

ARBORICULTURAL STATEMENT
ON
PROPOSED SOLAR FARM
CEFN ROAD, WREXHAM, LL13 0PA

ON BEHALF OF
NOVUS RENEWABLE SERVICES LTD
THE OLD PLUMBERS SHOP
YANWORTH
GLOUCESTERSHIRE
GL54 3LQ

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1. SUMMARY

- 1.1.1.** The development application proposal comprises: Erection of solar farm with battery storage facility and supporting infrastructure. Erection of sub-station and installation of associated cable route.
- 1.1.2.** The application proposal does not have significant impacts on trees other than the need for a design solution for installing the access adjacent to a mature roadside sycamore tree.
- 1.1.3.** Trees and hedges will require ongoing maintenance and inspection.
- 1.1.4.** Installation of the underground cable between the solar panels and the sub-station should not have any significant consequences for trees.

2. TERMS OF REFERENCE

2.1. Instruction

2.1.1. Cheshire Woodlands is instructed by Helen Donnelly of Corylus Planning & Environmental Ltd on behalf of Novus Renewable Services Ltd to:

- Survey trees in accordance with the general requirements of BS5837:2012 Trees in relation to design, demolition and construction – Recommendations
- Produce a Tree Survey Plan and Tree Survey Schedule
- Appraise a development proposal in relation to trees
- Produce an Arboricultural Statement and Tree Protection Plan for submission with a planning application.

2.2. Limitations

2.2.1. This statement and associated documents remain the copyright of Cheshire Woodlands Limited and there should be no transfer of rights to any third party without express written consent.

2.2.2. The sole purpose of the survey was to collect data to inform the design of the current project in relation to trees, and trees are assessed in sufficient detail to gather data for and inform the current project. Appraisal of their structural condition is of a preliminary nature and whilst the Schedule is not a tree safety inspection record, the surveyor may record obvious defects when they are observed and considered to be potentially significant to safety. Unless otherwise agreed, data in the Schedule are time limited to one year, after which they should be reviewed.

2.2.3. Trees are assessed from ground level without invasive investigation and are viewed from within the site or from areas with public access. Assessment may be restricted where site conditions limit access or where trees are wholly or partially off-site or obscured by vegetation. The disclosure of hidden defects cannot therefore be expected.

2.2.4. The potential effects of trees on load-bearing soils beneath existing and proposed structures have not been considered and no soil samples have been taken.

3. INTRODUCTION

3.1. I am Michael Ellison, principal arboricultural consultant with Cheshire Woodlands Limited and my area of expertise is arboriculture.

3.2. The development proposal comprises: Erection of solar farm with battery storage facility and supporting infrastructure. Erection of sub-station and installation of associated cable route. An outline of the application proposal is included on the Tree Protection Plan at Appendix 2 (the Drawing)

3.3. The following documents have been considered in my evaluation:

- Topographical survey drawing ref. Cefn Survey - Whole Site 3D
- Proposed site plan ref. CE-321-4-2A STAGE 3 DETAIL DESIGN
- Tree Survey Plan CW/10495-P-TS
- Tree Survey Schedule CW/10495-SS

Technical terms used in this statement are included in the Glossary of Terms.

3.4. The assessment evaluates the effects of the development proposal on trees. The comparative values of trees are considered broadly in line with the guidance of BS5837 and their removal, retention, protection and management are informed by this evaluation.

3.5. This statement provides sufficient supporting information to enable the local planning authority (LPA) to determine the planning application insofar as it relates to trees.

4. THE SITE

- 4.1.** The site is agricultural land bounded by Wrexham Industrial Estate to the east, Cefn Road to the south, and agricultural land to the north and west. The land is currently under arable cultivation and appears to be free draining, with a cross-fall of around 1:100 from west to east and free running drainage ditches to the north and west boundaries.
- 4.2.** The British Geological Survey - *Geology of Britain Viewer*⁴ ecology of Britain Viewer identifies the underlying soils as River Terrace Deposits (undifferentiated) - Sand And Gravel.
- 4.3.** Sand and gravel deposits are accumulations of rock fragments and mineral grains derived from the weathering and erosion of hard rocks by glacial and river action. Trees growing on free-draining sandy soils have a tendency to develop deep and diffuse rooting, are usually less reliant on roots growing within the upper horizons and are less sensitive to changes to the upper soils than trees growing on cohesive clay or alluvial soils.

5. STATUTORY PROTECTION

- 5.1.** An email enquiry with Wrexham County Borough Council confirmed that the site is not in a conservation area and the trees on the site are not included in a tree preservation order.
- 5.2.** Trees on the site are subject to the provisions of The Forestry Act⁵ and hedgerows are subject to the provisions of the Hedgerow Regulations 1997⁶. Planning conditions can also impose controls on felling, pruning, and wilful damage to trees. See Appendix 4 for further guidance on the statutory protection of trees, hedgerows and wildlife.

⁴ Geology of Britain viewer

⁵ The Forestry Act 1967 (as amended)

⁶ Hedgerow Regulations 1997

6. SURVEY METHODOLOGY

- 6.1.** I surveyed the trees on 10 August 2021 and my data are set out in the Tree Survey Schedule at Appendix 1 (the Schedule) and on the Drawing. I measured stem diameters and canopy spreads using a tape and tree heights using a laser rangefinder to an accuracy of one-metre. Where dimensions are estimated this is identified in the Schedule.
- 6.2.** I assessed the trees for 'visual prominence' and broadly categorised them in accordance with Table 1 of BS5837. See Appendix 3 for further guidance on the method of categorisation.
- 6.3.** During the survey, I did not record any specific wildlife habitats in trees and hedges, but in general, high value bird nesting and foraging sites were identified in all hedges and many trees. See Appendix 4 for further guidance.
- 6.4.** The topographical survey overlaid with the proposed site plan is the base for the Drawing.
- 6.5.** Below-ground constraints are represented on the Drawing as Root Protection Areas (RPA), calculated as a circle measured by radius from the centre of the stem.
- 6.6.** Potential for direct obstruction of sunlight by trees is represented on the Drawing as illustrative shadow patterns, plotted in accordance with section 5.2.2 (Note 1) of BS5837. Shadow patterns have been plotted only where trees are within influencing distance of proposed solar panels and relate to the current height of trees. Where there is significant potential for increased height growth this is recorded in the Schedule.

7. THE TREES

- 7.1.** Most tree cover on the site is the result of natural colonisation of field boundary hedgerows and latterly of drainage ditches. Most are prominent in the landscape either individually or more commonly as groups of trees.

- 7.2.** To the south, the maturing willows, sycamores and ashes, G3 of the survey, line the south side of Cefn Road and to the east of the waste water treatment works access (WWTW). Although some fall within the red-line boundary, these trees are not affected by the application proposal, but were included in the survey because they had potential to cast shade onto the initial proposal. Similarly, the hedgerow trees on the south side of Cefn Road and to the west of the WWTW were included because they had potential to affect the initial layout proposal, and the westernmost of these have potential to cast shade onto the current proposal.
- 7.3.** To the north of the east and west compartments, tree cover in groups G10-G16 is largely within unmanaged, thorny hedgerow and whilst not directly affecting or affected by the proposal to any significant degree, the trees will require periodic inspection and management if they are not to present a physical threat to the proposed installation.
- 7.4.** To the east of the eastern compartment group G17 of the survey is predominantly off-site and appears to have been planted as a landscape buffer to the neighbouring Business Park.
- 7.5.** To the centre of the site, between the east and west development compartments is a hedgerow, which includes hedges H5-H7 and is a mix of both long-established and recently planted hedgerow with natural colonisation of trees to the east of a north-south aligned drainage ditch.
- 7.6.** Groups G18 and G19 are not affected by the current proposal.
- 7.7.** The site of the proposed sub-station compound is colonised by very young scrub vegetation that was not assessed in detail, to the north, south and west of which are unmanaged hedgerows and ornamental trees originating from the former residential use of the land.

- 7.8. On the east side of the WWTW access road are mature, former hedgerow trees G6 and T2, which are prominent in the landscape but mostly fall outside the application site.
- 7.9. Installation of the cable between the main development on the north side of Cefn Road and the proposed sub-station will be by subterranean directional drilling.

8. ARBORICULTURAL IMPLICATIONS

- 8.1. BS5837 recommends that trees be evaluated and categorised as set out in Table 1, which also provides a summary of the impact of the development proposal on trees.

8.2. Table 1

	To be retained and protected	To be removed for development	To be removed for other reasons
Category A High quality with life expectancy of at least 40 years	T1, T2, T6, T8, T10-T20, G6, G11, G14, G17, G19	None	None
Category B Moderate quality with life expectancy of at least 20 years	T3, T4, T5, T7, G3, G5, G10, G12, G13, G18, G20	None	None
Category C Low quality with life expectancy of at least 10 years, or small young trees	G1, G4, G7, G8, G9, G15, G16	None	G2
Category U Cannot be retained in context of current land-use for longer than 10 years	None	None	T9
Hedges and Shrubs	H1-H3, most of H4, H5-H7	Approx. 7m of H4	None

8.3. Trees and hedges to be removed

- 8.3.1.** No tree removals are required to enable the application proposal. Tree T9 is a young dead elm that is possibly just within striking distance of the proposed perimeter fence. The tree has been specified for removal in the Schedule, but equally it would be reasonable to retain it for its conservation value whilst presenting only a low risk to the proposed perimeter fence and construction personnel.
- 8.3.2.** Group G2 is regrowth from stumps and if retained, trees are likely to damage existing infrastructure to the east of the current river crossing if they are allowed to develop. The suggested removal is not related to the current development and will not have any significant negative consequences.
- 8.3.3.** A section of the roadside hedge H4 of my survey, of approximately 7 metres in length will be removed to enable widening and upgrading of an existing field entrance. To the east of this, a 90 metre section of the hedge will be reduced to a height of 0.6 metres to provide an improved visibility splay to the east of the upgraded access. This will be mitigated by the provision of new hedgerow set back into the site immediately to the north and along the east side of the proposed access road.

8.4. Trees to be retained

- 8.4.1.** All retained trees can be protected in accordance with current good practice as set out in BS5837:2012. The proposed positions of temporary tree protection barriers are identified on the Tree Protection Plan in appendix 2 and the methodology for construction operations in relation to trees is set out in the Arboricultural Method Statement on the Tree Protection Plan.
- 8.4.2.** The sycamore tree T5 of the survey exhibits signs of past decline and crown dieback on its north side, which is probably related to arable cultivation. However, the tree is showing good signs of recovery and being a B category tree (BS5837, Table 1), it is worthy of

retention and protection if this can be achieved at a reasonable cost. In this regard, the widening and upgrading of the access to its east has potential to cause further damage to roots of the tree and if it is to be retained, special engineer designed construction measures will be required in the area cross-hatched blue on the Tree Protection Plan to achieve the necessary loadbearing capacity with the minimum possible excavation.

8.5. Pruning

8.5.1. Very limited pruning is proposed to remove dead branches from a small number of trees if they are within falling distance of the installation BS3998⁷.

8.5.2. It will be necessary to prune the small group of Leyland cypress trees G8 to enable erection of the perimeter fence of the proposed sub-station compound. Alternatively, removal of this C category group would be easily mitigated by the establishment of new trees elsewhere on site.

8.5.3. Ongoing management of hedgerows and natural colonisation will be required to maintain clearances from the perimeter fence, security cameras access roads and other infrastructure.

8.6. Establishment of new trees

8.6.1. An outline proposal for the planting and establishment of more than 0.5 hectares of new woodland and scrub planting is included on the Proposed Site Plan.

⁷ British Standard BS3998:2010 *Tree work - Recommendations*

9. CONCLUSIONS

- 9.1.** The application proposal does not have significant impacts on trees other than the need for a design solution for installing the access adjacent to tree T5. This is in an area of ground that has been used historically for access by large machinery and any additional impact from installation of the access can be minimised by reducing the depth of excavation required.
- 9.2.** Trees and hedges will require ongoing maintenance and inspection.
- 9.3.** Installation of the underground cable between the solar panels and the sub-station should not have any significant consequences for trees providing it is a depth of 1.5 metres or greater when passing beneath trees. It may be necessary to revise the Tree Protection Plan if access for plant and machinery is required to the east side of the WWTW access road.

10. RECOMMENDATIONS

- 10.1.** All tree and hedge pruning and removal work should be implemented in accordance with the management recommendations in the Schedule and in compliance with BS39989.
- 10.2.** Statutory protection of wildlife should be taken into account in the planning and implementation of tree and hedge pruning and removal.
- 10.3.** All retained trees, shrubs and hedges should be protected during construction in accordance with the Drawing/a tree protection plan and arboricultural method statement to be agreed with the LPA and in compliance with BS5837. If access for plant and machinery is required to the east side of the WWTW access road
- 10.4.** The section of access road blue cross-hatched on the Tree Protection Plan should be engineer designed to minimise the depth of excavation.

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- 10.5.** Underground services should be installed in accordance with a scheme of work to be agreed with the LPA and in compliance with BS5837 and NJUG Volume 4¹⁰.
- 10.6.** Landscaping should be implemented in accordance with a scheme of work to be agreed with the LPA and in accordance with the arboricultural method statement.
- 10.7.** Building foundation design should take into consideration the juxtaposition of existing and proposed trees and the nature of the load-bearing soils.

¹⁰ NJUG Volume 4. 2007. *NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees*. National Joint Utilities Group, Milbank, London. 34pp.

APPENDIX 1

PROJECT: PROPOSED SOLAR FARM, CEFN ROAD, WREXHAM
CLIENT: NOVUS RENEWABLE SERVICES LTD
REF: CW/10495-SS

SURVEYED BY: M J ELLISON
DATE: 11 AUGUST 2021
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REVISIONS:

No.	Species	Age Range	Height (m)	Crown Spread (m)	Stem Dia. (mm)	Vitality	Comments	Management	Visual	Retention Value Existing	Retention Value Proposed	BS5837 RPA Radius (m)
T1	Monterey cypress	SM	15	10	600	N	<ul style="list-style-type: none"> No ground clearance Young sycamore saplings growing through crown 	<ul style="list-style-type: none"> Retain and protect during development 	2	A	A	7.2
T2	Oak	M	15	16.5	1150	N	<ul style="list-style-type: none"> Bark wound to stem Past branch failures in crown Large dead branches in crown Decay and hollowing to the stem, with an open cavity on the base on the north side, but exhibiting normal structurally adaptive growth Ground clearance less than 2m 	<ul style="list-style-type: none"> Remove large dead branches if within falling distance of proposed equipment Retain and protect during development 	3	A	A	13.8
T3	Hawthorn	M	6	11	3X250 (EST)	R	<ul style="list-style-type: none"> Access restricted by dense vegetation Low ground clearance of less than 1m 	<ul style="list-style-type: none"> Retain and protect during development 	2	B	B	5.2

Data in this schedule are time limited and subject to limitations described elsewhere.

HEADINGS & ABBREVIATIONS

Age Range Y = young SM = semi-mature EM = early-mature M = mature PM = post-mature V = veteran
Stem Dia Stem diameter (measured in accordance with Figure C.1 of BS5837: 2012) (MS = multi-stemmed EST = estimated)
Crown Spread Maximum crown spread (EST = estimated)
Vitality A measure of physiological condition. N = normal range for the species and age R = reduced, P = poor, MD = moribund, D = dead
Visual (Visual Prominence) Broad indication of prominence in the landscape (1 = low up to 4 = very high) (G = contributes to a wider group)
Retention Category Existing Broadly in accordance with Table 1 of BS5837: 2012 (considers the merits of the tree or group in the context of the existing land-use)
Retention Category Proposed Broadly in accordance with Table 1 of BS5837: 2012 (considers the merits of the tree or group in the context of a development proposal)
BS5837 RPA Radius Calculated in accordance with Table D.1 of BS5837: 2012
Common Plant names Only common names are used in this schedule. For scientific names refer to Mitchell, A. 2001. *Collins Field Guide – Trees of Britain & Northern Europe*. Harper Collins, London. pp. 420.

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No.	Species	Age Range	Height (m)	Crown Spread (m)	Stem Dia. (mm)	Vitality	Comments	Management	Visual	Retention Value Existing	Retention Value Proposed	BS5837 RPA Radius (m)
T4	Weeping willow	M	16 (EST)	16 (EST)	600 (EST)	N	<ul style="list-style-type: none"> Off site Not accessed Dimensions estimated 	<ul style="list-style-type: none"> Retain and protect during development 	2	B	B	7.2
T5	Sycamore	EM	14	13	600 (EST)	N	<ul style="list-style-type: none"> Past extensive crown dieback, particularly on the northwest sides, probably resulting from cultivation damage to roots Exhibiting good vitality at the current time but requires special attention at future inspections Ground clearance over site of between 3-7m 	<ul style="list-style-type: none"> Monitor health and structural condition Retain and protect during development 	3	B	B	7.2
T6	Sycamore	M	17	13	1X550 1X300 (EST)	N	<ul style="list-style-type: none"> Dense ivy to stem limited the inspection General ground clearance over proposal site of 6-7m 	<ul style="list-style-type: none"> Retain and protect during development 	3	A	A	7.5
T7	Ash	Y	9	5.5	300	N	<ul style="list-style-type: none"> Ground clearance of 2.5m over proposal site Ivy to stem 	<ul style="list-style-type: none"> Retain and protect during development 	2	B	B	3.6
T8	Sycamore	EM	14	17	600	N	<ul style="list-style-type: none"> The base of the stem could not be assessed closely due to dense vegetation Ground clearance of less than 2m Potential mature height of 18-20m 	<ul style="list-style-type: none"> Retain and protect during development 	3	A	A	7.2
T9	Elm	Y	8	5	200	D	<ul style="list-style-type: none"> Dead Position on plan approximate Possibly within falling distance of proposed fence 	<ul style="list-style-type: none"> Fell to ground level if within falling distance of operational equipment 	0	U	U	
T10	Sycamore	SM	13	SEE PLAN	600	N	<ul style="list-style-type: none"> Ground clearance of approximately 4m over proposal site Not assessed in detail due to restricted access 	<ul style="list-style-type: none"> Retain and protect during development 	2	A	A	7.2
T11	Sycamore	SM	12	SEE PLAN	600	N	<ul style="list-style-type: none"> Ground clearance of approximately 3m over proposal site Not assessed in detail due to restricted access 	<ul style="list-style-type: none"> Retain and protect during development 	2	A	A	7.2
T12	Field maple	SM	10	8	550 (EST)	N	<ul style="list-style-type: none"> Not assessed in detail due to restricted access 	<ul style="list-style-type: none"> Retain and protect during development 	2	A	A	6.6
T13	Oak	M	13	18	890	N	<ul style="list-style-type: none"> Extensive ground disturbance around base from ploughing Old bark wound to base of stem Barbed wire attached to stem General ground clearance of between 3-5m 	<ul style="list-style-type: none"> Retain and protect during development 	3	A	A	10.8

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No.	Species	Age Range	Height (m)	Crown Spread (m)	Stem Dia. (mm)	Vitality	Comments	Management	Visual	Retention Value Existing	Retention Value Proposed	BS5837 RPA Radius (m)
T14	Oak	M	12	13.5	1000	N	<ul style="list-style-type: none"> Generally low ground clearance around the stem and below the west side of the crown, with a higher ground clearance of up to 7m on the east side of the crown Large dead branches in crown 	<ul style="list-style-type: none"> Remove dead branches greater than 50mm diameter where they are within falling distance of equipment Retain and protect during development 	3	A	A	12.0
T15	Oak	M	14	12.5	860	N	<ul style="list-style-type: none"> Minor deadwood in crown Low ground clearance from epicormic shoots within 2-3m of the stem on all sides, otherwise ground clearance of between 4-6m 	<ul style="list-style-type: none"> Retain and protect during development 	3	A	A	10.2
T16	Oak	M	16	18.5	950	N	<ul style="list-style-type: none"> Past crown dieback, most probably resulting from cultivation and root damage General ground clearance of between 3-7m Large dead branches in crown 	<ul style="list-style-type: none"> Remove large dead branches if within falling distance of proposed equipment Retain and protect during development 	3	A	A	11.4
T17	Oak	M	13	11	700	N	<ul style="list-style-type: none"> Low ground clearance of between 1-2m Large dead branches in crown 	<ul style="list-style-type: none"> Remove large dead branches if within falling distance of proposed equipment 	2	A	A	8.4
T18	Sycamore	SM	10	6.5	270	N	<ul style="list-style-type: none"> General ground clearance of around 3m Potential mature height of 18-22m 	<ul style="list-style-type: none"> Retain and protect during development 	2	A	A	3.3
T19	Field maple	SM	9	9	350	N	<ul style="list-style-type: none"> Ground clearance down to approximately 2-3m Potential mature height of 16-18m 	<ul style="list-style-type: none"> Retain and protect during development 	1	A	A	4.2
T20	Oak	M	16	14	970	N	<ul style="list-style-type: none"> Extensive ground disturbance from cultivation General ground clearance of 4-5m, but with epicormic shoots to the stem and a dense elder growing at the base of the stem on the north side 	<ul style="list-style-type: none"> Retain and protect during development 	3	A	A	11.7
G1	Crack willow	Y	≤9	SEE PLAN	≤250	N	<ul style="list-style-type: none"> Multistemmed coppice regrowth, which is not ideally suited to its location adjacent to a busy road Some stems recently topped Ground clearance 1-2m over verge Potential mature height 25m 	<ul style="list-style-type: none"> Consider removal and replacement with more suitable species or coppice on a 5-year cycle Retain and protect during development 	2	C	C	3.0
G2	Sycamore Hazel	Y	≤7	SEE PLAN	≤30	N	<ul style="list-style-type: none"> Coppice regrowth Likely to cause structural damage by direct contact and annular growth of stems and roots No ground clearance Potential mature height 20m 	<ul style="list-style-type: none"> Fell and treat stumps with an approved herbicide to prevent regrowth 	1	U	U	

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No.	Species	Age Range	Height (m)	Crown Spread (m)	Stem Dia. (mm)	Vitality	Comments	Management	Visual	Retention Value Existing	Retention Value Proposed	BS5837 RPA Radius (m)
G3	Crack willow Sycamore Ash	EM	≤17	SEE PLAN	≤500 250	N	<ul style="list-style-type: none"> Included bark-union of southernmost stem exhibiting progressive failure No ground clearance Potential mature height 25m 	<ul style="list-style-type: none"> Retain and protect during development 	3	B	B	9
G4	Leyland cypress	Y	8	≤5	≤250	N	<ul style="list-style-type: none"> Former hedge, which has been allowed to grow unmanaged Off-site Potential mature height 20m 		2	C	C	3.0
G5	Sycamore Alder	M	≤16	SEE PLAN (EST)	550 (EST)	R	<ul style="list-style-type: none"> Off-site trees with no access Not assessed Potential mature height 16 		3	B	B	6.6
G6	Oak Ash Sycamore Field maple	M	≤22	SEE PLAN	1340	N	<ul style="list-style-type: none"> No signs of Ash Dieback Disease Cavities, cracks and other defects in the stems and crowns of trees which are not significant in relation to the current or proposed land use Ground clearance variable, between 2-5m with ground clearance within 3-4m of stems down to ground level 	<ul style="list-style-type: none"> Retain and protect during development 	3	A	A	15
G7	Sycamore Elm	Y	≤5	5	≤30	N, D	<ul style="list-style-type: none"> Some stems have been ring-barked by squirrels Not a significant constraint No significant overhang to the proposal site 	<ul style="list-style-type: none"> Retain and protect during development 	1	C	C	1
G8	Leyland cypress	Y	10	SEE PLAN	≤200	N	<ul style="list-style-type: none"> Low ground clearance Overhang of proposed fenceline and will require regular maintenance to clear proposed fence 	<ul style="list-style-type: none"> Retain and protect during development Prune as required to erect compound fence, or remove 	1	C	C	2.4
G9	Hazel Ash	Y SM	≤5	SEE PLAN	≤100	N	<ul style="list-style-type: none"> Ash has a potential mature height in excess of 20m No overhang of proposed perimeter fence 	<ul style="list-style-type: none"> Retain and protect during development 	1	C	C	1.2
G10	Hawthorn Crack willow Wych elm Alder	Y-EM	≤16	SEE PLAN	≤400 400 400	N, R, D	<ul style="list-style-type: none"> Two dead elms at the west end of the group Access restricted by the ditch and dense vegetation The crack willow appears to have previously been coppiced, although this is by no means certain and there may be some merit in continuing periodic coppicing, at least of stems that lean towards the site All trees located on the edge of a field drainage ditch No overhang of proposed perimeter fence 	<ul style="list-style-type: none"> Retain and protect during development 	2	B	B	8.3

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No.	Species	Age Range	Height (m)	Crown Spread (m)	Stem Dia. (mm)	Vitality	Comments	Management	Visual	Retention Value Existing	Retention Value Proposed	BS5837 RPA Radius (m)
G11	Ash Alder Hawthorn Oak Blackthorn Elder Field maple	Y-M	≤18	SEE PLAN	≤750	N	<ul style="list-style-type: none"> A linear group aligned along two drainage ditches Access restricted by the southern ditch and dense vegetation Minor overhang of proposed perimeter fence 	<ul style="list-style-type: none"> Retain and protect during development Prune as required if necessary to clear the proposed perimeter fence by 1-2m 	2	A	A	9.0
G12	Hazel Elder Hawthorn Ash Blackthorn	Y-EM	≤7	≤7	≤200 200 200	N	<ul style="list-style-type: none"> The hawthorns and hazels have potential mature heights in the region of 7-12m, and the ash in the region of 18-22m An unmanaged field boundary hedgerow No overhang of proposed perimeter fence 	<ul style="list-style-type: none"> Retain and protect during development 	2	B	B	4.2
G13	Alder Ash	EM EM	12 14	SEE PLAN	500 500 550 250 250	N N	<ul style="list-style-type: none"> Both trees appear to have been topped with the hedgerow many years ago No overhang of proposed perimeter fence 	<ul style="list-style-type: none"> Retain and protect during development 	2	B	B	8.5 7.8
G14	Ash Oak Hawthorn Blackthorn Elder	Y-M	≤17	SEE PLAN	≤800	N	<ul style="list-style-type: none"> Former hedgerow that has not been managed for several years with several high canopy trees of the listed species General ground clearance over the proposal site is down to 3-5m No overhang of proposed perimeter fence 	<ul style="list-style-type: none"> Retain and protect during development 	2	A	A	9.6
G15	Sycamore Hawthorn Goat willow	Y	5	SEE PLAN	≤100	N	<ul style="list-style-type: none"> Young natural colonisation Position plotted approximately (not on topographical survey) Does not appear to overhang of proposed perimeter fence 	<ul style="list-style-type: none"> Retain and protect during development Prune or flail back to hedge line if required to enable installation of perimeter security fence 	1	C	C	1.2
G16	Sycamore Hawthorn Blackthorn	Y-EM	7	SEE PLAN	≤200	N	<ul style="list-style-type: none"> Natural colonisation of unmanaged hedgerow Potential mature height of sycamores 20m+ No overhang of proposed perimeter fence 	<ul style="list-style-type: none"> Retain and protect during development 	1	C	C	

PROJECT: PROPOSED SOLAR FARM, CEFN ROAD, WREXHAM
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No.	Species	Age Range	Height (m)	Crown Spread (m)	Stem Dia. (mm)	Vitality	Comments	Management	Visual	Retention Value Existing	Retention Value Proposed	BS5837 RPA Radius (m)
G17	Sycamore Field maple Elm	Y, SM	≤16	SEE PLAN	≤400 300 300	N, D	<ul style="list-style-type: none"> Several small, dead elms scattered throughout the group Discontinuous understorey of predominantly hawthorn, blackthorn and goat willow Several trees in this group are off-site and located on the adjacent industrial land Potential mature height of sycamores 20m+ Some minor overhang of proposed perimeter fence 	<ul style="list-style-type: none"> Retain and protect during development Prune as required to obtain a 1-2m clearance from the proposed perimeter fence 	3	A	A	7
G18	Ash Sycamore Hawthorn Hazel	Y-EM	≤12	SEE PLAN	≤450	N	<ul style="list-style-type: none"> The central belt of vegetation is a former hedgerow that has not been managed for several years, it comprises predominantly blackthorn and hawthorn with occasional elder of up to 7m high and includes several young sycamores Potential mature height of ashes & sycamores 20m+ 	<ul style="list-style-type: none"> Retain and protect during development 	2	B	B	5.4
G19	Sycamore	M	17	SEE PLAN	≤750	N	<ul style="list-style-type: none"> General ground clearance over proposal site down to 5m with dense epicormics and other vegetation around the stems. Dense vegetation and ivy prevented a detailed inspection Potential mature height 20m+ Not affected by the proposal 	<ul style="list-style-type: none"> Retain and protect during development 	3	A	A	9.0
G20	Alder Sycamore Hawthorn Field maple Hazel Holly	Y-EM	≤15	SEE PLAN	≤500 500	N	<ul style="list-style-type: none"> Extensive ivy to stems and lower crowns restricted the inspection Potential mature heights of 18-22m Not affected by the proposal 	<ul style="list-style-type: none"> Retain and protect during development 	2	B	B	8.5
H1	Hawthorn		3	2		N	<ul style="list-style-type: none"> Has received no maintenance in recent years 	<ul style="list-style-type: none"> Retain and protect during development 				
H2	Hawthorn		4	SEE PLAN		N	<ul style="list-style-type: none"> Short section of unmanaged hedge 	<ul style="list-style-type: none"> Retain and protect during development 				
H3	Hawthorn		4	SEE PLAN		N	<ul style="list-style-type: none"> Short section of unmanaged hedge 	<ul style="list-style-type: none"> Retain and protect during development 				
H4	Hawthorn		2	1.2-2		N	<ul style="list-style-type: none"> Managed roadside boundary hedge 	<ul style="list-style-type: none"> Retain and protect during development 				

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No.	Species	Age Range	Height (m)	Crown Spread (m)	Stem Dia. (mm)	Vitality	Comments	Management	Visual	Retention Value Existing	Retention Value Proposed	BS5837 RPA Radius (m)
H5	Hazel Plum Sycamore Hawthorn Blackthorn		≤2	≤1.5			<ul style="list-style-type: none"> Predominantly recently planted unmanaged hedgerow 	<ul style="list-style-type: none"> Remove approximately 7m long section on the east side of the upgraded access onto Cefn Road Lay to reduce height to 0.6 m 90m length of remaining hedge to the east of the upgraded access Retain and protect remainder during development Continue regular management 				
H6	Hawthorn Field maple Hazel Plum Sycamore Holly		≤8	≤7		N	<ul style="list-style-type: none"> Old remnant hedgerow unmanaged Access road over drainage ditch 	<ul style="list-style-type: none"> Retain and protect during development 				
H7	Hawthorn Field maple Hazel Holly Plum Sycamore		2.5	≤2		N	<ul style="list-style-type: none"> Managed hedgerow 	<ul style="list-style-type: none"> Retain and protect during development Continue regular management 				
H8	Hawthorn Hazel Blackthorn Wych elm Sycamore Oak Ash Holly		1.5	1.5		N	<ul style="list-style-type: none"> Managed hedgerow with a small number of trees which are individually identified on the plan Not affected by the proposal but potential for shading has been noted on the tree survey drawing 					

APPENDIX 2

ARBORICULTURAL METHOD STATEMENT

From commencement of the development, the following methodology shall be implemented in the manner and sequence described below

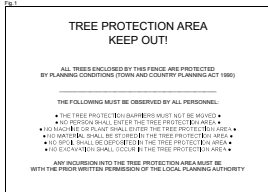
SEQUENCE OF WORKS

1. Pre-commencement site meeting
 2. Tree and hedge removal and pruning
 3. Erection of tree protection barriers
 4. Construction of engineer-designed hard surfacing
 5. Main construction phase
 6. Removal of temporary tree protection barriers
 7. Landscaping works
- 1. PRE-COMMENCEMENT SITE MEETING**
To outline working methods in relation to trees, a site meeting of the following shall take place prior to commencement of any demolition or construction activity:
- Client
 - Structural engineer
 - Site agent
 - Project arboriculturist
- Before the site meeting, existing incoming services and drainage shall be accurately located both on site and on a copy of this drawing
- 2. TREE AND HEDGE REMOVAL AND PRUNING**
- a. All tree and hedge removal and pruning work shall be implemented in accordance with Tree Survey Schedule CW/10495-SS and this drawing
 - b. All reasonable care shall be taken to avoid damage to retained trees, shrubs and hedges
 - c. All tree removal and pruning works shall be carried out in compliance with British Standard 3998: 2010 Tree work - Recommendations
- 3. ERECTION OF TREE PROTECTION BARRIERS**
- a. The main contractor shall erect 'tree protection barriers' as detailed on this drawing. To the north, east and west boundaries, the proposed security fencing, if installed prior to any other works or delivery of plant and materials, will act as a permanent tree protection barrier and the temporary barriers in these areas need not be installed
 - b. The project arboriculturist shall inspect installation of the 'tree protection barriers' prior to commencement of any construction works, site preparation, excavation or delivery of plant and materials
- 4. CONSTRUCTION OF ENGINEER-DESIGNED HARD SURFACING**
- a. At the proposed site access, a small area of new hard surfacing identified by blue cross-hatching on this drawing shall be constructed to an engineer-designed specification to minimise the depth of excavation within the root protection area of the retained tree T5. The specification shall be agreed with the Local Planning Authority prior to installation
- 5. MAIN CONSTRUCTION PHASE**
- a. There shall be no storage of construction equipment, plant or materials within any area designated as a 'tree protection area' or otherwise protected on this drawing
 - b. No trees shall be left within 20m of any retained tree or hedge
 - c. The site agent shall supervise all deliveries by self-loading crane, with vehicles positioned in such a manner that retained trees and hedges are not at undue risk of damage
 - d. There shall be no excavation within 500mm of a 'tree protection barrier'
 - e. Save for the Directional Drilling for cables between the main site and the sub-station to the south, there shall be no new excavation for the installation, renewal or repair of underground services within any area designated as a 'tree protection area' or otherwise protected on this drawing
 - f. The integrity of the 'tree protection barriers' and 'temporary ground protection' shall be maintained for the duration of the main construction phase
 - g. Any damage occurring to 'tree protection barriers' or 'temporary ground protection' during the main construction phase shall be reported to the project arboriculturist and immediately made good by the main contractor
 - h. Site drainage and washings from concrete and mortar mixings shall be directed away from all 'tree protection areas'
 - i. The project arboriculturist shall visit the site monthly to assess the integrity of the tree protection
 - j. The project arboriculturist shall complete a report to be sent to the site owner and main contractor following each visit. In this regard, the site owner will instruct the project arboriculturist prior to any works commencing on site
- 6. REMOVAL OF TEMPORARY TREE PROTECTION BARRIERS**
'Tree protection barriers' shall be removed only on completion of construction works and in compliance with all relevant planning conditions
- 7. LANDSCAPING WORKS**
- a. Landscaping works shall be implemented in accordance with a scheme approved by the Local Planning Authority
 - b. In areas of recently uncultivated ground, there shall be no rotovation of ground within any area designated as a 'tree protection area' or otherwise protected on this drawing
 - c. Sandy topsoil may be spread within the 'tree protection areas' to a depth of not more than 150mm to facilitate the establishment of new vegetation. No other addition of soil or other material shall be carried out within any area designated as a 'tree protection area' or otherwise protected on this drawing without prior consultation with the Local Planning Authority
 - d. No hard landscaping works or excavation for cables or any other service shall be carried out within the 'tree protection area' without the prior written consent of the LPA. All such excavations shall be carried out in accordance with the guidance set out in National Joint Utilities Group Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (Volume 4 2007)

TREE PROTECTION SPECIFICATION

- Tree Protection Areas shall:**
1. Be secured prior to commencement of any construction works, delivery of site accommodation or materials and shall remain intact for the duration of the construction works
 2. Preclude all construction activity with the exception of specified arboricultural works and such works as have been agreed by all parties and to be carried out under supervision
 3. Be protected by 'tree protection barriers' and other measures as specified on this drawing
 4. Preclude the storage or tipping of all materials and substances. Toxic substances such as fuels, oils, additives and cement shall not be stored within 2m of any area designated as a 'tree protection area' or otherwise protected on this drawing
 5. Any incursion into 'tree protection areas' must be by prior arrangement, following consultation with the Local Planning Authority
- Type 1 Tree Protection Barriers (RED)**
1. The 'tree protection barriers' shall comprise 2m high weldmesh 'Heras' type fencing
 2. The fencing panels shall butt together and be fixed with 3 no. clamps to each joint
 3. Each fence panel shall be supported by a 45° strut of scaffold tube, from the top rail of the panel back into the 'tree protection area'
 4. The base of the fence panels shall be supported in a concrete or rubber base (as supplied with the fence panels). The base shall be pinned to the ground by a 700mm length of scaffold tube, driven not less than 450mm into the ground. A 200mm length of scaffold tube shall be fixed to form a 'T' to the top of the vertical tube, preventing the base being moved
 5. No fixing shall be made to any tree and all reasonable care shall be taken to avoid damage to tree roots when locating scaffold tubes
 6. An A3 warning sign reading as per figure 1 shall be fixed to every 10m of 'tree protection barriers'
 7. The project arboriculturist shall direct erection of the 'tree protection barriers'
- Type 2 Tree Protection Barriers (PURPLE)**
1. The 'tree protection barriers' shall comprise 1.2m high, cleft chestnut pale fencing
 2. The fencing shall be supported on 75 - 100mm diameter softwood posts at 2m centres, driven 500mm into the ground
 3. No fixing shall be made to any tree and all reasonable care shall be taken to avoid damage to tree roots when locating posts
 4. An A3 warning sign reading as per figure 1 shall be fixed to every 30m of 'tree protection barrier'
 5. The project arboriculturist shall inspect the installation of the 'tree protection barriers'

TREE PROTECTION PLAN



TREE PROTECTION PLAN	
CHESHIRE WOODLANDS	
9 LOWE STREET MACCLESFIELD CHESHIRE SK11 7NJ	T. +44(0)1625 669668 E. admin@cheshire-woodlands.co.uk W. www.cheshire-woodlands.co.uk
CLIENT: Novus Renewable Services Ltd.	PROJECT: Proposed Solar Farm Cefn Road, Wretham LL13 0PA
JOB REF: CW10495-TP	DATE: 28 August 2021
SCALE: 1:1000	
<ul style="list-style-type: none"> INDIVIDUAL TREE TO BE RETAINED GROUP OF TREES TO BE RETAINED HEDGE TO BE RETAINED TREE GROUP, AREA, SHRUBS OR HEDGE TO BE REMOVED STEM POSITION APPROXIMATED BS 5837 RETENTION VALUE BS5837 ROOT PROTECTION AREA RADIUS BS5837 SHADOW PATTERN APPLICATION PROPOSAL PROPOSED LANDSCAPING BS5837 CATEGORY 'A' TREES BS5837 CATEGORY 'B' TREES BS5837 CATEGORY 'C' TREES BS5837 CATEGORY 'U' TREES PROPOSED ENGINEER-DESIGNED HARD SURFACE (BS5837) TREE PROTECTION AREA TYPE 1 TREE PROTECTION BARRIER (BS5837) TYPE 2 TREE PROTECTION BARRIER (BS5837) 	