Introduction

- 2.0.1 This report and appendices have been produced to assess the impact upon trees and a proposal to new manufacturing facility building ,located off Ash Road North at the Wrexham Industrial Estate.
- 2.0.2 The survey was undertaken in accordance with BS5837:2012 Recommendations. A topographical survey base plan of the trees was used as a base map, to inform the position of trees in a specialist tree survey programme on an android device.
- 2.0.3 The Tree Schedule at Appendix A provides all data and proposed action for each tree record. The Tree Constraints Plan (TCP) at Appendix B illustrates the tree in the current context. The Protection, Retention and Removal Plan (TPRRP) at Appendix C illustrates the proposed context, with tree protection barriers where considered appropriate to protect retained trees. The plans include the position of the trees, crown spread in four cardinal directions, retention category and Root Protection Areas (RPA) in accordance with BS5837:2012.

## 3.0 Scope

- 3.0.1 A tree survey was undertaken on March 30<sup>th</sup>, 2023, further to an instruction from AXIS P.E.D LTD on behalf of the client. The resulting survey data was then used to produce a Tree Schedule (Appendix A), Tree Constraints Plan (Appendix B) and Tree Protection Retention and Removal Plan (Appendix C) to inform this assessment.

## 3.1 Purpose of the Report



- 3.1.1 This assessment is intended to report on any impact upon trees, evaluating the impact of above ground parts (stem and branches), expressed as crown spread and below ground parts (roots), which is expressed as the Root Protection Area (RPA). The report also considers the wider impact on the landscape and post development/long-term sustainability between the proposal and the treescape.
- 3.1.2 The report, and the accompanying information, is supplied to assess the impact on trees from the Proposed Development, with the following areas as a framework:
- Trees to be removed to facilitate the proposal.
  - Tree pruning work to facilitate the proposal.
  - Identify suitable protection measures for retained trees throughout the construction of the proposal, including enabling works.
  - Provide an Arboricultural Method Statement to detail how trees will be managed through the process.

### 3.2 Documents Provided to Tree 21 Limited

- Location Plan
- Topographical Survey Plan
- Proposed Layout
- Drainage General Arrangement

### 3.3 Limitations

- 3.3.1 This report is a preliminary assessment from ground level and observations have been made solely from visual inspection for the purposes of assessment in terms relevant to planning and development. Only hand tools have been used which may include binoculars, nylon mallet, laser measure, compass, height measuring device and fine manual metal probe to aid tree assessment where considered necessary during the survey. No detailed internal decay detection devices have been used in assessing trunk condition.



- 3.3.2 The conclusions relate to conditions found at the time of the survey. The recommendations contained within this report are valid for a period of one year only. Any significant alteration to the site that may affect the tree or have a bearing on the planning implications (including level changes, hydrological changes, extreme climatic events, or other site works) will necessitate a re-assessment of the trees and the site.
- 3.3.3 It should be noted that this survey is not a tree safety inspection. It is carried out to inform the planning process. Where clear and obvious hazards have been observed, these have been addressed in Appendix A - Tree Schedule). A full assessment of the levels of risk posed by trees would be informed by considering site use together with hazards present within the tree. Changes in site use are likely to occur during, and result from, the proposed development. In the light of these changes, regular tree risk assessments are advised.
- 3.3.4 Trees are living dynamic organisms and their condition can change quickly; therefore this report is only valid for 12 months following the survey date. A follow up tree survey should be undertaken beyond 12 months to re-assess the condition of the trees, which informs the retention categories in BS5837:2012, unless work has already progressed.

## 4.0 Site Visit and Tree Assessment Methodology

- 4.0.1 A site survey was undertaken on March 30<sup>th</sup>, 2023. The survey took place from ground level aided by the Visual Tree Assessment method (Mattheck and Breloer, 1994), in accordance with BS5837:2012 guidelines. The data was recorded in specialist tree data capture software.
- 4.0.2 Weather conditions were dry with adequate light and visibility to observe the trees and surrounding environs.
- 4.0.3 While this appraisal is not a tree risk assessment it nonetheless considers observed structural defects of the inspected tree, where applicable, to inform conclusions with regard to long term management.
- 4.0.4 Recommendations have been made, where considered appropriate to address immediate tree hazards/or to manage the trees within the context of the site



becoming a work area and a Proposed Development site with consideration to long term retention.

## 4.1 Data Collection

4.1.1 Data collected includes a designated tree (T), group (G) or Woodland (W) number, tree species, height, number of stems, diameter at 1.5m above ground level, crown clearance (height of periphery of crown spread above ground level), branch spread (to N, S, E and W), age class, physiological condition, useful life expectancy tree condition, site notes (where this has a bearing on the present or future health or structural condition of the tree), preliminary management recommendations, and tree retention category in accordance with BS5837:2012.

## 4.2 Presentation of the Data Collected

4.2.1 Data collected during the Tree Survey is presented in the Tree Schedule table in Appendix A in accordance with BS5837:2012 *Trees in Relation to Design, Demolition and Construction – Recommendations*.

4.2.2 The tree survey data is provided in the Tree Schedule (Appendix A) and illustrated on the Tree Constraints Plan (Appendix B). The Tree Protection, Retention and Removal Plan (Appendix C) provides the proposals, as a layer over the TCP and provides illustrative information on tree removal, tree retention and any recommended tree protection. All other relevant data are presented within the main body of this assessment.

## 5.0 Site Description and Context

5.0.1 The site currently comprises hard standing car parking area around the north and northeast, a soft grass strip of land to the west and the margin of a woodland (W07 Erlas Black Wood) to the southeast. The area to the south is brownfield land with areas of rubble, tarmac pieces, and concrete. The levels of the site are built approximately 2m above the level of the woodland group and continue, relatively flat through the site to meet the access/egress point.

5.0.2 The trees recorded during the survey are a mixture of planted, and self-set trees. The trees along the west boundary (T10-T27) provide amenity and landscape significance

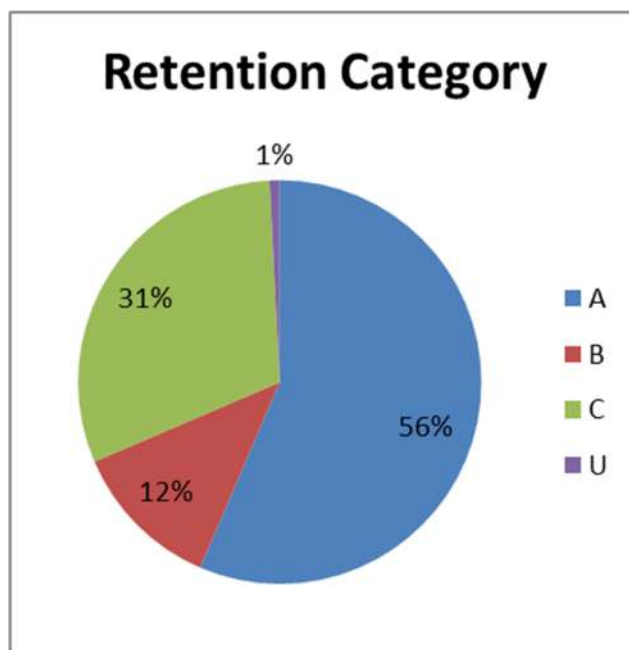


between the site and the adjacent Ash Road. The woodland group (W07) provides important biodiversity and landscape value within the wider context of the industrial estate. Trees to the north and northeast boundary are mostly self-set and are of low value. There are no veteran or ancient trees on site and the woodland is not ancient.

## 6.0 Summary of Tree Data

6.0.1 The pie charts and bar chart below summarise the recorded data on the trees across the site.

**Chart 1: Provides information on the tree retention categories across the site in accordance with BS5837:2012.**



**Chart 2: Provides information on the life stages of trees across the site.**

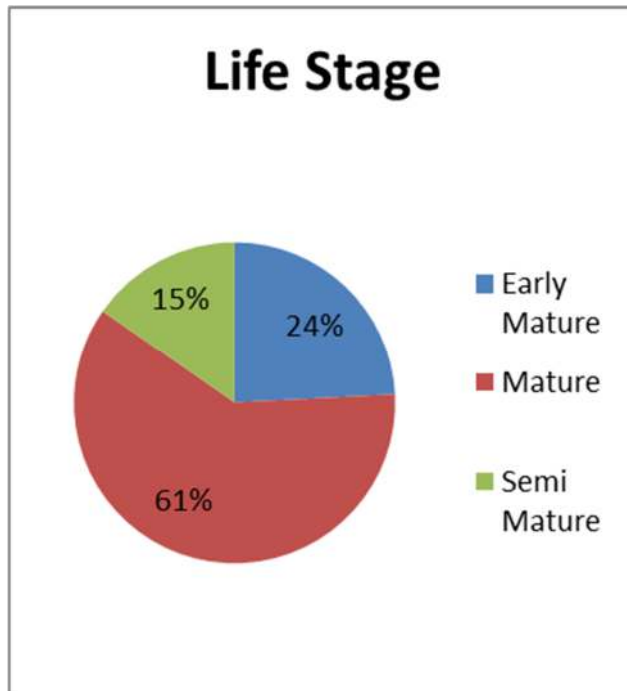


Chart 3: Provides information on the remaining contribution of trees in years across the site.

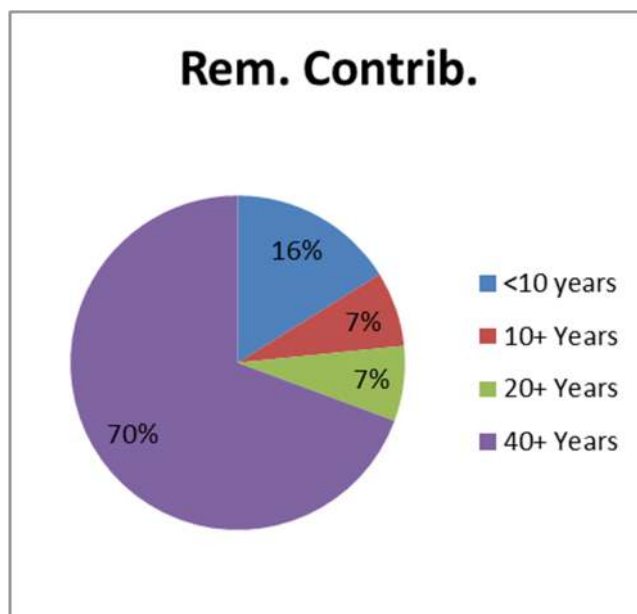
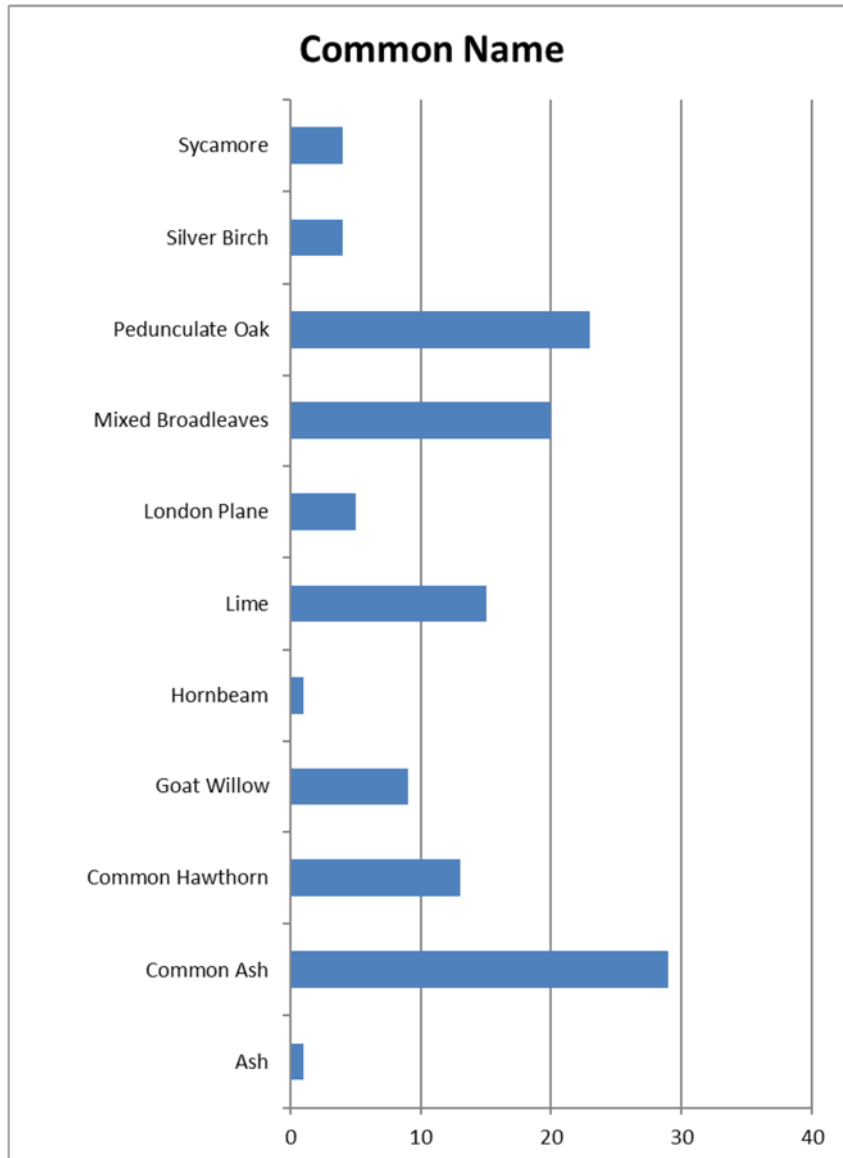


Chart 4: Provides information on the tree species across the site.



## 7.0 The Proposed Development

7.0.1 This report provides an assessment upon the impact of trees and a proposal to construct of a new manufacturing facility, located on land off Ash Road North at the Wrexham Industrial Estate.



## 8.0 Arboricultural Constraints

8.0.1 Tree constraints are presented in the Tree Schedule in Appendix A and the Tree Constraints Plan in Appendix B. These constraints are also considered further below.

8.0.2 The TCP, (Appendix B) illustrates the Root Protection Area (RPA) for the trees identified in the Tree Data Schedule (Appendix A). This represents the minimum area in m<sup>2</sup> which should ideally be left undisturbed around retained trees. The TCP also shows a representation of the crown spread of each tree measured in four cardinal directions. The RPA has been calculated in accordance with BS5837:2012 Trees in Relation to Design, Demolition & Construction – Recommendations.

## 9.0 Tree Removal and Pruning

9.0.1 Trees proposed for removal are listed in the Tree Schedule at Appendix A and illustrated on the TPRRP at Appendix C. The site layout has been designed to ensure that no 'A' or 'B' category trees are proposed for removal, in accordance with Wrexham Council Local Planning Guidance Note 17 Trees and Development and Policy EC4.

9.0.2 The table below, summarises the number of trees (T) and groups (G) proposed for removal and their BS5837:2012 retention categories.

| Category A | Category B | Category C                                   | Category U |
|------------|------------|----------------------------------------------|------------|
| None       | None       | T28, T29, G030                               | None       |
| 0          | 0          | 2 trees + 4 trees in G030 (6 trees in total) | 0          |

9.0.2 None of the retained trees have been identified as requiring any pruning works.

## 10 Tree Protection

10.0.1 The Tree Protection, Retention and Removal Plan (Appendix C), illustrates the proposed alignment of protective measures for retained trees. The protective barriers are



intended to be installed before any works begin, including enabling works, with the exception of the removal of T28, T29 and G030. These trees will need to be removed before the installation of the protective barriers, due to working practicalities.

- 10.0.2 The barriers will minimise damage within the Root Protection Areas (RPA) of retained tree, groups, and hedges. They will prevent potential damage such as soil compaction or contamination, or physical damage to above ground tree parts from machinery activity. The areas within the protected areas will be a Construction Exclusion Zone (CEZ). No activity at all, including the storage of materials or equipment will be undertaken within the CEZ.
- 10.0.4 The protective barriers will be maintained in good condition throughout the construction works and only removed on completion, to enable final soft landscaping. Any works required within the CEZ or any other areas where Root Protection Areas cannot be fully protected, should only be undertaken following Arboricultural Method Statement, which will be approved to Wrexham County Borough Council (WCBC) before implementing the methods within the document.

## 12.0 Underground Service Installation and Substation Connection

- 12.0.1 New underground drainage and SWALES are proposed to facilitate the finished proposal. These plans do not conflict with the RPAs of any retained trees. The only impact these plans will have, is the requirement to fell, 'C' category trees, T28, T29 and G030, to enable a new manhole and associated drainage run to the existing outfall basin (see Appendix E for details).
- 12.0.2 Any potential alterations or plans to install other underground services within RPAs of retained trees should be discussed with the Arboricultural Consultant and suitable methodology, to be agreed with the WCBC Tree Officer and approved in writing before being implemented.



### 13.0 Arboricultural Method Statement

13.0.1 In order to ensure any potential damage to retained trees is minimised, the following methods will be followed.

- a. Tree removal works will be undertaken by competent and qualified arborists, working to best practice BS3998:2010. Trees will be removed, and the site cleared of all arisings unless identified for re-use on site before the tree protection barrier is installed. If stumps are to be removed, they can be grubbed out or ground out after the tree protection barrier has been installed. Alternatively, the stumps can be left in situ. To rot down as they can provide valuable niche habitat.
- b. Tree Protection, as set out in the Tree Protection Plan at Appendix C, will be installed before any other works (with the exception of tree removal), including enabling works and before any plant equipment, welfare, storage, or compounds are set up on site. The alignment of the tree protection will be checked by an Arboricultural Consultant before it is installed to ensure the alignment reflects the positions illustrated in the TPRRP appended to this report.
- c. Once installed, the site manager will provide photographic evidence, to demonstrate the specification meets the criteria set out in Appendix D. The fencing will be maintained in good condition throughout the duration of the site work and inspected by an Arboricultural Consultant once every 2 months who will document the condition and provide advice on any improvements required.
- d. Machinery, storage of materials, welfare areas or any other storage or activity including access and egress haul routes to remove or deliver material will not occur within the tree protection area.
- e. No changes in levels are anticipated. If level alterations or changes are required within 12m of the existing woodland boundary fence in the southeast, the Arboricultural Consultant will need to be contacted and additional addendum methodology may be required if considered appropriate. This will be provided in writing and a copy provided to WCBC Tree Officer for approval before any works in that area proceed.
- f. Any damage arising to any retained trees will initiate an inspection by an Arboricultural Consultant, who will provide appropriate management recommendations. These recommendations will be provided to WCBC Tree Officer for approval, before implemented.



## **Legislation and Guidance**

Town & Country Planning Act 1990

Town & Country Planning (Trees) Regulations 1999

Forestry Act 1967

Health & Safety at Work Act 1974

Construction (Design & Management) Regulations 1994

BS 5837:2012 Trees in Relation to Design, Demolition & Construction - Recommendations

BS 3998:2010 Tree Work Recommendations

National Joint Utilities Group Publication No.4

## **REFERENCES**

Mattheck, C. and Breloer, H. (1995). The Body Language of Trees: A handbook for failure analysis. Research for Amenity Trees **4**. HMSO, London, 240pp.

Matheny, N and Clark, J (1997) Trees and Development: A Technical Guide to Preservation of Trees During Land Development. ISBN 1-881956-20-2

## **STANDARDS PUBLICATIONS**

Trees in Relation Design, Demolition & Construction – Recommendations. (BS5837), British Standards Institution, London (2012).

Tree Work - Recommendations. (BS3998), British Standards Institution, London (2010).

# Appendix A

## Tree Schedule

### Tree Categories

### Tree Data

**Table 1 Cascade Chart taken from BS5837:2012 Trees in Relation to Design, Demolition & Construction – Recommendations.**

# BS5837 Survey Data



| Ref. | Species                                                                                                                                                                                                                         | Measurements                                                                                                                                              | General Observations                                                                    | Category                                          | Recommendations                                                                                                                 |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| W07  | Goat Willow x5<br>(Salix caprea)<br>Common Hawthorn<br>x10<br>(Crataegus<br>monogyna)<br>Pedunculate Oak<br>x20<br>(Quercus robur)<br>Mixed Broadleaves<br>x20<br>(Mixed Broadleaves)<br>Common Ash x15<br>(Fraxinus excelsior) | Height (m): 15<br>70 stems<br>Spread (m): 5N, 5E, 5S, 5W<br>Crown Clearance (m): 2<br>Life Stage: Mature<br>Rem. Contrib.: 40+ Years                      | Important woodland (Erlas Black Wood). High habitat and wildlife value.                 | A1,2<br><br>RPA<br>Area: 9432 sq m.               | Retain all trees in woodland in line with Wrexham Council Local Planning Guidance Note 17 Trees and Development and Policy EC4. |
| T37  | Pedunculate Oak<br>(Quercus robur)                                                                                                                                                                                              | Height (m): 6<br>Stem Diam(mm): 80<br>Spread (m): 1.5N, 1.5E, 1.5S, 1.5W<br>Crown Clearance (m): 0<br>Life Stage: Semi Mature<br>Rem. Contrib.: <10 years | Establishing tree, with good longevity potential. Not plotted on topographical basemap. | C1,2<br><br>RPA<br>Radius: 1.0m.<br>Area: 3 sq m. | No action required.                                                                                                             |

| Ref. | Species                            | Measurements                                                                                                                                                 | General Observations                                                                                              | Category                                           | Recommendations                                         |
|------|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|---------------------------------------------------------|
| T35  | Goat Willow<br>(Salix caprea)      | Height (m): 7<br>2 stems, avg.(mm): 150<br>Spread (m): 3N, 3E, 3S, 3W<br>Crown Clearance (m): 0<br>Life Stage: Early Mature<br>Rem. Contrib.: <10 years      | Encroaching over curb line. Low crown.                                                                            | C1,2<br><br>RPA<br>Radius: 2.5m.<br>Area: 21 sq m. | No action required.                                     |
| T34  | Common Ash<br>(Fraxinus excelsior) | Height (m): 10<br>Stem Diam(mm): 120<br>Spread (m): 2N, 2E, 2S, 2W<br>Crown Clearance (m): 1<br>Life Stage: Semi Mature<br>Rem. Contrib.: <10 years          | Self set , next to lamp post.                                                                                     | C1<br><br>RPA<br>Radius: 1.4m.<br>Area: 7 sq m.    | No action required.                                     |
| T33  | Goat Willow<br>(Salix caprea)      | Height (m): 4.5<br>10 stems, avg.(mm): 60<br>Spread (m): 2N, 2E, 2S, 2W<br>Crown Clearance (m): 0.5<br>Life Stage: Early Mature<br>Rem. Contrib.: 10+ Years  | Not recorded on the topographical basemap.<br>Self set, site side of fence. Multi stem.                           | C1<br><br>RPA<br>Radius: 2.3m.<br>Area: 17 sq m.   | No action required.                                     |
| T32  | Goat Willow<br>(Salix caprea)      | Height (m): 4.5<br>10 stems, avg.(mm): 60<br>Spread (m): 2N, 2E, 2S, 2W<br>Crown Clearance (m): 0.5<br>Life Stage: Early Mature<br>Rem. Contrib.: 10+ Years  | Not recorded on the topographical basemap.<br>Self set, site side of fence. Multi stem.                           | C1<br><br>RPA<br>Radius: 2.3m.<br>Area: 17 sq m.   | No action required.                                     |
| T31  | Common Ash<br>(Fraxinus excelsior) | Height (m): 10<br>Stem Diam(mm): 220<br>Spread (m): 4.5N, 4.5E, 4.5S, 4.5W<br>Crown Clearance (m): 2<br>Life Stage: Early Mature<br>Rem. Contrib.: <10 years | Tagged 0500, growing into fence. Self set. Not shown on topographical basemap. Young Goat Willow and Ash to east. | C1<br><br>RPA<br>Radius: 2.6m.<br>Area: 22 sq m.   | No action required.                                     |
| T29  | Lime<br>(Tilia sp.)                | Height (m): 4.5<br>Stem Diam(mm): 120<br>Spread (m): 2N, 2E, 2S, 2W<br>Crown Clearance (m): 1.5<br>Life Stage: Semi Mature<br>Rem. Contrib.: 40+ Years       | Stake and tie present.<br><br>Additional Comments:<br>Removal of stake and tie would be beneficial.               | C1,2<br><br>RPA<br>Radius: 1.4m.<br>Area: 6 sq m.  | Remove tree group to facilitate the drainage proposals. |

| Ref. | Species                                | Measurements                                                                                                                                                 | General Observations                                                                                                        | Category                                           | Recommendations                                                                                                                                                                                                                |
|------|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| T28  | Lime<br>(Tilia sp.)                    | Height (m): 5.5<br>Stem Diam(mm): 140<br>Spread (m): 2N, 2E, 2S, 2W<br>Crown Clearance (m): 1.5<br>Life Stage: Early Mature<br>Rem. Contrib.: 40+ Years      | Staked taffeta 0499. 2m from car park curb line.<br><br>Additional Comments:<br>Removing stake and tie would be beneficial. | C1,2<br><br>RPA<br>Radius: 1.7m.<br>Area: 9 sq m.  | Remove tree to facilitate the drainage proposals.                                                                                                                                                                              |
| T27  | Lime<br>(Tilia sp.)                    | Height (m): 11<br>Stem Diam(mm): 400<br>Spread (m): 5.5N, 5.5E, 5.5S, 5.5W<br>Crown Clearance (m): 3<br>Life Stage: Early Mature<br>Rem. Contrib.: 40+ Years | Tagged 0498.                                                                                                                | B1,2<br><br>RPA<br>Radius: 4.8m.<br>Area: 72 sq m. | Pre construction:<br>Retain tree in line with Wrexham Council Local Planning Guidance Note 17 Trees and Development and Policy EC4.<br><br>During construction:<br>Protect trees with protective barriers - as shown on plans. |
| T26  | London Plane<br>(Platanus x hispanica) | Height (m): 10<br>Stem Diam(mm): 260<br>Spread (m): 5.5N, 5.5E, 5.5S, 5.5W<br>Crown Clearance (m): 2<br>Life Stage: Early Mature<br>Rem. Contrib.: 40+ Years | Tagged 0497.                                                                                                                | B1,2<br><br>RPA<br>Radius: 3.1m.<br>Area: 30 sq m. | Pre construction:<br>Retain tree in line with Wrexham Council Local Planning Guidance Note 17 Trees and Development and Policy EC4.<br><br>During construction:<br>Protect trees with protective barriers - as shown on plans. |
| T25  | London Plane<br>(Platanus x hispanica) | Height (m): 9<br>Stem Diam(mm): 240<br>Spread (m): 4N, 4.5E, 4S, 4W<br>Crown Clearance (m): 3<br>Life Stage: Early Mature<br>Rem. Contrib.: 40+ Years        | Tagged 0496.                                                                                                                | B1,2<br><br>RPA<br>Radius: 2.9m.<br>Area: 26 sq m. | Pre construction:<br>Retain tree in line with Wrexham Council Local Planning Guidance Note 17 Trees and Development and Policy EC4.<br><br>During construction:<br>Protect trees with protective barriers - as shown on plans. |

| Ref. | Species                                | Measurements                                                                                                                                                                        | General Observations                                              | Category                                           | Recommendations                                                                                                                                                                                                                |
|------|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| T24  | Lime<br>(Tilia sp.)                    | Height (m): 9<br>Stem Diam(mm): 310<br>Spread (m): 4.5N, 4.5E, 4.5S, 4.5W<br>Crown Clearance (m): 2<br>Life Stage: Early Mature<br>Rem. Contrib.: 40+ Years                         | Old pruning wounds 0.5m up stem. Occluding and compartmentalised. | B1,2<br><br>RPA<br>Radius: 3.7m.<br>Area: 43 sq m. | Pre construction:<br>Retain tree in line with Wrexham Council Local Planning Guidance Note 17 Trees and Development and Policy EC4.<br><br>During construction:<br>Protect trees with protective barriers - as shown on plans. |
| T23  | Lime<br>(Tilia sp.)                    | Height (m): 10<br>Stem Diam(mm): 290<br>Spread (m): 5N, 5E, 4S, 4W<br>Crown Clearance (m): 2<br>Life Stage: Early Mature<br>Rem. Contrib.: 40+ Years                                |                                                                   | B1,2<br><br>RPA<br>Radius: 3.5m.<br>Area: 38 sq m. | Pre construction:<br>Retain tree in line with Wrexham Council Local Planning Guidance Note 17 Trees and Development and Policy EC4.<br><br>During construction:<br>Protect trees with protective barriers - as shown on plans. |
| T22  | London Plane<br>(Platanus x hispanica) | Height (m): 12<br>Stem Diam(mm): 220<br>Spread (m): 4N, 4E, 2S, 3W<br>Crown Clearance (m): 2<br>Life Stage: Early Mature<br>Rem. Contrib.: 10+ Years                                | Die Bach through south aspect of crown. Tagged 0493.              | C1,2<br><br>RPA<br>Radius: 2.6m.<br>Area: 21 sq m. | Pre construction:<br>No action required.<br><br>During construction:<br>Protect trees with protective barriers - as shown on plans.                                                                                            |
| T21  | London Plane<br>(Platanus x hispanica) | Height (m): 12<br>Stem Diam(mm): 310<br>Spread (m): 3N, 5E, 3S, 3W<br>Crown Clearance (m): 2.5<br>Lowest Branch (m): 3.5(E)<br>Life Stage: Early Mature<br>Rem. Contrib.: 40+ Years | Tagged 0492                                                       | B1,2<br><br>RPA<br>Radius: 3.7m.<br>Area: 43 sq m. | Pre construction:<br>Retain tree in line with Wrexham Council Local Planning Guidance Note 17 Trees and Development and Policy EC4.<br><br>During construction:<br>Protect trees with protective barriers - as shown on plans. |

| Ref. | Species                                | Measurements                                                                                                                                                                     | General Observations                                        | Category                                            | Recommendations                                                                                                                                                                                                                |
|------|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| T20  | London Plane<br>(Platanus x hispanica) | Height (m): 9<br>Stem Diam(mm): 290<br>Spread (m): 5N, 5E, 5S, 5W<br>Crown Clearance (m): 2<br>Lowest Branch (m): 2.5(S)<br>Life Stage: Early Mature<br>Rem. Contrib.: 40+ Years | Tagged 0491.                                                | B1,2<br><br>RPA<br>Radius: 3.5m.<br>Area: 38 sq m.  | Pre construction:<br>Retain tree in line with Wrexham Council Local Planning Guidance Note 17 Trees and Development and Policy EC4.<br><br>During construction:<br>Protect trees with protective barriers - as shown on plans. |
| T19  | Lime<br>(Tilia sp.)                    | Height (m): 5<br>Stem Diam(mm): 200<br>Spread (m): 3.5N, 3.5E, 3.5S, 3.5W<br>Crown Clearance (m): 1.5<br>Life Stage: Early Mature<br>Rem. Contrib.: <10 years                    | In dense bramble scrub. Dimensions are therefore estimated. | C1,2<br><br>RPA<br>Radius: 2.4m.<br>Area: 18 sq m.  | Pre construction:<br>No action required.<br><br>During construction:<br>Protect trees with protective barriers - as shown on plans.                                                                                            |
| T18  | Lime<br>(Tilia sp.)                    | Height (m): 10<br>Stem Diam(mm): 350<br>Spread (m): 4.5N, 4.5E, 4.5S, 4.5W<br>Crown Clearance (m): 1.5<br>Life Stage: Early Mature<br>Rem. Contrib.: 40+ Years                   | Epicormics around base.                                     | B1,2<br><br>RPA<br>Radius: 4.2m.<br>Area: 55 sq m.  | Pre construction:<br>Retain tree in line with Wrexham Council Local Planning Guidance Note 17 Trees and Development and Policy EC4.<br><br>During construction:<br>Protect trees with protective barriers - as shown on plans. |
| T17  | Lime<br>(Tilia sp.)                    | Height (m): 11<br>Stem Diam(mm): 530<br>Spread (m): 6N, 6E, 6S, 6W<br>Crown Clearance (m): 2<br>Life Stage: Mature<br>Rem. Contrib.: 40+ Years                                   | Surface roots to south, extending 2.5m. Symmetrical crown.  | B1,2<br><br>RPA<br>Radius: 6.4m.<br>Area: 129 sq m. | Pre construction:<br>Retain tree in line with Wrexham Council Local Planning Guidance Note 17 Trees and Development and Policy EC4.<br><br>During construction:<br>Protect trees with protective barriers - as shown on plans. |

| Ref. | Species                        | Measurements                                                                                                                                                 | General Observations                            | Category                                            | Recommendations                                                                                                                                                                                                                            |
|------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| T16  | Lime<br>(Tilia sp.)            | Height (m): 5<br>Stem Diam(mm): 170<br>Spread (m): 2.5N, 2.5E, 2.5S, 2.5W<br>Crown Clearance (m): 1.5<br>Life Stage: Semi Mature<br>Rem. Contrib.: 20+ Years | Tagged 0487, stake still present from planting. | C1,2<br><br>RPA<br>Radius: 2.0m.<br>Area: 13 sq m.  | Pre construction:<br>No action required.<br><br>During construction:<br>Protect trees with protective barriers -<br>as shown on plans.                                                                                                     |
| T15  | Hornbeam<br>(Carpinus betulus) | Height (m): 5.5<br>6 stems, avg.(mm): 200<br>Spread (m): 5N, 5E, 5S, 5W<br>Crown Clearance (m): 1.5<br>Life Stage: Early Mature<br>Rem. Contrib.: 40+ Years  | Multi stem.                                     | B1,2<br><br>RPA<br>Radius: 5.9m.<br>Area: 109 sq m. | Pre construction:<br>Retain tree in line with Wrexham<br>Council Local Planning Guidance Note<br>17 Trees and Development and Policy<br>EC4.<br><br>During construction:<br>Protect trees with protective barriers -<br>as shown on plans. |
| T13  | Lime<br>(Tilia sp.)            | Height (m): 11<br>Stem Diam(mm): 450<br>Spread (m): 5N, 5E, 5S, 5W<br>Crown Clearance (m): 1.5<br>Life Stage: Mature<br>Rem. Contrib.: 40+ Years             | Tagged 0485. Epicormics around base.            | B1,2<br><br>RPA<br>Radius: 5.4m.<br>Area: 92 sq m.  | Pre construction:<br>Retain tree in line with Wrexham<br>Council Local Planning Guidance Note<br>17 Trees and Development and Policy<br>EC4.<br><br>During construction:<br>Protect trees with protective barriers -<br>as shown on plans. |
| T12  | Lime<br>(Tilia sp.)            | Height (m): 9<br>Stem Diam(mm): 340<br>Spread (m): 5N, 5E, 5S, 5W<br>Crown Clearance (m): 2<br>Life Stage: Early Mature<br>Rem. Contrib.: 20+ Years          | Tagged 0484. Epicormics around base.            | B1,2<br><br>RPA<br>Radius: 4.1m.<br>Area: 53 sq m.  | Pre construction:<br>Retain tree in line with Wrexham<br>Council Local Planning Guidance Note<br>17 Trees and Development and Policy<br>EC4.<br><br>During construction:<br>Protect trees with protective barriers -<br>as shown on plans. |
| T11  | Lime<br>(Tilia sp.)            | Height (m): 6<br>Stem Diam(mm): 120<br>Spread (m): 2N, 2E, 2S, 2W<br>Crown Clearance (m): 1<br>Life Stage: Semi Mature<br>Rem. Contrib.: 40+ Years           | Tagged 0483.                                    | C1<br><br>RPA<br>Radius: 1.4m.<br>Area: 6 sq m.     | Pre construction:<br>No action required.<br><br>During construction:<br>Protect trees with protective barriers -<br>as shown on plans.                                                                                                     |

| Ref. | Species                            | Measurements                                                                                                                                                                        | General Observations                                                                                                       | Category                                                  | Recommendations                                                                                                                     |
|------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| T10  | Sycamore<br>(Acer pseudoplatanus)  | Height (m): 12<br>Stem Diam(mm): 300<br>Spread (m): 5N, 5E, 5S, 5W<br>Crown Clearance (m): 1.5<br>Life Stage: Early Mature<br>Rem. Contrib.: 10+ Years                              | Neighbouring tree. Overhangs site by 3m. Tagged 0481.                                                                      | C1<br><br>RPA<br>Radius: 3.6m.<br>Area: 41 sq m.          | No action required.                                                                                                                 |
| T09  | Common Ash<br>(Fraxinus excelsior) | Height (m): 15<br>Stem Diam(mm): 460<br>Spread (m): 6.5N, 6.5E, 6.5S, 6.5W<br>Crown Clearance (m): 2.5<br>Lowest Branch (m): 2(S)<br>Life Stage: Mature<br>Rem. Contrib.: <10 years | Minor deadwood. Not currently showing signs of Ash die back. Tagged 0482.                                                  | C1<br><br>RPA<br>Radius: 5.5m.<br>Area: 95 sq m.          | Pre construction:<br>No action required.<br><br>During construction:<br>Protect trees with protective barriers - as shown on plans. |
| T06  | Goat Willow<br>(Salix caprea)      | Height (m): 10<br>Stem Diam(mm): 300<br>Spread (m): 5N, 4E, 3S, 7W<br>Crown Clearance (m): 3<br>Life Stage: Mature<br>Rem. Contrib.: <10 years                                      | Overhangs site by 7m. Low value, poor quality specimen.                                                                    | U<br><br>RPA<br>No RPA due to Retention<br>Category of U. | Low value tree or poor form.                                                                                                        |
| T05  | Common Ash<br>(Fraxinus excelsior) | Height (m): 16<br>Stem Diam(mm): 450<br>Spread (m): 6N, 6E, 6S, 6W<br>Crown Clearance (m): 10<br>Life Stage: Mature<br>Rem. Contrib.: <10 years                                     | 1m behind boundary fence into woodland. Site banks up past fence by around 2.5m to main site level.                        | B2<br><br>RPA<br>Radius: 5.4m.<br>Area: 92 sq m.          | Retain tree in line with Wrexham Council Local Planning Guidance Note 17 Trees and Development and Policy EC4.                      |
| T04  | Common Ash<br>(Fraxinus excelsior) | Height (m): 13<br>Stem Diam(mm): 340<br>Spread (m): 5N, 5E, 6S, 5.5W<br>Crown Clearance (m): 5<br>Lowest Branch (m): 3(SE)<br>Life Stage: Early Mature<br>Rem. Contrib.: <10 years  | 1.5m into woodland from boundary fence. Rubble piled up in RPA on site side of fence. Ivy cover on tree.                   | C1<br><br>RPA<br>Radius: 4.1m.<br>Area: 53 sq m.          | No action required.                                                                                                                 |
| T03  | Pedunculate Oak<br>(Quercus robur) | Height (m): 14<br>Stem Diam(mm): 450<br>Spread (m): 5N, 5E, 5S, 5W<br>Crown Clearance (m): 5<br>Life Stage: Semi Mature<br>Rem. Contrib.: 40+ Years                                 | 1.5m from boundary fence. Prolific ivy cover. Overhangs fence by 4.5m concrete site area is 1m + above the woodland floor. | B1,2<br><br>RPA<br>Radius: 5.4m.<br>Area: 92 sq m.        | Retain tree in line with Wrexham Council Local Planning Guidance Note 17 Trees and Development and Policy EC4.                      |

| Ref. | Species                                                                             | Measurements                                                                                                                                                   | General Observations                                                                         | Category                                           | Recommendations                                                                                                                     |
|------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| T02  | Ash<br>(Fraxinus sp.)                                                               | Height (m): 13<br>Stem Diam(mm): 250<br>Spread (m): 3N, 3E, 3S, 3W<br>Crown Clearance (m): 3<br>Life Stage: Semi Mature<br>Rem. Contrib.: <10 years            | 0.5m from boundary fence.                                                                    | C1<br><br>RPA<br>Radius: 3.0m.<br>Area: 28 sq m.   | No action required.                                                                                                                 |
| T01  | Pedunculate Oak<br>(Quercus robur)                                                  | Height (m): 14<br>Stem Diam(mm): 450<br>Spread (m): 5N, 5E, 5S, 5W<br>Crown Clearance (m): 4.5<br>Life Stage: Early Mature<br>Rem. Contrib.: 40+ Years         | One of the larger trees in the woodland. 4m back from boundary fence. Overhangs fence by 3m. | B1,2<br><br>RPA<br>Radius: 5.4m.<br>Area: 92 sq m. | Retain tree in line with Wrexham Council Local Planning Guidance Note 17 Trees and Development and Policy EC4.                      |
| G36  | Common Hawthorn x2<br>(Crataegus monogyna)<br>Common Ash x3<br>(Fraxinus excelsior) | Height (m): 5<br>5 stems, avg.(mm): 100<br>Spread (m): 1.5N, 1.5E, 1.5S, 1.5W<br>Crown Clearance (m): 1<br>Life Stage: Semi Mature<br>Rem. Contrib.: 10+ Years | Mixed group on verge. No significant faults. Not plotted on topographical basemap.           | C2<br><br>RPA<br>Area: 23 sq m.                    | No action required.                                                                                                                 |
| G30  | Silver Birch x4<br>(Betula pendula)                                                 | Height (m): 6<br>4 stems, avg.(mm): 80<br>Spread (m): 1.5N, 1.5E, 1.5S, 1.5W<br>Crown Clearance (m): 1<br>Life Stage: Semi Mature<br>Rem. Contrib.: 20+ Years  | Only 1 tree in group is over 75mm dia. Group is not shown on the topographical basemap.      | C2<br><br>RPA<br>Area: 27 sq m.                    | Remove tree group to facilitate the drainage proposals.                                                                             |
| G14  | Lime x3<br>(Tilia sp.)                                                              | Height (m): 5<br>3 stems, avg.(mm): 150<br>Spread (m): 1.5N, 1.5E, 1.5S, 1.5W<br>Crown Clearance (m): 1<br>Life Stage: Semi Mature<br>Rem. Contrib.: 20+ Years | Group of 3 in linear form. Not shown topographical basemap.                                  | C2<br><br>RPA<br>Area: 46 sq m.                    | Pre construction:<br>No action required.<br><br>During construction:<br>Protect trees with protective barriers - as shown on plans. |

| Ref. | Species                                                                                                                  | Measurements                                                                                                                                                       | General Observations                                                                                                                 | Category                        | Recommendations     |
|------|--------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|---------------------|
| G08  | Sycamore x3<br>(Acer pseudoplatanus)<br>Common Hawthorn<br>(Crataegus monogyna)<br>Common Ash x6<br>(Fraxinus excelsior) | Height (m): 9<br>10 stems, avg.(mm): 100<br>Spread (m): 1.5N, 1.5E, 1.5S, 1.5W<br>Crown Clearance (m): 1.5<br>Life Stage: Early Mature<br>Rem. Contrib.: <10 years | Boundary group, mostly self set. Positioned 0.5m below car park level. On and around boundary. Not plotted on topographical basemap. | C2<br><br>RPA<br>Area: 79 sq m. | No action required. |

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)                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                   |                                                                                                                                       |                        |
| <b>Category U</b><br>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 | <ul style="list-style-type: none"><li>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)</li><li>Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline</li><li>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</li></ul> <p><i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i></p> |                                                                                                                                                                                                                                                                   |                                                                                                                                       | See Table 2            |
|                                                                                                                                                                           | 1 Mainly arboricultural qualities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2 Mainly landscape qualities                                                                                                                                                                                                                                      | 3 Mainly cultural values, including conservation                                                                                      |                        |
| Trees to be considered for retention                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                   |                                                                                                                                       |                        |
| <b>Category A</b><br>Trees of high quality with an estimated remaining life expectancy of at least 40 years                                                               | Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features                                                                                                                                                            | Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture) | See Table 2            |
| <b>Category B</b><br>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 | Trees with material conservation or other cultural value                                                                              | See Table 2            |
| <b>Category C</b><br>Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm              | Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits                                                              | Trees with no material conservation or other cultural value                                                                           | See Table 2            |

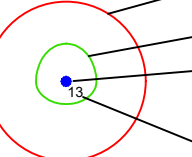
# Appendix B

## Tree Constraints Plan

**Plan showing constraints imposed on development layout by trees considered during the design process.**



### Symbol Guide



Root Protection Area

Canopy Spread

Tree Position,  
(colour represents  
retention category)

Tag Number

### BS5837:2012 - Tree Category

|                                                                                                                            |                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
|  Category A Trees<br>High Quality     |  Category C Trees<br>Low Quality         |
|  Category B Trees<br>Moderate Quality |  Category U Trees<br>Poor Quality/Remove |

NOTE: Tree/group numbers marked with an \* have approximate locations.



TREE 21  
TREE SURVEYS & CONSULTANCY SERVICES

Project Name:

Land off Ash Road,  
Wrexham Industrial Estate

Drawing Title:

Tree Constraints Plan

Drawing Number:

230515-WIE-TCP-NB

Client:

Ipsen Biopharm Ltd

Agent:

Axis P.E.D. LTD

Date:

May 2023

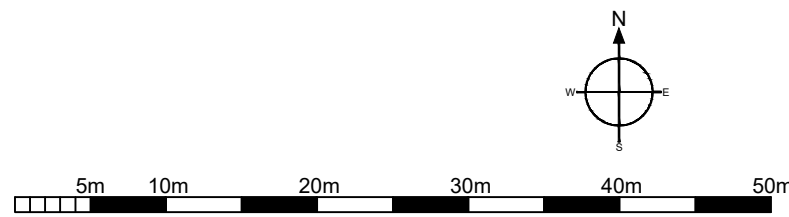
Scale:

1:500 @ A1

# Appendix C

## Tree Protection Retention & Removal Plan

**Plan showing Trees Proposed for Removal and General Arrangement with Notes on Tree Protection.**

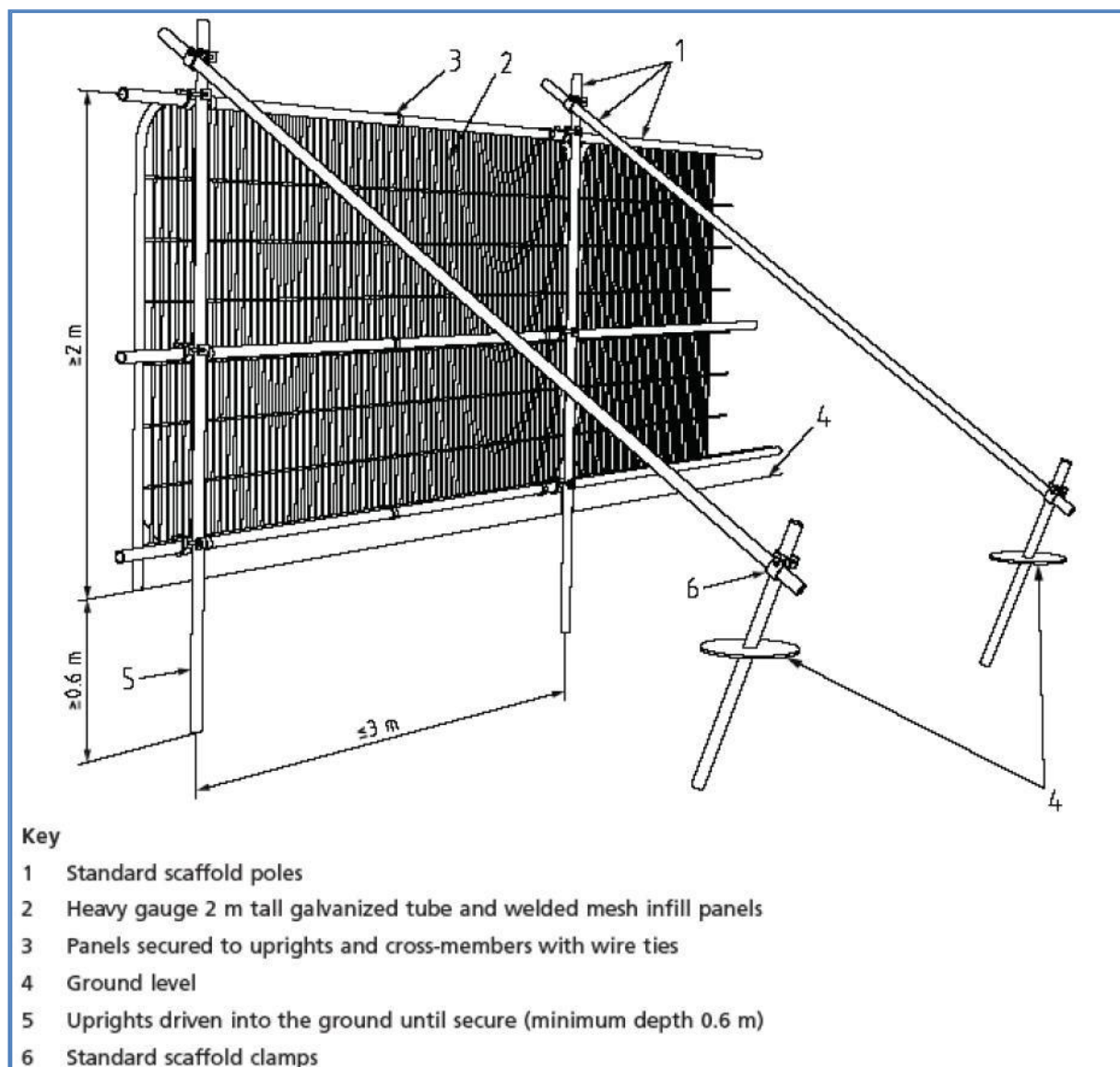


Scale: 1:500 @ A1

# Appendix D

## Tree Protection Measures

**Illustrative information on proposed tree protection measures to be installed as set out on the Tree Protection Plan**



**BS5837: 2012 - Figure 2 – Tree Protective Barrier**

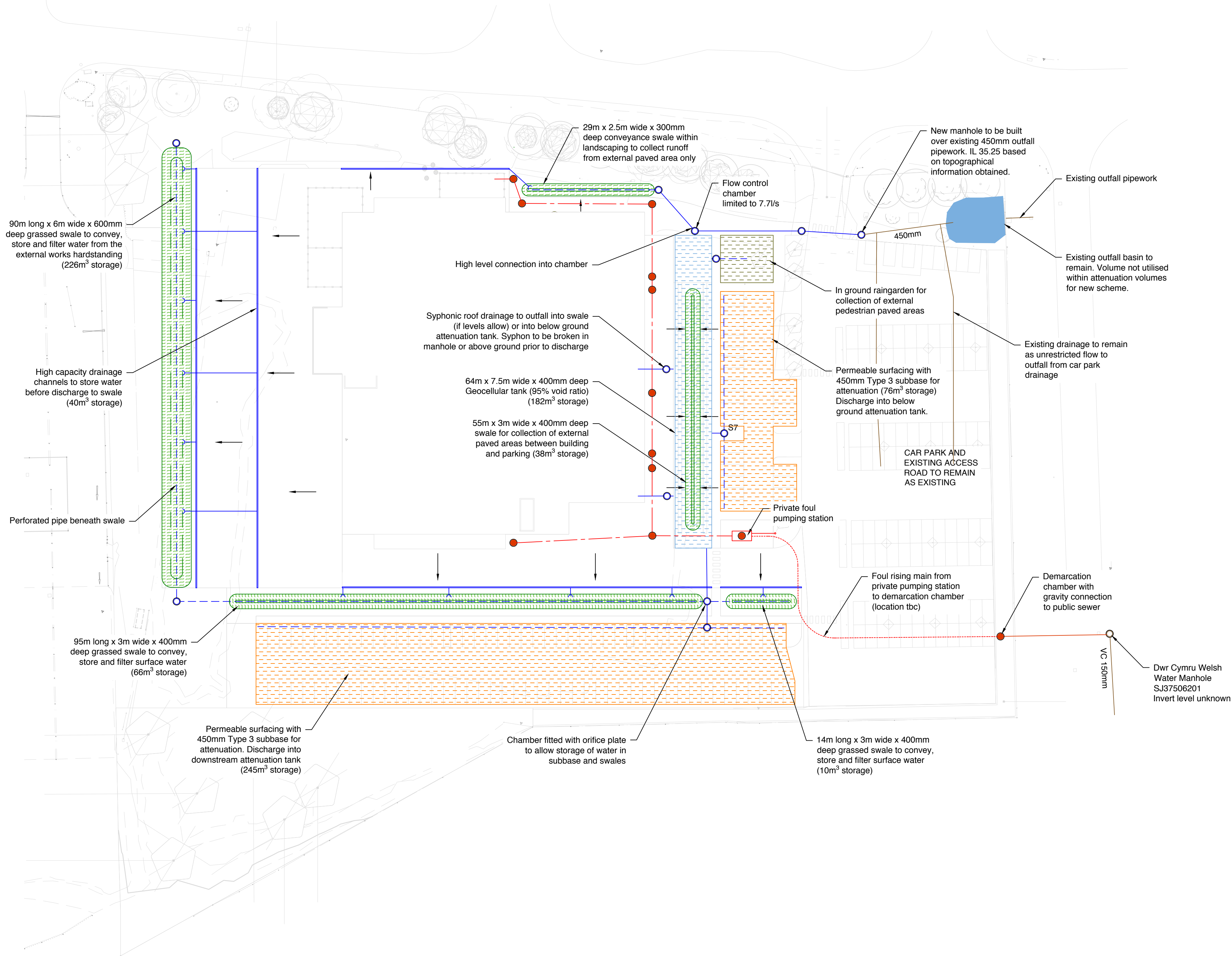


Example Tree Protection Fencing Sign

# Appendix E

## Drainage General Arrangement

**Plan illustrates General Arrangement of the Proposed Drainage**



- Notes
1. This drawing is the copyright of Land Studio. It must not be copied or reproduced without written consent and is to be read in conjunction with architectural and landscape architects drawings.
  2. Only figured dimensions are to be taken from this drawing. Dimensions should not be scaled from this drawing, as scaling of this drawing cannot be assured.
  3. All dimensions are to millimetres and all levels are metres above ordnance datum u.n.o.
  4. Any existing drainage information has been taken from third party information and must be checked prior to construction.
  5. Ground conditions are known to be of low permeability. Infiltration testing and contaminated land assessment to be undertaken to reduce volumes of attenuation where possible.
  6. Only main surface water design intent indicated. Additional drainage channels, gullies, chambers etc may be required during detailed design.
  7. Surface water to the existing 450mm outfall pipework (prior to existing basin) is to discharge at a rate of 7.7l/s (brownfield equivalent greenfield rate)
  8. Domestic and effluent foul drainage to discharge via a private pump station to a demarcation chamber on the site boundary with gravity discharge to the public sewer in Ash Road South. Restrictions if required to be confirmed by Dwr Cymru Welsh Water.

- KEY:
- Permeable surfacing with subbase attenuation in 30% void ratio
  - Open grassed swale
  - Below ground geocellular attenuation tank
  - In ground raingarden
  - Foul water manhole and pipework
  - Foul water rising main
  - Surface water manhole and pipework
  - Perforated pipework
  - Existing drainage pipework
  - Existing public sewer manhole
  - Proposed high capacity linear drainage channel/kerb drain
  - Existing open basin and outfall structure

|                                                                  |          |
|------------------------------------------------------------------|----------|
| P02 06.05.23 Updated to suit new site layout, foul outfall added |          |
| P01 06.04.23 Draft issue for planning                            |          |
| Rev.                                                             | Date     |
| Description                                                      |          |
| Client:                                                          |          |
| Ipsen                                                            |          |
| Project:                                                         |          |
| Ipsen NDP, Wrexham                                               |          |
| Drawing Title:                                                   |          |
| Drainage General Arrangement                                     |          |
| Drawing No:                                                      |          |
| 330-LST-XX-XX-DR-D-0001                                          |          |
| Drawn By:                                                        | AW       |
| Date:                                                            | 22.03.23 |
| Checked By:                                                      | LS       |
| Date:                                                            | 05.05.23 |
| Drawing Scale: 1:500                                             |          |
| Sheet Size: A1                                                   |          |
| Rev.                                                             | Status   |
| P02                                                              | S3       |

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