

Arboricultural Impact Assessment

Land at
Land at
22 Bryn Estyn Road
Phase 2

Ref:
AIA/BER/01/18

Date:
26th January 2018

Commissioned by:
Mr D. Edwards
On behalf of
Blueprint Architectural

Prepared by
S. Shields

Arboricultural Impact Assessment

Land at
22 Bryn Estyn Road
Wrexham
Phase 2

This Arboricultural Impact Assessment has been prepared in accordance with the protocols, standards and procedures set out in BS 5837: 2012 'Trees in relation to design, demolition and construction'.

Summary

Planning permission is being sought to develop this site to provide five residential dwellings along with associated infrastructure and open space. The development will be over two phases. The first phase will develop the land to the south of the existing garden area and the second phase will develop the existing house and garden and is the principal subject of this report.

The site is characterised by a number of groups and individual trees, the majority of which are of low quality or amenity value, however there are significant individual specimens along the road frontage and within the site.

All trees and hedgerows on and immediately adjacent to the site have been surveyed and assessed in accordance with the recommendations of BS5837: 2012. The survey recorded 14 individual trees, 4 groups of trees and 5 hedgerows ranging in quality from high (1) through medium (4) low (16) and poor (2).

Under the proposed site layout there would be a loss of 2 individual trees, and 2 groups of trees and 3 hedgerows all of low quality and amenity value.

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Instruction

- 1.1 Shields Arboricultural Consultancy received instructions from Mr D. Edwards on behalf of Blueprint Architectural LTD to undertake and Arboricultural Impact Assessment at the above property. The client or their agents may copy and distribute this report as required for the purpose of applying for planning permission for or preparing any documents or plans for this or future applications at this site.
- 1.2 Planning permission is being sought to develop the land to provide five residential dwellings over two phases, with associated infrastructure and amenity space. The first phase was covered by report ref: AIA/BER/01/17 report was in respect of the land in the south portion of the site. This report covers phase two and deals with the existing dwelling and garden area.

Scope & Limitations

- 2.1 The purpose of the report is to assess the environmental and amenity values of all trees on or adjacent to the area affected by the proposed development. The report will assess the long-term contribution that the trees can make to the area and the arboricultural implications of retaining them and seek to find a satisfactory juxtaposition between the trees and the new development. The report will assess the potential impact that may arise as a result of the proposed construction works and make recommendations for protecting trees, hedges and shrubs where appropriate
- 2.2 The report is prepared in accordance with the recommendations of the British Standard Document BS 5837: 2012 'Trees in Relation to Construction'.
- 2.3 This report is not an ecological assessment and does not identify habitats or constitute a protected species survey.

Statutory Controls & Obligations

- 3.1 Forestry Act; the felling of trees is controlled by the Forestry Act, which requires that a felling licence is obtained prior to cutting down any trees. The Forestry Act does not apply to the felling of trees growing within an orchard, private garden, churchyard or public open space. The Forestry Commission has the responsibility for enforcing the Forestry Act.
- 3.2 Tree Preservation Orders & Conservation Areas; Local Authorities have specific powers under the Town & Country Planning Act 1990 as amended, to protect trees through the use of Tree Preservation Orders. Where trees are protected under such orders it is a criminal offence (subject to any exemptions for which provision may be made by the act or order) to undertake, cause or permit the cutting down, topping, lopping, uprooting, wilful damage or wilful destruction of trees except with the consent of the local planning authority. Similar controls apply to all trees growing within a designated Conservation Area.

- 3.3 Bats, wild birds and other protected species; The Wildlife & Countryside Act & the Conservation (Natural Habitats & C.) Regulations make it an offence to disturb or destroy bats and bat roosts and wild birds and their nests. Other species of plant and animal are also protected. These creatures often inhabit trees and sufficient care must be taken to ensure they are not affected during forestry and arboricultural works.

Site description

- 4.1 The site is currently supports a detached dwelling and private garden, along with an additional area of land adjoining the garden to the south. Access to the site is off Bryn Estyn Road, which runs adjacent to the north boundary. The site also has boundaries with adjacent residential dwellings to the west and south and with agricultural land to the east.
- 4.2 The site is generally level, is at an elevation of 90m AOD and is reasonably sheltered. There are a number of trees on the site, although most are of low to moderate quality and value. The main arboricultural features are the mature ash and pine to the front of the site along the road frontage, and the pine and the beech in the current rear garden.



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Soils

- 4.3 Soils appeared to be free draining, brown earths with no indications of waterlogging. No significant impediments to root development were identified during the survey. BGS geological maps indicate a sand and gravel drift over a sandstone, mudstone, conglomerate rock formation.

*NB. This soil assessment is undertaken in situ using visual and manual techniques and is **only** for the purpose of establishing the influence of site soils on tree growth. The assessment **must not** be relied upon to inform any engineering decisions.*

Development Proposal

- 5.1 It is proposed to develop the site to provide 5 residential dwellings, with associated infrastructure, over two phases. The second phase, which is the considered in this report, proposes two detached dwellings on area of the current dwelling and garden. Access to the site will be via a driveway off Bryn Estyn Road.



Tree Survey Methodology

- 6.1 All trees within and adjacent to the site have been assessed where they are within 15 m of any area that may be disturbed as a result of the proposed development and have a stem diameter over 75mm at 1.5 metres. Measurements have been taken in accordance with the procedures and protocols set out in BS 5837: 2012 and the Forest Mensuration Handbook. Height measurements are approximate unless otherwise stated. Trees have been assessed as individuals, groups or woodlands as appropriate. Where access to trees has been restricted, either as a result of their situation on private land or where vegetation or ground conditions are unfavourable, an estimation of trunk diameter has been made. This entails using a set of callipers to approximate the measurement. Estimates are rounded up to provide a margin. This technique has only been used where there is a sufficient buffer between the RPAs and any area disturbed by development. Where trees are in woodlands or groups only the outside edge trees are assessed unless there are larger trees with RPAs or crowns that would overlap the edge trees.
- 6.2 BS 5837: 2012 provides the framework through which tree can be categorised in terms of their health, amenity value and long-term viability for retention on a development site. There are four categories, A,B,C & U.

Category A: Trees of high quality and value in such a condition as to be able to make a substantial contribution (a minimum of 40 years)

- 1 Trees that are particularly good examples of their species, or essential components of groups or formal arboricultural features.
- 2 Trees, groups or woodlands that provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance.
- 3 Trees, groups or woodlands of significant conservation, historical, commemorative or other value.

Category B: Trees of moderate quality and value in such a condition to make a significant contribution (a minimum of 20 years)

- 1 Trees that might be included in a higher category but are downgraded because of impaired condition.
- 2 Trees present in numbers, usually as groups of woodlands that form distinctive landscape features.
- 3 Trees with clearly identifiable conservation or other cultural benefits.

Category C: Trees of low quality and value currently in adequate condition to remain until new planting could be established. Trees in this category would not usually be retained if they would pose a significant constraint to development.

Category U: Trees in such a condition that their existing value would be lost within 10 years and which should, in the current context be removed for arboricultural reasons.

The most significant or valuable trees are placed in the categories, A & B. Site design should make provision to retain trees in these categories and most Local Planning Authorities will insist upon this (or in exceptional circumstances will require that significant compensation planting is incorporated into the design), whilst trees that should not be a constraint to development are recorded with a C category. Trees categorised as U are in a poor condition and should be removed prior to the commencement of work.

- 6.3 Where trees are to be retained, it is necessary to ensure that they are suitably protected to avoid damage during the construction phase of the development. It is also important to consider any long term implications; such as issues with shading or leaf litter that may arise as a result of tree retention.
- 6.4 To ensure that trees are not adversely affected by the construction works it is necessary to:
 - a. The avoidance of physical damage to the aerial parts of the trees (i.e. Impact and other damage to trunk and branches)

- b. The avoidance of damage to retained trees as a result of the severance or other physical damage to their roots
- c. Preserve of the character of the soil, through the avoidance of any activity that would cause it to become compacted or otherwise disturbed or disrupted, and to avoid contamination by potentially harmful substances
- d. To ensure free gaseous exchange is permitted between the upper layers of soil and the atmosphere
- e. To ensure adequate (but not excessive) water supply to the soil and hence to tree roots

This would normally be achieved by establishing an area, known as a construction exclusion zone (CEZ) around each tree. The CEZ is derived from the root protection area (RPA) and the crown spread of the tree. The RPA represents the area occupied by the tree's root system and is calculated for each tree based on its stem diameter and the ground conditions present taking account of and any impediment to rooting. The RPA should represent the most probable position of the tree's root system.

The CEZ must be considered sacrosanct and be maintained completely undisturbed. No construction should take place within this area and it should not be used for storage of materials or fuels. Access for vehicles machinery or personnel is prohibited and to ensure that it is not damaged by construction activity it must be suitably protected during the construction phase, using robust fencing or alternative ground protection methods, to prevent disturbance and damage occurring.

- 6.5 In addition to the implications that a new development may have for existing trees it is also important to assess any long term issues or concerns that may arise as a result of retaining trees close to a new dwelling or structure. This can include problems associated with leaf litter and other debris that may fall from trees, the potential that a tree has to cause damage to a structure in the future, any on-going maintenance requirements that may arise and the level of shade that the tree may cast, it is particularly important to consider the effects of shading where trees are to the south of houses and gardens. Trees can also cause feelings of apprehension to the occupiers of nearby buildings and can have an over bearing impact on a property if adequate space is not provided.
- 6.6 The report assesses all trees with regard to their size, position and natural characteristics, and taking into account of their future growth makes provides recommendations as to their long term suitability for retention.

Arboricultural Assessment

- 7.1 Full details of the tree surveyed are provided in appendix A. and their relative positions, crown spreads, root protection areas are indicated on the attached plans.
- 7.2 No checks have been undertaken to establish the status of the trees with regards to Tree Preservation Orders or Conservation Areas, however all the trees will be subject to the Forestry Act (see section 3.1) and all hedges subject to the Hedgerow regulations (see section 3.3). No trees or hedges should be felled, lopped, topped or in otherwise removed or damaged without prior permission from the relevant authority.
- 7.3 The survey recorded 14 individual trees, 4 groups of trees and 5 hedgerows which were categorised as follows:

Category	Quantity
Category A: Trees of high quality and value in such a condition as to be able to make a substantial contribution (a minimum of 40 years)	1
Category B: Trees of moderate quality and value in such a condition to make a significant contribution (a minimum of 20 years)	4
Category C: Trees of low quality and value currently in adequate condition to remain until new planting could be established. Trees in this category would not usually be retained if they would pose a significant constraint to development.	16
Category U: Trees in such a condition that their existing value would be lost within 10 years and which should, in the current context be removed for arboricultural reasons.	2

Arboricultural merits and the significance of the trees in the landscape

- 7.4 There are a number of trees on this site, the majority are of low quality or amenity value, however the large ash and pine to the front of the site and the beech and pine in, what is currently the rear garden, are significant individual specimens. Whilst the remainder of the trees and groups provide some level of tree cover for the area, they lack any form of management and are unlikely to be viable assets in the long-term. Many are planted in close proximity to one another are developing poor form and growth as a result. The boundary hedge between the site and the agricultural land to the east is becoming over-grown, but could be brought back into management and would provide an attractive landscape feature and valuable habitat particularly the section to the front (north) of the site. There are no areas of ancient woodland or veteran trees identified on the site.

Design Considerations

- 7.5 The site design should seek to incorporate the significant trees and hedgerows into the layout and provide sufficient space and separation to ensure that they can develop and mature without having a negative impact on the reasonable enjoyment of the proposed dwellings. To ensure a harmonious relationship between the trees and the proposed dwellings it is necessary to allow adequate separation so that the trees do not exert an overbearing influence, are so close as to promote worries about tree safety and avoid problems associated with leaf litter and shading. It is particularly important to consider the effects of shading where trees are to the south of houses and gardens.
- 7.6 All services both under and over ground must be located outside the CEZ around retained trees. All services must be installed in compliance with NJUG chapter 4 recommendations.

Arboricultural Implications of the Development

- 7.7 This second phase of the development primarily affects only the trees on the land in the north section of the site, currently the existing house and garden and this report considers in detail the potential impact and implications on these trees as the first phase has already been considered in a previous report.
- 7.8 Under the proposed site layout a total of 2 individual trees and two groups of trees would be lost along with three hedgerows and part of a fourth hedgerow. Of the trees and hedgerows proposed for removal all are category C. None are particularly significant features in the landscape, being situated in the rear of the property and only visible, with difficulty to a few residents in neighbouring properties and having no special visual appeal or other amenity value. The significant and attractive trees on the site will be retained and can be supplemented by new tree planting as part of the development.
- 7.9 In addition to the tree loss, there would be a minor encroachment in to the RPAs of trees T1, T2 & T5 to allow for the construction of the dwelling on plot 2 and by the new access driveway and into the RPA of T10 to provide the rear patio area for plot 2..
- 7.10 In the case of T1, the shape of the RPA has been adjusted to reflect the probably root system distribution with consideration to the soil conditions and below ground constraints at the site. The RPA has also been extended from 443m³ to 500m³ to provide extra capacity. The level of encroachment into the RPA of T1 by the footprint of the dwelling on plot 2 is 10m³, which equates to 2% of the extended RPA. The encroachment is at the very periphery of the RPA, where it is probable that only very small roots would be present and it is unlikely that any larger 'transport roots' would be damaged. Given the very minor level of root loss, the extended RPA and the additional root accessible soil resource available outside the RPA, allowing for the growth of new roots, it is very unlikely that this level of incursion will

have any significant impact on the health or vitality of this tree. The loss of RPA for T5 would be 3m³, which is around 5% of the total RPA. Again, it is the very edge of the RPA that is affected and there is adequate root available soil resource adjacent to the RPA for new root growth, so any impact would be minimal.

- 7.11 The new driveway will affect around 100m³ of the extended RPA of T1. Of this 60m³ is already under hard surface, so the only an additional 40m³ – equating to 8% of the extended RPA – is required. In order to ensure that the driveway does not negatively impact the root system of the tree a low impact ‘no dig’ Cellular Confinement System construction is to be used (see section 9). This method allows a new drive to be installed on the existing surface and removes the need for excavation or compact of the underlying soils and has a very low impact on tree roots. The new drive will be surfaced with a porous material, allowing water and oxygen to reach the underlying soil. In the case of T2 around 16m³ of the RPA is affected, with 11m³ – 15% – being new hard surface. T10 would lose 5 m³ – 4% – of its RPA, a very minor lose and with adequate additional soil resource adjacent.
- 7.12 Although the proposed development would result in some disturbance to the RPA of trees, this is very minor and with all trees in apparent good health and showing average to above average vitality and with an adequate amount of additional soil resource, adjacent to and available for, each tree to exploit in order to developed any compensatory roots, it is considered that the impacts to the trees would be negligible. In addition the trees would benefit from reduced competition for resources as a result of the removal of trees T3, T9 & G6 and hedgerows H7 & H8. T1 & T2 would also benefit from the removal of 15m³ of existing hardstanding from within their RPAs.
- 7.13 There may also be a requirement to undertake some branch reduction of T1 on the south side of the canopy only of around 2 meters to prevent encroachment onto the front of the dwelling of plot 2. The work can be undertaken within the recommendations of BS 3998: 2010 ‘Tree Works’ and given the age and condition of the tree it is reasonable to expect that this would have little impact on its health or the appearance.
- 7.14 Another consideration is whether any retained trees could exert a negative influence over the proposed dwellings and interfere with a future owners’ reasonable quite enjoyment of their property. Guidance provided in the British Standard BS 5837: 2012, advises that:
- “A realistic assessment of the probable impact of any proposed development on the trees and vice versa should take into account the characteristics and condition of the trees, with due allowance for space for their future growth and maintenance requirements.”*

and that the following factors are given consideration:

Shading

Privacy and Screening

Direct Damage

Future Pressure for Removal

Seasonal Nuisance

- 7.15 In this case trees T1, T2, T5 & T10 are mature specimens and unlikely to significantly increase in size, the trees are not enclosed within the proposed development and this is adequate space for their future management. The distance between the trees and the buildings ensures that they do not dominate the site or create an overbearing presence. There will be some seasonal leaf fall, but as the trees are not directly over the proposed properties, this will be limited and will not create an unreasonable future maintenance requirement.
- 7.16 The trees are to the north, south and west of the proposed dwellings and have some potential to shade part of the site, particularly during the late afternoon. Shading of buildings can be a problem and site should be designed to take account of existing trees, their ultimate size and density of the foliage and that garden areas should be designed to meet the normal requirement for direct sunlight for at least part of the day. Building Research Establishment guide to good practice (BR209) Site Layout Planning for Daylight and Sunlight advises that, in order to appear reasonably sunlit a dwelling should have at least one main window wall that faces within 90° of due south and that on this wall, all points on a line 2m above ground level are within 4m of a point which receives at least a quarter of the annual probable sunlight hours. The guide also advises that for gardens to appear adequately sunlit, no more than two-fifths and preferably no more than a quarter should be prevented from receiving any sunlight on 21st March.
- 7.17 To assess the extent to which the trees interfere with sunlight to the proposed dwellings and their gardens, an assessment was undertaken using the ArborShadow R4 software. The shadow path for march is provided in the Tree Constraints Shading Plan and shadow positions have been calculated for 21st June (sun at highest point in northern hemisphere) at 12 noon along with a shadow path assessment through the day.
- 7.18 Analysis of the shadow paths indicate that the layouts allow for significantly better sun lighting than the minimum requirement as advised in the guidance. With the shading from T10 only affecting the rear of plot 2 during the late afternoon. A further consideration is that the type of shade cast by trees differs from that cast by buildings and solid objects in that some level of light passes through the crowns. Thus, the houses affected would receive dappled shade during the hottest part of the day which can be quite pleasant and advantageous.

Impact	Category A	Category B	Category C	Category U
Tree Removal			T3, G6, H7, H8, T9	
Facilitative Pruning Required		T1		
RPA Encroachment		T1, T2	T5	
Potential Shading		T10		
Proximity Issues				

Landscaping of the Development

- 7.19 The development provides an opportunity to enhance the existing tree stock through additional planting. This approach will retain canopy cover in the local area and safeguard the landscape in the longer term and is compatible with the premise of sustainability.

Arboricultural Operations

Permission to remove any tree must be obtained from the Local Planning Authority and must not be undertaken until all pre-commencement conditions have been discharged.

- 8.1 Tree removal and pruning will be required, subject to a grant of planning permission, to implement this development. It is recommended that the work should be undertaken by a suitably qualified person, holding public liability insurance for the sum of £5,000 000. All operators must hold relevant NPTC certificates. A site specific risk assessment must be prepared and operators must work to a health and safety method statement. The use of Arboricultural Association Approved Contractors www.trees.org.uk/find-a-professional/Directory-of-Tree-Surgeons is recommended.
- 8.2 The contractor undertaking the work is responsible for any loss or damage arising as a result of the operations and agrees to indemnify the owner against such occurrences.
- 8.3 All tree protection measure specified in the following section and shown on the accompanying TPP are to be fully installed prior to the commencement of the arboricultural works. Where access is required to the trees, then suitable ground protection must be used in lieu of the tree protection fences.

Formation of No Dig CCS Hard Standing

NB Where no dig construction is specified this must be installed prior to any machinery access in the area or an alternative temporary ground protection system must be used.

- 9.1 A pre-commencement meeting is to take place between the contractors and an arboriculturist from Shields Arboricultural Consultancy. This meeting will discuss the tree protection requirements.

- 9.2 It is recommended that a proprietary no-dig driveway system, such as the cell web TRP cellular confinement system (*Geosynthetics Limited, Fleming Road, Harrowbrook Ind Est, Hinckley, Leicestershire, LE10 3DU. Tel: 01455 617139*) be used to construct the driveway within the Precautionary Area, as indicated on the Tree Protection Plan.
- 9.3 Essentially no-dig CCS are installed over existing ground levels and without the need for compacting the sub-base. This ensures that the tree's root system is not damaged by excavation and the soil structure is maintained. Using a porous tarmac or other porous top surface ensures that water can permeate through the footpath to the root system and the exchange of gases and oxygen between the soil and the air is unaffected and is recommended. In this case the ground is reasonably level and any discrepancies between the finished surface of the new and existing driveway can be graded out on the existing drive.
- 9.4 The area where the no-dig system is to be used is identified on the site plan and should be marked out on the ground. Prior to installation commencing the tree protection fences are to be installed as shown on the TPP.
- 9.5 Initial preparations require ground vegetation to be carefully removed. This should be undertaken using hand tools under the supervision of the arboriculturalist. The next step requires filling small undulations to provide even ground on to which the cell web system is laid. This should be achieved using a fill medium of clean sand spread to a maximum depth of 100mm. This should be loose tipped into the PA and levelled using hand tools only. Where required, the sand is to be retained using treated timber edging.
- 9.6 Once an even surface has been achieved a 3 dimensional cellular confinement system is to be used to form a sub-base for the foot path. This should be installed in accordance with the manufacturer's instructions but usually requires that a layer of geo-textile is placed over all fill soil. On to this is laid the 3 dimensional grid, which is pegged into place using proprietary pegs. The cells are then filled using 40/20 mm clean angular stone, of neutral pH, with no fines. This should occur from the outside edge working in and the charged cells used as a working platform. A second layer of geo-textile is then laid and the topped with the finished surface material. The geo grid structure and surface layer are retained and edged using treated timber edging held in place by short wooden stakes. The edges can then be incorporated into the existing landscaped as required.

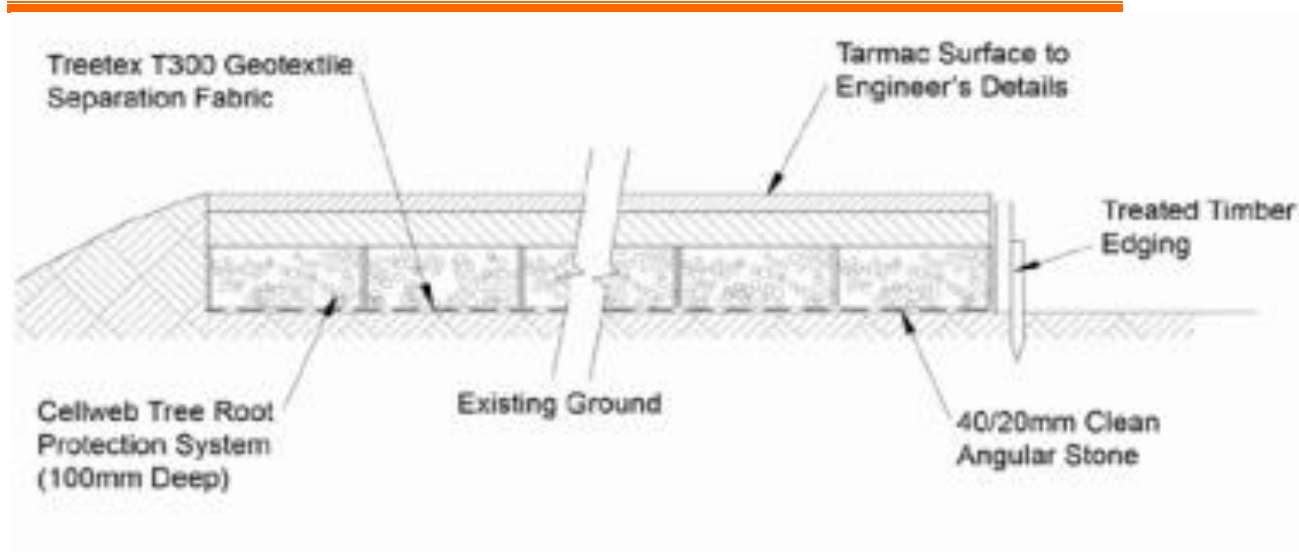


Figure 1 Illustration of Cellular Confinement System

N.B This report does not provide engineering specifications for the no dig CCS footpath and the suitability for the use of a 3 dimensional grid system in this location must be confirmed by an appropriately qualified person. Geosynthetics Limited provides a design service for their products.

Arboricultural Method Statement

- 10.1 This arboricultural method statement (AMS) sets out the details of tree protection measures afforded to the retained trees on and adjacent to the site.
- 10.2 This document should be read in conjunction with the Tree Protection Plan (BER/TPP/01/18). The TPP indicates the construction exclusion zone (CEZ) that must be maintained around each retained tree. These areas must remain undisturbed during the construction process and must be protected using suitable fencing or ground protection as specified.
- 10.3 Copies of the TPP & the AMS must be available on site and all tree protection requirements explained to all persons undertaking activities on the site during the site induction process.
- 10.4 All tree protection measures must be installed and inspected prior to bringing onto the site any plant, materials or equipment or undertaking any construction works or demolition or any arboricultural works. The LPA must be informed in writing once the tree protection measures are installed.
- 10.5 The site is to be inspected by the consulting arboriculturalist in accordance with the schedule of inspections (see 10.17).
- 10.6 All measurements are given in metric using standard abbreviations.

Fencing and Ground Protection

- 10.7 The TPP indicates the position all protective fences.

- 10.8 Protective fencing will comprise herras fencing or as agreed with the Local Planning Authority.
- 10.9 Ground protection is to be used within the Precautionary Area during the construction phase of the development and will consist of a proprietary system such as Ground Guard protective plates which must extend over the entire area indicated on the TPP and be securely fastened in place. The type of guard used must be suitable for loads up to 40 tonnes or more.
- 10.10 The protective fencing and ground protection must be inspected on installation and will remain in place until completion of the construction phase and then only removed with the consent of the LPA.
- 10.11 Other than works approved in writing by the LPA, no works including storage or dumping of materials shall take place within the exclusion zones defined by the protective fencing.

General Precautions

- 10.12 No materials that are likely to have an adverse effect on tree health such as oil, bitumen or cement will be stored or discharged within 10m of the trunk of a tree that is to be retained or within any part of the CEZ. Spills kits, suitable for the type fluids, fuels and chemicals stored on site must be available on site and site operatives must have training in their use.
- 10.13 No fires will be lit within 20m of the trunk of any tree that is to be retained.
- 10.14 Storage and mixing areas, contactor parking and all site huts must be outside the CEZ.
- 10.15 Access to the work area is via the main site entrance and must not traverse the CEZ.
- 10.16 All service and drainage routes, below or above ground must avoid the CEZ. All services are to be installed in accordance with NJUG volume 4 Guidelines.
- 10.17 To ensure that all tree protection measures are properly installed and maintained the site shall be monitored by Shields Arboricultural Consultancy to the following schedule. Details of the findings and photographic evidence of the site inspection visits will be reported to the LPA by email within 24 hrs of the visit. All tree protection measures must remain in place until development work is completed and only removed after receiving written confirmation from the LPA.

Schedule of Inspection

1. On completion of erection of fencing and installation of ground protection prior to commencement of development works
2. During installation of 'No Dig' CCS
3. On completion of project

10.18 Prior to the commencement on site of any work, a competent person is to be appointed to monitor the day to day activities on site. In the case of a tree being damaged or where an unexpected event arises it will be for this person to contact Shields Arboricultural Consultancy to seek advice on contingency measures.

Conclusion

11.1 Providing the recommendations of this report are followed, the proposed development can be undertaken with minimum impact to the existing arboricultural environment.

S.J.A. Shields

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Chartered Forester**

26th January 2017

Arboricultural Assessment

Ref. No.	Species	Top Height	Stem Dia mm	N	E	S	W	CC (FSB)	Age	Rem Cont.	Cat.	RPA m ²	Notes	AIA
T1	<i>Fraxinus excelsior</i> (Ash)	20	990	7	8.3	12.5	10	4	M	20	B2	443	Condition: Good / Fair Notes: T1 is a significant mature specimen in a prominent location. The tree has been downgraded from category A, as there is some indication that the decay fungus (<i>Inonotus hispidus</i>) may be present in a branch of the upper crown, which could ultimately limit its safe useful life expectancy. The RPA has been adjusted to take account of ground conditions at the site.	T1 is a significant mature specimen in a prominent location. The current layout indicates that there will be a minor incursion into the modified RPA to allow for the construction of the dwelling on plot 2 and the access driveway will also encroach into the RPA. Details of construction and mitigation methods are provided in the text of the report and it is considered that the tree can be retained and protected accordance with BS 5837: 2012 recommendations.

T2	<i>Pinus sylvestris</i> (Scots Pine)	19	410	4.1	3.4	3.2	2.5		M	20+	B2	76	Condition: Good Notes: T2 is situated in a soft landscape area to the front of the site. The RPA is slightly constrained by the adjacent existing drive but there is additional rooting space to the east.	T2 provides a reasonable level of amenity to the site. Under the current layout there will be some minor encroachment into the RPA of the tree by the new access driveway. Details of construction and mitigation methods are provided in the text of the report and it is considered that the tree can be retained and protected accordance with BS 5837: 2012 recommendations.
T3	<i>Chamaecyparis lawsoniana</i> (Lawson Cypress)	13	190	2	1	4	2.5		M	10t	C1	16	Condition: Fair Notes: T3 is growing adjacent to and moderately suppressed by T2.	T3 is a minor specimen with little public amenity value it is recommended that T3 be removed and any loss of amenity can be replaced through a new planting scheme

T4	<i>Ilex aquifolium</i> (Holly)	6	100	2	2	2	2		EM	20+	C1	5	Condition: Fair Notes: Minor specimen situated on adjacent land.	T4 will not be affected by the proposed development and can be retained and protected accordance with the recommendations of BS 5837: 2012.
T5	<i>Chamaecyparis lawsoniana</i> (Lawson Cypress)	16	400	3	3	3	3		M	10+	C1	72	Condition: Good Notes: Minor specimen situated on adjacent land.	The current layout indicates that there would be a minor incursion into the modified RPA to allow for the construction of the dwelling on plot 2. Details of construction and mitigation methods are provided in the text of the report and it is considered that the tree can be retained and protected accordance with BS 5837: 2012 recommendations.
G6	<i>Chamaecyparis lawsoniana</i>	6	120, 100	3	2	3	3		EM	20+	C2	11	Condition: Good Notes:	G6 are minor specimens with little public

	(Lawson Cypress)													amenity value. This group will be removed to facilitate the development under the current indicative site layout. Any loss of amenity can be replaced through a new planting scheme.
H7	<i>Thuja plicata</i> (Western Red Cedar)	4	100	2	2	2	2				C1	5	Condition: Good Notes:	Hedgerow with minor public amenity value. Will be removed to facilitate the development.
H8	<i>Prunus laurocerasus</i> (Cherry Laurel)	4	100	2	2	2	2				C1	5	Condition: Good Notes:	Hedgerow with minor public amenity value. Will be removed to facilitate the development.
T9	<i>Chamaecyparis lawsoniana</i> (Lawson Cypress)	17	280	2	2	3	2.5		M	20+	C1	35	Condition: Good Notes:	T9 is a minor specimen with little public amenity value. This tree will be removed to facilitate the development under the current indicative site layout. Any loss of

														amenity can be replaced through a new planting scheme.
T10	<i>Pinus strobus</i> (Weymouth Pine)	19	530	5.1	7.3	5.2	5		M	20+	B2	127	Condition: Good Notes:	T10 has a moderate amenity value, although this is mostly within the site. T10 is to the south of the dwelling on plot 2 and will cast some level of shade. This has been assessed and details are provided within the main text of this report. It is considered that this tree can be retained and protected in accordance with the recommendations of BS 5837: 2012.
T11	<i>Pyrus communis</i> (Common Pear)	14	200	3	3.2	0	1		LM	10+	C1	18	Condition: Fair Notes: T11 is a minor specimen with little public amenity value and declining in condition. It is	See Phase 1 Report

													recommended that T11 be removed and any loss of amenity can be replaced through a new planting scheme.	
T12	<i>Fagus sylvatica</i> 'Purpurea' (Copper Beech)	11	320	5.7	5.5	3	4.3		EM	20+	C2	46	Condition: Good Notes: The tree is a minor specimen with little public amenity value, although it may in time become more prominent in the landscape. This tree can be retained and protected in accordance with the recommendations of BS 5837: 2012 under the current indicative site layout.	See Phase 1 Report
G13	Mixed	16	350 ave	2	2	2	2		M	20+	C2	55	Condition: Good / Fair Notes: G13 forms a group of coniferous and deciduous trees,	See Phase 1 Report

													predominantly western red cedar and birch that runs across the centre of the site. The trees separated the current garden area from the fallow land to the south but are no particularly significant in terms of public amenity. This group will be removed to facilitate the development under the current indicative site layout. Any loss of amenity can be replaced through a new planting scheme.	
G14	Mixed	16	350 ave	2	2	2	2		M	20+	C2	55	Condition: Good / Fair Notes: As with G13, G 14 is comprised a mixture of conifer and deciduous species. Again	See Phase 1 Report

													this group separates the current garden area from the fallow land to the south but is not particularly significant in terms of public amenity. This group will be removed to facilitate the development under the current indicative site layout. Any loss of amenity can be replaced through a new planting scheme.	
T15	<i>Betula pendula</i> (Silver Birch)	18	510	5.6	4.5	4.2	5.2		LM	10+	C2	118	Condition: Fair Notes: Reasonably attractive specimen situated on fallow land to the south of G13. Tree is in late maturity and has a limited safe life expectancy. T15 will be removed to	See Phase 1 Report

													facilitate the development and any loss of amenity can be replaced through a new planting scheme.	
T16	<i>Salix caprea</i> (Goat Willow)	12	150	2	2	2	2		M	>10	U	10	Condition: Good Notes: Tree is in poor condition and its removal is recommended on arboricultural management grounds.	See Phase 1 Report
H17	Mixed	4	100	2	2	2	2				C	5	Condition: Good Notes:	Internal hedge with low amenity value. Will be removed to facilitate the development.
H18	Mixed	4	100	2	2	2	2				B2	5	Condition: Good Notes:	Sections of this boundary hedge can be retained and protected in accordance with the recommendations of BS 5837: 2012.
H19	<i>Crataegus monogyna</i> (Hawthorn)	3	100	2	2	2	2				C	5	Condition: Good Notes: Internal hedge, not	Internal hedge with low amenity value. Will be removed to

													affected by this phase of the development.	facilitate the development.
G20	Mixed	18	300 ave	2	2	2	2		M	20+	C1	41	Condition: Good Notes: G20 forms a group of coniferous and deciduous trees, predominantly Leyland cypress, elm and birch adjacent to the east boundary of the site.	The group is not significant in the landscape and has a low public amenity value and will be removed to facilitate the development under the current indicative site layout. Any loss of amenity can be replaced through a new planting scheme.
T21	<i>Salix caprea</i> (Goat Willow)	12	200	2	2	2	2		M	< 10	U	18	Condition: Fair Notes: Tree is in poor condition and its removal is recommended on arboricultural management grounds.	See Phase 1 Report
T22	<i>Crataegus monogyna</i> (Hawthorn)	8	250	2	5	3	3		M	10+	C1	28	Condition: Fair Notes: T20 is a minor specimen with little public amenity value. And will be removed to	See Phase 1 Report

													facilitate the development. Any loss of amenity can be replaced through a new planting scheme.	
T23	<i>Fagus sylvatica</i> (Beech)	16	740	5.3	4.7	6.2	4	4	EM	40+	A2	80	Condition: Good Notes: T23 is a significant specimen in a prominent location and can be viewed from a number of publicly accessible locations in the surrounding area. This tree can be retained and protected in accordance with the recommendations of BS 5837: 2012 under the current indicative site layout.	See Phase 1 Report

Ash 20

Ultimate Heights of Main Species
Weymouth Pine 19

Scots Pine 19

Notes

BS 5837: 2012 provides the framework through which tree can be categorised in terms of their health, amenity value and long-term viability for retention on a development site. There are four categories, A,B,C & U.

Category A: Trees of high quality and value in such a condition as to be able to make a substantial contribution (a minimum of 40 years)

- 1 Trees that are particularly good examples of their species, or essential components of groups or formal arboricultural features.
- 2 Trees, groups or woodlands that provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance.
- 3 Trees, groups or woodlands of significant conservation, historical, commemorative or other value.

Category B: Trees of moderate quality and value in such a condition to make a significant contribution (a minimum of 20 years)

- 1 Trees that might be included in a higher category but are downgraded because of impaired condition.
- 2 Trees present in numbers, usually as groups of woodlands that form distinctive landscape features.
- 3 Trees with clearly identifiable conservation or other cultural benefits.

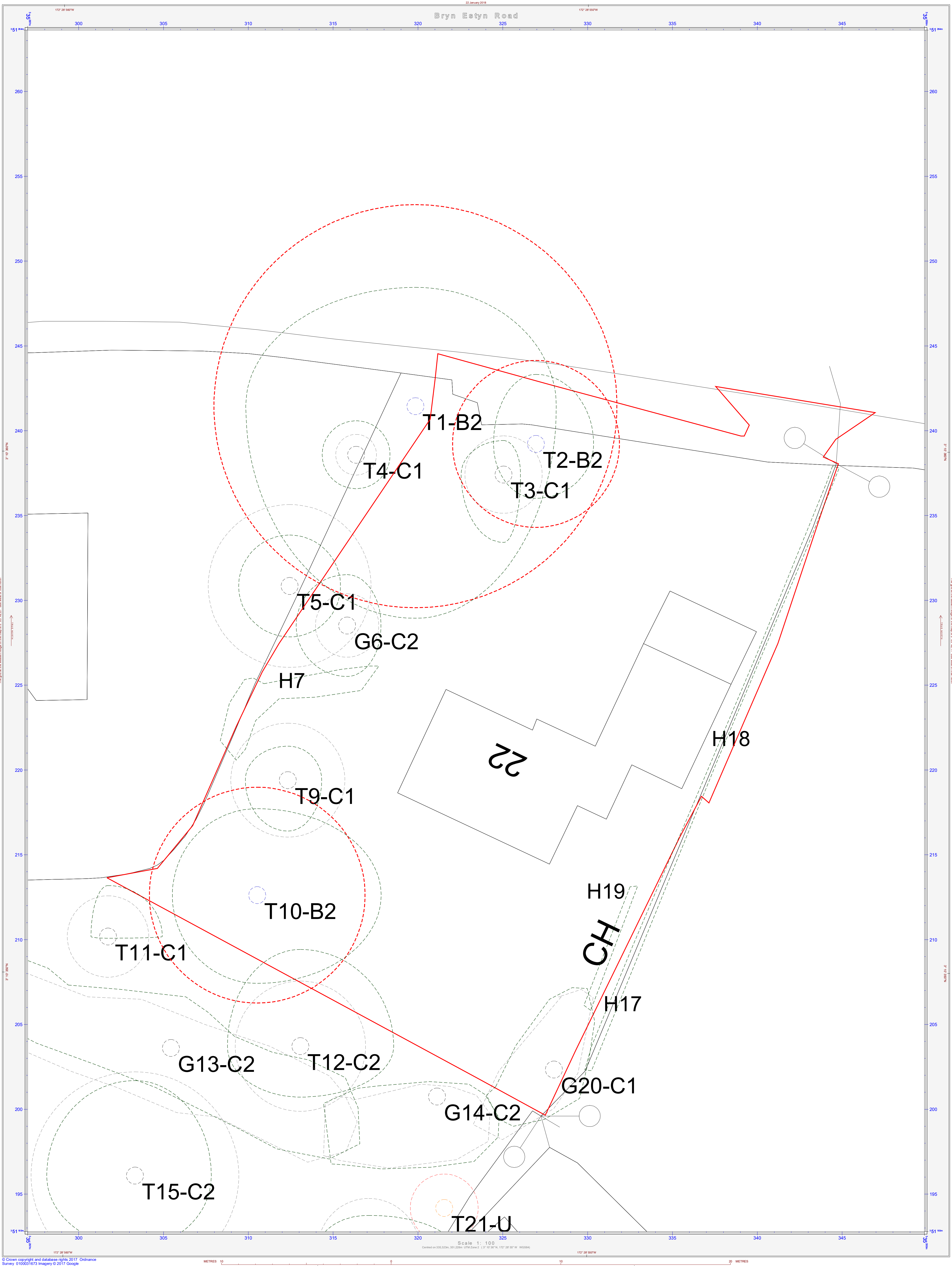
Category C: Trees of low quality and value currently in adequate condition to remain until new planting could be established. Trees in this category would not usually be retained if they would pose a significant constraint to development.

Category U: Trees in such a condition that their existing value would be lost within 10 years and which should, in the current context be removed for arboricultural reasons.

Bat potential has been assessed in accordance with the guidance provided in BS 8596:2015 and is at the level of a non-specialist scoping survey. This assessment is for preliminary advice and does not negate the requirement for a specialist ecological survey

Key

Tag No	Identification number for tree	Species	Species of tree
Top Height	Estimated height of tree	Stem Dia.	Diameter of stem at 1.5 metres
Stems	Number of stems	N, E, S, W	Crown spread at compass points
CC	Crown Clearance	FSB	Direction of first significant branch
Rem. Cont	Remaining safe life expectancy in years	RPA	Root protection area in m ²
Cat.	BS Category (see above)	AIA	Arboricultural Implication Assessment
Age	Y - Young Trees SM Semi Mature EM Early Mature M Mature LM Late Mature exceeds normal life expectancy for species VET Veteran Tree		
Condition	Good Relatively free from defects and / or major pests and diseases Fair Some defects, which could be addressed through tree surgery or minor pests or early symptoms of diseases Poor Substantial defects or terminal decline Dead Dead		



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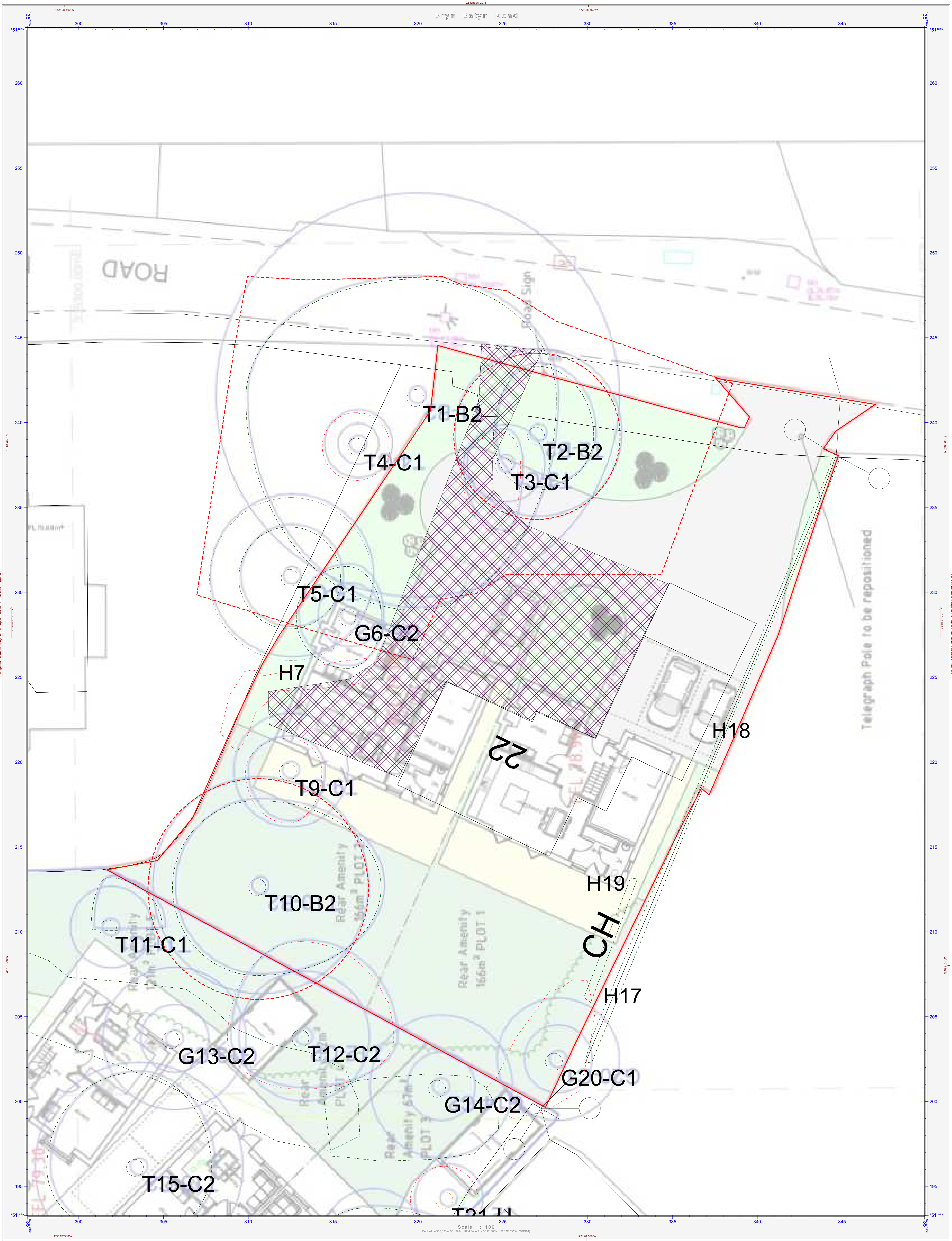
Tree Constraints Plan
22 Bryn Estyn Road
Wrexham

- Legend
- Tree Cat A
 - Tree Cat B
 - Tree Cat C
 - Tree Cat U
 - RPA
 - RPA Cat C
 - Canopy Spread

Drawing No: BER/TCP/01/18/01
Drawn By: S. Shields
Scale: 1:100 @ A1
Date: 22nd January 2018
Revision:

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Tree Constraints Plan
Overlay
22 Bryn Estyn Road
Wrexham

- Tree Cat A
- Tree Cat B
- Tree Cat C
- RPA
- RPA Cat C
- Canopy Spread
- Trees for Removal
- Existing Hard Surface

Drawing No: BER/TCP/OL/01/18/01

Drawn By: S. Shields

Scale: 1:100 @ A1

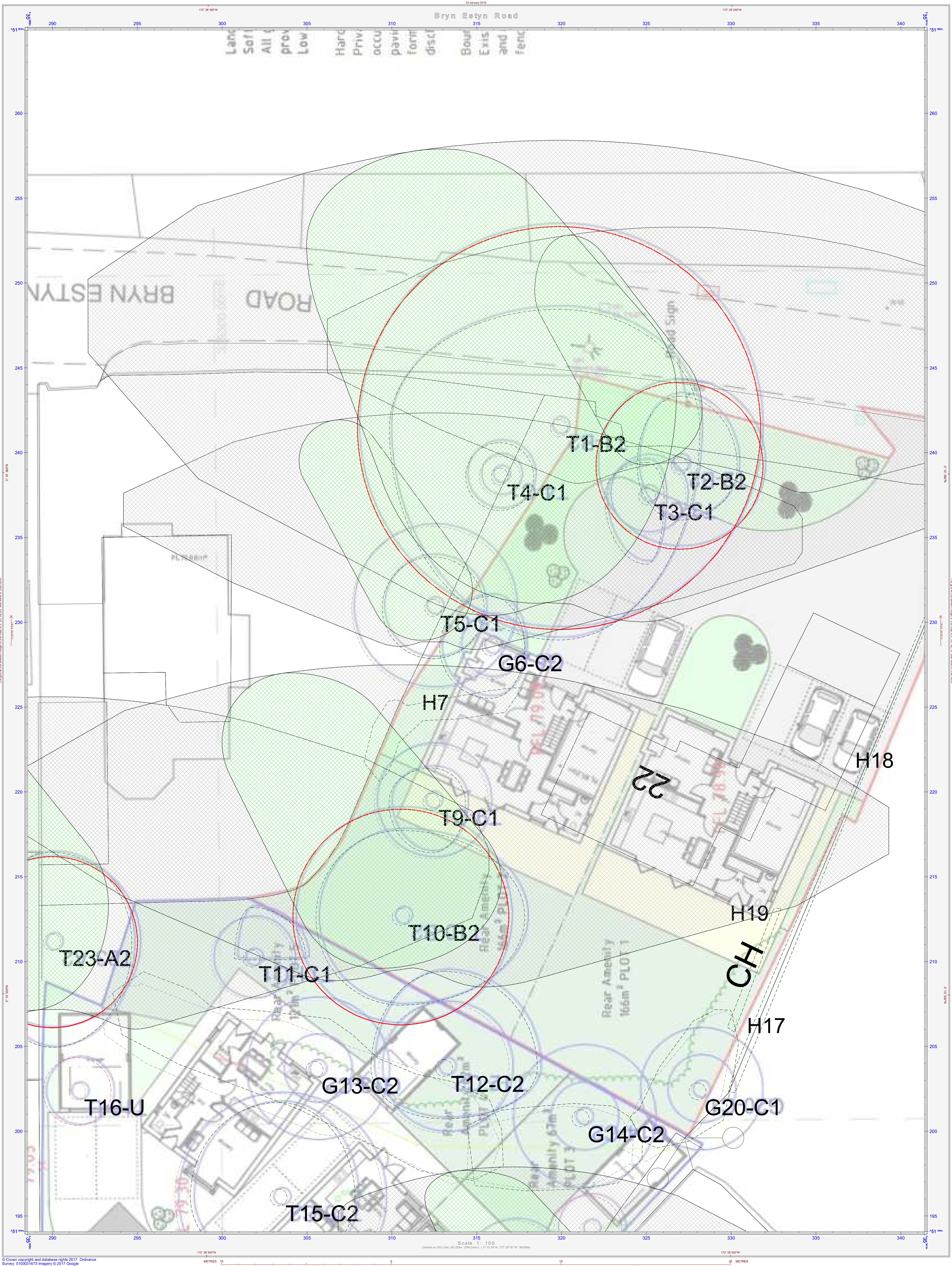
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Legend



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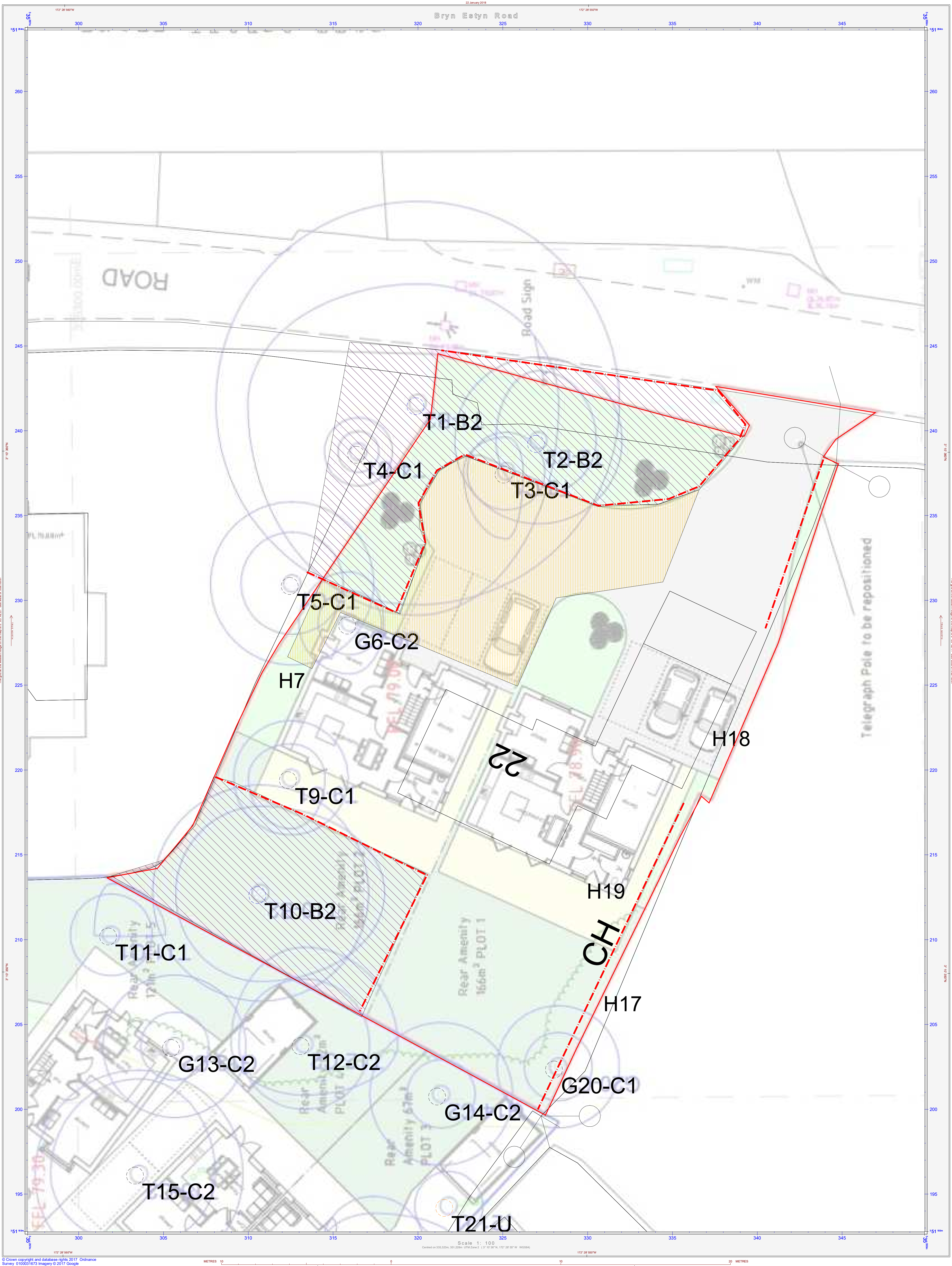
Tree Shading Plan
Overlay
22 Bryn Estyn Road
Wrexham

- Legend**
- Tree Cat A
 - Tree Cat B
 - Tree Cat C
 - Tree Cat U
 - Shadow 12pm June 21st
 - Shadow Path
 - Canopy Spread

Drawing No: BER/TSP/OL/01/18/01
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Tree Protection Plan
Overlay
22 Bryn Estyn Road
Wrexham

- Legend
- Tree Cat A
 - Tree Cat B
 - Tree Cat C
 - CEZ
 - Precautionary Area
 - Tree Protection Fencing

Drawing No: BER/TPP/OL/01/18/01
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