



Tree Protection Scheme

in Relation to Proposed Construction
of Four Electricity Sub-Stations at



**Net World Sports, Bryn Lane,
Wrexham, Denbighshire, LL13 9UT**

Prepared by:

Bowland 
Tree Consultancy Ltd

May 2022

**TREE PROTECTION SCHEME
NET WORLD SPORTS, BRYN LANE, WREXHAM**

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**TREE PROTECTION SCHEME
NET WORLD SPORTS, BRYN LANE, WREXHAM**

PROJECT DETAILS

Project No.: BTC2464

Site: Net World Sports, Bryn Lane, Wrexham, Denbighshire, LL13 9UT

Agent: C B Richard Ellis

Council: Wrexham County Borough Council

Survey Date: 5 April 2022

Surveyed by: Phill Harris MSc BSc(Hons) HND MArborA CEnv MICFor

Prepared by: Joseph Lambert BSc(Hons) FdSc MArborA & Phill Harris

Checked by: Joseph Lambert BSc(Hons) FdSc MArborA

Date of Issue: 27 May 2022

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DISCLAIMER

Survey Limitations: Unless otherwise stated all trees are surveyed from ground level using non-invasive techniques. The disclosure of hidden crown and stem defects, in particular where they may be above a reachable height or where trees are ivy clad or in areas of ground vegetation, cannot therefore be expected. All obvious defects, however, are reported. Detailed tree safety appraisals are only carried out under specific written instructions. Comments upon evident tree safety relate to the condition of said tree at the time of the survey only.

Unless otherwise stated all trees should be re-inspected annually in order to appraise their on-going mechanical integrity and physiological condition. It should, however, be recognised that tree condition is subject to change, for example due to the effects of disease, decay, high winds, development works, etc. Changes in land use or site conditions (e.g. development that increases access frequency) and the occurrence of severe weather incidents are also significant considerations with regards tree structural integrity and trees should therefore be re-assessed in the context of such changes and/or incidents and inspected at intervals relative to identified and varying site conditions and associated risks.

Where trees are located wholly or partially on neighbouring private third-party land then said land is not accessed and our inspection is therefore restricted to what can reasonably be seen from within the site. Stem diameters of trees located on such land are estimated. Any subsequent comments and judgments made in respect of such trees are based on these restrictions and are our preliminary opinion only. Recommendations for works to neighbouring third-party trees are only made where a potentially unacceptable risk to persons and/or property has been identified during our survey. Where significant structural defects of third-party trees are identified and associated management works are considered essential to negate any risk of harm and/or damage then we will first attempt to inform the site occupier of the issues and, if not possible, then inform the relevant Council. Where a more detailed assessment is considered necessary then appropriate recommendations are set out in the Tree Survey Schedule.

Where tree stem locations are not included on the plan(s) provided then they are plotted at the time of the survey using, where appropriate and/or practicable, a combination of measurement triangulation and GPS co-ordination. Where this is not possible then locations are estimated. Restrictions in these respects are detailed in the report.

The tree survey and any report information provided is intended as a guide to identify key tree related constraints to site development only. As such, the potential influence of trees upon existing or proposed buildings or other structures resulting from the effects of their roots abstracting water from shrinkable load-bearing soils is not considered herein. The tree survey information in its current form should not therefore be considered sufficient to determine appropriate foundation depths for new buildings. Accordingly, an updated survey, with reference to the current NHBC Standards Chapter 4.2 - Building Near Trees, must therefore be prepared for the specific purpose of informing suitable foundation depths subsequent to planning approval being granted. The advice of a structural engineer must also be sought with regard to appropriate foundation depths for new buildings.

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Statutory Tree Protection: It is the client's responsibility to check for the presence of any statutory tree protection measures, such as the site's location within a Conservation Area and/or the presence of any Tree Preservation Orders, directly with the applicable Council's planning department prior to scheduling or carrying out any tree works. In turn, it is also the client's responsibility to check for the need for a felling licence with the Forestry Commission prior to scheduling or carrying out any tree works. Bowland Tree Consultancy Ltd cannot be held responsible for any decisions made by the client to prune or remove trees where any such statutory protection exists.

TREE SURVEY SCHEDULE FOR ARBORICULTURAL IMPACT AND PROTECTION ASSESSMENT							
Site:	Net World Sports, Bryn Lane, Wrexham, Denbighshire, LL13 9UT						
Agent:	C B Richard Ellis						

Surveyor:	Phill Harris Chartered Arboriculturist
Survey Date:	5 April 2022
Job Reference:	BTC2464

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No.	Species	Height	Stem Diam.	Branch Spread	Branch & Canopy Clearances	Life Stage	PC	General Observations and Comments	Management Recommendations	ERC	Cat. Grade	RPA (m²)	RPA Radius (m)	
T1	Common Oak	12	330	N E S W	4.5 4.5 4.5 4.5	5 5	SM	G	▪ Moderate ivy up stem.	▪ Retain tree in context of proposed works.	40+	B1	49	3.96
T2	Common Oak	15	900	N E S W	9 8 9 9	2.5-S 5	EM	G	▪ Very dense ivy up stem and into branches. ▪ Has sustained two relatively large diameter secondary branch failures to east side of crown, with crown now significantly unbalanced as a result.	▪ Retain tree in context of proposed works. ▪ Sever ivy around circumference of stem base and at a height of approximately 1.5m, then remove section of ivy between these points in order to facilitate future inspections. ▪ Prune tree to balance crown. ▪ Ensure protection of tree's Root Protection Area (RPA) through establishment of Construction Exclusion Zone (CEZ) and implementation of works to construct closest sub-station, in accordance with associated site and development specific Arboricultural Method Statement (AMS) and Tree Protection Plan (TPP).	20+	B1/2	366	10.8
T3	Common Oak	15.5	800#	N E S W	4 8 8 8	5 4.5	M	G	▪ In outgrown hedge on ditch edge. ▪ Not inspected in detail as area largely inaccessible. ▪ Moderate ivy up stem.	▪ Retain tree in context of proposed works. ▪ Ensure protection of tree's RPA through establishment of CEZ and implementation of works to install underground cables in accordance with associated site and development specific AMS and TPP.	40+	A1/2	290	9.6

Headings and Abbreviations:

No.	Allocated sequential reference number - Tree ('T'), Group ('G'), Woodland ('W') or Hedge ('H') reference number - refer to plan and to numbered tags where applicable
Species:	Common name
Height:	In metres, to half nearest metre – where possible approximately 80% are measured using an electronic clinometer and the remainder estimated against the measured trees. In the case of Groups and Woodlands the measurement listed is that of the highest tree
Stem Diam.:	Stem diameter in millimetres, to nearest 10mm - measured and calculated as per Annex C of BS5837:2012. MS = multi-stemmed, TS = twin-stemmed
Branch Spread:	Crown radius measured (or estimated where considered appropriate) from the four cardinal points (north, east, south and west) to give an accurate visual representation of the crown
Branch & Canopy Clearances:	Existing height above ground level, in metres, of first significant branch and direction of growth (e.g. 2.5-N) and of canopy at lowest point – to inform on crown to height ratio, potential for shading, etc.
Life Stage:	Estimated age class - Y = young, SM = semi-mature, EM = early-mature, M = mature, PM = post-mature
PC:	Physiological Condition - a measure of the tree(s)' overall vitality, i.e. D = Dead, MD = Moribund, P = Poor, M = Moderate, G = Good
General Observations and Comments:	Comments relating to the tree(s)' overall condition and any other pertinent factors including structural defects, current and potential direct structural damage, physiological decline, poor form, etc.
Management Recommendations:	Either Preliminary or In Consideration of the Proposal - In the case of Arboricultural Constraints Surveys the recommended management works only take existing site and tree circumstances and conditions into account and not proposed developments. Arboricultural Impact Assessment and Method Statement related Surveys take the proposed development into consideration with recommendations made accordingly. More than one option may be given if considered appropriate
ERC:	Estimated Remaining Contribution - in years as per BS5837:2012 (i.e. <10, 10+, 20+, 40+)
Cat. Grade:	Category Grading - tree retention value listed as U, A, B or C - in accordance with BS5837:2012 Table 1
RPA m²:	Root Protection Area in m² - calculated area around the tree that must be appropriately protected throughout the development process in order avoid root damage
RPA Radius (m):	Root Protection Area Radius - in metres measured from the centre of the stem to the line of tree protection
# (Estimated Dimensions):	Where trees are located off-site, or are inaccessible for any other reason, and accurate measurements or other information cannot be taken then the information provided is estimated and is duly suffixed with a "#" symbol

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No.	Species	Height	Stem Diam.	Branch Spread	Branch & Canopy Clearances	Life Stage	PC	General Observations and Comments	Management Recommendations	ERC	Cat. Grade	RPA (m²)	RPA Radius (m)	
T4	Common Oak	11	900#	N E S W	5 6 7 10	4 3	M	M	- In outgrown hedge on ditch edge. - Not inspected in detail as area largely inaccessible. - North-east side of stem is very large open decayed cavity. - Stem divides into multiple primary branches at a height of approximately 4m above cavity. - Several recent branch failures. - Evidently undergoing crown retrenchment. - RPA projected to be significantly smaller than generic calculated RPA due to extensive crown retrenchment, and subsequently reduced by 40% on appended Tree Impact Plan (TIP).	- Retain tree in context of proposed works. - Prune tree to reduce crown by a suitable amount to reduce risk of future branch failures. - Ensure protection of tree's reduced RPA, as far as is practicable, through establishment of CEZ and implementation of works to install underground cables in accordance with associated site and development specific AMS and TPP.	<10	U	366	10.8
T5	Common Oak	12.5	600#	N E S W	5 7 5 7	4.5 5	EM	G	- In outgrown hedge on ditch edge. - Not inspected in detail as area largely inaccessible. - Moderate ivy up stem.	Retain tree in context of proposed works.	40+	A1/2	163	7.2
T6	Common Ash	15.5	700	N E S W	7 3 7 8.5	5-S 6	M	M	- Mounded earth in root zone to west. - Dense ivy up stem. - Crown showing signs of a reduction in vitality evidently resultant of colonisation by Ash Dieback Disease. - Highly biased crown south-west due to partial suppression by neighbouring trees.	Retain tree in context of proposed works.	10+	C1	222	8.4
T7	Common Oak	11	600#	N E S W	2 5 5 4	3-N 4.5	EM	M	- In outgrown hedge on ditch edge. - Not inspected in detail as area largely inaccessible. - Moderate ivy up stem. - Moderately biased crown south due to partial suppression by neighbouring trees. - Crown showing signs of a reduction in vitality.	Retain tree in context of proposed works.	40+	B1	163	7.2
T8	Common Oak	10	800#	N E S W	2 4 4 6	3-W 4	M	G	- In outgrown hedge on ditch edge. - Not inspected in detail as area largely inaccessible. - Dense but dead ivy up stem. - Moderately biased crown south due to partial suppression by neighbouring trees.	Retain tree in context of proposed works.	40+	A1/2	290	9.6
T9	Common Oak	12	800#	N E S W	2 4 4 6	3 5	M	G	- In outgrown hedge on ditch edge. - Not inspected in detail as area largely inaccessible. - Moderate ivy up stem. - Moderately biased crown south due to partial suppression by neighbouring trees.	Retain tree in context of proposed works.	40+	A1/2	290	9.6

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Agent:		C B Richard Ellis					

Surveyor:	Phill Harris Chartered Arboriculturist
Survey Date:	5 April 2022
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No.	Species	Height	Stem Diam.	Branch Spread	Branch & Canopy Clearances	Life Stage	PC	General Observations and Comments	Management Recommendations	ERC	Cat. Grade	RPA (m²)	RPA Radius (m)
T10	Common Oak	14	1060#	N 7 E 7 S 4 W 9	4.5-W 4.5	PM	M	- In outgrown hedge on ditch edge. - Not inspected in detail as area largely inaccessible. - Moderate stem lean west. - Partially occluded 200mm wide stem cavity to south from ground level up to 4m at point where stem divides into multiple primary branches. - Crown showing signs of a moderate reduction in vitality.	Retain tree in context of proposed works.	40+	A1/2	508	12.72
T11	Common Oak	15	1000#	N 4 E 7 S 5 W 7.5	2-W 5	M	G	- In outgrown hedge on ditch edge. - Not inspected in detail as area largely inaccessible. - Moderately dense dead ivy up stem. - Large decay cavity to stem at a height of approximately 6m, evidently at point where stem previously failed, with multiple branches arising above.	Retain tree in context of proposed works.	40+	A1/2	452	12
T12	Common Oak	12.5	600#	N 4 E 6 S 6 W 3	4 5	EM	G	- In outgrown hedge on ditch edge. - Not inspected in detail as area largely inaccessible. - Moderately biased crown east.	Retain tree in context of proposed works.	40+	A1/2	163	7.2
T13	Common Oak	16	630#	N 7 E 8 S 7 W 8	4.5-W 6	EM	G	- In outgrown hedge on ditch edge. - Not inspected in detail as area largely inaccessible.	Retain tree in context of proposed works.	40+	A1/2	180	7.56
T14	Common Oak	15	550	N 6 E 6 S 6 W 5	4 7	EM	M	- On ditch edge. - Minor stem lean south. - South side of crown showing signs of a moderate reduction in vitality.	Retain tree in context of proposed works.	20+	B1	137	6.6
T15	Common Oak	9.5	520	N 5.5 E 4 S 0 W 3	6 4.5	EM	M	- Highly biased crown north due to partial suppression by neighbouring tree. - Crown showing signs of a moderate reduction in vitality. - Several partial branch failures up to approximately 200mm diameter.	Retain tree in context of proposed works.	10+	C1	122	6.24
T16	Common Oak	14	680	N 4.5 E 7 S 4.5 W 7	5 5	M	M	- South side of crown showing signs of a moderate reduction in vitality. - Partial 200mm diameter branch failure, which is hanging in upper crown.	- Retain tree in context of proposed works. - Prune tree to remove partially failed branch from upper crown.	20+	B1	209	8.16

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No.	Species	Height	Stem Diam.	Branch Spread	Branch & Canopy Clearances	Life Stage	PC	General Observations and Comments	Management Recommendations	ERC	Cat. Grade	RPA (m²)	RPA Radius (m)
G1	2no. Common Oak	≤ 17	≤ 900	N ≤ 8 E ≤ 9 S ≤ 6 W ≤ 10.5	4-W ≥ 4	M	G	Very closely spaced pair in outgrown hedge on ditch edge.	- Retain group in context of proposed works. - Ensure protection of group's RPAs, as far as is practicable, through establishment of CEZ and implementation of works to construct sub stations and install underground cables in accordance with associated site and development specific AMS and TPP.	40+	A1/2	≤ 366	≤ 10.8
G2	Common Hawthorn, Ash, Blackthorn	≤ 8	≤ 3x70 (ms)	N ≤ 2 E ≤ 2 S ≤ 2 W ≤ 2	N/A ≥ 0	Y-SM	P-G	Closely to moderately spaced group alongside access road and ditch.	- Remove approximately 10m length from central section of group in order to install underground cables as proposed (see TIP). - Retain remaining two sections of group in context of proposed works. - Ensure protection of remaining group's RPAs, as far as is practicable, through establishment of CEZ and implementation of works to construct sub stations and install underground cables in accordance with associated site and development specific AMS and TPP.	10+	C1	≤ 7	≤ 1.45
G3	2no. Common Oak	≤ 14	≤ 380	N ≤ 4 E ≤ 4 S ≤ 3 W ≤ 8.5	2-S ≥ 4.5	SM	G	- Very closely spaced pair in outgrown hedge on ditch edge. - Mutual suppression of crowns due to proximity to one-another.	Retain group in context of proposed works.	40+	C1	≤ 65	≤ 4.56
H1	Common Hawthorn	≤ 8	≤ 2x150 (ts)	≈ 3 wide	N/A ≥ 0	SM	G	Length of outgrown hedge alongside ditch.	Retain hedge in context of proposed works.	40+	C1	N/A	≈ 2.5
H2	Common Hawthorn	≤ 7	≤ 6x30 (ms)	≈ 3 wide	N/A ≥ 0	Y	G	Short length of outgrown hedge.	Remove hedge in order to construct two sub-stations to north-west of site as proposed (see TIP).	40+	C1	N/A	≈ 1

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Surveyor:	Phill Harris Chartered Arboriculturist
Survey Date:	5 April 2022
Job Reference:	BTC2464

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No.	Species	Height	Stem Diam.	Branch Spread	Branch & Canopy Clearances	Life Stage	PC	General Observations and Comments	Management Recommendations	ERC	Cat. Grade	RPA (m²)	RPA Radius (m)
H3	Common Hawthorn, Ash, Blackthorn, etc.	≤ 8	≤ 2x150 (ts)	≈ 6 wide	N/A ≥ 0	SM	G	▪ Outgrown hedge alongside ditch.	- Remove approximately 7m section in order to install cabling as proposed (see TIP). - Retain remaining hedge in context of proposed works. - Ensure protection of remaining hedge sections, as far as is practicable, through establishment of CEZ and implementation of works to install underground cables in accordance with associated site and development specific AMS and TPP. - Undertake infill planting, with Hawthorn, to connect two sections of hedge where section is to be removed.	40+	C1	N/A	≈ 2.5
H4	Common Hawthorn	≤ 8	≤ 2x150 (ts)	≈ 6 wide	N/A ≥ 0	SM	G	▪ Length of outgrown hedge alongside ditch.	- Retain hedge in context of proposed development. - Cut back approximately 25m section of hedge adjacent to approved access road to allow cable route to pass between retained hedge and road (see TIP).	40+	C1	N/A	≈ 2.5

BS5837:2012 Table 1 – Cascade Chart for Tree Quality Assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	- Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) - Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline - Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality <i>Note: Category U trees can have existing or potential conservation value which it might be desirable to preserve; see BS5837:2012 paragraph 4.5.7.</i>			Red
	1. Mainly arboricultural qualities	2. Mainly landscape qualities	3. Mainly cultural values, including conservation	
Trees to be considered for retention				
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	Green
Category B Those of moderate quality and value: those in such a condition as to make a significant contribution. A minimum of 20 years is suggested.	Trees that might be included in the high category, but are downgraded because of impaired condition. Examples include the presence of remediable defects including unsympathetic past management and minor storm damage	Trees present in numbers, usually as groups or woodlands, so they form distinct landscape features which attract a higher collective rating than they might as individuals. But which are not, individually, essential components of formal or semi-formal arboricultural features. For example, trees of moderate quality within an avenue that includes better, A category specimens. Or trees which are internal to the site, therefore individually having little visual impact on the wider locality	Trees with clearly identifiable conservation or other cultural benefits	Blue
Category C Those trees of low quality and value: currently in adequate condition to remain until new planting could be established - a minimum of 10 years is suggested - or young trees with a stem diameter below 150 mm	Trees not qualifying in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit	Trees with very limited conservation or other cultural benefits	Grey
	Note – Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150mm should be considered for relocation			

ARBORICULTURAL METHOD STATEMENT

Proposed Development:	Proposed construction of four electricity sub-stations
Site:	Net World Sports, Bryn Lane, Wrexham, Denbighshire, LL13 9UT
Planning App. No.:	N/A
Pertinent Condition No.:	N/A

Prepared by:	Joseph Lambert BSc(Hons) FdSc MArborA
Report Date:	24 May 2022
Job Ref:	BTC2464
Agent:	CB Richard Ellis

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Scope of Arboricultural Method Statement

- This Arboricultural Method Statement (AMS) relates specifically to the proposed construction works at the above existing site, as detailed on the Tree Protection Plan (TPP) reference BTC2464.
- The AMS and TPP should be read in conjunction with the appended Temporary Protective Fencing and Ground Protection Specification.
- The purpose of the AMS is to consider the potential effects of the development work operations on the retained trees, and sets out how any identified adverse impacts are, as far as is practicable, to be avoided.
- From commencement of the development, and throughout the site works until completion, the methodology shall be implemented in the sequence and manner detailed in the Sequence of Works.
- The client's agent shall provide the site manager with the AMS, the TPP, and the Temporary Protective Fencing and Ground Protection Specification.
- In turn, it shall be the site manager's responsibility to ensure that the works are carried out in strict accordance with the obligations and responsibilities of the AMS and, in turn, they will be accountable for any breaches of the obligations and responsibilities.
- The specifics of the AMS and TPP shall be reviewed by the site manager and the Tree Consultant. In turn, the AMS and TPP shall be updated, by the Tree Consultant, in accordance with any changes in the development design that may have occurred subsequent to this AMS and TPP being issued, or any issues that may have arisen as a result of the review.
- As soon as is practicable the amended documents shall then be issued to the LPA for review – NB: it shall be the client's responsibility to arrange this review with the Tree Consultant immediately following the granting of planning permission.

Site Inspections & Reporting by Project Arboriculturist

- Prior to the commencement of the development, all personnel who might be charged with overseeing development related works shall be provided with the contact details of the Project Arboriculturist.
- In turn, it is the responsibility of the site manager to report any tree related issues, including deviations from the AMS, directly to the Project Arboriculturist, who will then visit the site and make recommendations to the site manager on how best to rectify the situation.
- The Project Arboriculturist shall be engaged to carry out site inspections for the duration of the works, at intervals agreed with the Local Planning Authority (LPA) (NB: no more than 31 days shall elapse between site inspections), in order to ensure compliance with the AMS and any planning conditions pertaining to tree issues.
- Subsequent to each site inspection the Project Arboriculturist shall complete a monitoring report detailing any problems encountered and breaches of the agreed working methods or tree related planning conditions, and any measures required to rectify such problems or breaches.
- The report shall be forwarded to the LPA's Tree Officer, the site manager, and the client or client's agent, by email.
- The Project Arboriculturist shall report any tree related issues and/or breaches of the AMS that they consider to be significant in relation to retained tree health and/or structural stability directly to the Tree Officer.
- In the event that the Project Arboriculturist's site monitoring contract is terminated, then the client/client's representative shall issue a written notice to all relevant parties to this effect, inclusive of the LPA Tree Officer.

LPA Tree Officer

- The LPA's Tree Officer shall have free access to the site and, should they visit the site and note any tree related issues, they will then report any problems directly to the site manager and, in turn, the Project Arboriculturist, who will then visit the site and make recommendations to the contractor's site manager on how best to rectify the situation.

Site Personnel

- All personnel engaged in the execution of the development works shall be provided with a copy of the AMS, TIP and TPP.
- In turn, all such personnel shall be instructed in the protection of trees, as set out in this AMS.

Sequence of Works & Revisions

- The development works shall be carried out in strict accordance with the 'Sequence of Works' detailed in the table overleaf.
- Any proposed deviations from the 'Sequence of Works' shall be reported to the Project Arboriculturist, who will then review and comment on the modifications accordingly.
- Where the amendments are considered acceptable in relation to retained trees, then the Project Arboriculturist shall prepare and issue a revised version of the AMS to the LPA Tree Officer for comment.
- Should the Tree Officer consider the revised AMS to be acceptable, then the Project Arboriculturist shall issue the report to all pertinent persons, inclusive of the site manager, the client/client's agent, and the project engineer.

Acknowledgment of Obligations and Responsibilities of Arboricultural Method Statement

- The site manager shall provide a written acknowledgement, to the client/client's agent, the Project Arboriculturist, and the Tree Officer, that they shall abide by the obligations and responsibilities of the AMS, and that they will be accountable for any breaches of the obligations and responsibilities.

ARBORICULTURAL METHOD STATEMENT

Proposed Development:	Proposed construction of four electricity sub-stations
Site:	Net World Sports, Bryn Lane, Wrexham, Denbighshire, LL13 9UT
Planning App. No.:	N/A
Pertinent Condition No.:	N/A

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Table of Sequence of Works:

No.	Operation*	Timing	Responsible Professional	Arboricultural Supervision	Specific Tree Protection Measures During Operation#
i	Pre-contract site meeting between: - Site Manager; and - Project Arboriculturist	To be completed prior to any other works, including deliveries of material, plant, etc.	Site Manager	N/A	None - however, specific methods of tree protection shall be discussed between the parties in detail, in particular the temporary ground protection types and locations (see Operation iii), present and, if identified as necessary, a schedule of supplementary recommendations shall be agreed between the parties and subsequently prepared and distributed to said parties by Site Manager
ii	Carry out approved tree works (i.e. pruning and removals) in accordance with written permission from Local Planning Office (LPA)	Only to commence on completion of Item i	Tree Contractor overseen by Site Manager	Project Arboriculturist to verbally advise Tree Contractor with regard to tree works where necessary	No vehicular, plant or equipment access (or storage of site materials) within retained trees' RPAs under soft surfaces Any tree stumps where close to or within retained trees' RPAs should be cut to just above ground level and left in situ where proposed site usage allows Stump removal within RPAs only to be carried out using a stump grinder, and not a mechanical excavator, positioned on a temporary ground guard for the duration of works in order to minimise ground disturbance
iii	Mark up, on site, locations and extents of proposed Temporary Protective Fencing and Temporary Ground Protection Measures	Only to commence on completion of Item ii	Site Manager overseen by Project Manager	Project Arboriculturist to verbally advise Fencing Contractor with regard to siting and construction of fencing and ground protection	No vehicular or plant access within retained trees' Root Protection Areas (RPAs) under soft surfaces
iv	Install Temporary Protective Fencing and Temporary Ground Protection Measures to protect RPAs of specific retained trees, in locations identified on TPP°	To be installed and erected immediately on completion of Item iii	Site Manager on advice of Project Arboriculturist	Project Arboriculturist to visit site, appraise protection measures, following their installation (NB: it shall be the Site Manager's responsibility to arrange the Project Arboriculturist site visit)	No vehicular, plant or equipment access (or storage of site materials) within retained trees' RPAs under soft surfaces Temporary ground protection shall be installed in locations indicated on TPP and be suitable load bearing capacity and type for expected works with suitability of loading capacity and type of ground protection required to be specified by Site Manager Temporary protective fencing shall be installed in strict accordance with Temporary Protective Fencing Specification, with 'Type 1' fencing (see Specification) to be utilised subject to existing and retained surfaces in specific areas under consideration (NB: any proposed deviations from Specification should be discussed with the LPA Tree Officer at Operation i, and, where necessary, agreed in writing)

*Note 1: All operations to be subject to risk assessments and method statements to be provided by applicable contractor(s)

#Note 2: The General Recommendations in Respect of Works, detailed at page 4, shall also be adhered to by all site operatives during all work operations

°Note 3: Refer to appended Temporary Ground Protection Specification

continued overleaf

ARBORICULTURAL METHOD STATEMENT

Proposed Development:	Proposed construction of four electricity sub-stations
Site:	Net World Sports, Bryn Lane, Wrexham, Denbighshire, LL13 9UT
Planning App. No.:	N/A
Pertinent Condition No.:	N/A

Prepared by:	Joseph Lambert BSc(Hons) FdSc MArborA
Report Date:	24 May 2022
Job Ref:	BTC2464
Agent:	CB Richard Ellis

Page:
3 of 4

Table of Sequence of Works (Cont):

No.	Operation*	Timing	Responsible Professional	Arboricultural Supervision	Specific Tree Protection Measures During Operation#
v	Commence main construction phase to install proposed sub stations and associated connecting cables	Only to commence on completion of Item iv	Site Manager	Project Arboriculturist to undertake monthly site visits (see Site Inspections & Reporting by Project Arboriculturist section at page 1)	All works involving moving plant with booms, etc., to be supervised by a banksman where close to retained tree canopies to prevent contact and subsequent damage No vehicular, plant or equipment access (or storage of site materials) within retained trees' RPAs under soft surface
vi	Complete main construction phase and remove all associated operational materials except Temporary Protective Fencing and Temporary Ground Protection Measures	Only to commence on completion of Item v	Site Manager	N/A	No vehicular, plant or equipment access (or storage of site materials) within retained trees' RPAs under soft surfaces
vii	Remove Temporary Protective Fencing and Temporary Ground Protection Measures	Only to commence on completion of Item vi	Site Manager	Project Arboriculturist to visit site following removal of ground protection and other operational materials LPA Tree Officer to visit site following completion of works (NB: it shall be the Site Manager's responsibility to arrange the Project Arboriculturist's and tree officer's site visits)	No vehicular, plant or equipment access (or storage of site materials) within retained trees' RPAs under soft surfaces

*Note 1: All operations to be subject to risk assessments and method statements to be provided by applicable contractor(s)

#Note 2: The General Recommendations in Respect of Works, detailed at page 4, shall also be adhered to by all site operatives during all work operations

°Note 3: Refer to appended Temporary Ground Protection Specification

ARBORICULTURAL METHOD STATEMENT

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Agent:	CB Richard Ellis

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4 of 4

General Recommendations in Respect of Works:

- All tree works should be implemented by suitably qualified and experienced arboricultural contractors in accordance with the tree works detailed in the Tree Survey Schedule prior to the erection of the Temporary Protective Fencing.
- All tree works should conform to British Standard BS3998:2010 Tree Work - Recommendations.
- Performance of all arboricultural operations and use of equipment should be in accordance with current directives of the Health and Safety Executive (HSE) and industry codes of practice.
- All operatives should be equipped with and use Personal Protective Equipment (PPE) in accordance with current directives of the HSE and industry codes of practice.
- All tree stumps scheduled for removal that are located within a distance of 6.0 metres of any retained tree should be removed by mechanical stump grinder and not by mechanical excavator.
- All possible efforts should be made by the tree contractor and any other site operatives to prevent damage to retained trees.
- There shall be no vehicular or plant (e.g. wood chipper) access within the RPAs of retained trees that are not under hard surfaced areas, as detailed on the TPP.
- All tree works arising should be removed from the site.
- No services are to be installed below ground level within RPAs, unless otherwise subject to a detailed planning approval.
- No construction related operations should occur within RPAs, unless specifically detailed in the Arboricultural Method Statement.
- No concrete should be mixed within RPAs.
- No excavation or any other operations should occur within the RPAs, other than as detailed in the Arboricultural Method Statement.
- All construction equipment and materials should be stored outside RPAs.
- No fires should be lit within 15.0m of any tree crown.
- Deliveries by crane should be supervised by the Site Manager, positioning the vehicle in such a manner that retained trees are not put at risk of damage.
- No substances with potential to contaminate the soil (e.g. chemicals, concrete washings, diesel, vehicle washings, etc.) should be discharged within 10.0 of any tree crown. This should take into consideration the topography of the site in order to avoid materials running towards trees.
- No notice boards, phone cables or services should be attached to any part of any tree.
- A log should be kept of any activity or incident with an impact or potential impact on protected trees and made available at all times for review by the Project Arboriculturist and the Tree Officer.

- TEMPORARY PROTECTIVE FENCING SPECIFICATION -

Construction Exclusion Zones (CEZs), enclosed by **Temporary Protective Fencing**, as detailed below and to be agreed with the Local Planning Authority (LPA), shall:

1. be retained in place throughout the development process, as specified in the 'Temporary Protective Fencing Construction' section below and detailed in BS5837:2012 Figure 2 (overleaf);
2. be sited in the area(s) defined by the Root Protection Areas or, if applicable, the Construction Exclusion Zones, as detailed on the associated Tree Plan;
3. be erected prior to any construction, demolition or excavation works and remain in place for the duration of the project;
4. preclude any delivery of site accommodation and/or materials and/or plant machinery;
5. preclude all construction related activity, with the sole exception of specified arboricultural works and any other works to be carried out under supervision that have been agreed by all parties; and
6. preclude the storage of all development related materials and substances including fuels, oils, additives, cement and/or any other deleterious substance.

Any incursion into CEZs must be by prior arrangement, following consultation with the LPA.

Temporary Protective Fencing Construction

1. Temporary protective fencing panels shall be weldmesh "Heras" panels of at least 2.0 metres in height.
2. The panels shall butt together and be securely fixed to a scaffold framework, as per 3 to 5 below.
3. The scaffold framework shall comprise of upright poles of at least 3.0 metres in length driven no less than 0.6 metres into the ground at maximum 3.0 metre centres with horizontal and diagonal poles fixed to the uprights, as per 4 to 5 below.
4. The two horizontal rail poles shall be attached to the uprights at heights of 0.6 and 1.8 metres with 3 no. clamps to each joint.
5. The diagonal scaffold pole struts be clamped to the top rail of the scaffold framework at a 45° angle and extend back into the CEZ and clamped to a 0.7 metre length of scaffold tube that shall be driven no less than 0.5m into the ground.
6. No fixing shall be made to any tree and all possible precautions shall be taken to prevent damage to tree roots when locating posts.
7. A 600mm x 300mm warning sign reading "TREE PROTECTION AREA KEEP OUT" (see Figure 1, below) shall be fixed to every 10.0 metre length of protective fencing.
8. On completion and prior to any demolition or construction works, site preparation, excavation or delivery of plant and materials, the LPA shall inspect and approve the Temporary Protective Fencing.

Figure 1: CEZ Warning Sign

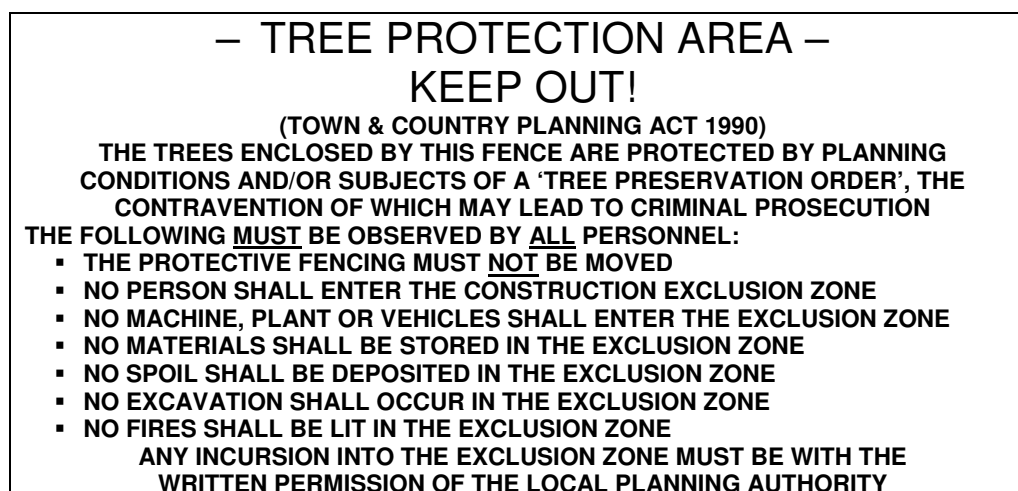
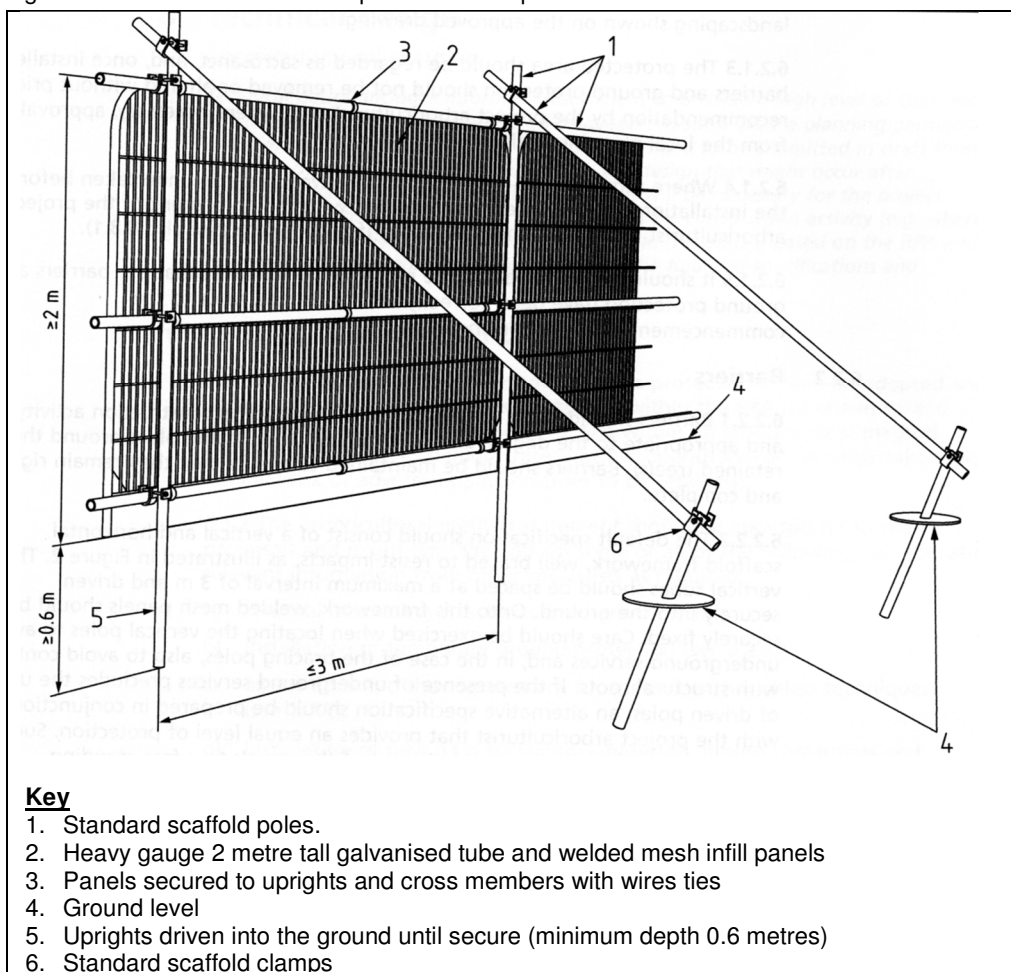


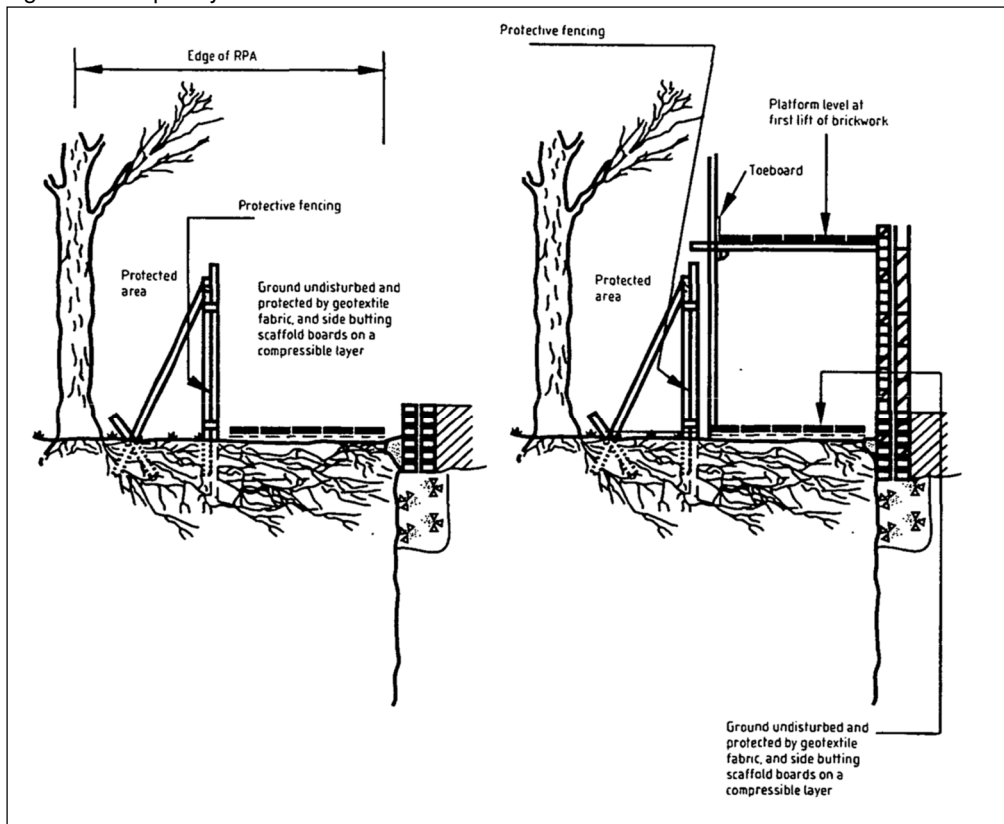
Figure 2: BS5837:2012 Default specification for protective barrier



Temporary Ground Protection

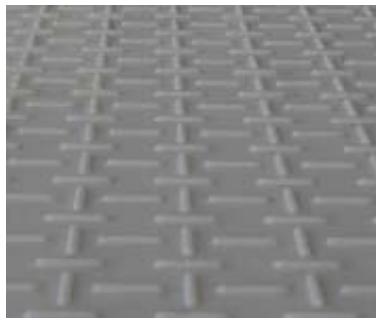
1. Any necessary Temporary Ground Protection areas shall conform to Figure 3, below, unless otherwise agreed with the LPA.
2. The Ground Protection Area shall be left undisturbed and covered by a semi-permeable geotextile membrane which shall, in turn, be covered by a compressible layer consisting of a material such as woodchip.
3. Side-butting scaffold boards shall then be fitted to cover the Ground Protection Area.
4. On completion of installation, and prior to any demolition or construction works, site preparation, excavation or delivery of plant and materials, the Consulting Arboriculturist or the LPA Tree Officer, as agreed, shall inspect the Temporary Ground Protection.
5. The Temporary Ground Protection shall remain in place until completion of the project and only removed following receipt of written permission from the LPA.

Figure 3: Temporary Ground Protection – Recommended Construction



Heavy Duty Temporary Access Mat

General Description



Key Information

- High pressure compression moulded in one piece
- Quality batch control / mat identification
- 23 x 1200 x 2410mm
- Weight: c. 37kg (manhandable)
- Materials: choice of (a) Mix of HD / LDPE regenerated (b) HD / LDPE virgin / natural or green / UV protection
- Two traction surfaces – vehicular and pedestrian
- Connection holes / cut out hand holds

Vehicular Traction Surface

- Rugged raised surface profile for excellent traction for light to heavy (80 tonnes) vehicles, plant and machinery
- Sand blasted finish for micro-traction
- Low trip hazard
- Chevron pattern for high visibility strips

Pedestrian/Tire Traction Surface

- Uniform raised surface profile pattern for pedestrian use
- Good traction for vehicular use
- Sand blasted finish for micro-traction
- Low trip hazard (hand cut outs blanked off on pedestrian surface)

Connection

- 2-way and 4-way bolt in connectors
- 'Quick fit' metal connectors for fast turnaround
- Flexible webbing / anchor plate connectors
- U-pins for stability on sideways ground
- High visibility colour options

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Heavy Duty Temporary Access Mat

Mechanical Testing of HD/LDPE Regenerated Material

Factor	Value
Tensile Strength (MPa)	23 - 26
Flexural Strength (MPa)	25 - 28
Flexular Modulus (MPa)	1936 – 1967
Charpy Notched Impact Strength (kJ/m ²)	5 - 6
Poisson's Ratio (theoretical)	0.35 – 0.38
Compression testing – maximum value reached before test terminated (tonnes)*	250

*Refers to the material strength on a firm substrate as tested by the National Physical Laboratory. The weight load distribution performance is subject to ground conditions. Lineman's Testing Laboratories, its agents or employees are not liable for any damage to existing ground or property through the use of this mat. The information provided is for guidance only. In all cases, qualified engineering / geotechnical advice should be sought regarding bearing capacity of the ground where the mat is to be used.

Generic Properties of HDPE and LDPE

Properties:		Resistance to Chemicals	
- low density - high toughness (LDPE provides flexibility) - high elongation - very good electrical and dielectric properties - very low water absorption - low steam permeability - high chemical resistance - good protection against stress cracking		- Dilute Acid **** - Dilute Alkalis **** - Oils and Greases ** variable - Aliphatic Hydrocarbons * - Aromatic Hydrocarbons * - Halogenated Hydrocarbons * - Alcohols ****	
		Key: * poor ** moderate *** good **** very good	
Factor	HDPE Value	LDPE Value	Unit
Thermal expansion	110 - 130	150 - 200	e-6/K
Thermal conductivity	0.46 - 0.52	0.3 – 0.33	W/m.K
Specific heat	1800 - 2700	1800 - 3400	J/kg.K
Melting temperature	108 - 134	125 - 136	°C
Glass temperature	-110 - -110	-110 - -110	°C
Service temperature	-30 - 85	-30 - 70	°C
Density	940 - 965	910 - 928	kg/m ³
Resistivity	5e+17 - 1e+21	5e+17 – 1e+21	Ohm.mm ² /m
Breakdown potential	17.7 - 19.7	17.7 – 39.4	kV/mm
Dielectric loss factor	0.0005 - 0.0008	0.0002 – 0.001	
Friction coefficient	0.25 - 0.3	0.3 – 0.5	
Refraction index	1.52 - 1.53	1.51 – 1.53	
Shrinkage	2 - 4	1.5 - 3	%
Water absorption	0.01 – 0.01	0.005 0 0.015	%

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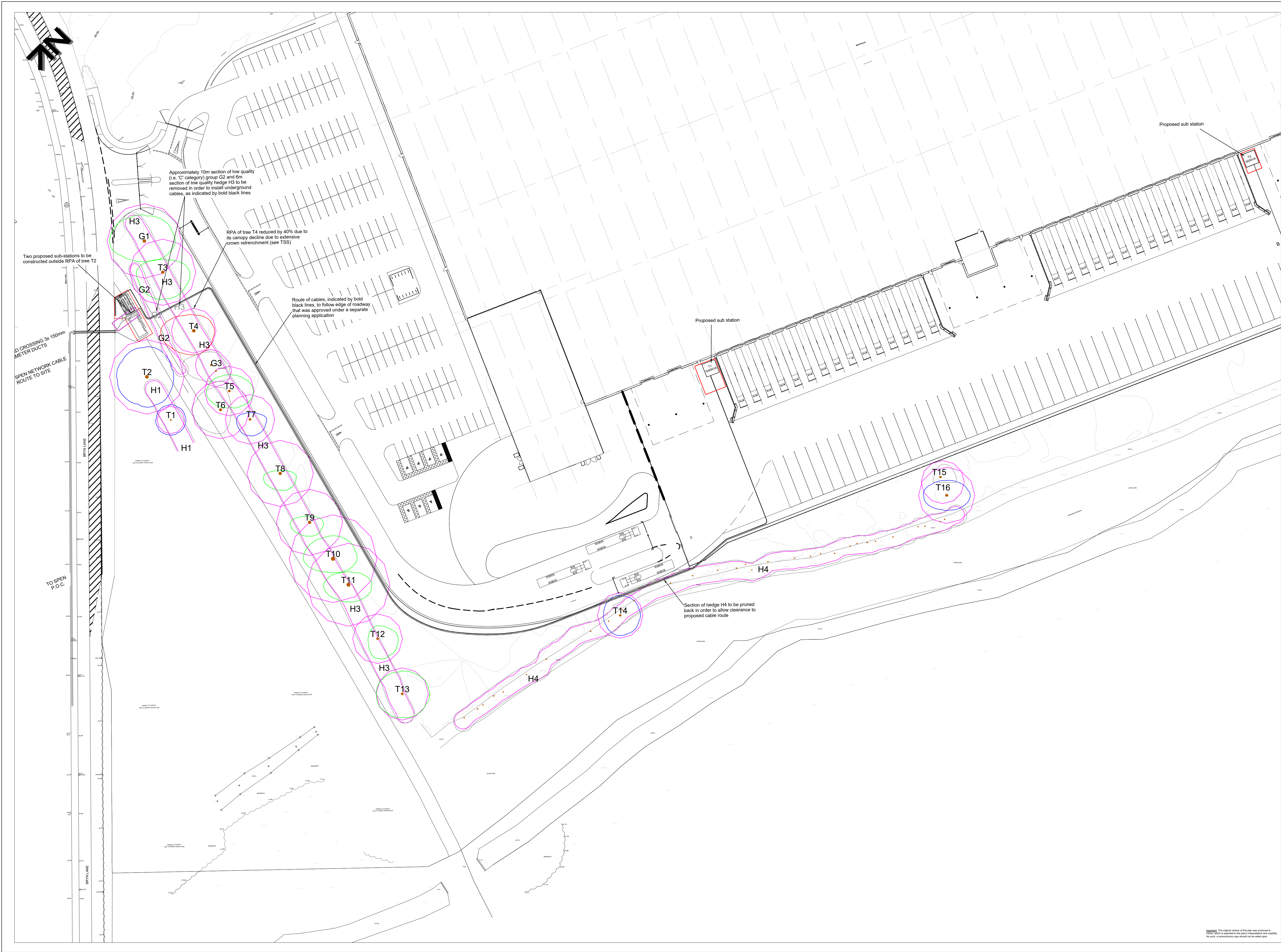


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British Columbia: 866-347-6911



KEY

T = Individual Tree
G = Group of Trees
H = Hedge

Please refer to associated Tree Survey Schedule and appendices for specific details in respect of terms below

Tree Categorisations:

Those to be Considered for Retention:

- Category 'A' Tree/Group/Hedge
Those of a High Quality with an Estimated Remaining Life Expectancy of at Least 40 Years
- Category 'B' Tree/Group/Hedge
Those of a Moderate Quality with an Estimated Remaining Life Expectancy of at Least 20 Years
- Category 'C' Tree/Group/Hedge
Those of Low Quality with an Estimated Remaining Life Expectancy of at Least 10 Years, or Young Trees

Those Considered Unsuitable for Retention:

- Category 'U' Tree/Group/Hedge
Those of Such a Condition that they Cannot Realistically be Retained as Living Trees in the context of the Current Land Use for Longer Than 10 Years

Note 1: The locations of trees T1, T3, T15 and T16 and group G2 and hedges H1, H2 and H3 were not included in the original survey plan provided, they were subsequently plotted by the arboriculturist at the time of the survey using GPS and where possible, measurement from existing site features. As such, the locations of these trees and the locations and extents of these groups and hedges cannot therefore be considered to be entirely accurate.

Note 2: Trees with their identifying numbers labelled in () are proposed for removal in the context of the proposed development.

Root Protection Areas (RPAs):

RPAs (Areas) of Ground Around Trees that Should be Protected Throughout Development Works with Protection Fencing to form a Construction Exclusion Zone - see Associated Temporary Protective Fencing Specification

Project:
NET WORLD SPORTS
BRYN LANE
WREXHAM
DENBIGHSHIRE
LL13 9UT

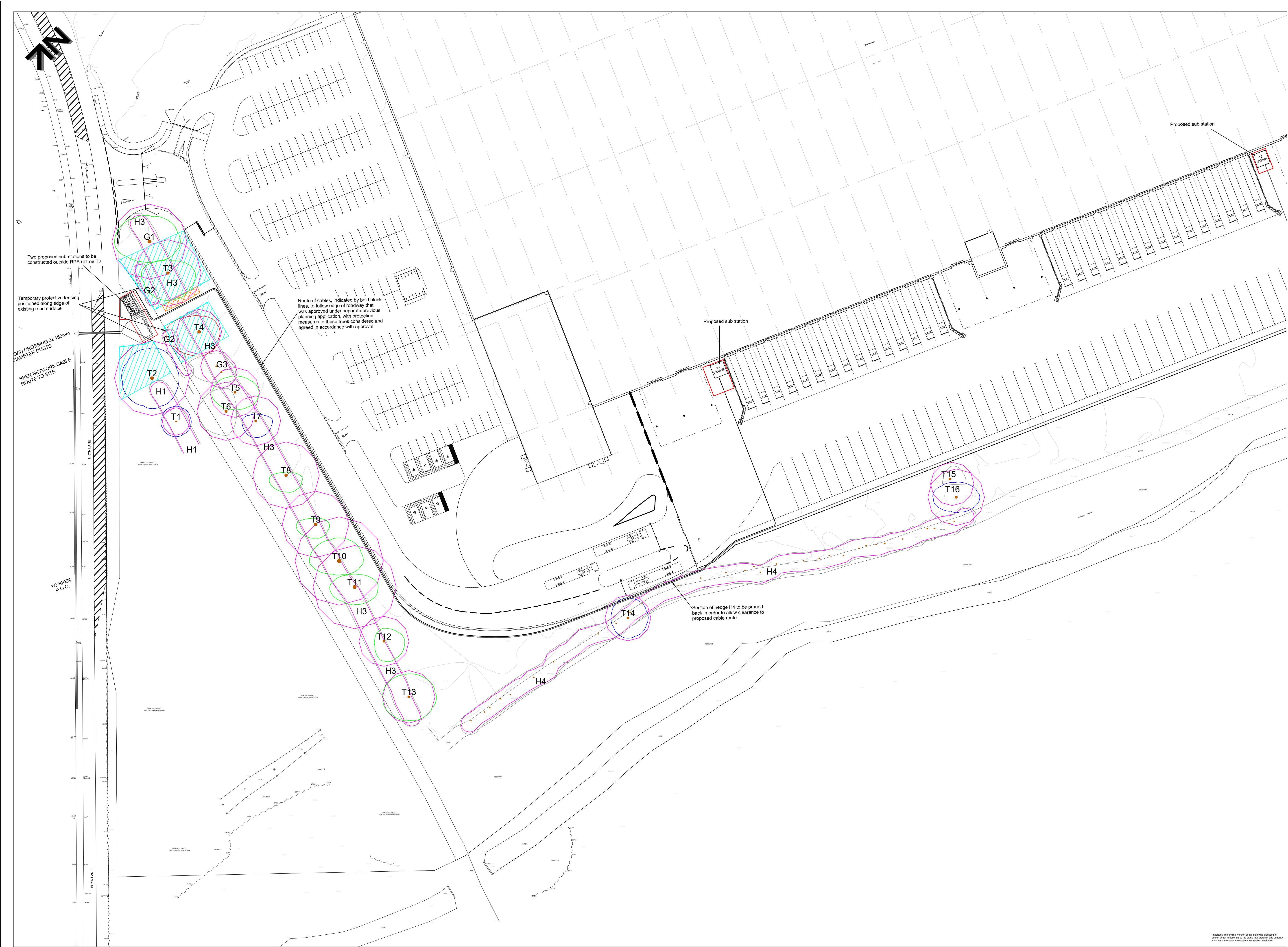
Agent for Client:
C B RICHARD ELLIS

Title:
TREE IMPACT PLAN
In Relation to Proposed Construction of Four Sub-Stations

Scale: 1:500@A1
Date: May 2022
Drawn by: PH & TW
Checked by: JL

Bowland
Tree Consultancy Ltd
a member of the Bowland Group
T 01772 427185

Ref: BTC2464-TIP Rev: A



KEY

T = Individual Tree
G = Group of Trees
H = Hedge

Please refer to associated Tree Survey Schedule and appendices for specific details in respect of items below:

Tree Categories:

Those to be Considered for Retention:

Category 'A' TreeGroup/Hedge
Those of a High Quality with an Estimated Remaining Life Expectancy of at Least 40 Years

Category 'B' TreeGroup/Hedge
Those of a Moderate Quality with an Estimated Remaining Life Expectancy of at Least 20 Years

Category 'C' TreeGroup/Hedge
Those of a Low Quality with an Estimated Remaining Life Expectancy of at Least 10 Years or Young Trees

Those Considered Unsuitable for Retention:

Category 'U' TreeGroup/Hedge
Those in Such a Condition that they Cannot Realistically be Retained as Living Trees in the Context of the Current Land Use for Longer Than 10 Years

Note 1: The locations of trees T1, T3, T15 and T16 and group G2 and hedges H1, H2 and H3 were not included on the topographical survey plan provided, and were subsequently added to the site plan at the time of the survey using GPS data, where possible, triangulated from existing site features. As such, the locations of these trees and the locations and extents of these groups and hedges cannot be taken to be entirely accurate.

Root Protection Areas (RPAs):

RPAs
Areas of Ground Around Trees that Should be Protected Throughout Development Works with Protective Fencing to form a Construction Exclusion Zone - see Appended Temporary Protective Fencing Specification

Tree Protection Measures:

Construction Exclusion Zones (CEZs)
Areas of Ground Around Trees to be Enclosed with Temporary Fencing of Type 'C' Construction Throughout Development Works Subject to Ground Conditions. Note: Red Line Represents Positioning of Fencing - see Temporary Protective Fencing Specification

Temporary Ground Protection
Areas of Ground Around Retained Trees that are to be Protected Throughout Development Works using Temporary Ground Protection Mats - see Appended Manufacturer's Brochure

Project:
NET WORLD SPORTS
BRYN LANE
WREXHAM
DENBIGHSHIRE
LL13 9UT

Agent for Client:
C B RICHARD ELLIS

Title:
TREE PROTECTION PLAN

In Relation to Proposed Construction of Four Sub-Stations

Scale: 1:500@A1
Date: May 2022
Drawn by: RH & TW
Checked by: JL

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Rev: