

Kingmoor

Wrexham Industrial Estate

Arboricultural Method Statement

Report Ref: 274/R/201

February 2025

mdlandscape

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Kingmoor
Wrexham Industrial Estate
Arboricultural Impact Assessment and Method Statement
Report Reference: 274/R/201
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EXECUTIVE SUMMARY

1. This report has been produced to detail the arboricultural constraints, removal, pruning and protection requirements for a proposed development for new warehouse & distribution units, office accommodation, service yards, parking, access areas and landscaping at Kingmoor, Wrexham Industrial Estate, in relation to Condition 34, planning application P/2023/0280.
2. A Tree Constraints Report and Plans have been produced for the site reference 274/R/100 and an Arboricultural Impact Assessment (AIA) and Method Statement (AMS) 274/R/200 were submitted as part of the planning application package.
3. Correspondence with Wrexham Country Borough Council Tree Officer, has identified no Tree Preservation Orders (TPO) at the site and no Conservation Areas are affected by the proposals.
4. The woodland W1 contains two potential veteran trees, T35 and T36 to the northern edge of the site.
5. Numerous trees were observed to have arboricultural features suitable for bats and a separate ecological inspection of the woodland has been undertaken. The capacity of any trees potentially affected by the works to support roosting bats, should be confirmed by an Ecologist prior to undertaking tree works. The trees also provide nesting opportunities for birds and any tree works should occur between September to February to avoid the nesting and breeding bird season from March to August inclusive. Great crested newt (GCN) are also present at the site and surrounding area and the works are subject to a GCN licence that is being managed by United Environmental Services Limited (UES Ltd). Reference to the ecology constraints, protection and mitigation measures are referenced within this document for consistency across the suite of reports for the project, and the AMS incorporates these requirements to comply with the GCN licence requirements and protected species mitigation measures.
6. A total of 36 individual trees would be removed to facilitate the works. 26 groups of trees would either be removed or partially removed for the development and 5 lengths of hedgerow totalling 644m would be removed. Of the trees to be removed, there are 6 Category A trees, 18 Category B trees, 11 Category C trees and 1 Category U trees.
7. Tree protection will be required to demarcate a Construction Exclusion Zone (CEZ) around trees to be retained prior to site establishment and commencement of construction. This will take the form of temporary tree protection fencing and ground protection to confine site access and avoid detrimental impact on the retained trees. The siting of the fence shall be consistent with the GCN fence wherever possible.
8. A proposal for replacement planting and habitat enhancement has been developed, reference WRE2205_PP01.00_P3_Planting Plan and Schedule and associated detailed planting plans sheets 1 to 19.
9. Changes to trees can occur as a result of natural processes and disease, as well as the influences of development, therefore regular tree inspections are recommended to monitor the health and condition of the woodland, groups and individual trees.

1 INTRODUCTION

1.1 Scope of the report

1.1.1 MDLandscape have been commissioned by FI-REM Ltd to provide an AMS for the proposed development site at Kingmoor as documented in planning application P/2023/0280 . It has been compiled to help ensure the successful retention of the trees on site during the proposed construction of new warehouse & distribution units, office accommodation, service yards, parking, access areas and landscaping, and details the arboricultural impact to the trees, groups of trees, woodland and hedgerows, proposed protection measures and mitigation. The report cross references ecology reports produced by UES Ltd to ensure consistency of approach for mitigation and protection measures.

1.1.2 Tree surveys at the site were conducted in May 2023 by M Dobson (FdScArb, MArborA, Lantra certified Professional Tree Inspector) in accordance with BS5837:2012 Trees in relation to design, demolition and construction – Recommendations.

1.1.3 The AMS, covers to requirements detailed in condition 34 of the decision notice as follows:

No development, other than works associated with the translocation of great crested newts, shall commence until a detailed Arboricultural Method Statement, has been submitted to and approved in writing by the Local Planning Authority. No development or other operations shall take place except in strict accordance with Method Statement as is approved. The Method Statement shall include the following:

- *A specification for tree protection fencing and ground protection measures that comply with British Standard 5837:2012;*
- *A Tree Protection Plan showing the location of the trees to be removed and retained with their crown spreads, Root Protection Areas, Construction Exclusion Zones, and location of protective fencing and ground protection measures accurately plotted;*
- *A full specification for any access, driveway, path, underground services or wall foundations within retained tree Root Protection Areas or Construction Exclusion Zone , including any related sections and method for avoiding damage to retained trees;*
- *Details of general arboricultural matters including proposed practices with regards to cement mixing, material storage and fires;*
- *Details of the frequency of supervisory visits and procedures for notifying the findings of such visits to the Local Planning Authority;*
- *Method for protecting retained trees during demolition works; and*
- *Details of all proposed tree works, including felling and pruning.*

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1.1.4 This report includes:

- The tree data schedule and constraints plan for trees present within the survey and assessment area;
- An assessment of trees in relation to development and requirements for protection during construction; and
- Requirements for tree removal, retention and management.

1.1.5 This report should be read in conjunction the following arboricultural reports and drawings:

- Tree Constraints Report 274/R/100, dated 10th May 2023; and
- Arboricultural Impact Assessment and Method Statement 274/R/200, dated 11th May 2023; and

relevant ecology reports by UES Ltd:

- United Environmental Services Limited, Amphibian Conservation Plan, reference UES03448/45, dated 22nd July 2024;
- United Environmental Services Limited, Landscape & Ecological Management Plan, reference UES03448/25 dated 10th June 2024; and
- GCN Fencing Plan (V2), Plot 3a, Wrexham Industrial Estate, dated 23/01/25.

2 THE SITE AND SURROUNDINGS

2.1 Location

2.1.1 The tree survey was carried out on 7th March 2024 and undertaken in cool overcast weather. Inspection was carried out from ground level by M Dobson FdScArb, MArborA and Lantra certified in Professional Tree Inspection in accordance with BS5837:2012 *Trees in relation to design, demolition and construction – Recommendations.*

2.1.2 The method statement drawings and report relate to the planning area for the development on land centred on SJ 3944 5035, as shown in Figure 1.0. The site is located on the eastern fringes of Wrexham Industrial Estate ("WIE"), east of Bryn Lane and west of the B5130. The site is approximately 5 km (3 miles) to west of Wrexham town centre. WIE was developed during World War II as a munitions factory and post-war, the estate was developed into a facility for industrial and employment uses. The estate consists of standalone industrial sites, industrial estates and business parks.

2.1.3 The site itself is primarily a greenfield site, formerly of agricultural use, but with the south area previously a former factory with hard standing and demolition spoil to the central southern area.



Figure 1.0 Site location - Contains ordnance survey data (OpenStreetMap)

2.1.4 All trees over 75mm stem diameter at breast height (DBH) and potentially impacted by development, were surveyed. In areas away from the proposed access routes, trees with a stem of 150mm DBH and above were plotted[1] in accordance with BS5837:2012 recommendations for woodland surveys.

2.1.5 The north site boundary is formed by the wide woodland belt following the course of a ditch, beyond which is a recently built warehouse. To the west on the other side of Bryn Lane is a large operational Kellogg's Factory. To the east is agricultural land and linear settlement of houses and community buildings along B5130, which are part of Isycoed. To the south and accessed off a shared lane, is an industrial unit and landscaped/vegetated area.

2.1.6 There is limited public access into the site and views are well screened by the existing boundary hedges, scrub and tree cover. A Public Right of Way ISY/18 runs between Bryn Lane to the south west leading to B5130 at Isycoed to the east and passes the south east corner of the site. There are occasional views into the site at this point, but the site is further screened by landform to the south and east boundary.

2.2 The Development Proposals

2.2.1 The hybrid planning application for (a) outline permission (all matters reserved except for means of access) for erection of up to 3 warehouse & distribution units (Use Class B8), including ancillary office accommodation, comprising up to 93,019 sqm net floorspace, service yards, car parking, HGV parking, internal circulation, landscaping and ancillary works; and (b) detailed permission for demolition, means of access, earthworks, drainage, landscaping, ecology zone and relative ecological mitigation measures, and ancillary works has been approved subject to conditions. The AMS has been developed from the original submitted AIA/MS 274/R/200 and focuses on the tree removal, pruning and protection works for the project.

2.2.2 It should be noted that no trees are proposed to be retained within the main development area. As such, no existing trees will have an RPA that is affected by new hardstanding, services, utilities or buildings and therefore no details are required to be submitted in relation to Condition 34.

2.2.3 The proposed site layout is shown on the planning application drawing 1204-02-001 Proposed 3 Unit Site Plan-Rev P3 and the landscape and ecology proposals are shown on WRE2205_PP01.00_P3_Planting Plan and Schedule and detailed planting plans. The tree protection fence has been sited to protect the trees to be retained and located to directly related to the proposed site layout. Should the site layout change in anyway, the location of the tree protection fence and potential impact on existing trees must be reviewed to ensure continued tree protection and adherence with this AMS.

2.2.4 An enquiry to the Wrexham CBC Tree Officer to confirm Tree Preservation Order (TPO) status was made on 10th May 2023. Confirmation has been received (11th May 2023) that there are no TPO at the site and the survey area is not within a conservation area.

2.2.5 There are trees subject to TPO beyond the site boundary, to the east between Barn Cottage and Plum Tree House, TPO reference WCBC No 191, 2012 Land adjacent to Barn Cottage, Bowling Bank, Wrexham.

2.3 Ancient Woodland, Veteran and Ancient Trees

2.3.1 An examination of the Natural Resources Wales (NRW) Interactive Map Viewer on 10th May 2023[2] confirms there is no ancient woodland within the survey area. There is no comprehensive national register of veteran trees, however, an examination of the Woodland Trust Ancient Tree Inventory[3] confirms the presence of recorded veteran trees along Ridley Wood Road to the north of the site.

2.3.2 The trees displaying early veteran tree characteristics are present at the woodland edge to the north of the site, (see photos in Appendix 2) and include:

T35 Oak - stem diameter 1170mm, girth 3.65m circumference
T36 Oak - stem diameter 1440mm, girth 4.4m circumference
It is anticipated that all of these trees can be satisfactorily protected during the development works.

2.4 Protected Species

2.4.1 Trees and hedges are a potential habitat for nesting birds and roosting habitat for bats, both of which are protected under the *Wildlife and Countryside Act 1981* (as amended) and certain species under the *Conservation of Species and Habitat Regulations 2010*. This makes it an offence to intentionally or recklessly, damage or destroy an active birds' nest.

2.4.2 Several trees within the survey boundary are suitable habitat for nesting birds and roosting habitat for bats. GCN are also present at the site. Protected species licence requirements, protection and migration measures have been considered and requirements incorporated into the AMS for consistency. The location of Himalayan balsam at the site is shown on the AMS drawings. The AMS plans have been developed with specific reference to the following plans by UES Ltd:

- GCN Fencing Plan (v2), dated 23/01/2025; and
- Aerial Tree Assessment, dated 10/10/2022.

[2] Natural Resources Wales Interactive Map Viewer Geocortex Viewer for HTML5 (cyfoethnaturiolcymru.gov.uk)
[3] Ancient Tree Inventory How to record ancient trees - Ancient Tree Inventory (woodlandtrust.org.uk)

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3 PLANNING CONSIDERATIONS

3.1 Planning Policy

3.1.1 In addition to statutory designations and protection, the planning system also confers importance on trees and woodland in the context of potential development. The Planning Policy Wales document[4] states a number of policies relating to trees and benefits of trees in design, specifically relating to trees, woodlands and hedgerows in paragraphs 6.4.37 to 6.4.44:

Trees, Woodlands and Hedgerows

6.4.37 Trees, hedgerows, groups of trees and areas of woodland are of great importance for biodiversity. They are important connecting habitats for resilient ecological networks and make an essential wider contribution to landscape character, culture, heritage and sense of place, air quality, recreation and local climate moderation. They also play a vital role in tackling the climate emergency by locking up carbon, and can provide shade, shelter and foraging opportunities, wider landscape benefits such as air and diffuse pollution interception, natural flood management, and building materials. The importance of trees, in particular urban trees, in creating distinctive and natural places which deliver health and well-being benefits to communities, now and in the future should be promoted as part of plan making and decision taking. Planning authorities must promote the planting of new trees, hedgerows, groups of trees and areas of woodland as part of new development.

6.4.38 Welsh native tree and hedge species, characteristic of the local area, provide a strong ecosystem resilience function, and they provide resources for local wildlife, particularly other native plants and species. Native tree and hedge species can also complement opportunities for natural regeneration. Alongside broader woodland habitat types, such as wood pasture, parkland and traditional orchards, native tree and hedge species help to define our cultural heritage and landscape, creating a strong sense of place and connection to the past.

6.4.39 Planning authorities must protect trees, hedgerows, groups of trees and areas of woodland where they have ecological value, contribute to the character or amenity of a particular locality, or perform a beneficial green infrastructure function. Planning authorities should consider the importance of trees and woodland, particularly native woodland and valued trees, and should have regard to local authority tree strategies or SPG and the Green Infrastructure Assessment. Planning authorities should adopt appropriate, locally relevant, time sensitive, minimum tree canopy cover targets for their authority area to guide the protection and where appropriate the expansion of canopy cover. The Green Infrastructure Assessment and tools such as NRW's Tree Cover in Wales' Towns and Cities study and Forest Research's i-Tree Eco tool will help establish a baseline of canopy cover and guide the identification of appropriate and measurable canopy targets.

6.4.40 Where trees, woodland and hedgerows are present, their retention, protection and integration should be identified within planning applications. Where surveys identify trees, hedgerows, groups of trees and areas of woodland capable of making a significant contribution to the area, these trees should

[4] Planning Policy Wales, Edition 11, February 2021 Welsh Government Planning Policy Wales - Edition 11 (gov.wales)

be retained and protected. The provision of services and utilities infrastructure to the application site should also avoid the loss of trees, woodlands or hedges and must be considered as part of the development proposal; where such trees are lost, they will be subject to the replacement planting ratios set out below.

6.4.41 Whilst most focus within the planning system is targeted at urban trees, planning authorities should recognise the importance of trees within the countryside, either as woodlands, within hedgerows and hedgebanks, or free-standing trees in fields, or as wood pasture. This is particularly important as the effects of climate change are leading towards pests and diseases that are damaging many of our native species in the rural landscape. Positive mechanisms of rural tree retention should be considered, and measures taken to replace them in an effective and economic manner, either with new planting or by allowing them to grow to their full potential.

6.4.42 Permanent removal of trees, woodland and hedgerows will only be permitted where it would achieve significant and clearly defined public benefits. Where individual or groups of trees and hedgerows are removed as part of a proposed scheme, planning authorities must first follow the step-wise approach as set out in paragraph 6.4.15. Where loss is unavoidable developers will be required to provide compensatory planting (which is proportionate to the proposed loss as identified through an assessment of green infrastructure value including biodiversity, landscape value and carbon capture). Replacement planting shall be at a ratio equivalent to the quality, environmental and ecological importance of the tree(s) lost and this must be preferably onsite, or immediately adjacent to the site, and at a minimum ratio of at least 3 trees of a similar type and compensatory size planted for every 1 lost. Where a woodland or a shelterbelt area is lost as part of a proposed scheme, the compensation planting must be at a scale, design and species mix reflective of that area lost. In such circumstances, the planting rate must be at a minimum of 1600 trees per hectare for broadleaves, and 2500 trees per hectare for conifers. The planting position for each replacement tree shall be fit to support its establishment and health, and ensure its unconstrained long-term growth to optimise the environmental and ecological benefits it affords.

6.4.43 Ancient woodland, semi-natural woodlands, individual ancient, veteran and heritage trees and ancient hedgerows are irreplaceable natural resources, and have significant landscape, biodiversity and cultural value. Such trees, woodlands and hedgerows are to be afforded protection from development which would result in their loss or deterioration unless very exceptionally there are significant and clearly defined public benefits; this protection must prevent potentially damaging operations and their unnecessary loss. In the case of a site recorded on the Ancient Woodland Inventory, authorities should consider the advice of NRW. Planning authorities should also have regard to the Ancient Tree Inventory, work to improve its completeness and use it to ensure the protection of trees and woodland and identify opportunities for more planting as part of the Green Infrastructure Assessment, particularly in terms of canopy cover.

6.4.44 The protection and planting of trees and hedgerows should be delivered, where appropriate, through locally-specific strategies and policies, through imposing conditions when granting planning permission, and/or by making Tree Preservation Orders (TPOs). They should also be incorporated into Green Infrastructure Assessments and plans.

4 ARBORICULTURAL IMPACTS OF THE PROPOSED DEVELOPMENT

4.1 Tree species and population

4.1.1 The trees surveyed included the following species: oak, ash, blackthorn, hawthorn, willow species, silver birch, field maple, crab apple, wild cherry, wych elm, alder, Italian alder, sycamore, hazel, dogwood, guelder rose and holly.

4.1.2 A total of 95 individual trees, one woodland compartment and 33 groups of trees and scrub were recorded and 11 hedgerows.

4.1.3 A detailed description of the woodland, groups of trees, individual trees and hedgerows is given in the Tree Constraints Report 274/R/100.

4.2 Trees to be removed to facilitate development

4.2.1 The proposed site layout including the soft landscape and habitat enhancement proposals, has been overlaid onto the Tree Constraints Plan to identify the potential impact of the permanent works on existing trees, groups of trees, woodland and hedgerows and is shown on drawing 1204-02-001 Proposed 3 Unit Site Plan-Rev P3.

4.2.2 Hedgerows have not been afforded a quality category rating, as they do not fall within the scope of BS5837:2012, but their composition, height, width, approximate age and condition are noted in the survey data schedule.

4.2.3 The impact of the tree losses will be most noticeable from the site entrance off Bryn Lane, which is currently well screened by dense scrub and mature tree cover. While the tree clearance works will be noticeable at this point, the retention of trees, hedgerow, scrub and woodland to the site periphery, will aid screening of the construction works and permanent development.

4.2.4 Trees identified by UES Ltd in the Aerial Tree Assessment, dated 10/10/2022, have been cross referenced in the Table 3.0 for consistency. Trees with bat roosting potential are shown the following suffix * and coloured red – high, orange – medium, yellow – low, and green – negligible.

4.2.5 Any trees identified as having bat roosting potential that are to be felled must be subject to soft felling techniques. This involves felling the tree or removing large branches in sections, any of which that contain potential roosting features will be lowered to the ground and left for a period of 24 hours with the cavity entrance facing upwards before removing them from the site. Alternatively, where possible, a licenced ecologist can undertake a pre-commencement aerial climbing inspection to confirm the absence of roosting bats prior to the felling works.

4.2.6 UES Ltd are to undertake pre-commencement inspections where possible prior to any tree works being carried out.

4.2.7 UES Ltd have identified that the following inspections are required:

- Subject to pre-felling inspection from ground level by UES: T1, T36, T38, T39.
- Subject to pre-felling climbing inspection by UES: T7, T9, T11, T14, T4, T13, T15,
- Soft felling required: T3, T6, T10, T35. These trees cannot be subject to a pre-commencement inspection as the features present extend beyond the reach of an endoscope. As such, these trees will need to be subject to the soft felling techniques detailed above.
- T45 is on an island within the centre of the woodland pond and is currently inaccessible. As such, this will need to be subject to either soft felling or a pre-commencement climbing inspection, after the pond has been drained.

4.3 Trees to be removed to facilitate development

4.3.1 Features over 75mm DBH requiring removal and proposed tree works are shown in Table 3.0[5] on the following pages.

Tree ref **T - individual** **G - Group** **W - Woodland** **H - Hedgerow** *** Bat Roosting Potential H M L N**	**Species** **Latin name** **Common name**	**Stem dia. (mm)** **basal dia. (BD)**	**BS5837 Tree Quality Category A, B, C, U (1,2,3)**	**Radius of RPA (m)**	**Affected by development**	**Proposed works – note felling constraints**
TREES - estimated measurements are underlined						
T1	Populus nigra 'Italica' (Lombardy poplar)	1400	U	16.8	Recommended for removal due to condition	Remove
T2	Quercus robur (English oak)	540	A2	6.48	No	Retain and protect during construction works
T3	Quercus robur (English oak)	560	A2	6.72	No	Retain and protect during construction works
T4	Quercus robur (English oak)	750	A2	9	No	Retain and protect during construction works
T5	Quercus robur (English oak)	800	A2	9.6	No	Retain and protect during construction works
T6	Fraxinus excelsior (ash)	540	B2	6.48	No	Retain and protect during construction works
T7	Fraxinus excelsior (ash)	280	A2	3.36	No	Retain and protect during construction works

[5] Refer to the tree survey data schedules for further information.

Tree ref T - individual G - Group W - Woodland H - Hedgerow * Bat Roosting Potential H M L N	Species Latin name Common name	Stem dia. (mm) basal dia. (BD)	BS5837 Tree Quality Category A, B, C, U (1,2,3)	Radius of RPA (m)	Affected by development	Proposed works – note felling constraints
T8	Quercus robur (English oak)	650	A2	7.8	No	Retain and protect during construction works
T9	Quercus robur (English oak)	340	B2	4.08	Adjacent to proposed building	Retain and protect during construction works
T10	Fraxinus excelsior (ash)	380	C2	4.56	Yes within footprint of proposed building	Remove
T11* (T6 BRP)	Quercus robur (English oak)	680	B3	8.16	Yes within footprint of proposed building	Remove – using soft felling techniques
T12	Fraxinus excelsior (ash)	200	B2	2.4	Yes within footprint of proposed building	Remove
T13* (T7 BRP)	Quercus robur (English oak)	780	B3	9.36	Yes within footprint of proposed building	Remove – subject to pre-felling climbing inspection by UES Ltd
T14* (T8 BRP)	Quercus robur (English oak)	840	A2	10.08	Yes within footprint of proposed building	Remove
T15	Quercus robur (English oak)	400	C2	4.8	Yes within footprint of proposed building	Remove
T16* (T9 BRP)	Quercus robur (English oak)	880	B3	10.56	Yes within footprint of proposed loading bays	Remove – subject to pre-felling climbing inspection by UES Ltd
T17* (T10 BRP)	Quercus robur (English oak)	760	A3	9.12	Yes within footprint of proposed loading bays	Remove – using soft felling techniques
T18* (T11 BRP)	Quercus robur (English oak)	960	A2	11.52	Yes within footprint of proposed loading bays	Remove
T19	Betula pendula (silver birch)	370	B2	4.44	Yes within proposed access road area	Remove
T20	Salix caprea (goat willow)	600 basal dia.	C2	6	Yes within proposed access road area	Retain and protect during construction works
T21* (T13 BRP)	Quercus robur (English oak)	780	A2	9.36	Yes within footprint of proposed loading bays	Remove – subject to pre-felling climbing inspection by UES Ltd
T22	Betula pendula (silver birch)	140	B1	1.68	Yes within footprint of proposed building	Remove
T23	Quercus robur (English oak)	620	A2	7.44	No	Retain and protect during construction works
T24	Fraxinus excelsior (ash)	440	B1	5.28	No	Retain and protect during construction works
T25	Fraxinus excelsior (ash)	550	B3	6.6	No	Retain and protect during construction works

Tree ref T - individual G - Group W - Woodland H - Hedgerow * Bat Roosting Potential H M L N	Species Latin name Common name	Stem dia. (mm) basal dia. (BD)	BS5837 Tree Quality Category A, B, C, U (1,2,3)	Radius of RPA (m)	Affected by development	Proposed works – note felling constraints
T26	Fraxinus excelsior (ash)	420	C2	5.04	No	Retain and protect during construction works
T27	Quercus robur (English oak)	510	A2	6.12	No	Retain and protect during construction works
T28	Quercus robur (English oak)	530	B3	6.36	No	Retain and protect during construction works
T29	Fraxinus excelsior (ash)	450	B2	5.4	No	Retain and protect during construction works
T30	Quercus robur (English oak)	500	B2	6	No	Retain and protect during construction works
T31	Salix alba (white willow)	640	C2	7.68	No	Retain and protect during construction works
T32	Salix alba (white willow)	910	C2	10.92	No	Retain and protect during construction works
T33	Salix alba (white willow)	600	B2	7.2	No	Retain and protect during construction works
T34	Quercus robur (English oak)	650	A1, A2	7.8	No	Retain and protect during construction works
T35(V)	Quercus robur (English oak)	1170	A2, A3	14.04	No	Retain and protect during construction works
T36(V)	Quercus robur (English oak)	1440	A2, A3	17.28	No	Retain and protect during construction works
T37	Quercus robur (English oak)	700	A2, A3	8.4	No	Retain and protect during construction works
T38	Crataegus monogyna (hawthorn)	400 basal dia.	C2	4	No	Retain and protect during construction works
T39	Quercus robur (English oak)	450	A2	5.4	No	Retain and protect during construction works
T40	Fraxinus excelsior (ash)	200 350	B2	4	No	Retain and protect during construction works
T41	Ulmus glabra (wych elm)	200	C2	2.4	No	Retain and protect during construction works

Tree ref T - individual G - Group W - Woodland H - Hedgerow * Bat Roosting Potential H M L N	Species Latin name Common name	Stem dia. (mm) basal dia. (BD)	BS5837 Tree Quality Category A, B, C, U (1,2,3)	Radius of RPA (m)	Affected by development	Proposed works – note felling constraints
T42	Acer campestre (field maple)	140 130	B2	1.9	No	Retain and protect during construction works
T43	Quercus robur (English oak)	400	A2	4.8	No	Retain and protect during construction works
T44	Salix caprea (goat willow)	1000 basal dia.	C2	10	Yes within footprint of proposed building	Remove
T45* (T1 BRP)	Quercus robur (English oak)	700	B3	8.4	Yes within proposed new soft landscape area with public access; unsuitable for retention in this setting	Remove – subject to pre-felling ground level inspection by UES Ltd
T46	Quercus robur (English oak)	180	B2	2.16	No	Retain and protect during construction works
T47* (T2 BRP)	Prunus avium (wild cherry)	220	B2	2.64	To edge of new soft landscape area	Retain and protect during construction works, incorporate into new soft landscape area
T48	Quercus robur (English oak)	180	B2	2.16	No	Retain and protect during construction works
T49	Quercus robur (English oak)	180	B2	2.16	No	Retain and protect during construction works
T50	Malus sylvestris (crab apple)	250	A2, A3	3	To edge of new soft landscape area	Retain and protect during construction works, incorporate into new soft landscape area
T51	Fraxinus excelsior (ash)	220	B2	2.64	Remove due to anticipated future impact on culvert headwall	Remove
T52* (T4 BRP)	Quercus robur (English oak)	690	B2	8.28	Yes within footprint of proposed building	Remove – subject to pre-felling climbing inspection by UES Ltd
T53* (T34 BRP)	Quercus robur (English oak)	710	A1, A2	8.52	Yes within footprint of proposed building	Remove
T54	Betula pendula (silver birch)	190 200	B2	2.8	Yes within footprint of proposed building	Remove
T55	Salix caprea (goat willow)	1200 basal dia.	C2	12	Yes within footprint of proposed building	Remove

Tree ref T - individual G - Group W - Woodland H - Hedgerow * Bat Roosting Potential H M L N	Species Latin name Common name	Stem dia. (mm) basal dia. (BD)	BS5837 Tree Quality Category A, B, C, U (1,2,3)	Radius of RPA (m)	Affected by development	Proposed works – note felling constraints
T56	Salix caprea (goat willow)	450 basal dia.	C2	4.5	Yes within footprint of new car park	Remove
T57	Betula pendula (silver birch)	220	B2	2.64	Yes within footprint of new car park	Remove
T58* (T35 BRP)	Quercus robur (English oak)	920	A3	11.04	Yes within footprint of new car park	Remove – using soft felling techniques
T59	Salix caprea (goat willow)	600 basal dia.	C2	6	Yes within footprint of new car park	Remove
T60	Betula pendula (silver birch)	250	C3	3	Yes within footprint of new car park	Remove
T61	Betula pendula (silver birch)	330 120	C2	3.2	Yes within footprint of new car park	Remove
T62	Salix caprea (goat willow)	1200 basal dia.	C2	12	Yes within footprint of new car park	Remove
T63	Salix caprea (goat willow)	900 basal dia.	C2	9	Yes within footprint of new car park	Remove
T64*(T45 BRP)	Populus nigra 'Italica' (Lombardy poplar)	1000	B2	12	Yes within footprint of new car park	Remove – using soft felling techniques or pre-commencement climbing inspection
T65	Betula pendula (silver birch)	350 410	B2	5.4	Yes within footprint of proposed building	Remove
T66	Betula pendula (silver birch)	380	B2	4.56	Yes within footprint of proposed building	Remove
T67	Fraxinus excelsior (ash)	440	B1	5.28	Within area of retained scrub/woodland	Retain and protect during construction works
T68	Crataegus monogyna (hawthorn)	400 basal dia.	B3	4	No	Retain and protect during construction works
T69	Quercus robur (English oak)	970	A2	11.64	No	Retain and protect during construction works
T70	Quercus robur (English oak)	840	A2	10.08	No	Retain and protect during construction works
T71	Quercus robur (English oak)	920	A2	11.04	No	Retain and protect during construction works
T72	Quercus robur (English oak)	1050	A3	12.6	No	Retain and protect during construction works
T73	Quercus robur (English oak)	550	B3	6.6	No	Retain and protect during construction works

Tree ref T - individual G - Group W - Woodland H - Hedgerow * Bat Roosting Potential H M L N	Species Latin name Common name	Stem dia. (mm) basal dia. (BD)	BS5837 Tree Quality Category A, B, C, U (1,2,3)	Radius of RPA (m)	Affected by development	Proposed works – note felling constraints
T74	Fraxinus excelsior (ash)	440	C2	5.28	No	Retain and protect during construction works
T75	Quercus robur (English oak)	950	A1, A2	11.4	No	Retain and protect during construction works
T76	Acer campestre (field maple)	350	C2	4.2	No	Retain and protect during construction works
T77	Quercus robur (English oak)	520	B2	6.24	No	Retain and protect during construction works
T78	Quercus robur (English oak)	480	A1, A2	5.76	No	Retain and protect during construction works
T79	Quercus robur (English oak)	500	B2, B3	6	No	Retain and protect during construction works
T80	Quercus robur (English oak)	350	B3	4.2	No	Retain and protect during construction works
T81	Quercus robur (English oak)	950	A2	11.4	No	Retain and protect during construction works
T82	Quercus robur (English oak)	1100	A3	13.2	No	Retain and protect during construction works
T83	Quercus robur (English oak)	600	B2	7.2	No	Retain and protect during construction works
T84	Quercus robur (English oak)	220	B1, B2	2.64	No	Retain and protect during construction works
T85	Quercus robur (English oak)	440	B1, B2	5.28	No	Retain and protect during construction works
T86	Quercus robur (English oak)	480	A2	5.76	No	Retain and protect during construction works
T87	Salix caprea (goat willow)	400 basal dia.	C2	4	No	Retain and protect during construction works
T88	Quercus robur (English oak)	370	A2	4.44	No	Retain and protect during construction works
T89	Quercus robur (English oak)	500 520	A2	7.2	No	Retain and protect during construction works

Tree ref T - individual G - Group W - Woodland H - Hedgerow * Bat Roosting Potential H M L N	Species Latin name Common name	Stem dia. (mm) basal dia. (BD)	BS5837 Tree Quality Category A, B, C, U (1,2,3)	Radius of RPA (m)	Affected by development	Proposed works – note felling constraints
T90	Quercus robur (English oak)	600	A2	7.2	No	Retain and protect during construction works
T91* (T14 BRP)	Acer pseudoplatanus (sycamore)	240	B1	2.88	Yes within footprint of proposed building	Remove – subject to pre-felling climbing inspection by UES Ltd
T92	Quercus robur (English oak)	600	B2, B3	7.2	Yes within footprint of proposed building	Remove
T93	Acer pseudoplatanus (sycamore)	260	B2	3.12	Yes within footprint of proposed building	Remove
T94* (T15 BRP)	Quercus robur (English oak)	600	B2	7.2	Yes within footprint of proposed building	Remove – subject to pre-felling climbing inspection by UES Ltd
T95	Quercus robur (English oak)	450 basal dia.	C2	4.5	No	Retain and protect during construction works
GROUPS OF TREES Crown extents taken from topographical survey and Bluesky aerial imagery; majority of groups difficult to survey stem dia. Due to dense scrub						
G1* (T11 BRP within group)	Predominantly scrub species: Hawthorn Blackthorn Rose species Smaller quantities of: Silver birch, ash under 75mm dbh Goat willow Elder	not recorded	B2	see plan	Yes, within new soft landscape zone adjacent to building (west) and in area of proposed loading bays (east)	Partial removal for construction; protect retained vegetation during construction, – subject to pre-felling climbing inspection by UES Ltd
G2	Blackthorn Hawthorn Holly Silver birch and Oak saplings under 75mm dbh	not recorded	C2	see plan	Yes, within footprint of new building	Remove
G3	Predominantly scrub species: Hawthorn Blackthorn Rose species Smaller quantities of: Goat willow to south edge of group	not recorded	C2	see plan	Yes, within proposed car park area	Remove

Tree ref **T - individual** **G - Group** **W - Woodland** **H - Hedgerow** *** Bat Roosting Potential H M L N**	**Species** **Latin name** **Common name**	**Stem dia. (mm)** **basal dia. (BD)**	**BS5837 Tree Quality Category A, B, C, U (1,2,3)**	**Radius of RPA (m)**	**Affected by development**	**Proposed works – note felling constraints**
G4	Predominantly scrub species: Hawthorn Blackthorn Rose species Goat willow Silver birch Smaller quantities of: Field maple Oak Sycamore White willow Crab apple	not recorded	B2	see plan	Yes, within footprint of new building and car park	Remove
G5* (T16 BRP within group)	Predominantly willow species: Goat willow Smaller quantities of: White willow Silver birch Blackthorn Hawthorn Field maple	not recorded	C2	see plan	Yes, within footprint of new building and car park	Remove
G6	Small group: Goat willow Silver birch White willow	not recorded	C2	see plan	Yes, within footprint of new building and car park	Remove
G7	Predominantly scrub species: Hawthorn Blackthorn Rose species Goat willow Field maple Crab apple	not recorded	C2	see plan	Yes, within footprint of new building and car park	Remove
G8	Predominantly scrub species: Hawthorn Blackthorn Rose species Goat willow Crab apple Ash	not recorded	C2	see plan	Yes within car park and soft landscape zone	Partial removal for construction; protect retained vegetation during construction
G9* (T3 BRP)	Linear group of ash (15)	up to 670	A2	see plan	No	Retain and protect during construction works – inspection required – removal not considered necessary

Tree ref T - individual G - Group W - Woodland H - Hedgerow * Bat Roosting Potential H M L N	Species Latin name Common name	Stem dia. (mm) basal dia. (BD)	BS5837 Tree Quality Category A, B, C, U (1,2,3)	Radius of RPA (m)	Affected by development	Proposed works – note felling constraints
G10	Goat willow	stems up to 220	C2	see plan	Yes within new landscape zone, access area and car park	Remove
G11	Oak (8) Silver birch Crab apple	up to 250	B1, B2	see plan	Yes within footprint of new building	Remove
G12	Hawthorn Blackthorn Rose species Silver birch Field maple Oak Goat willow White willow	not recorded	B2, B3	see plan	Yes within footprint of new building, soft landscape zone and drainage area	Partial removal for construction; protect retained vegetation during construction
G13	Goat willow Occasional hawthorn	stems up to 280	C2	see plan	Yes within footprint of new building, soft landscape zone and car park	Remove
G14	Hawthorn	300 300 500BD	C2	see plan	Yes within footprint of new building, soft landscape zone and car park	Remove
G15* (T36 BRP)	Goat willow Hawthorn Blackthorn Silver birch Oak Ash	not recorded	C2	see plan	Yes within footprint of new building, soft landscape zone and car park	Partial removal for construction; protect retained vegetation during construction; – subject to pre-felling ground level inspection by UES Ltd
G16	Predominantly scrub species: Hawthorn Blackthorn Rose species Field maple Silver birch Lower proportion of: Oak Goat willow Symphoricarpus	not recorded	C2	see plan	Yes within footprint of new building, soft landscape zone and drainage area	Partial removal for construction; protect retained vegetation during construction
G17	Silver birch (6) Sycamore (7)	up to 280	B2	see plan	Yes within drainage zone	Partial removal to north of group for construction; protect retained vegetation during construction

Tree ref T - individual G - Group W - Woodland H - Hedgerow * Bat Roosting Potential H M L N	Species Latin name Common name	Stem dia. (mm) basal dia. (BD)	BS5837 Tree Quality Category A, B, C, U (1,2,3)	Radius of RPA (m)	Affected by development	Proposed works – note felling constraints
G18	Regeneration of Silver birch Sycamore Hawthorn Blackthorn	not recorded	C2	see plan	Yes within drainage zone	Partial removal to north of group for construction; protect retained vegetation during construction
G19	Natural regeneration under 75mm dbh silver birch, field maple, oak, blackthorn, hawthorn, goat willow, with larger goat willow to east end of building	up to 100mm	C2	see plan	Yes within new landscape zone, access area and car park	Partial removal for new landscaping
G20	Hawthorn Field maple	up to 600 BD	B2	see plan	No	Retain and protect during construction works
G21	Silver birch	up to 250	B2	see plan	No	Retain and protect during construction works
G22	Silver birch Field maple Goat willow Hawthorn Sycamore Alder	up to 240	B2	see plan	No	Retain and protect during construction works
G23* (T37 BRP within group)	Predominantly scrub planting to ditch with occasional trees Blackthorn Hawthorn Field maple Goat willow Oak Crab apple Silver birch white willow Guelder rose Italian alder	not recorded	B2, B3	see plan	No	Retain and protect during construction works
G24	Blackthorn Hawthorn	not recorded	C2	see plan	No	Retain and protect during construction works
G25	Goat willow White willow Hawthorn Blackthorn	not recorded	C2	see plan	No	Retain and protect during construction works

Tree ref T - individual G - Group W - Woodland H - Hedgerow * Bat Roosting Potential H M L N	Species Latin name Common name	Stem dia. (mm) basal dia. (BD)	BS5837 Tree Quality Category A, B, C, U (1,2,3)	Radius of RPA (m)	Affected by development	Proposed works – note felling constraints
G26	Predominantly scrub with some tree species: Blackthorn Hawthorn Crab apple Field maple Goat willow Silver birch occasional oak under 75mm dbh	not recorded	B2, B3	see plan	Yes, within footprint of new building and drainage area	Remove
G27* (G1 BRP)	Goat willow White willow	not recorded	C2	see plan	Yes, within footprint of new building and drainage area	Partial removal to north for construction; protect retained vegetation during construction; subject to pre-felling ground level inspection by UES Ltd
G28	Scrub: Blackthorn Hawthorn Buddleia Goat willow Silver birch Dogwood	not recorded	C2	see plan	No	Outside construction area
G29	Mainly : Goat willow White willow Hawthorn With occasional: Oak and ash under 80mm dbh Blackthorn	not recorded	C2	see plan	Yes, within footprint of new building	Remove
G30* (T38 and T39 BRP within group)	Blackthorn Hawthorn	not recorded	C2	see plan	Yes, within footprint of new building and car park	Remove – subject to pre-felling ground level inspection by UES Ltd
G31	Goat willow White willow Hawthorn Silver birch	not recorded	C2	see plan	Yes, within footprint of new building and car park	Remove
G32	Blackthorn Hawthorn	up to 420	B2	see plan	Yes, within footprint of new building and car park	Remove
G33	Goat willow White willow	not recorded	C2	see plan	Yes, within footprint of new building	Remove
WOODLAND - Only the frontage of the woodland was surveyed, however where different species were noted to the north of the ditch/stream, these have been noted						

Tree ref T - individual G - Group W - Woodland H - Hedgerow * Bat Roosting Potential H M L N	Species Latin name Common name	Stem dia. (mm) basal dia. (BD)	BS5837 Tree Quality Category A, B, C, U (1,2,3)	Radius of RPA (m)	Affected by development	Proposed works – note felling constraints
W1	To side of ditch to field boundary - remnant hedgerow forming edge to woodland including: Hawthorn Field maple Blackthorn Rose species Within woodland: Ash Oak White willow Grey willow Sycamore Holly Crab apple Wych elm	not recorded	A2, A3	see plan	No to north of proposed buildings	Retain and protect during construction
HEDGEROW						
H1	Hawthorn Field maple Blackthorn Rose species	not recorded			Yes, within footprint of new building and car park	Remove
H2	Hawthorn Field maple Blackthorn mostly spreading from adjacent scrub Rose species	not recorded			No	Retain and protect during construction
H3	Hawthorn Blackthorn Rose species Goat willow Crab apple Field maple	not recorded			Yes, within footprint of new building and car park	Remove
H4	Hawthorn Field maple Blackthorn Rose species	not recorded			Yes, within footprint of car park	Remove
H5	Hawthorn Blackthorn Rose species	not recorded			Yes, within footprint of new building and car park	Remove
H6	Blackthorn Rose species Field maple	not recorded			Yes, within footprint of new building and car park	Remove

Tree ref T - individual G - Group W - Woodland H - Hedgerow * Bat Roosting Potential H M L N	Species Latin name Common name	Stem dia. (mm) basal dia. (BD)	BS5837 Tree Quality Category A, B, C, U (1,2,3)	Radius of RPA (m)	Affected by development	Proposed works – note felling constraints
H7	Hawthorn Field maple Occasional: Hazel Rose species Oak - standard trees	not recorded			No	Retain and protect during construction
H8	Hawthorn Blackthorn Field maple Rose species	not recorded			No outside the construction area	No works
H9	Hawthorn Blackthorn Field maple Rose species	not recorded			No outside the construction area	No works
H10	Hawthorn Blackthorn Field maple Rose species	not recorded			No outside the construction area	No works
H11	Hawthorn Blackthorn Field maple Rose species	not recorded			No outside the construction area	No works

4.3.2 Table 3.0 Schedule of tree works by tree category

5 ARBORICULTURAL METHOD STATEMENT

5.1 Contact details for the project

5.1.1 Contact details for the project are as follows:

Developer - FI REM

Emily Armstrong MSc MRICS Senior Development Manager

earmstrong@fi-rem.com 01257 263 010 07740 546 216 www.fi-rem.com

FI Real Estate Management - Canal Mill, Botany Brow, Chorley, Lancashire, PR6 9AF

Main Contractor- FI Construction

Sholto McDonald

Project Manager

smcdonald@fi-construction.com 07350392841 www.fi-construction.com

FI CONSTRUCTION **FI Construction Limited -** Canal Mill, Botany Brow, Chorley, Lancashire, PR6 9AF

Facilities Management (Post Completion)

Marc Howarth

Regional Facilities Manager

E: mhowarth@fifm.co.uk **M:** 07780 224 148 **T:** 01257 263 010 **Ext:** 365

FI FACILITIES MANAGEMENT **FI Real Estate Management -** Canal Mill, Botany Brow, Chorley, Lancashire, PR6 9AF

5.1.2 Consultant contact details for the project are as follows:

Trees - Marianne Dobson – MDLandscape mdlandscape@btinternet.com 07710 498231

Ecology – Tom Kenwright – UES Ltd tom@ues.org.uk 07804 246512 / 01565 757788

5.2 General requirements

5.2.1 A copy of this document should be provided to the Project Manager and retained at the site office, with all relevant drawings included in the appendices clearly displayed on site notice boards. The method statement must be made freely available for inspection to contractors and sub-contractors. The document shall be introduced to all new contractors as part of the general site induction.

5.2.2 An Arboricultural Consultant should be appointed to inspect the tree works and protection measures to ensure compliance with this method statement in accordance with the draft Arboricultural Inspection Proforma in Appendix 5 and reporting procedures. Timing of inspections should generally be every 6-8 weeks, timed to coincide with planned work stages and include ad-hoc inspections.

5.2.3 All proposed tree works should be carried out by a suitably qualified, competent and insured contractor, preferably an Arboricultural Association approved contractor. Tree work should be undertaken in accordance with BS 3998:2010 – "Tree Work - Recommendations" and current issued FISA Safety Guides (Forestry Industry Safety Accord). No tree works shall be undertaken by construction personnel.

5.2.4 All tree works to be carried out shall comply with all appropriate legislation, including planning application decision notices and conditions, felling licences, statutory Tree Preservation Order and Conservation Area constraints and requirements. This includes The Wildlife and Countryside Act 1981 as amended by the Countryside and Rights of Way Act 2000 which provides statutory protection to protected species and birds. All tree work operations are covered by these provisions and advice from an ecologist should be obtained before undertaking any works that might constitute an offence.

5.2.5 The proposed tree works are shown on: Arboricultural Method Statement Sheet Plan 274/T/300 and Tree Works Plans 301-318.

5.2.6 All proposed tree pruning and tree removal, shall be undertaken in accordance with the approved schedule and plans appended within this report and in consultation with the Arboricultural Consultant and Ecologist. No works are to be undertaken on trees that are shown to be retained and protected without prior consultation with the Arboricultural Consultant and Ecologist.

5.2.7 Trees to be removed shall be spray painted in accordance with the drawings and accompanying schedule and reviewed on site with the Arboricultural consultant and Ecologist before removal.

5.2.8 The Site Manager shall be responsible for daily compliance with this method statement and shall contact the Arboricultural Consultant as required for general queries, ad-hoc inspections and unexpected occurrences affecting trees during the course of the works, such as encountering large roots over 25mm diameter or if additional pruning is required.

5.2.9 The tree works and subsequent installation of protection must be carried out prior to the commencement of construction, ground preparation works, establishment of site compounds, delivery of construction plant and materials or other investigation works.

5.2.10 No tree removal or pruning works other than those identified in this method statement, are to be carried out as further permissions from Wrexham County Borough Council may be required and ecological constraints may be present.

5.2.11 All trees that have been identified as having potential bat roost features by UES Ltd must be felled in accordance with this method statement and will be subject to any requirements from UES Ltd.

5.2.12 All works must be carried out with adherence to the GCN licence and avoid damage to the GCN fence.

5.2.13 All tree works should be undertaken outside of the nesting bird season which is between 1st March to 1st September, however it should be noted, that should warm weather be prevalent at the end of February, it is possible that bird nesting activity may start early.

5.2.14 If any tree works are to take place between March and August, a suitably qualified Ecologist should check the tree works area a maximum of 24 hours before any works commence. Should any nesting birds be found, or suspected to be present, advice should be sought from the Ecologist before proceeding.

5.2.15 If nesting birds are found, the tree should be marked with tape or spray paint to prevent the tree from being removed until the young have fledged the nest. The drawing displayed in the site office and showing the relevant tree should be marked to identify the presence of a birds nest and the date noted. This will allow forward planning for reinspection and removal once the young have fledged the nest.

5.2.16 Any invasive non-native species (INNS) that are found to be present at the site and within the working area should be marked on site and the Site Manager and Ecologist notified as soon as possible, as an INNS management plan may be required.

6 ARBORICULTURAL METHOD STATEMENT WORKS TO EXISTING TREES

6.1 Tree works

6.1.1 The tree work and vegetation clearance is to be undertaken in two phases to ensure vegetation clearance is in compliance with protected species licencing and mitigation measures. The phase one and two works are shown on drawings Arboricultural Method Statement Sheet Plan 274/T/300 and Tree Works Plans 301-318.

6.1.2 An Arboricultural Consultant should be appointed to review the condition of trees along new edges to existing groups, to assess whether remedial or formative pruning of trees is required following completion of both phases of work.

6.1.3 It must be noted that remedial and formative pruning following initial tree removal is not included within this method statement as the need for works cannot be ascertained until this work has been completed and additional permissions from Wrexham County Borough Council may be required.

6.1.4 All operations must be carried out to avoid damaging neighbouring retained trees. Trees to be retained must not be used for anchorage or winching purposes.

6.1.5 Any pruning to facilitate access must ensure there is no significant adverse impact on tree physiology or amenity value. A suitable working area may be created by temporarily tying back tree branches to avoid excessive pruning. The visual appearance, health and stability of a tree must be considered when undertaking pruning works and remedial pruning may be required as part of the tree works.

6.1.6 All trees that have been approved for removal shall be cut down to a low stump. Those that are in close proximity to trees to be retained shall either have their stumps ground out or left in situ. The stumps of felled trees not in close proximity to retained trees can be fully grubbed out. Access for stump removal must gained from within the designated construction working area, not through the woodland or groups to avoid damaging the RPA of trees to be retained. These works must comply with any ecological constraints, licencing and mitigation measures.

6.1.7 All arising timber shall be stacked to form habitat piles in clearings in the CEZ, it should not be stacked below the canopy of trees to be retained and not within the construction working area. The placement of the piles must also be co-ordinated with the ecologist to ensure the piles do not become hibernacula or sheltering habitat for GCN.

6.1.8 Removal of ivy growth is not included in these works, but may be a requirement for a second phase of pruning where there is a need for more detailed inspection of a tree, or where there is concern that the extent of ivy may create a windsail effect with regard to tree stability. Ivy growth can create valuable habitat for insects, invertebrates, birds and bats and therefore where this is considered of wildlife benefit, it will be retained.

6.1.9 Trees in category U that are dead or in decline may be retained as standing dead wood where there is no public access and no target area. Where there is existing public access, or where new access is planned, in the vicinity of category U trees, it is proposed that these trees are either reduced to 4m in height as standing dead wood, or removed completely.

6.1.10 Tree protection fencing shall be installed following completion of the tree works and prior to any other construction or clearance works taking place.

6.1.11 All tree work should be undertaken with due regard to ecological constraints and any mitigation requirements.

6.2 Tree and root protection

6.2.1 Following completion of the tree works, and subsequent inspection and sign off by the Arboricultural Consultant, the Site Manager will arrange installation of the temporary tree protection.

6.2.2 Tree protection fencing in accordance with BS5837:2012 (See Appendix 2 for details) or other suitable robust and immovable fence to minimum 1.5m in height to be approved by the Arboricultural Consultant and Wrexham County Borough Council Tree Officer, shall be erected prior to the commencement of any of the following activities:

- Soil stripping;
- Delivery of any plant or materials;
- Demolition and site clearance;
- Commencement of construction works;
- Installation of any utilities;
- Soiling / ground reinstatement; and
- Landscape works.

6.2.3 The protective fencing shall be erected to the alignment as shown on the Tree Work Plans 274/T/301-318.

6.2.4 Weather proof tree protection fence signs (See Appendix 3) shall be attached to the fencing at 10m intervals and positioned at eye level. These signs must be replaced if they are removed or become illegible.

6.2.5 Once erected these fenced areas should be respected and after installation, barriers and ground protection should not be removed or altered without prior recommendation by the Arboricultural Consultant and must remain in place until completion of all construction works on site.

6.2.6 No works are proposed within the CEZ once the fence and ground protection measures are installed. The CEZ must not be altered and the following restrictions shall apply:

- No change in ground level, reprofiling or mechanical excavations;
- No excavations by other means without the advice and agreement of the Arboricultural Consultant;

- No removal of grass areas by mechanical means;
- No storage of plant or materials;
- No storage or handling of any chemicals, fuels, wash out areas;
- No mixing of cement or concrete or other substances that may pollute the soil profiled;
- No fires; and
- No vehicular access.

6.2.7 Where the Root Protection Areas (RPA) for retained trees extends beyond the tree protection fencing, temporary ground protection shall be installed in accordance with BS5837:2012. Such ground protection must ensure that there is no soil compaction and root growth is uninhibited. The ground protection shall consist of the following as relevant to the proposed site layout and construction requirements:

6.3 Topsoil storage

6.3.1 Topsoil storage within the RPA of existing trees to be retained should be avoided.

6.4 Temporary pedestrian access during construction

6.4.1 Single thickness non-slip boards on a 100mm compression-resistant layer of woodchip, over a robust geo/textile membrane; or, geotextile laid over existing ground with 100mm depth clean inert hardcore; or, non-slip boards laid on a purpose formed scaffold frame, creating a suspended walkway. Alternative proposals may be submitted to the Arboricultural Consultant.

6.5 Vehicular access

6.5.1 Where vehicular construction access is required within the RPA of trees to be retained, an above ground protection system should be provided. This should be installed to accommodate the potential loading within the RPA (e.g. proprietary systems as shown in Appendix 4) and be designed to an engineering specification in conjunction with arboricultural advice.

6.5.2 On completion of construction and reinstatement works the above ground protection systems should be removed only with the approval of the Arboricultural Consultant. Surface de-compaction and root zone enhancement measures may be required and can then be undertaken.

6.6 Additional precautions outside the CEZ

6.6.1 Care should be taken when planning site operations to ensure that all types of machinery can operate without encountering retained trees. Such contact can result in significant damage and compromise safe retention of the tree. It is recommended that a banksman is employed to ensure adequate clearance from trees is always maintained. Where this is not possible, access facilitation pruning in consultation with the Arboricultural Consultant may be required. No signs, apparatus or any other services shall be attached to any part of a retained tree.

6.7 Site compounds, cabins, storage of materials and spoil

6.7.1 Temporary site compounds, including portable welfare facilities and temporary service connections, are to be positioned clear of the RPA of retained trees. The site poster 'Common causes of tree death' (see Appendix 6) shall be posted in the site cabin(s).

6.7.2 The delivery, storage, mixing and discharge of concrete and all other cement based materials shall be carried out away from retained trees, so that there is no risk of runoff and spillage in the RPA. No substances that are potentially injurious to trees (including fuels, building materials and other phyto-toxic materials) shall be stored or used in the vicinity of retained trees where there is a risk of injurious contact. Emergency spillage kits must be available to minimise the impacts of any accidental spillages to the local environment.

6.7.3 No materials shall be stored within the RPA of retained trees. Spoil from any site activity shall be removed or if to be retained for reuse, stored or piled outside the CEZ.

6.8 Installation of services and excavation within the RPA

6.8.1 Underground services should be routed outside the RPA of all retained trees to avoid risk of roots being severed during excavation. Mechanical trenching can also affect local soil hydrology. Common ducts should be used to minimise disturbance and segregated from the RPA.

6.8.2 Where new services are to pass within the RPA, the service plans should be developed with input from the Arboricultural Consultant. Trenchless insertion methods should be used where possible, with the entry and exit pits situated outside the RPA.

6.8.3 Where this is not possible the NJUG 10 Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees should be adopted. Hand excavation may be acceptable for shallow service runs, where they can be undertaken with the supervision of the Arboricultural Consultant and where roots can be retained and suitably protected. Where possible an air spade or air lance should be used to loosen the soil and removed using a vacuum excavator. Soils should be stored and retained on site for reinstatement on completion of the works. This may also involve wrapping or covering exposed roots to prevent desiccation and the effects of rapid temperature change. All wrappings must be removed prior to backfilling.

6.8.4 Prior to backfilling of soils the installation of a root protection barrier may be required to ensure there are no long-term effects of root growth on buried assets. Backfilling to trenches should ensure that subsoils are replaced first in 300mm layers and soils consolidated but not compacted. The final 300mm of soil backfill to ground level should be topsoil excavated from the trench or a 50/50 mix by volume of as dug topsoil and proprietary tree and shrub compost with organic matter content to replicate the upper soil profile. Injection of soils with mycorrhizal inoculant may also be considered where fibrous roots have been lost due to excavation.

6.9 Demolition and new surfacing within the CEZ

6.9.1 Demolition of existing structures in close proximity to retained trees should be carried out under the supervision of the Arboricultural Consultant with works planned to avoid deposition of material within the CEZ and to avoid damage to retained trees. Mechanical plant access within the CEZ should be avoided. Temporary pedestrian access shall be allowed within the CEZ to carry out these operations. A temporary breach in the fencing shall be created to facilitate pedestrian access only.

6.9.2 Removal of the existing hard surfacing adjacent to the RPA should be undertaken first, working away from the retained tree to allow any exposed roots to be appropriately covered and protected as work proceeds. Debris within the RPA should be removed by hand and transported clear of the protective fencing using wheelbarrows.

6.9.3 Where roots are encountered during the course of the works, they shall be retained and carefully worked around, wherever practicable. No root greater than 25mm dia. shall be cut without advice from the Arboricultural Consultant. If damage does occur to a root greater than 25mm diameter, then advice must be sought from the Arboricultural Consultant. Where it is essential to sever roots, they shall be cleanly cut, using an appropriate, sharp clean bladed hand tool. Roots that are to be retained shall be covered with hessian, or similar, to protect from desiccation. Prior to backfilling, any hessian wrapping should be removed and retained roots should be surrounded with sharp sand, or other loose granular fill before soil or other material is replaced.

6.9.4 To minimise risk of damage to tree roots to be retained, an air spade or vacuum excavator may be used to loosen and remove soils, in order to identify the location of roots adjacent to a planned excavation. Roots may then be pruned as previously described.

6.10 Reinstatement and soft landscaping within the CEZ

6.10.1 Reinstatement and soft landscape works, excavation and ground preparation within the CEZ shall be carried out using hand tools to minimise risk of damage to roots. Mechanical cultivation and rotovation shall be avoided.

6.10.2 Chemical application for treatment of woody plant matter shall be minimised. Where used, all instructions, warnings and other relevant information from manufacturers should be strictly observed and followed. Care must be taken to avoid damage to adjacent vegetation and trees to be retained.

6.10.3 During reinstatement, there must be no unplanned changes in ground levels within the RPA and works should only be carried out when ground conditions are suitable to avoid risk of compaction. Final grading to marry in new levels with existing ground with imported soils shall be carried out by hand tools only. Cultivations for seeding shall also be by hand.

6.10.4 All new tree planting should be undertaken in accordance with *BS8545:2014 Trees: from nursery to independence in the landscape - Recommendations.* Planting pits for hedgerows, shrubs or trees within the RPA of existing retained trees, must be hand excavated. If substantial roots are encountered, the planting pit should be relocated if possible.

6.10.5 Plants and materials for the landscape works should be transported in wheelbarrows and must be moved across existing hard surfacing where possible, or via temporary ground protection minimise risk of compaction.

6.11 Construction of new footpaths within the CEZ

6.11.1 No footpaths are proposed within the CEZ. The construction of any new footpaths and vehicle access within the CEZ or potentially affecting RPA of retained trees must be identified to the Arboricultural consultant as soon as possible. Any new footpaths within the CEZ, whether temporary or permanent must installed using a 'no dig' construction method. For permanent footpaths routes should be installed using a 3D cellular confinement system such as Cellweb, in accordance with the Manufacturer's recommendations.

6.11.2 The process for installation generally involves:

- Remove all existing vegetation from the surface using hand tools only. Arisings should be removed from the RPA using wheelbarrows only. No further excavations in this area are to take place. Any voids or depressions within the ground surface are to be made good using sharp sand (not builder's sand) to maintain levels.
- Position kerb edges where there is no conflict with tree roots with minimal haunching, or Install a metal edging to the full depth of proposed surfacing.
- Install geotextile to the ground surface and lay 3D cellular confinement mat (e.g. Cellweb) to the recommended thickness for the proposed access use on top of this membrane. Expand the mat to its full

length and trim to the desired length and width. Carefully peg down the matting with proprietary staking pins to keep the cells open. Fill all the cells with a 20-40mm no fines angular granular stone working from the area furthest from the tree first. Continue filling all the cells using the previously filled cells as a working platform.

- The finished surface of the access area may be the gravel surface or laid as required with block paving or similar to manufacturers recommendations.

6.11.3 Topsoil can be laid to the footpath edges and graded from the top of the kerb edge or installed edge restraints to the existing ground level to avoid creating trip hazards.

6.12 Arboricultural watching brief and supervision of excavations

6.12.1 The Site Manager shall inform the Arboricultural Consultant as soon as possible of the need to undertake excavation works within the RPA of existing trees and programme in an arboricultural watching brief. All watching briefs must be performed by an Arboricultural Consultant.

6.12.2 An arboricultural watching brief is required to ensure the pruning of roots is kept to within acceptable limits and to supervise the reinstatement of soils. Where possible, root pruning should be carried out at the same time as the installation of the temporary fencing to ensure the fence is in position immediately after the root pruning and reinstatement of soils has been completed.

6.12.3 The root pruning work should be undertaken in dry conditions, ideally whilst the ground is moist.

6.12.4 The Arboricultural Consultant will make a photographic record of the works for inspection by the local authority and the completion of the watching brief must be verified by the Arboricultural Consultant.

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7 MITIGATION PLANTING & LANDSCAPING

7.1 Mitigation

7.1.1 Replacement tree planting is proposed to mitigate for the removed trees and hedgerows, and to replace amenity or biodiversity value that may be lost because of the tree removal. There are opportunities on site to improve the composition and quality of existing tree groups and therefore enhance screening, biodiversity and visual amenity.

7.1.2 Native trees and shrubs appropriate to the area are to be planted within the new landscape and ecology zone, refer to drawings WRE2205_PP01.00_P3_Planting Plan and Schedule and detailed planting plans sheets 1 to 19.

7.1.3 Planting works would be undertaken in the appropriate planting season in accordance with the planning conditions.

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8 INSPECTIONS

8.1 Prior to commencement of construction

8.1.1 Once the protective fencing and ground protection measures have been installed but prior to the commencement of the development a site inspection should be undertaken by the Arboricultural Consultant. This is to confirm that all protection measures have been installed in accordance with the Tree Works Plans and the method statement.

8.1.2 Inspections of the tree protection fencing by the Arboricultural Consultant, should be carried out prior to major work stages such as soil stripping and ground reprofiling, laying foundations and hard and soft landscaping, so ensure that trees continue to be protected during the works.

8.1.3 Regular weekly checks of the tree fence and ground protection should be carried out by the Site Manager and all contractors working on site should be engaged in ensuring tree protection fencing is maintained at all times during the development to ensure trees remain adequately protected.

8.1.4 On completion of the development a general survey of the trees by the Arboricultural Consultant is recommended to identify any remedial action necessary as a result of the works. Note that permission for any additional tree works not included in the original development consent may need to be obtained through application to the LPA/Wrexham County Borough Council.

8.1.5 If any arboricultural issues arise during the development then the site manager should immediately contact the Arboricultural Consultant for advice on how to proceed.

8.2 Reinspection

8.2.1 It is recommended that trees are inspected every two years, particularly after storms or other extreme weather events, to identify potential new hazards or changes to known defects. Annual inspections have been recommended for specific trees where fungal fruiting bodies or defects are known to be present. Inspections of all retained trees should be undertaken by a qualified Arboriculturist/Arboricultural Consultant and records of inspection held at the site or with the landowner.

8.2.2 Hazard recommendations are based on observations at the time of survey. Trees are dynamic living organisms whose structure is constantly changing. Even those in good condition can suffer from damage or stress. Following site development, regular (annual or biennial) inspections of all retained trees should be undertaken by a qualified Arboricultural Consultant.