

Visual Impact Provision (VIP)

Peak District (East) Project

Appendix 7M Arboricultural Impact Assessment

July 2019 Rev08

Quality Information

Prepared by	Checked by	Approved by
Georgina Tearne Senior Arboriculturalist	Clare Mcilwraith Associate	Rebecca Condillac Associate Director

Revision History

Revision	Revision date	Details	Authorized	Name	Position
01	August 2017	Initial Draft	Matthew Jarvis		Associate Director
02	November 2017	Client comments addressed	Richard Bassindale		Principal Landscape Architect
03	September 2018	Survey updated	Rebecca Condillac		Associate Director
04	October 2018	Client comments addressed	Rebecca Condillac		Associate Director
05	January 2019	Arboricultural Impact Assessment included	Rebecca Condillac		Associate Director
06	February 2019	Minor comments addressed	Rebecca Condillac		Associate Director
07	May 2019	Amended scheme included in report	Rebecca Condillac		Associate Director
08	July 2019	Appendix F cable working area added. Working area around Bridge 1 amended. BS tree removal numbers added	Rebecca Condillac		Associate Director

Distribution List

# Hard Copies	PDF Required	Association / Company Name

Prepared for:

National Grid

Prepared by:

AECOM Limited

2 City Walk

Leeds LS11 9AR

United Kingdom

T: +44 (0)113 391 6800

aecom.com

© AECOM Limited. All Rights Reserved.

This document has been prepared by AECOM Limited ("AECOM") for sole use of our client (the "Client") in accordance with generally accepted consultancy principles, the budget for fees and the terms of reference agreed between AECOM and the Client. Any information provided by third parties and referred to herein has not been checked or verified by AECOM, unless otherwise expressly stated in the document.

The conclusions and recommendations contained in this Report take into account information provided by the Client about the Proposed Project and upon the assumption that all relevant information has been provided by those parties from whom it has been requested and that such information is accurate. Information obtained by AECOM has not been independently verified by AECOM, unless otherwise stated in the Report.

The methods adopted and the sources of information used by AECOM in providing its services are outlined in this Report. The work described in this Report was undertaken in July 2017 and August 2018, and is based on the conditions encountered and the information available during those periods. The scope of this Report and the services are accordingly factual and therefore be subject to minor limitations as detailed in Section 3.4.

Where assessments of works or costs identified in this Report are made, such assessments are based upon the information available at the time and where appropriate are subject to further investigations or information which may become available.

AECOM disclaim any undertaking or obligation to advise any person of any change in any matter affecting the Report, which may come or be brought to the attention of AECOM after the date of the Report.

Certain statements made in the Report that are not historical facts may constitute estimates, projections or other forward-looking statements and even though they are based on reasonable assumptions as of the date of the

Report, such forward-looking statements by their nature involve risks and uncertainties that could cause actual results to differ materially from the results predicted. AECOM specifically does not guarantee or warrant any estimate or projections contained in this Report.

Where field investigations are carried out, these have been restricted to a level of detail required to meet the stated objectives of the services. The results of any measurements taken may vary spatially or with time and further confirmatory measurements should be made after any significant delay in issuing this Report.

Table of Contents

1. Introduction 1
1.1 Background 1
2. Trees and the Planning Process 2
3. Methodology 3
3.1 BS: 5837 Survey Area 3
3.2 Non-BS 5837 Survey Areas 5
3.3 Limitations 5
4. Results 6
4.1 BS 5837 Survey Area 6
4.2 Non-BS 5837 Survey Area 6
5. Arboricultural Impact Assessment 7
5.1 Overview 7
5.2 Construction 7
5.3 Protective Fencing and Ground Protection 7
5.4 Incursion into the RPA or Crown Spread of Retained Trees 7
5.5 Trees to be removed 8
5.6 Site Organisation 8
5.7 Movement of Vehicles and People and the Movement and Operation of Machinery 8
5.8 Retained Trees: Species Characteristics 9
5.9 Site Supervision 9
5.10 Tree Works Summary 10
5.11 Trees to be removed due to a direct conflict with the proposed Scheme 11
5.12 Trees to be retained 11
5.13 Incursions within the RPA or Canopy Spread 11
5.14 Planting Recommendations 11
6. Conclusion 12
7. References 13
Appendix A - Arboricultural Constraints Plans 14
Appendix B - BS 5837 Survey Area Arboricultural Survey Schedule 20
Arboricultural Survey Schedule Key 26
Appendix C Arboricultural Character Areas Schedule (Non BS 5837 Survey Area) 28
Appendix D Photographs 30
Appendix E Estimated Potential Tree Removals and Tree Protection Fencing Plans 35
Appendix F Cable Working Areas 40

Tables

Table 1: BS 5837:2012 Tree Categorisation process 3

Table 2: Identification of Tree Categories 4

1. Introduction

1.1 Background

AECOM were commissioned by National Grid (the Client) to prepare an Arboricultural Report of trees potentially impacted by the Visual Impact Provision (VIP) Peak District (East) Project (hereafter referred to as the 'Proposed Project'). The Proposed Project is located close to Dunford Bridge, South Yorkshire and is described in detail in Chapter 2 of the Environmental Assessment Report.

The Proposed Project falls within the planning jurisdictions of both the Peak District National Park Authority and Barnsley Metropolitan Borough Council. However, only certain project elements are subject to a request for planning permission. **Scope and Survey Areas**

Through agreement with the Tree Officer at Barnsley Metropolitan Borough Council, the scope of the Arboricultural survey included the following two main elements:

- A detailed tree survey in accordance with British Standard (BS) 5837: 2012 - Trees in relation to design, demolition and construction – Recommendations (BS 5837) for all trees (with a diameter at breast height (DBH) of 75mm or more) located within the areas of the Proposed Project that are subject to a request for planning permission from Barnsley Metropolitan Borough Council. These areas being the proposed Sealing End Compound (SEC) footprint (including permanent access route) and 30m beyond its boundary narrowing where necessary for spatial constraints such as the Trans Pennine Trail and the steep embankments up to the River Don to the north and Trans Pennine Trail to the south); the temporary and permanent access bridges over the River Don; a proposed temporary access road from the northern highway and the Trans Pennine Trail diversion. These areas are referred to within this report as the 'BS 5837 Survey Area'; and
- A less detailed tree survey (to identify the approximate extent of trees forming distinct groups, species composition, approximate age and average density) of areas of the proposed survey that would be constructed using National Grid's Permitted Development rights. This area includes the Cable corridor plus a 3m buffer (along the route of the existing Trans Pennine Trail, see drawing PDD-33492-LAY-073-P, Appendix F), temporary access tracks (other than the above mentioned temporary access from the northern highway) and laydown areas. This area is termed within this report as the 'Non BS 5837 Survey Area'.

Additionally, tree surveys were carried out to the full requirements of BS 5837 for occasional mature trees located adjacent to the Cable corridor which have potential to be affected by the works and may warrant retention/ protection.

The BS 5837 and Non-BS 5837 Survey Areas are illustrated on the Arboricultural Constraint Plans: 60495529-SHT-00-0000-LA-001 to 007 included as Appendix A.

2. Trees and the Planning Process

The National Planning Policy Framework (NPPF) seeks to ensure that new development is sustainable and underlines the importance of Green Infrastructure, of which trees form an integral part. This includes recognition of the importance of trees in relation to the management of air, soil and water quality along with other associated ecosystem services and climate change adaption. The NPPF also seeks to achieve the protection and enhancement of landscapes and a net gain in biodiversity. Finally it specifically identifies veteran and ancient trees and woodland as a highly valuable and irreplaceable habitat.

Local Planning Authorities in the United Kingdom have a statutory duty to consider both the protection and planting of trees when considering planning applications. The potential impact of development on all trees (including those not protected by a Tree Preservation Order (TPO) or other statutory designation) is a material consideration in determining a planning application.

BS 5837 provides a framework which sets out how trees should be considered in this context and also explicitly applies to development where planning consent is not required.

BS 5837 recommends that a tree survey is undertaken to identify the quality and benefits of trees and the spatial constraints associated with them. This is then used to produce an Arboricultural Constraints Plan showing the above and below ground constraints associated with trees. The Arboricultural Constraints Plan is intended to be used to inform the design process and to identify those trees considered to be a constraint to development due to the quality and value (in a non-fiscal sense).

3. Methodology

3.1 BS: 5837 Survey Area

The Arboricultural survey comprised a preliminary, non-intrusive, visual inspection undertaken from ground level with the intention of evaluating the quality and benefits of trees within the defined BS 5837 Survey Area. The survey included all trees with a diameter at breast height (DBH) of 75mm or more located within the BS 5837 Survey Area. In accordance with BS 5837 guidance; where trees form 'cohesive arboricultural features' (see section 3.1.3 below) they have been grouped as a single reference in the Tree Schedule.

The Arboricultural survey was undertaken on 4th July 2017 and 15th August 2018, during which dimensional data and observational information were collected. A diameter tape measure was used to measure stem diameters where feasible.

The extent of the BS 5837 Survey Area is illustrated on the Arboricultural Constraint Plan; drawing reference 60495529-SHT-00-0000-LA-001 to 007 included as Appendix A of this report.

3.1.1 Data to Inform the Survey

The Arboricultural survey utilised the topographical survey plan produced by Gwalia Surveyors in September 2016 (drawing reference 2423 Dunford Bridge Topographical Survey Rev A).

3.1.2 Tree Preservation Orders

A desk based review of Tree Preservation Orders (TPOs) within the defined Survey Areas has been undertaken through the Barnsley Metropolitan Borough Council website (https://www.barnsley.gov.uk/services/parks-and-open-spaces/tree-preservation-orders/) on the 12th March 2019.

No trees or tree groups located within or within proximity to the BS 5837 Survey Area and the Non-BS 5837 Survey Areas were found to be subject to a TPO.

3.1.3 Evaluation of Arboricultural Features

Arboricultural features (trees, tree groups, woodland and hedgerows) have been evaluated in accordance with the criteria within 'Table 1 Cascade chart for tree quality assessment' of BS 5837. In doing so, the arboricultural feature is initially classified by its quality and value (in a non-fiscal sense) as U, A, B or C followed by one or more of the sub-categories 1, 2, and/or 3 (arboricultural, landscape, and conservation or cultural value respectively). It should be noted that each subcategory has equal weight.

Table 1: BS 5837:2012 Tree Categorisation process

Category	Definition
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
A	Trees of high quality with an estimated remaining life expectancy of at least 40 years
B	Trees of moderate quality with an estimated remaining life expectancy of at least 20 years
C	Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm
1	Arboricultural value
2	Landscape value
3	Conservation or cultural value

Where further inspection has been deemed appropriate to ascertain the condition of the tree or other arboreal features, this has been identified within the preliminary management recommendations.

Where trees are off-site or otherwise inaccessible, tree and accurate data cannot be measured, estimated dimensions are recorded and are identified with a '#' suffix.

Average dimensions or dimensional ranges have occasionally been used, where appropriate, to best describe features.

3.1.4 Calculation of the RPA

Root Protection Area (RPAs) are calculated as per Annexe C, D and Section 4.6 of BS 5837:2012.

The RPA of the tree is described in section 3.7 of BS 5837 as the 'minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority'.

This is illustrated as a circle centred on the base of the tree on the Arboricultural Constraints Plans where the survey was to BS 5837, however, where there are pre-existing site conditions or other factors which indicate that the root distribution of the tree is likely to have occurred asymmetrically, a polygon of equivalent area has been produced with the shape of the RPA reflecting a soundly based arboricultural assessment of likely root distribution.

Section 4.6.3 of BS 5837 states that 'any deviation in the RPA from the original circular plot should take account of the following factors whilst still providing adequate protection for the root system:

- the morphology and disposition of the roots, when influenced by past or existing site conditions (e.g. the presence of roads, structures and underground apparatus);
- topography and drainage;
- the soil type and structure; and
- the likely tolerance of the tree to root disturbance or damage, based on factors such as species, age, condition and past management.'

Where the RPA of trees have been adjusted, these will be clearly illustrated on the Arboricultural Constraint Plans as being non-circular.

3.1.5 Arboricultural Constraints Plan

An Arboricultural Constraints Plan illustrating the position of arboricultural features and their above and below ground spatial constraints is included as Appendix A of this report, which corresponds with the Arboricultural Survey Schedule included in Appendix B.

The arboricultural features illustrated by the Arboricultural Constraints Plan are presented in line with Table 2: Identification of tree categories, of BS 5837 reproduced below.

Table 2: Identification of Tree Categories

Category	Colour	Red Green Blue Code
U	Dark red	127-000-000
A	Light green	000-255-000
B	Mid blue	000-000-255
C	Grey	091-091-091

3.2 Non-BS 5837 Survey Areas

The Non-BS 5837 Survey Area includes a 2km length of land along the Trans Pennine Trail, the existing SEC and potential laydown areas.

These trees impacted by the Proposed Project which will be constructed using National Grids Permitted Development rights have been subject to a field survey to identify the approximate extent of trees forming distinct groups, species composition, approximate age and average density.

The extent of the Non-BS 5837 Survey Areas are illustrated on the Arboricultural Constraint Plans (drawing reference 60495529-SHT-00-0000-LA-001 to 007) included within Appendix A of this report. A Schedule of the Non-BS 5837 Arboricultural Character Areas is included in Appendix C.

3.3 Limitations

The topographical data used to inform the Arboricultural survey included large areas illustrated as 'vegetation' and lacked tree stem data in many locations.

The topographical data was based on LiDAR data and as such may not accurately illustrate exact tree locations. Where additional trees were identified during the survey, their positions have been mapped using a GPS enabled Panasonic Tough Pad utilising ArcGIS software. The accuracy of this hardware is +/- 3 – 5m. As these are not based on topographical points they are considered to be indicative and as such have been marked with a "*" within the Tree Schedule.

The arboricultural survey carried out as the basis of this report is primarily for planning purposes, focusing on the quality and benefits of the trees and is not specifically designed to assess the safety of trees on site. However, when obvious issues have been identified recommendations have been included in the Arboricultural Survey Schedule.

The Construction (Design and Management) Regulations (2015) state that developers and contractors have responsibilities for health and safety as a result of their actions. Should trees be left in an unstable or hazardous condition, the Health and Safety Executive (HSE) could seek to prosecute those responsible along with the potential for further Civil claims for damages.

4. Results

4.1 BS 5837 Survey Area

The dominant species within the BS 5837 Survey Area were young to semi-mature goat willow (*Salix caprea*), silver birch (*Betula pendula*) and hawthorn (*Crataegus monogyna)* with occasional early-mature sycamore (*Acer pseudoplatanus*).

The trees within the vicinity of the SEC (and 30+m buffer) are typical of the wider area with trees forming relatively large areas of juvenile woodland on areas of raised ground. There is no clear change in character between the proposed SEC site and land to the west which may be used as a laydown area, whereas land to the east is considered to be more open in character with comparatively less tree cover.

Trees along the route of the Trans Pennine Trail diversion to the northern bank of the River Don are dominated at its western extent by young to early-mature silver birch, common alder *(Alnus glutinosa),* whitebeam, goat willow and sycamore, all of which were classified as C category (low value). Towards its eastern extent the adjacent trees include a group of four early mature sycamore and a single mature alder both classified B category (moderate value).

The remaining area along the northern bank adjacent to the route of the temporary access road are a mix of early-mature individuals including ash (*Fraxinus excelsior*), hawthorn, sycamore and oak (*Quercus robur*). These trees are generally located on a steeply sloping bank close to the river. All of these trees have been classified as B category (moderate value), with the exception of a mature sycamore (T48) which has been classified as an A category tree (high value).

The trees and tree groups to the south of the River Don within the SEC footprint (including access route and 30m buffer) and along the Trans Pennine Trail diversion are dominated by mixed groups of young to semi-mature goat willow, silver birch, hawthorn and ash, all of which were classified as C category (low value).

No trees were classified as U category.

In combination, the trees contribute to the visual amenity value of the Trans Pennine Trail and its surrounding landscape.

Photographs of a number of example trees and tree groups identified by the survey are provided as Appendix D.

4.2 Non-BS 5837 Survey Area

The majority of tree groups and woodland areas adjacent to the Trans Pennine Trail are dominated by goat willow and silver birch with lesser quantities of hazel (*Corylus avellana*), hawthorn , sycamore and common alder throughout the Survey Area, plus occasional small groups or individual ash, elm (*Ulmus glabra*), fir (*Abies* sp.), oak and rowan (*Sorbus aucuparia*). The majority of these trees were young to semi-mature with occasional early-mature and mature specimens.

The woodland along the route of the Trans Pennine Trail and adjacent to the BS 5827 Survey Area has been categorised into twelve character areas, each being characteristically distinct in species mix and age structure (denoted as ‘CA’) or physically separated by areas without tree cover. Details of the species mix, typical tree heights and densities for each character area is shown on drawings 60495529-SHT-00-0000-LA-001 to 007 included as Appendix A of this report.

Eighteen trees located adjacent to the Cable Corridor have been identified as being distinctly different for the groups of trees in which they are located and are considered to potentially warrant protection from the permitted works.

Photographs of a number of example trees and tree groups identified by the survey are provided as Appendix D.

5. Arboricultural Impact Assessment

5.1 Overview

The AIA sets out the potential direct and indirect impacts of trees in and adjacent to the Proposed Project. The severity of impacts is considered and where appropriate suitable mitigation is proposed where it is reasonable to do so.

5.2 Construction

Construction works can lead to damage to above ground parts of trees, root severance, the discharge of materials toxic to roots and soil organisms into the soil, significant compaction of the soil to levels detrimental to tree health and the raising of soil levels burying tree roots at depths were function is impaired. These issues can lead to the death or decline of trees and the loss of the associated amenity that they provide.

Access for construction works will be required in close proximity to categorized trees or tree groups. Construction work activities required within the RPA and/ or crown spread of retained trees should be carefully controlled with the use of temporary fencing, ground protection measures and by adopting working methods set out in an Arboricultural Method Statement (AMS) to ensure that trees are not damaged.

5.3 Protective Fencing and Ground Protection

Temporary tree protection fencing that meets the requirements of BS 5837:2012 (see Appendix E) will be installed at the limit of the works area where required and the extent of the RPA for trees to be retained before works commence and also for the duration of the works to protect the RPAs of retained trees.

Where construction working space or temporary construction access is required within the identified RPAs, suitable ground protection measures will be implemented to prevent the distortion or compaction of the underlying soil. The ground protection should be appropriate to the likely vehicle or pedestrian usage anticipated for the area concerned.

5.4 Incursion into the RPA or Crown Spread of Retained Trees

Incursion into the RPA of a retained tree can result in unacceptable damage or injury to both above and below ground parts of the tree. This could be via physical injury (direct damage) or by impacting on the conditions which are essential to tree function and vitality (indirect damage).

The recommendations of BS 5837:2012 are that this can be avoided by the use of suitable protective fencing and the careful storage and management of materials, machinery and people in specially allocated zones outside RPAs. This will ensure that the RPA remain fully protected wherever possible. Where access into a RPA is unavoidable, alternative special measures will be required.

Where an exclusion zone around retained trees is not fully feasible, it is recommended that the construction methods are set out in an Arboricultural Method Statement (AMS) and guidance followed as set out in BS 5837:2012 and the principles set out in the National Joint Utilities Group (NJUG) Vol 4: Guidelines for the Planning, Installation, and Maintenance of Utility Apparatus in Proximity to Trees (issue 2) dated 16th November 2007.

Excavation within an RPA should be avoided with trenchless techniques utilised if necessary. If this is not possible any excavation will be carried out using hand tools and adhere to the following restrictions. Any roots greater than 25mm should not be severed. Where this is not possible, advice should be sought from a suitably qualified arboriculturist. Roots smaller than 25mm should be cut using sharp secateurs or pruning saw to ensure clean cuts are made.

Section 7.2 of the BS 5837:2012 document offers guidance on best practice when working in and around the RPA of protected trees.

In addition to consideration of the underlying roots consideration has also been given to the canopy spread of the above trees which also extend across the proposed Cable Corridor. Their canopies will need to be pruned/lifted to

achieve suitable clearance for work vehicles and associated workforce during the construction phase. All tree works will be carried out by suitably qualified arborists in accordance with BS 3998 Tree Work, Recommendations. These works are considered likely to have a minimal impact on the amenity and long term health of these trees.

Across the Proposed Project trees which fall within the construction area for the Cable Corridor or SEC will be removed. However, it is proposed to retain some trees and groups where they are positioned on the edge of the proposed construction areas and consideration has been given to protection of their roots and canopies. It is proposed that protective fencing will ensure protection of these trees.

5.5 Trees to be removed

For the BS5837 Survey Area 5 partial groups are to be removed to facilitate the proposed Cable Corridor Installation, SEC construction and associated works. The cable corridor and SEC have been sited to minimise the amount of tree loss wherever possible. Mostly scattered across the full length of the proposed cable corridor (alongside the existing Trans Pennine Trail) the majority have been categorised as low quality 'C' category trees. As low quality 'C' Category trees and groups they should not significantly influence the layout of any potential development.

The only tree removals which may have a particular impact on the amenity value of the proposed cable route is the partial removal of G33 (4 trees). These are classed as moderate quality 'B' Category and ideally should be retained. However, options to retain these items have been explored and discounted due to site constraints.

The removal of parts of the Non BS 5837 Character Areas may require further arboricultural input on site. This will be to identify specific trees for removal to reduce the risk of increased exposure and the subsequent risk of wind-throw, the need for any additional pruning or removals associated with tree loss as well as ensuring that sufficient rooting areas will be protected for those trees to be retained.

5.6 Site Organisation

Suitable locations for site facilities and the washing, storage and mixing of materials will be identified such that they are at least 5m from the outer edge of the RPA of any retained tree or protected tree planting area.

The mixing and washing of materials can lead to run off or inadvertent spillage into tree root zones. Many substances often used on construction sites can be toxic to tree roots (such as concrete, fuels, salts, builders sand and herbicides) and, without mitigation, could result in the death of tree roots, beneficial soil organisms and could have a significant impact on the future health and appearance of the tree. Potential for surface run off will be considered. Where appropriate, bunding comprising heavy duty polythene and sand bags will be used to contain spillages and direct run off into appropriate areas for drainage or collection, or other appropriate methods identified by the contractor, when appointed.

The storage of materials can result in an effective raised soil level. This buries tree roots at depths where air and water are less available and can lead to the decline or death of the tree. For these reasons it is essential that storage areas are located outside the RPA of retained trees.

5.7 Movement of Vehicles and People and the Movement and Operation of Machinery

The movement of people, construction works and in particular the movement and use of machinery will be carefully coordinated to avoid damage to retained trees. Physical damage caused by impact with machinery can lead to the loss of branches and damage to bark. This can predispose trees to decay, reduce the energy production and storage capacity of the tree and significantly impact on the future health, appearance and amenity contribution of the tree. For these reasons it is essential that site operations take place outside the RPA of retained trees wherever possible or where works have been agreed by a suitably qualified arboriculturalist. Boxing or additional protective fencing may be required where works close to tree stems is unavoidable to prevent potential impact damage.

5.8 Retained Trees: Species Characteristics

Where trees are retained close to the working area of the Proposed Project, the future growth and characteristics of individual species will be considered in the long term to minimise future conflicts and potential pressure for future tree removal.

Trees adjacent to the sealing end compound may require periodic pruning to prevent an obstruction to these sites. This work would not have a significant impact on the health or amenity of retained trees.

There is unlikely to be significant future pressure to remove trees associated with the future use and management of both the Survey Areas.

5.9 Site Supervision

Whenever significant works are to take place within the RPA of a retained tree, operations will adhere to the specification outlined in an approved AMS.

Site supervision by a suitably qualified person is likely to be required at agreed intervals for sensitive operations including identified works within the RPA of trees to be retained. In relation to the necessary tree removals this will include the assessment of the edge trees where parts of tree groups and woodlands are to be removed. This is to assess the stability and suitability for retention of newly exposed trees. This site supervision process will be auditable with a written report provided to the LPA detailing the results of each visit.

5.10 Tree Works Summary

Estimated potential tree removals are shown on Drawings 60495529-SHT-00-0000-LA-008 to 011 included as Appendix E.

Table 3 sets out those trees which require removal to allow the implementation of the proposed scheme for the BS 5837 Survey Area. Trees have been assigned a category to indicate their quality as per Table 1 from Section 4.5.8 of BS 5837:2012.

Table 4 set out those trees which require removal for the Non BS 5837 Survey Area. Estimated areas and numbers of trees that will be removed have been provided.

Table 3: Tree Works – BS 5837 Survey Area

Operation	Number per Category				Area (m2)	Estimated Number of Trees (No.)
	A	B	C	U		
Removal of groups and individual trees in full	N/A	G33 (four trees)	G6, T5, T7	N/A	42	17
Partial removal of groups	N/A	N/A	G1, G2, G3, G4, G34, G35, W38, W40	N/A	5,058	849
Trees which may require some incursion into their construction exclusion zone to allow the Proposed Project.	N/A	T28, T36, G37	T9, T22, T24	N/A	-	-
TOTAL					5,100	866

Table 4: Tree Works – Non BS 5837 Survey Area

Operation	Character Area or Tree	Estimated Area of Loss (m2)	Estimated Number of Trees (No.)
Removal of groups and individual trees in full	CA1, T46, T45	2,009	504
Partial removal of groups	CA2, CA3, CA4, CA5, CA6, CA7, CA9, CA10, CA11,W38, G35	17,725	2,519
TOTAL		19,734	3,023

5.11 Trees to be removed due to a direct conflict with the proposed Scheme

Where the removal of the B category trees is unavoidable suitable mitigating planting will be carried out to compensate for the loss of amenity.

The loss of C category trees across the proposed Cable Corridor will also be mitigated through planting with similar species.

5.12 Trees to be retained

Identified individual trees and tree groups categorised under BS 5837:2012 within the Survey Area to be retained, will be suitably protected throughout the Proposed Project. The Potential Tree Loss and Tree Protection Fencing drawing, Trees to be retained and protected during the construction phase are shown on Drawings 60495529-SHT-00-0000-LA-008 to 011 (see Appendix E).

5.13 Incursions within the RPA or Canopy Spread

Due to the location of trees around the site there is likely to be some incursions within RPAs and canopy spreads of trees to be retained. It is recommended that the construction of any access track uses load bearing surfacing, installed using non-dig techniques where possible.

5.14 Planting Recommendations

On completion of the Proposed Project, replacement tree planting will be undertaken to mitigate tree losses. For details of the proposed replacement tree planting scheme refer to the Landscape and Ecology Management Plan (LEMP) and Landscape Masterplan drawings P10727-00-001-105 to 107.

6. Conclusion

The majority of both the BS 5837 and Non-BS 5837 Survey Areas contain relatively large areas of mixed deciduous woodland, predominantly young to semi-mature in age. The majority of these areas appear to be of similar age across the site and have the appearance of naturally established woodland with occasional mature specimens or single aged tree groups. The exceptions to this are the mature and over-mature trees on the northern bank of the River Don.

The majority of trees and trees groups within the BS 5837 Survey Area have been classified as C category, as such it is considered that these trees do not form a significant spatial constraint to any potential development works as it is generally accepted that the removal of lower quality trees (C or U category) is easily mitigated.

The cable corridor and SEC have been sited to minimise the amount of tree loss wherever possible. The construction of the SEC will require the removal of four individual trees classified as B category (moderate quality) and two partial woodland areas, which are of low quality (C category). The Proposed Project will also require the partial removal of nine groups classified as C category (low quality). All these tree removals are required due to a direct conflict with the Proposed Project.

Some additional tree removals and pruning work may be required where parts of groups and woodlands become exposed following the proposed tree removals. Additional on-site assessment of these trees will be required to assess their stability as well as their suitability for retention and to identify any additional pruning works required. This on site assessment should be carried out by a suitably qualified arboricultural consultant.

A key consideration for any development activity will be the protection of the surrounding trees including the structure of the soil in which they grow, including from indirect damage via the storage or discharge of materials and the movement and use of plant and machinery. The default position is that all RPA and canopies of retained trees be fenced off as exclusion zones with no access. Where this is not feasible limited access may be acceptable using fit for purpose ground protection or other protective measures in accordance with BS 5837. Full details of necessary tree protection and tree works are identified on the accompanying Tree Protection Plans (Appendix E). Some ground protection may be required along the access tracks in proximity to the trees identified within table 3. The extent of ground protection required will be determined by the size and weight of intended vehicle access in conjunction with the advice of an arboriculturist.

Outside of the canopy and RPA, development works are not likely to be significantly constrained by trees, however it is important not to significantly impact on ground water levels in proximity to trees and where this could be a potential impact specific arboricultural advice must be obtained.

Tree Protective Fencing should be installed to prevent damage to trees and hedges to be retained and should be maintained throughout the construction phase.

7. References

British Standards Institution (BSI), BS 5837:2012. Trees in relation to design, demolition and construction – Recommendations. BSI

British Standards Institution (BSI), BS3998:2010. Tree work – Recommendations. BSI

British Standards Institution (BSI), BS8545:2014. Trees: from nursery to independence in the landscape. BSI

National House Building Council (NHBC) Standards, (2008). Chapter 4.2: Building Near Trees

National Joint Utilities Group (NJUG) Volume 4, Issue 2, (2007). NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees.

National Tree Safety Group (NTSG), 2011. Common sense risk management of trees. Forestry Commission.

Department for Communities and Local Government (DCLG), 2012. (Updated 2019) National Planning Policy Framework (NPPF). DCLG

Appendix A - Arboricultural Constraints Plans

ISO A1 594mm x 841mm
Last Plotted: 2019-07-23
Last saved by: CHLOE.TEMPLE
Filename: \\UKLDS2PFPSW001\UKLDS2PFPSW001-V1\EIPROJECTS\ENVIRONMENTAL SERVICES - NG VIP ECOLOGY PHASE 2\03 EXECUTION\PEAK DISTRICT\TREE SURVEY\CAD\60495529-SHT-00-0000-LA-001 TO 010.DWG

CA1

Goat Willow (Salix caprea)
English oak (Quercus robur)
Elm (Ulmus minor)
Sycamore (Acer pseudoplatanus)
Hawthorn (Crataegus monogyna)
Silver birch (Betula pendula)
Average height - 4.5 m
Average density - 2m centres

0 12.5 25 m
1:500

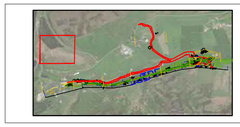
Printed on ___% Post-Consumer Recycled Content Paper

T[illegible] IS [illegible] O[illegible] M[illegible] NT IS TO [illegible] [illegible] S[illegible] FOR T[illegible] [illegible] [illegible] R[illegible] OS[illegible] OF ISS[illegible] T[illegible] AT IT [illegible] AS ISS[illegible] [illegible] FOR AN[illegible] IS S[illegible] [illegible] [illegible] T TO AM[illegible] N[illegible] M[illegible] NT

KEY

- BS 5837: 2012 TREE SURVEY BOUNDARY
- NON-BS 5837: 2012 TREE SURVEY BOUNDARY
- A - CATEGORY TREES (HIGH QUALITY & VALUE)
- B - CATEGORY TREES (MODERATE QUALITY & VALUE)
- C - CATEGORY TREES (LOW QUALITY & VALUE)
- U - CATEGORY TREES (DEAD, DEFECTIVE, INFECTED)
- ROOT PROTECTION AREAS (RPA) - AS DEFINED BY BS 5837:2012
- WOODLAND/ TREE GROUPS SUBJECT TO NON BS 5837: 2012

KEY PLAN



Contains Ordnance Survey Data © Crown Copyright and database right 2015
Reproduced from Ordnance Survey digital map data © Grown copyright 2015. All rights reserved. Licence number National Grid Electricity - 100024241

SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

FINA[illegible]

NATIONA[illegible] [illegible] RI[illegible]

VISUAL IMPACT PROVISION(VIP) PEAK DISTRICT (EAST) PROJECT

APPENDIX A ARBORICULTURAL CONSTRAINTS PLAN

[illegible]	[illegible]	[illegible]	[illegible]
[illegible] T	[illegible] R[illegible]	[illegible] M	2[illegible] [illegible] 2[illegible]
A[illegible] OM I[illegible] [illegible] N[illegible]		S[illegible] [illegible] A[illegible]	
[illegible] 2[illegible]		[illegible]	

T[illegible] IS [illegible] O[illegible] M[illegible] NT [illegible] AS [illegible] N [illegible] R[illegible] [illegible] AR[illegible] [illegible] RS[illegible] ANT TO AN[illegible] S[illegible] [illegible] T TO T[illegible] T[illegible] RMS OF A[illegible] OMS A[illegible] OINTM[illegible] NT [illegible] ITS [illegible] N[illegible] NT[illegible] A[illegible] OM A[illegible] [illegible] TS NO [illegible] A[illegible] I[illegible] IT[illegible] FOR AN[illegible] S[illegible] OF T[illegible] IS [illegible] O[illegible] M[illegible] NT OT[illegible] R T[illegible] AN[illegible] ITS ORI[illegible] INA[illegible] [illegible] N[illegible] NT OR FO[illegible] O[illegible] IN[illegible] A[illegible] OMS [illegible] R[illegible] SS A[illegible] R[illegible] M[illegible] NT TO S[illegible] [illegible] S[illegible] AN[illegible] ON[illegible] FOR T[illegible] [illegible] R[illegible] OS[illegible] S FOR [illegible] [illegible] IT[illegible] AS [illegible] R[illegible] AR[illegible] AN[illegible] RO[illegible] I[illegible] [illegible]

A[illegible] OM
2 City Walk
Leeds, LS11 9AR
+44 (0) 113 391 6800 tel
+44 (0) 113 391 6899 fax
www.aecom.com

N

[illegible] [illegible] 2[illegible] -S[illegible] T-[illegible] -I[illegible] [illegible] -[illegible] A-[illegible] [illegible]

R[illegible]
[illegible]

ISO A1 594mm x 841mm

Last Plotted: 2019-07-23

Last saved by: CHLOE.TEMPLE

Filename: \\UKLDS2PFPSW001\UKLDS2PFPSW001-V1\E\PROJECTS\ENVIRONMENTAL SERVICES - NG VIP ECOLOGY PHASE 2\03 EXECUTION\PEAK DISTRICT\TREE SURVEY\CAD\60495529-SHT-00-0000-LA-001 TO 010.DWG



Printed on ___% Post-Consumer Recycled Content Paper

T[illegible] IS [illegible] O[illegible] M[illegible] NT IS TO [illegible] [illegible] S[illegible] FOR T[illegible] [illegible] [illegible] R[illegible] OS[illegible] OF ISS[illegible] T[illegible] AT IT[illegible] AS ISS[illegible] [illegible] [illegible] FOR AN[illegible] IS S[illegible] [illegible] [illegible] T TO AM[illegible] N[illegible] M[illegible] NT

KEY

- BS 5837: 2012 TREE SURVEY BOUNDARY
- NON-BS 5837: 2012 TREE SURVEY BOUNDARY
- A - CATEGORY TREES (HIGH QUALITY & VALUE)
- B - CATEGORY TREES (MODERATE QUALITY & VALUE)
- C - CATEGORY TREES (LOW QUALITY & VALUE)
- U - CATEGORY TREES (DEAD, DEFECTIVE, INFECTED)
- ROOT PROTECTION AREAS (RPA) - AS DEFINED BY BS 5837:2012
- WOODLAND/ TREE GROUPS SUBJECT TO NON BS 5837: 2012

KEY PLAN



[illegible]

Contains Ordnance Survey Data © Crown Copyright and database right 2015
Reproduced from Ordnance Survey digital map data © Crown copyright 2015. All rights reserved. Licence number National Grid Electricity - 100024241

SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

[illegible]

FINA[illegible]

[illegible]

NATIONA[illegible] [illegible] RI[illegible]

[illegible] T[illegible]

VISUAL IMPACT PROVISION(VIP) PEAK DISTRICT (EAST) PROJECT

[illegible] T[illegible]

APPENDIX A ARBORICULTURAL CONSTRAINTS PLAN

[illegible]	[illegible] d	A[illegible] d	[illegible]
[illegible] T	R[illegible]	[illegible] M	2[illegible] [illegible] 2[illegible]

A[illegible] OM I[illegible]	S[illegible] A[illegible]
[illegible] 2[illegible]	[illegible]

T[illegible] IS [illegible] O[illegible] M[illegible] NT[illegible] AS [illegible] N[illegible] R[illegible] AR[illegible] [illegible] RS: ANT TO AN[illegible] S[illegible] [illegible] T TO T[illegible] T[illegible] RMS OF A[illegible] OMS A[illegible] OINTM[illegible] NT [illegible] ITS [illegible] [illegible] NT; A[illegible] OM A[illegible] [illegible] [illegible] TS NO [illegible]A[illegible] I[illegible]T[illegible] FOR AN[illegible] [illegible] S[illegible] OF T[illegible] IS [illegible] O[illegible] [illegible] M[illegible] NT OT[illegible] [illegible] R T[illegible] AN[illegible] [illegible] ITS OR[illegible] INA[illegible] [illegible] [illegible] NT OR FO[illegible] [illegible] O[illegible] IN[illegible] A[illegible] [illegible] OMS [illegible] [illegible] [illegible] R[illegible] SS A[illegible] R[illegible] [illegible] M[illegible] NT TO S[illegible] [illegible] [illegible] [illegible] S[illegible] [illegible] AN[illegible] ON[illegible] [illegible] FOR T[illegible] [illegible] [illegible] R[illegible] OS[illegible] S FOR[illegible] [illegible] [illegible] [illegible] IT[illegible] AS [illegible] R[illegible] [illegible] AR[illegible] [illegible] AN[illegible] [illegible] ROI[illegible] I[illegible] [illegible] [illegible] [illegible]

A[illegible] OM
2 City Walk
Leeds, LS11 9AR
+44 (0) 113 391 6800 tel
+44 (0) 113 391 6899 fax
www.aecom.com

AECOM

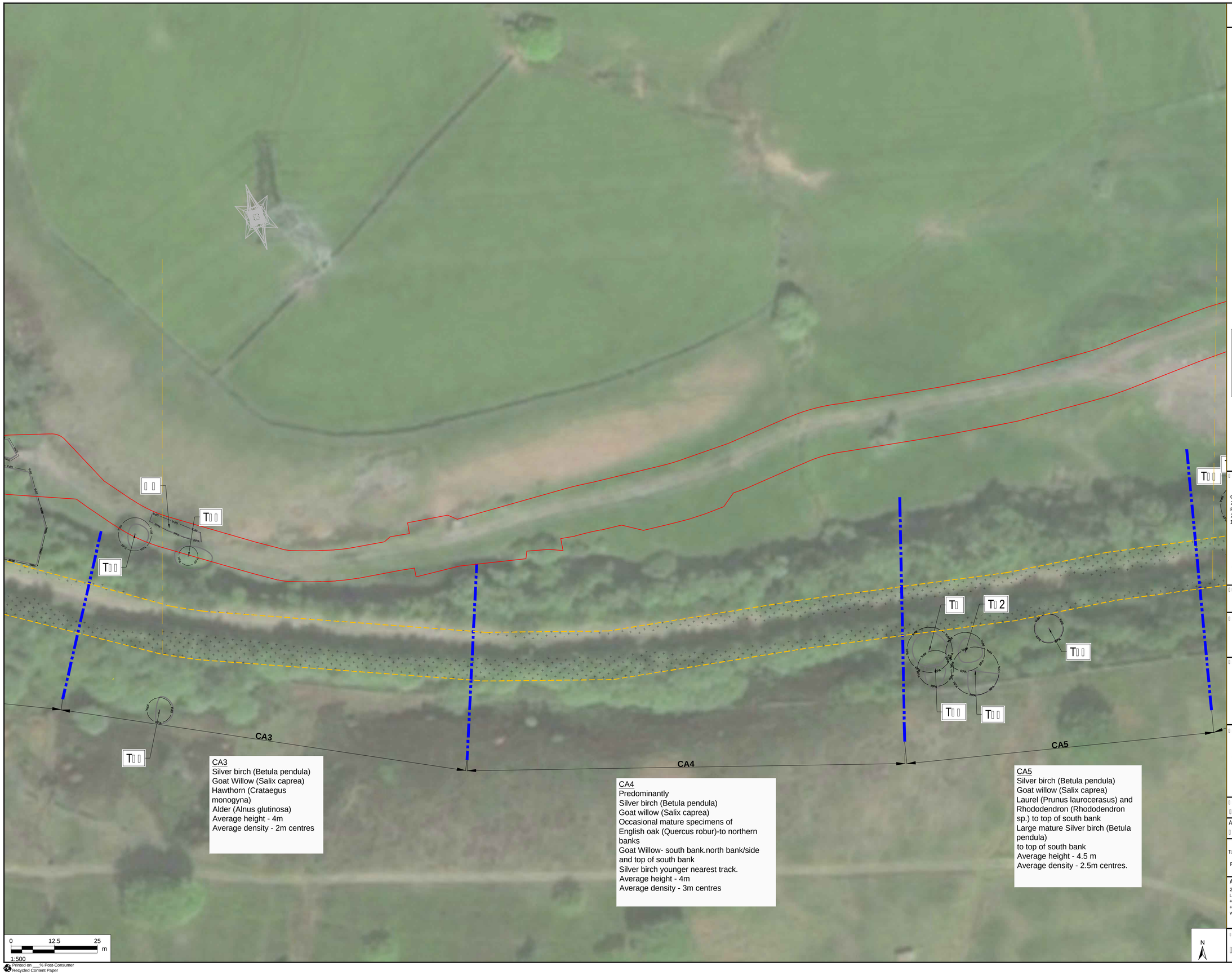
[illegible] N[illegible] [illegible] r

[illegible] 2[illegible] -S[illegible] T-[illegible] [illegible] -[illegible] [illegible] [illegible] -[illegible] A-[illegible] [illegible] 2

R[illegible]

[illegible]

ISO A1 594mm x 841mm
Last Plotted: 2019-07-23
Last saved by: CHLOE.TEMPLE
Filename: \\UKLDS2\PFPSW001\UKLDS2\PFPSW001-V1\EIP\PROJECTS\ENVIRONMENTAL SERVICES - NG VIP ECOLOGY PHASE 2\03 EXECUTION\PEAK DISTRICT\TREE SURVEY\CAD\60495529-SHT-00-0000-LA-001 TO 010.DWG



CA3
Silver birch (Betula pendula)
Goat Willow (Salix caprea)
Hawthorn (Crataegus monogyna)
Alder (Alnus glutinosa)
Average height - 4m
Average density - 2m centres

CA4
Predominantly
Silver birch (Betula pendula)
Goat willow (Salix caprea)
Occasional mature specimens of English oak (Quercus robur)-to northern banks
Goat Willow- south bank.north bank/side and top of south bank
Silver birch younger nearest track.
Average height - 4m
Average density - 3m centres

CA5
Silver birch (Betula pendula)
Goat willow (Salix caprea)
Laurel (Prunus laurocerasus) and Rhododendron (Rhododendron sp.) to top of south bank
Large mature Silver birch (Betula pendula)
to top of south bank
Average height - 4.5 m
Average density - 2.5m centres.

0 12.5 25 m
1:500

Printed on ___% Post-Consumer Recycled Content Paper

THIS DOCUMENT IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DOCUMENTS PREPARED BY OR ON BEHALF OF THE ISSUING PARTY. ANY DISCREPANCIES ARE TO BE REPORTED TO THE ORIGINATOR IMMEDIATELY.

KEY

- BS 5837: 2012 TREE SURVEY BOUNDARY
- NON-BS 5837: 2012 TREE SURVEY BOUNDARY
- A - CATEGORY TREES (HIGH QUALITY & VALUE)
- B - CATEGORY TREES (MODERATE QUALITY & VALUE)
- C - CATEGORY TREES (LOW QUALITY & VALUE)
- U - CATEGORY TREES (DEAD, DEFECTIVE, INFECTED)
- ROOT PROTECTION AREAS (RPA) - AS DEFINED BY BS 5837:2012
- WOODLAND/ TREE GROUPS SUBJECT TO NON BS 5837: 2012

KEY PLAN



Contains Ordnance Survey Data © Crown Copyright and database right 2015
Reproduced from Ordnance Survey digital map data © Crown copyright 2015. All rights reserved. Licence number National Grid Electricity - 100024241

SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

FINAL

NATIONAL GRID

VISUAL IMPACT PROVISION(VIP) PEAK DISTRICT (EAST) PROJECT

APPENDIX A ARBORICULTURAL CONSTRAINTS PLAN

T	[illegible]	[illegible]	[illegible]

[illegible] OMMENTS ARE TO BE MADE IN WRITING TO THE ORIGINATOR WITHIN 28 DAYS OF ISSUE. ANY COMMENTS MADE AFTER THIS PERIOD MAY NOT BE TAKEN INTO ACCOUNT. [illegible] FOR CONSTRUCTION PURPOSES UNLESS EXPRESSLY STATED.

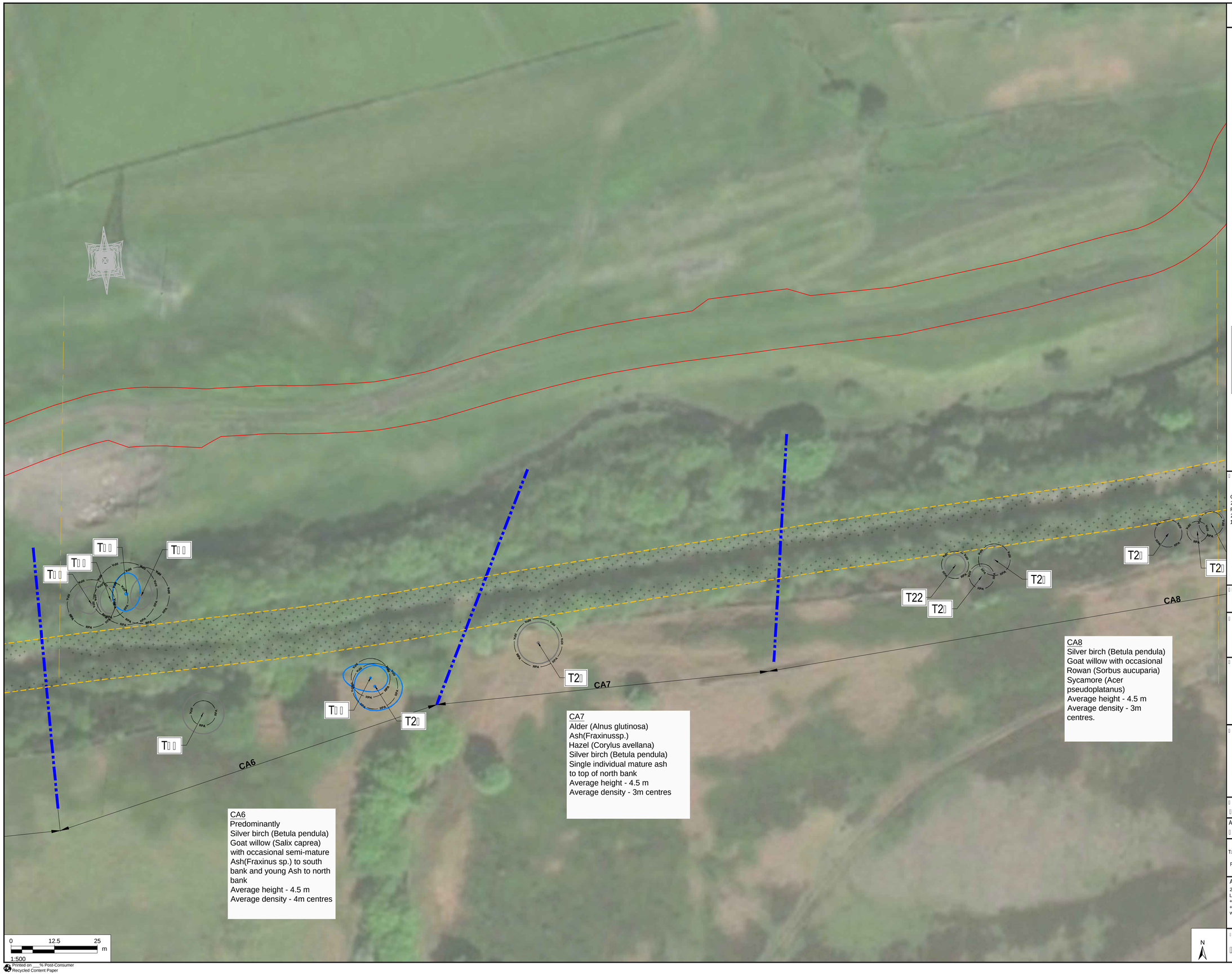
AECOM
2 City Walk
Leeds, LS11 9AR
+44 (0) 113 391 6800 tel
+44 (0) 113 391 6899 fax
www.aecom.com

N

[illegible] -S[illegible] T-[illegible] -[illegible] -[illegible] A-[illegible]

R[illegible]

ISO A1 594mm x 841mm
Last Plotted: 2019-07-23
Last saved by: CHLOE.TEMPLE
Filename: \\UKLDS2\PFPSW001\UKLDS2PFPSW001-V1\E\PROJECTS\ENVIRONMENTAL SERVICES - NG VIP ECOLOGY PHASE 2\03 EXECUTION\PEAK DISTRICT\TREE SURVEY\CAD\60495529-SHT-00-0000-LA-001 TO 010.DWG



CA6
Predominantly
Silver birch (Betula pendula)
Goat willow (Salix caprea)
with occasional semi-mature
Ash(Fraxinus sp.) to south
bank and young Ash to north
bank
Average height - 4.5 m
Average density - 4m centres

CA7
Alder (Alnus glutinosa)
Ash(Fraxinussp.)
Hazel (Corylus avellana)
Silver birch (Betula pendula)
Single individual mature ash
to top of north bank
Average height - 4.5 m
Average density - 3m centres

CA8
Silver birch (Betula pendula)
Goat willow with occasional
Rowan (Sorbus aucuparia)
Sycamore (Acer
pseudoplatanus)
Average height - 4.5 m
Average density - 3m
centres.

0 12.5 25 m
1:500

Printed on ___% Post-Consumer
Recycled Content Paper

T IS O M NT IS TO S FOR T R OS OF
ISS T AT IT AS ISS FOR AN IS S T TO AM N M NT

KEY

- BS 5837: 2012 TREE SURVEY BOUNDARY
- NON-BS 5837: 2012 TREE SURVEY BOUNDARY
- A - CATEGORY TREES (HIGH QUALITY & VALUE)
- B - CATEGORY TREES (MODERATE QUALITY & VALUE)
- C - CATEGORY TREES (LOW QUALITY & VALUE)
- U - CATEGORY TREES (DEAD, DEFECTIVE, INFECTED)
- ROOT PROTECTION AREAS (RPA) - AS DEFINED BY BS 5837:2012
- WOODLAND/ TREE GROUPS SUBJECT TO NON BS 5837: 2012

KEY PLAN



Contains Ordnance Survey Data © Crown Copyright and database right 2015
Reproduced from Ordnance Survey digital map data © Crown copyright 2015. All rights reserved. Licence number National Grid Electricity - 100024241

SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

FINA

NATIONA RI

VISUAL IMPACT PROVISION(VIP)
PEAK DISTRICT (EAST) PROJECT

APPENDIX A
ARBORICULTURAL CONSTRAINTS
PLAN

T	R	M	2 2

A OM
2 City Walk
Leeds, LS11 9AR
+44 (0) 113 391 6800 tel
+44 (0) 113 391 6899 fax
www.aecom.com

AECOM

2 -S T- - A-

N

T IS I O M NT IS TO S FOR T R OS OF
ISS T AT IT AS ISS FOR AN IS S T TO AM N M NT

KEY

- BS 5837: 2012 TREE SURVEY BOUNDARY
- NON-BS 5837: 2012 TREE SURVEY BOUNDARY
- A - CATEGORY TREES (HIGH QUALITY & VALUE)
- B - CATEGORY TREES (MODERATE QUALITY & VALUE)
- C - CATEGORY TREES (LOW QUALITY & VALUE)
- U - CATEGORY TREES (DEAD, DEFECTIVE, INFECTED)
- ROOT PROTECTION AREAS (RPA) - AS DEFINED BY BS 5837:2012
- WOODLAND/ TREE GROUPS SUBJECT TO NON BS 5837: 2012

KEY PLAN



Contains Ordnance Survey Data © Crown Copyright and database right 2015
Reproduced from Ordnance Survey digital map data © Crown copyright 2015. All rights reserved. Licence number National Grid Electricity - 100024241

SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

FINA

NATIONA RI

VISUAL IMPACT PROVISION(VIP) PEAK DISTRICT (EAST) PROJECT

APPENDIX A ARBORICULTURAL CONSTRAINTS PLAN

T	d	M	2 2
OM		S A	

T IS O M NT AS N R AR RS ANT TO AN S T TO T
T RMS OF A OMS A QINTM NT ITS NT A OM A TS NO IA I IT
FOR AN S OF T IS O M NT OT R T AN ITS ORI INA NT OR
FO O IN A OMS R SS A R M NT TO S S AN ON FOR T
R OS S FOR IT AS R AR AN ROI

OM
2 City Walk
Leeds, LS11 9AR
+44 (0) 113 391 6800 tel
+44 (0) 113 391 6899 fax
www.aecom.com

2 -S T- - - A-

N

0 12.5 25 m
1:500

Printed on ___% Post-Consumer Recycled Content Paper

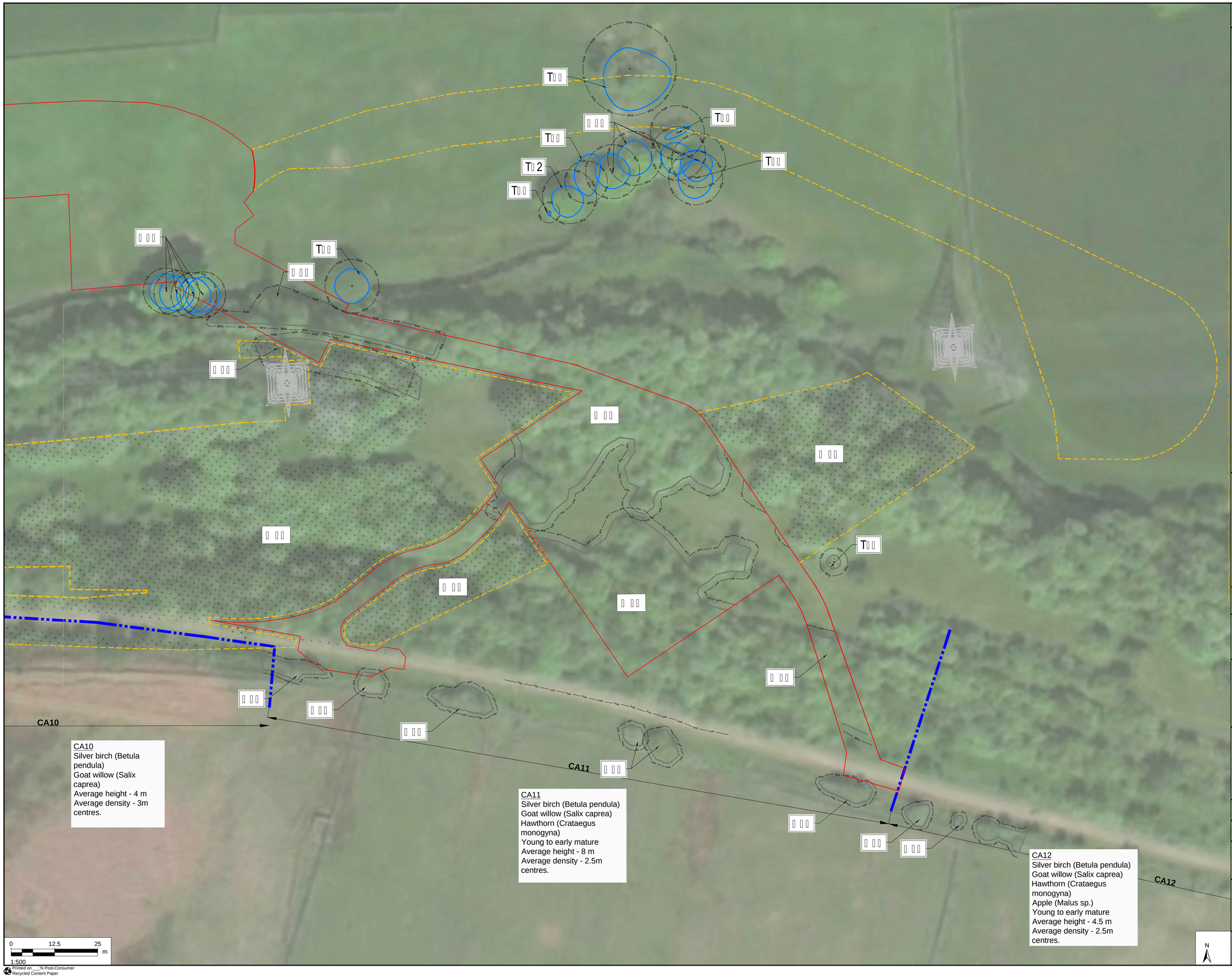
ISO A1 594mm x 841mm
Last Plotted: 2019-07-23
Last saved by: CHLOE.TEMPLE
Filename: \\UKLDS2\PFPSW001\UKLDS2\PFPSW001-V1\E\PROJECTS\ENVIRONMENTAL SERVICES - NG VIP ECOLOGY PHASE 2\03 EXECUTION\PEAK DISTRICT\TREE SURVEY\CAD\60495529-SHT-00-0000-LA-001 TO 010.DWG

ISO A1 594mm x 841mm

Last Plotted: 2019-07-23

Last saved by: CHLOE.TEMPLE

Filename: \\UKLDS2\FPSW001\UKLDS2\FPSW001-V1\EI\PROJECTS\ENVIRONMENTAL SERVICES - NG VIP ECOLOGY PHASE 2\03 EXECUTION\PEAK DISTRICT\TREE SURVEY\CAD\60495529-SHT-00-0000-LA-001 TO 010.DWG



CA10
Silver birch (Betula pendula)
Goat willow (Salix caprea)
Average height - 4 m
Average density - 3m centres.

CA11
Silver birch (Betula pendula)
Goat willow (Salix caprea)
Hawthorn (Crataegus monogyna)
Young to early mature
Average height - 8 m
Average density - 2.5m centres.

CA12
Silver birch (Betula pendula)
Goat willow (Salix caprea)
Hawthorn (Crataegus monogyna)
Apple (Malus sp.)
Young to early mature
Average height - 4.5 m
Average density - 2.5m centres.

N

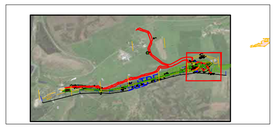
Printed on ___% Post-Consumer Recycled Content Paper

T IS O M NT IS TO S FOR T R OS OF ISS T AT IT AS ISS FOR AN IS S T TO AM N M NT

KEY

- BS 5837: 2012 TREE SURVEY BOUNDARY
- NON-BS 5837: 2012 TREE SURVEY BOUNDARY
- A - CATEGORY TREES (HIGH QUALITY & VALUE)
- B - CATEGORY TREES (MODERATE QUALITY & VALUE)
- C - CATEGORY TREES (LOW QUALITY & VALUE)
- U - CATEGORY TREES (DEAD, DEFECTIVE, INFECTED)
- ROOT PROTECTION AREAS (RPA) - AS DEFINED BY BS 5837:2012
- WOODLAND/ TREE GROUPS SUBJECT TO NON BS 5837: 2012

KEY PLAN



Contains Ordnance Survey Data © Crown Copyright and database right 2015
Reproduced from Ordnance Survey digital map data © Crown copyright 2015. All rights reserved. Licence number National Grid Electricity - 100024241

SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

FINA

NATIONA RI

VISUAL IMPACT PROVISION(VIP) PEAK DISTRICT (EAST) PROJECT

APPENDIX A ARBORICULTURAL CONSTRAINTS PLAN

T

M

2

T IS O M NT AS N R AR RS ANT TO AN S T TO T RMS OF A OMS A QINTM NT ITS NTI A OM A TS NO IA I IT FOR AN S OF T IS O M NT OT R T AN ITS ORI INA NT OR FO O IN A OMS R SS A R M NT TO S S AN ON FOR R OS S FOR IT AS R AR AN ROI

A OM
2 City Walk
Leeds, LS11 9AR
+44 (0) 113 391 6800 tel
+44 (0) 113 391 6899 fax
www.aecom.com

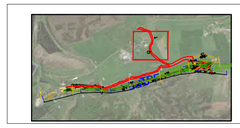
2 -S T- - - A-

T IS I O M NT IS TO S FOR T R OS OF
ISS T AT IT AS ISS FOR AN IS S T TO AM N M NT

KEY

- BS 5837: 2012 TREE SURVEY BOUNDARY
- NON-BS 5837: 2012 TREE SURVEY BOUNDARY
- A - CATEGORY TREES (HIGH QUALITY & VALUE)
- B - CATEGORY TREES (MODERATE QUALITY & VALUE)
- C - CATEGORY TREES (LOW QUALITY & VALUE)
- U - CATEGORY TREES (DEAD, DEFECTIVE, INFECTED)
- ROOT PROTECTION AREAS (RPA) - AS DEFINED BY BS 5837:2012
- WOODLAND/ TREE GROUPS SUBJECT TO NON BS 5837: 2012

KEY PLAN



Contains Ordnance Survey Data © Crown Copyright and database right 2015
Reproduced from Ordnance Survey digital map data © Crown copyright 2015. All rights reserved. Licence number National Grid Electricity - 100024241

SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

FINA

NATIONA RI

VISUAL IMPACT PROVISION(VIP) PEAK DISTRICT (EAST) PROJECT

APPENDIX A
ARBORICULTURAL CONSTRAINTS PLAN

T	R	M	2 2

A OM I S R N AR S ANT TO AN S T TO T RMS OF A OMS A OINTM NT ITS NT A OM A TS NO IA IT FOR AN S OF T IS O M NT OT R T AN ITS OR INA N OR FO O IN A OMS R SS A R M NT TO S S AN ON FOR T R OS S FOR IT AS R AR AN ROI I

A OM
2 City Walk
Leeds, LS11 9AR
+44 (0) 113 391 6800 tel
+44 (0) 113 391 6899 fax
www.aecom.com

AECOM

N

2 -S T- - - -

R

0 12.5 25 m
1:500

Printed on % Post-Consumer Recycled Content Paper

ISO A1 594mm x 841mm
Last Plotted: 2019-07-23
Last saved by: CHLOE.TEMPLE
Filename: \\UKLDS2PFPSW001\UKLDS2PFPSW001-V1\E\PROJECTS\ENVIRONMENTAL SERVICES - NG VIP ECOLOGY PHASE 2\03 EXECUTION\PEAK DISTRICT\TREE SURVEY\CAD\60495529-SHT-00-0000-LA-001 TO 010.DWG

Appendix B - BS 5837 Survey Area Arboricultural Survey Schedule

Tree ID	Species	Estimated Height (m)	Stem Diameter (m)	Canopy Spread (N)	Canopy Spread (S)	Canopy Spread (E)	Canopy Spread (W)	First Significant Branch (m)	Canopy Clearance (m)	Physiological Condition	Structural Condition	Life Stage	Condition Comments	Estimated Remaining Contribution	Category	RPA Radius (m)
G1	Silver birch (*Betula pendula*) Common alder (*Alnus glutinosa*) Goat willow (*Salix caprea*) Sycamore (Acer pseudoplatanus)	11	215	As illustrated on Arboricultural Constraints Plans				n/a	n/a	Good - Fair	Good - Fair	Young – Early Mature	Rowan and hawthorn. Varied group predominantly semi mature adjacent to a stream.	10+	C2	As illustrated on Arboricultural Constraints Plans
G2	Common oak (*Quercus robur*) Rowan (Sorbus aucuparia) Hawthorn (Crataegus monogyna) Common Alder (*Alnus glutinosa*)	10	405	As illustrated on Arboricultural Constraints Plans				n/a	n/a	Good - Fair	Good - Fair	Young – Early Mature	Ash and cherry. Varied group predominantly semi-mature.	10+	C2	As illustrated on Arboricultural Constraints Plans
G3	Silver birch (*Betula pendula*) Common alder (*Alnus glutinosa*) Whitebeam (*Sorbus aria*) Sycamore (Acer pseudoplatanus)	13	200	As illustrated on Arboricultural Constraints Plans				n/a	n/a	Good - Fair	Good - Fair	Young – Early Mature	Predominantly semi-mature.	10+	C2	As illustrated on Arboricultural Constraints Plans
G4*	Silver birch (Betula pendula Youngii) Common alder (*Alnus glutinosa*) Rowan (Sorbus aucuparia) Goat willow (*Salix caprea*)	8	180	As illustrated on Arboricultural Constraints Plans				n/a	n/a	Good - Fair	Good - Fair	Young - Semi-Mature	Predominantly semi-mature varied group.	10+	C2	As illustrated on Arboricultural Constraints Plans
T5*	Goat willow (*Salix caprea*)	8	400	3	4	4	2	2.3/E	1.8	Fair	Fair	Early Mature	Twin stem from 1.5m with good union.	10+	C2	4.80
G6*	Silver birch (*Betula pendula*)	9	210	As illustrated on Arboricultural Constraints Plans				n/a	n/a	Fair	Fair	Young - Semi-Mature	Historic high sided vehicle damage with good wound wood.	10+	C2	As illustrated on Arboricultural Constraints Plans
T7*	Goat willow (*Salix caprea*)	8	230	3	4	7	4	0.7/S	1.7	Fair	Fair	Mature	Historic vehicle damage with good wound wood. Two stems from ground level but union not visible.	10+	C2	2.76

Tree ID	Species	Estimated Height (m)	Stem Diameter (m)	Canopy Spread (N)	Canopy Spread (S)	Canopy Spread (E)	Canopy Spread (W)	First Significant Branch (m)	Canopy Clearance (m)	Physiological Condition	Structural Condition	Life Stage	Condition Comments	Estimated Remaining Contribution	Category	RPA Radius (m)
T8*	Silver birch (*Betula pendula*)	13	300	4	4	4	1	5.0/N	3	Good	Fair	Early Mature	No significant defects	10+	C2	3.60
T9	Goat willow (*Salix caprea*)	13	265 305 250	5 ave				1.8/W	5	Fair	Fair	Early Mature	Three stems with fair unions.	10+	C2	6.53
T10	Goat willow (*Salix caprea*)	12	230 245 150	1	6	3	3	1.0/S	1.5	Fair	Fair	Mature	Fair unions. Saprophytic fungi on southern stem but no targets present.	10+	C2	5.21
T11	Goat willow (*Salix caprea*)	13	350 300	0	7	7	2	3.0/S	0	Fair	Fair	Mature	Growing with and leaning against bank.	10+	C2	6.94
T12	Goat willow (*Salix caprea*)	13	290, 230	4	3	5	2	4.5/N	6	Fair	Fair	Mature	No significant defects	10+	C2	5.64
T13	Silver birch (*Betula pendula*)	13	350	4 ave				2.2/E	0.7	Fair	Fair	Mature	No significant defects	10+	C2	4.20
T14	Ash (Fraxinus excelsior)	13	310 300 100 200	5	3	2	5	3.0/S	1	Good	Fair	Early Mature	Fair unions. On bank above stream.	10+	C2	6.91
T15	Common alder (*Alnus glutinosa*)	15	420	4	4	2	3	3.0/N	1	Fair	Fair	Mature	No significant defects	10+	C2	5.04
T16	Ash (Fraxinus excelsior)	14	440 420	6	5	4	4	4.0/W	2	Good	Fair	Mature	Twin stem with fair union.	20+	B2	9.01

Tree ID	Species	Estimated Height (m)	Stem Diameter (m)	Canopy Spread (N)	Canopy Spread (S)	Canopy Spread (E)	Canopy Spread (W)	First Significant Branch (m)	Canopy Clearance (m)	Physiological Condition	Structural Condition	Life Stage	Condition Comments	Estimated Remaining Contribution	Category	RPA Radius (m)
T17	Common alder (*Alnus glutinosa*)	14	380 420	5	4	3	3	0.5/NW	5	Fair	Fair	Early Mature	Twin stem with fair union. Moderate dieback in the top of the southern stem.	10+	C2	8.18
T18	Common oak (*Quercus robur*)	8	300	6 ave				0.7/E	0	Good	Fair	Semi-Mature	No significant defects	10+	C2	3.60
T19	Common oak (*Quercus robur*)	14	470	4	4	5	8	2.0/W	0	Good	Fair	Mature	Western branch has grown down and along the ground. No access to the base	20+	B1,2	5.64
T20	Beech (Fagus sylvatica)	14	550	6	7	8	6	2.5/SW	0	Good	Fair	Mature	No access to the base.	20+	B1,2	6.60
T21	Ash (Fraxinus excelsior)	12	350 305	6 ave				1.7/N	3	Good	Fair	Early Mature	Tight compression fork at base but with upright form.	10+	C2	6.97
T22	Silver birch (*Betula pendula*)	13	330	3 ave				6.0/N	0.5	Fair	Fair	Mature	No significant defects	10+	C2	3.96
T23	Silver birch (*Betula pendula*)	13	300	3 ave				3.0/SW	1.5	Fair	Fair	Early Mature	No significant defects	10+	C2	3.60
T24	Silver birch (*Betula pendula*)	13	380	4 ave				3.0/SW	3	Fair	Fair	Mature	No significant defects	10+	C2	4.56
T25	Silver birch (*Betula pendula*)	11	330	4 ave				3.0/N	0.5	Fair	Fair	Mature	No significant defects	10+	C2	3.96
T26	Silver birch (*Betula pendula*)	11	250	2 ave				6.0/N	0.5	Fair	Fair	Mature	No significant defects	10+	C2	3.00

Tree ID	Species	Estimated Height (m)	Stem Diameter (m)	Canopy Spread (N)	Canopy Spread (S)	Canopy Spread (E)	Canopy Spread (W)	First Significant Branch (m)	Canopy Clearance (m)	Physiological Condition	Structural Condition	Life Stage	Condition Comments	Estimated Remaining Contribution	Category	RPA Radius (m)
T27	Silver birch (*Betula pendula*)	11	150 200	4 ave				2.0/N	0.5	Fair	Fair	Mature	Two stems from the base with a fair union.	10+	C2	3.50
T28*	Sycamore (Acer pseudoplatanus)	13	400	5 ave				1.0/NE	0	Good	Fair	Early Mature	No significant defects	20+	B2	4.80
T29	Silver birch (*Betula pendula*)	12	300	4 ave				2.5/NW	1	Good	Fair	Early Mature	No significant defects	10+	C2	3.60
T30	Silver birch (*Betula pendula*)	14	440	6 ave				3.0/S	1.7	Good	Good	Mature	No significant defects	20+	B2	5.28
T31	Silver birch (*Betula pendula*)	13	350	4 ave				7.0/S	1	Fair	Fair	Mature	No significant defects	10+	C2	4.20
T32	Silver birch (*Betula pendula*)	14	380	6 ave				4.0/NW	1	Good	Good	Mature	No significant defects	20+	B1,2	4.56
G33*	Sycamore (Acer pseudoplatanus)	16.0	550 ave	As illustrated on Arboricultural Constraints Plans				<1.0/All	5.0	Fair	Good - Fair	Early Mature	Group of early mature trees growing on the edge of the river bank all with moderate dead wood and small areas of decay. Excessive lean on trees G7a and G7b but bank appears stable. Decay pocket at 1 m above ground level (AGL) on main stem on G7a. G7c has a cavity at 3 m with fungal fruiting body; tear out at top of the tree with die back, pruning wounds and limb failure of bank side of the main stem. G7d has wounds associated with previous poor pruning, dead stubs and leaning slighting to the north east, small cavity on main stem.	40+	B2,3	As illustrated on Arboricultural Constraints Plans
G34	Common alder (*Alnus glutinosa*) Silver birch (*Betula pendula*) Sycamore (Acer pseudoplatanus) Goat willow (*Salix caprea*)	11	350	As illustrated on Arboricultural Constraints Plans				n/a	n/a	Good - Fair	Good - Fair	Young - Early Mature	Varied group predominantly semi-mature.	10+	C2	As illustrated on Arboricultural Constraints Plans

Tree ID	Species	Estimated Height (m)	Stem Diameter (m)	Canopy Spread (N)	Canopy Spread (S)	Canopy Spread (E)	Canopy Spread (W)	First Significant Branch (m)	Canopy Clearance (m)	Physiological Condition	Structural Condition	Life Stage	Condition Comments	Estimated Remaining Contribution	Category	RPA Radius (m)
G35	Goat willow (*Salix caprea*) Silver birch (*Betula pendula*)	10	315	As illustrated on Arboricultural Constraints Plans				n/a	n/a	Good - Fair	Good - Fair	Young - Early Mature	Predominantly semi-mature goat willow.	10+	C2	As illustrated on Arboricultural Constraints Plans
T36*	Alder (Alnus glutinosa)	16.0	760	5.0	4.0	3.0	4.0	2.0/SW	5.0	Good	Good - Fair	Mature	Cavity ay 2.5 m above ground level, localised decay, fibre buckling to main stem with excessive epicormic growth, especially around the crown break, broken branches, some die back, minor bark staining and some branches rubbing.	20+	B2,3	9.1
G37*	Silver birch (*Betula pendula*)	3.0 ave	100 ave	As illustrated on Arboricultural Constraints Plans				n/a	1.0	Good	Good - Fair	Young	Small dense groups of young self-sown trees, no major visible defects	20+	C1,2	As illustrated on Arboricultural Constraints Plans
W38*	Goat willow (*Salix caprea)* Silver birch (*Betula pendula*) Hawthorn (Crataegus monogyna)	8.0 ave	200 ave	As illustrated on Arboricultural Constraints Plans				n/a	<1.0	Good	Good - Fair	Young - Semi-Mature	Uneven ground with raised areas, mixture of multi-stemmed and single stemmed trees, some with tight unions, some trees have a small amount of die-back but all typical of species and age.	20+	C1,2	As illustrated on Arboricultural Constraints Plans
T39*	Silver birch (*Betula pendula*)	7.0	300	2.0	2.0	2.0	2.0	<1.0/All	<1.0	Good	Good - Fair	Young - Semi-Mature	Multi stemmed trees of generally good form, no significant visual defects.	20+	C1,2	3.6
W40*	Willow (*Salix* sp.) Silver birch (*Betula pendula*) Hawthorn (Crataegus monogyna) Ash (Fraxinus excelsior)	10.0 ave	350 ave	As illustrated on Arboricultural Constraints Plans				n/a	<1.0	Good	Good - Fair	Young - Semi-Mature	Multi stemmed trees on steep ground with some localised areas of erosion, uneven and raised ground levels.	20+	C1,2	As illustrated on Arboricultural Constraints Plans
T41*	Hawthorn (Crataegus monogyna)	3.5	370	0.5	0.5	1.5	0.5	1.0/ S	1.0	Fair	Poor	Over Mature	Remnants of a mature hawthorn with the majority of the main stem rotted away and partial failure of main stem resulting in a main branch barely attached but rooting with new regrowth.	20+	B2,3	4.4
T42*	English oak (*Quercus robur*)	12.0	600	3.0	4.0	6.0	5.0	2.5/SE	3.0	Good - Fair	Fair	Mature	Dead wood with stubs, decay pockets to base and historic pruning wounds and failure of main stem at the top of the tree. Decay column from base of the main stem on to 1.5 m AGL on north side of the tree and 1.0 m AGL on west. No sound of internal decay. Epicormic growth, moderate to major dead wood and brocket branches.	20+	B2,3	7.2
T43*	Ash (Fraxinus excelsior)	10.0	400	7.0	2.0	5.0	5.0	2.0/SW	2.0	Good	Fair - Poor	Mature	Large decay column from base to 4.0 m on south side. Minimum residual wall remaining, moderate deadwood, stubs and epicormic growth. Asymmetrical crown	20+	C1, 2	4.8

Tree ID	Species	Estimated Height (m)	Stem Diameter (m)	Canopy Spread (N)	Canopy Spread (S)	Canopy Spread (E)	Canopy Spread (W)	First Significant Branch (m)	Canopy Clearance (m)	Physiological Condition	Structural Condition	Life Stage	Condition Comments	Estimated Remaining Contribution	Category	RPA Radius (m)
G44*	English oak (*Quercus robur*) Sycamore (Acer pseudoplatanus)	15.0 ave	600 ave	As illustrated on Arboricultural Constraints Plans				n/a	2.0	Fair - Poor	Fair - Poor	Mature	Die back, moderate dead wood, epicormic shoots, stubs, exudation on north side of main stem	40+	B2,3	As illustrated on Arboricultural Constraints Plans
T45*	Sycamore (Acer pseudoplatanus)	18.0	1200	6.0	12.0	12.0	7.0	2.0/W	1.5	Good	Poor	Mature	Large prominent tree with significant basal decay, extending to canopy on north side. Minor re-growth to top. Stem to the south has lost its main leader with regrowth from lower branches appearing in good health. Habitat holes and veteran features.	20+	B1,2,3	14.4
T46*	Ash (Fraxinus excelsior)	4.0	400	1.0	1.0	3.0	2.0	n/a	1.0	Good	Poor	Mature	Fallen ash with decayed main stem but established re-growth with moderate dead wood.	20+	B2,3	4.8
T47*	Ash (Fraxinus excelsior)	15.0	630	6.0	3.0	6.0	5.0	2.5/W	1.5	Good	Good - Fair	Mature	Located on steep embankment, exposed basal roots with some minor damage. Decay pockets, broken branches and minor dead wood	40+	B2,3	7.6
T48	Sycamore (Acer pseudoplatanus)	17	905 300	8	8	9	8	2.0/E	1.2	Good	Good	Mature	Secondary stem from ground level on the west side with good attachment.	40+	A1,2	15.00
T49	Sycamore (Acer pseudoplatanus)	16	450	7 ave				0/All	1	Good	Fair	Mature	Surveyed from a distance all figures estimated.	20+	B2	5.40

Arboricultural Survey Schedule Key

Term	Definition		
Ave	Indicates an average representative measured dimension for the group or feature		
Category	Categorisation of the quality and benefits of trees as per Tables 1 and 2 of BS 5837		
	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	
	A	Trees of high quality with an estimated remaining life expectancy of at least 40 years	
	B	Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	
	C	Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	
	1	Arboricultural quality/value	
	2	Landscape quality/value	
	3	Cultural quality/value (including conservation)	
Condition	Good	Physiological	Normal vitality including leaf size, bud growth, density of crown and wound wood development
		Structural	No significant structural defects
	Fair	Physiological	Lower than normal vitality, reduced bud development, reduced crown density reduced response to wounds
		Structural	Defects which can be resolved via remedial works
	Poor	Physiological	Low vitality, low development and distribution of buds, discoloured leaves, low crown density, little extension growth for the species
		Structural	Defects which cannot be resolved via remedial works
	Dead	Dead	
	Fair/Good	Indicates an intermediate condition	
	Fair – Good	Indicates a range of conditions (e.g. within a group)	
Crown Clearance	The estimated height (in metres) above ground level of the significant extent of crown		
First Significant Branch	The estimated height (in metres) above ground level of the lowest significant branch attachment, including the direction of growth		

Term	Definition	
Life Stage	Young	Newly planted tree, 0-10 years old
	Semi-Mature	Tree in the first third of its normal life expectancy for the species (significant potential for future growth in size)
	Early Mature	Tree in the second third of its normal life expectancy for the species (some potential for future growth in size)
	Mature	Tree in the final third of its normal life expectancy for the species (having typically reached its approximate ultimate size)
	Over Mature	Tree beyond the normal life expectancy for the species
	Veteran	Tree which is of interest biologically, aesthetically or culturally because of its condition, size or age
Preliminary Management Recommendations	Works identified during the tree survey as being required on sound arboricultural management, based on the current context of the site	
RPA	Root Protection Area (As defined by BS 5837)	
Species	Common name followed by botanical name shown in *italics*	
Stem Diameter	Diameter of main stem, measured in millimetres at 1.5 m above ground level MS = Multi-stem tree measured in accordance with BS 5837 Annexe C	
Spread	The width and breadth of the crown. Estimated on the four compass points in metres	
Tree Reference	Specific identification number given to each tree or group	
	T	Tree
	H	Hedge
	G	Group
#	Estimated dimensions	
*	Indicates estimated position of tree plotted during the tree survey, not illustrated on topographical survey	

Appendix C Arboricultural Character Areas Schedule (Non BS 5837 Survey Area)

Character Area	Species	Estimated Average Height (m)	Estimated Average Density (m centres)
CA1	Goat willow (*Salix caprea*) English oak (*Quercus robur*) Elm (*Ulmus minor*) Sycamore *(Acer pseudoplatanus*) Hawthorn (*Crataegus monogyna*) Silver birch (*Betula pendula*)	4.5	2
CA2	Predominantly Silver birch (*Betula pendula*) Sycamore (*Acer pseudoplatanus*) Goat Willow (*Salix caprea*) Alder *(Alnus glutinosa*) Fir (*Abies* sp.)	4	2.5
CA3	Silver birch (*Betula pendula)* Goat Willow (*Salix caprea*) Hawthorn (*Crataegus monogyna*) Alder (*Alnus glutinosa*)	4	2
CA4	Predominantly Silver birch (*Betula pendula*) Goat willow (*Salix caprea*) Occasional mature specimens of English oak *(Quercus robur)-to* northern banks Goat Willow- south bank.north bank/side and top of south bank Silver birch younger nearest track.	4	3
CA5	Silver birch (*Betula pendula*) Goat willow (*Salix caprea*) Laurel *(Prunus laurocerasus*) and Rhododendron *(Rhododendron sp.)* to top of south bank Large mature Silver birch *(Betula pendula)* to top of south bank	4.5	2.5
CA6	Predominantly Silver birch (*Betula pendula*) Goat willow (*Salix caprea*) with occasional semi-mature Ash *(Fraxinus sp.)* to south bank and young Ash to north bank	4.5	4
CA7	Alder (*Alnus glutinosa*) Ash (*Fraxinus* sp.) Hazel (*Corylus avellana*) Silver birch (*Betula pendula*) Single individual mature ash to top of north bank	4.5	3

Character Area	Species	Estimated Average Height (m)	Estimated Average Density (m centres)
CA8	Silver birch (*Betula pendula*) Goat willow with occasional Rowan (*Sorbus aucuparia*) Sycamore (*Acer pseudoplatanus*)	4.5	3
CA9	Predominantly Silver birch (*Betula pendula*) Goat willow *(Salix caprea)* understorey Occasional semi-mature Silver birch *(Betula pendula)* to rear of south bank	4.5	3
CA10	Goat willow (*Salix caprea*) Silver birch (*Betula pendula*) Goat willow (*Salix caprea*)	4	3
CA11	Silver birch (*Betula pendula*) Goat willow (*Salix caprea*) Hawthorn (*Crataegus monogyna*) Young to early mature	8	2.5
CA12	Silver birch (*Betula pendula*) Goat willow (*Salix caprea*) Hawthorn (*Crataegus monogyna*) Apple (*Malus* sp.) Young to early mature	4.5	2.5

Appendix D Photographs

Photo 1 – View towards potential laydown area on the western side of the SEC.



Photo 2 – View within BS 5837 Survey Area (SEC)



Photo 3 – View within potential laydown area on western side of the SEC



Photo 4 – G33



Photo 5 – G36



Photo 7 – G41 to G47 (right hand side group) T45 (left hand side)



Photo 8 – T41



Photo 9 – T41

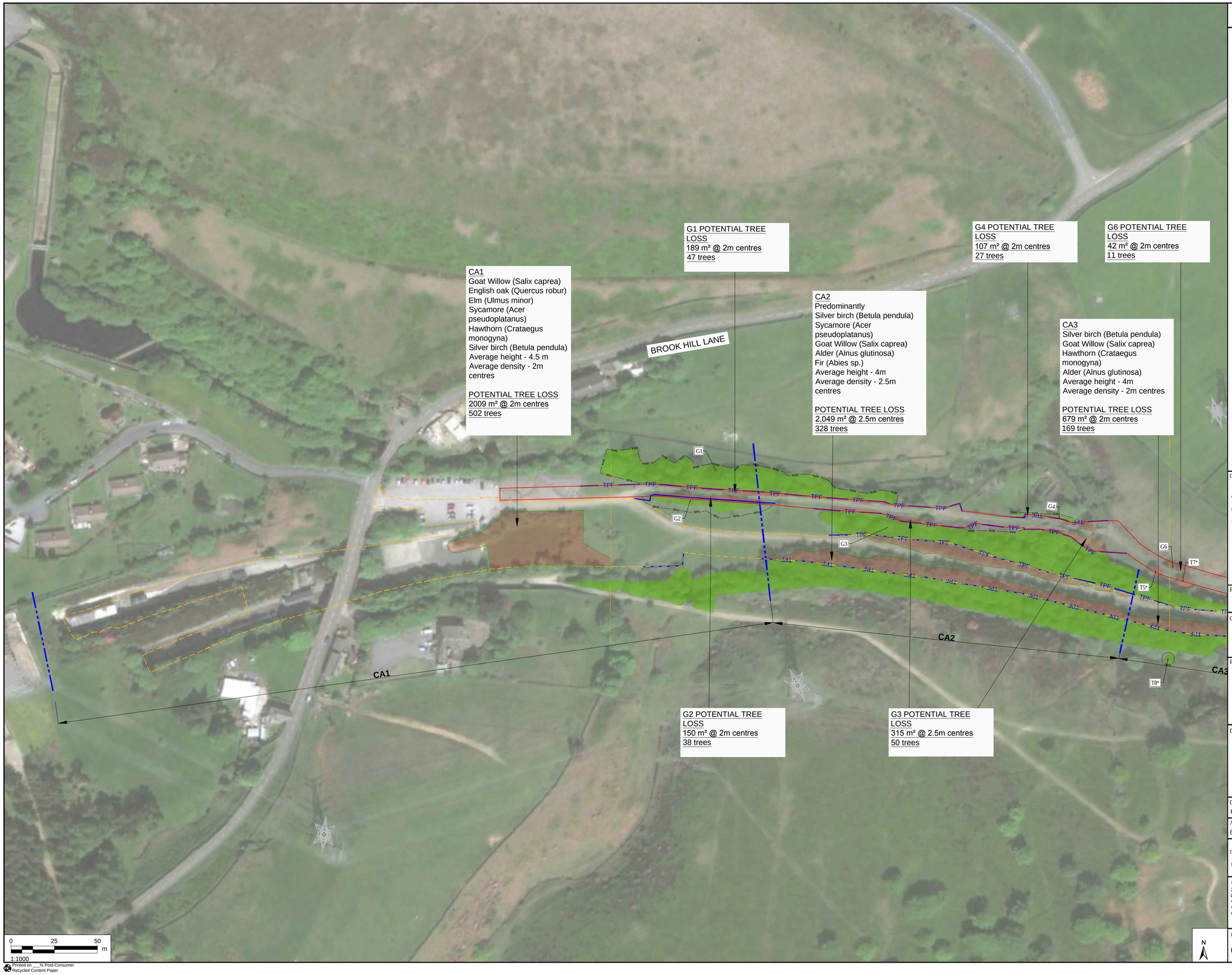


Photo 10 – T45



Appendix E Estimated Potential Tree Removals and Tree Protection Fencing Plans

ISO A1 594mm x 841mm
Last Plotted: 2019-07-23
Last saved by: CHLOE.TEMPLE
Filename: \\UKLDS2PFPSW001\UKLDS2PFPSW001-V1\E\PROJECTS\ENVIRONMENTAL SERVICES - NG VIP ECOLOGY PHASE 2\03 EXECUTION\PEAK DISTRICT\TREE SURVEY\CAD\60495529-SHT-00-0000-LA-001 TO 010.DWG



0 25 50 m
1:1000

Printed on ___% Post-Consumer Recycled Content Paper

THIS DOCUMENT IS TO BE USED FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

KEY

- BS 5837: 2012 TREE SURVEY AREA
- NON-BS 5837: 2012 TREE SURVEY AREA
- EXISTING TREES PROPOSED TO BE RETAINED
- EXISTING TREES LIKELY TO REQUIRE REMOVAL
- AREA OF NO DIG
- TREE PROTECTION FENCING
- ROOT PROTECTION AREAS (RPA) - AS DEFINED BY BS 5837:2012

KEY PLAN



Copyright

Contains Ordnance Survey Data © Crown Copyright and database right 2015
Reproduced from Ordnance Survey digital map data © Grown copyright 2015. All rights reserved. Licence number National Grid Electricity - 100024241

SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

Purpose of Issue
FINAL

Client
NATIONAL GRID

Project Title
VISUAL IMPACT PROVISION(VIP) PEAK DISTRICT (EAST) PROJECT

Drawing Title
ESTIMATED POTENTIAL TREE REMOVALS AND TREE PROTECTION PLAN

Drawn	Checked	Approved	Date
CT	RC	CM	20/07/2019

AECOM Internal Project No.	Scale @ A1
60495529	1:1000

THIS DOCUMENT HAS BEEN PREPARED PURSUANT TO AND SUBJECT TO THE TERMS OF AECOM'S APPOINTMENT BY ITS CLIENT. AECOM ACCEPTS NO LIABILITY FOR ANY USE OF THIS DOCUMENT OTHER THAN BY ITS ORIGINAL CLIENT OR FOLLOWING AECOM'S EXPRESS AGREEMENT TO SUCH USE, AND ONLY FOR THE PURPOSES FOR WHICH IT WAS PREPARED AND PROVIDED.

AECOM
2 City Walk
Leeds, LS11 9AR
+44 (0) 113 391 6800 tel
+44 (0) 113 391 6899 fax
www.aecom.com

N

Drawing Number
60495529-SHT-00-0000-LA-008 A

Rev
08

ISO A1 594mm x 841mm
Last Plotted: 2019-07-23
Last saved by: CHLOE.TEMPLE
Filename: \\UKLDS2\PFPSW001\UKLDS2PFPSW001-V1\EIP\PROJECTS\ENVIRONMENTAL SERVICES - NG VIP ECOLOGY PHASE 2\03 EXECUTION\PEAK DISTRICT\TREE SURVEY\CAD\60495529-SHT-00-0000-LA-001 TO 010.DWG

CA4
Predominantly
Silver birch (Betula pendula)
Goat willow (Salix caprea)
Occasional mature specimens of English oak (Quercus robur)-to northern banks
Goat Willow- south bank.north bank/side and top of south bank
Silver birch younger nearest track.
Average height - 4m
Average density - 3m centres

POTENTIAL TREE LOSS
977 m² @ 3m centres
109 trees

CA5
Silver birch (Betula pendula)
Goat willow (Salix caprea)
Laurel (Prunus laurocerasus) and Rhododendron (Rhododendron sp.) to top of south bank
Large mature Silver birch (Betula pendula)
to top of south bank
Average height - 4.5 m
Average density - 2.5m centres.

POTENTIAL TREE LOSS
604 m² @ 2.5m centres
96 trees

CA6
Predominantly
Silver birch (Betula pendula)
Goat willow (Salix caprea)
with occasional semi-mature Ash(Fraxinus sp.) to south bank and young Ash to north bank
Average height - 4.5 m
Average density - 4m centres

POTENTIAL TREE LOSS
1462 m² @ 4m centres
91 trees

CA7
Alder (Alnus glutinosa)
Ash(Fraxinussp.)
Hazel (Corylus avellana)
Silver birch (Betula pendula)
Single individual mature ash to top of north bank
Average height - 4.5 m
Average density - 3m centres.

POTENTIAL TREE LOSS
820 m² @ 3m centres
91 trees

CA8
Silver birch (Betula pendula)
Goat willow with occasional Rowan (Sorbus aucuparia)
Sycamore (Acer pseudoplatanus)
Average height - 4.5 m
Average density - 3m centres.

POTENTIAL TREE LOSS
1995 m² @ 3m centres
222 trees

CA3 CA4 CA5 CA6 CA7 CA8

T9 T10 T11 T12 T13 T14 T15 T16 T17 T18 T19 T20 T21 T22 T23 T24 T25 T26 T27 T28* T29 T30 T31 T48

TPF

RPA

0 25 50 m
1:1000

Printed on ___% Post-Consumer Recycled Content Paper

THIS DOCUMENT IS TO BE USED FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

KEY

- BS 5837: 2012 TREE SURVEY AREA
- NON-BS 5837: 2012 TREE SURVEY AREA
- EXISTING TREES PROPOSED TO BE RETAINED
- EXISTING TREES LIKELY TO REQUIRE REMOVAL
- AREA OF NO DIG
- TPF — TREE PROTECTION FENCING
- ROOT PROTECTION AREAS (RPA) - AS DEFINED BY BS 5837:2012

KEY PLAN



Copyright

Contains Ordnance Survey Data © Crown Copyright and database right 2015
Reproduced from Ordnance Survey digital map data © Grown copyright 2015. All rights reserved. Licence number National Grid Electricity - 100024241

SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

Purpose of Issue
FINAL

Client
NATIONAL GRID

Project Title
VISUAL IMPACT PROVISION(VIP) PEAK DISTRICT (EAST) PROJECT

Drawing Title
ESTIMATED POTENTIAL TREE REMOVALS AND TREE PROTECTION PLAN

Drawn	Checked	Approved	Date
CT	RC	CM	20/07/2019

AECOM Internal Project No.	Scale @ A1
60495529	1:1000

THIS DOCUMENT HAS BEEN PREPARED PURSUANT TO AND SUBJECT TO THE TERMS OF AECOM'S APPOINTMENT BY ITS CLIENT. AECOM ACCEPTS NO LIABILITY FOR ANY USE OF THIS DOCUMENT OTHER THAN BY ITS ORIGINAL CLIENT OR FOLLOWING AECOM'S EXPRESS AGREEMENT TO SUCH USE, AND ONLY FOR THE PURPOSES FOR WHICH IT WAS PREPARED AND PROVIDED.

AECOM
2 City Walk
Leeds, LS11 9AR
+44 (0) 113 391 6800 tel
+44 (0) 113 391 6899 fax
www.aecom.com

N

Drawing Number
60495529-SHT-00-0000-LA-009 A

Rev
08

ISO A1 594mm x 841mm
Last Plotted: 2019-07-23
Last saved by: CHLOE.TEMPLE
Filename: \\UKLDS2PFPSW001\UKLDS2PFPSW001-V1\E\PROJECTS\ENVIRONMENTAL SERVICES - NG VIP ECOLOGY PHASE 2\03 EXECUTION\PEAK DISTRICT\TREE SURVEY\CAD\60495529-SHT-00-0000-LA-001 TO 010.DWG

CA9
Predominantly
Silver birch (Betula pendula)
Goat willow (Salix caprea)
understorey
Occasional semi-mature
Silver birch (Betula pendula)
to rear of south bank
Average height - 4.5 m
Average density - 3m centres

POTENTIAL TREE LOSS
538 m² @ 3m centres
59 trees

G34 POTENTIAL TREE LOSS
392 m² @ 2.5m centres
63 trees

G35 POTENTIAL TREE LOSS
309 m² @ 2.5m centres
49 trees

G35 POTENTIAL TREE LOSS
49 m² @ 2.5m centres
8 trees

W38 POTENTIAL TREE LOSS
6046 m² @ 2.5m centres
967 trees

W40 POTENTIAL TREE LOSS
983 m² @ 2.5m centres
158 trees

W40 POTENTIAL TREE LOSS
1787 m² @ 2.5m centres
285 trees

W38 POTENTIAL TREE LOSS 509 m² @ 2.5m centres
81 trees

W38 POTENTIAL TREE LOSS
815 m² @ 2.5m centres
130 trees

W38 POTENTIAL TREE LOSS
1343 m² @ 2.5m centres
215 trees

W38 POTENTIAL TREE LOSS
217 m² @ 2.5m centres
35 trees

CA10
Silver birch (Betula pendula)
Goat willow (Salix caprea)
Average height - 4 m
Average density - 3m centres.

POTENTIAL TREE LOSS
448 m² @ 3m centres
50 trees

CA11
Silver birch (Betula pendula)
Goat willow (Salix caprea)
Hawthorn (Crataegus monogyna)
Young to early mature
Average height - 8 m
Average density - 2.5m centres.

POTENTIAL TREE LOSS = See individual areas above

CA12
Silver birch (Betula pendula)
Goat willow (Salix caprea)
Hawthorn (Crataegus monogyna)
Apple (Malus sp.)
Young to early mature
Average height - 4.5 m
Average density - 2.5m centres.

NO TREE LOSS PREDICTED

0 25 50 m
1:1000

Printed on ___% Post-Consumer Recycled Content Paper

THIS DOCUMENT IS TO BE USED FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

KEY

- BS 5837: 2012 TREE SURVEY AREA
- NON-BS 5837: 2012 TREE SURVEY AREA
- EXISTING TREES PROPOSED TO BE RETAINED
- EXISTING TREES LIKELY TO REQUIRE REMOVAL
- AREA OF NO DIG
- TPF — TREE PROTECTION FENCING
- RPA — ROOT PROTECTION AREAS (RPA) - AS DEFINED BY BS 5837:2012

KEY PLAN



Copyright

Contains Ordnance Survey Data © Crown Copyright and database right 2015
Reproduced from Ordnance Survey digital map data © Crown copyright 2015. All rights reserved. Licence number National Grid Electricity - 100024241

SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

Purpose of Issue
FINAL

Client
NATIONAL GRID

Project Title
VISUAL IMPACT PROVISION(VIP) PEAK DISTRICT (EAST) PROJECT

Drawing Title
ESTIMATED POTENTIAL TREE REMOVALS AND TREE PROTECTION PLAN

Drawn	Checked	Approved	Date
CT	RC	CM	20/07/2019

AECOM Internal Project No.	Scale @ A1
60495529	1:1000

THIS DOCUMENT HAS BEEN PREPARED PURSUANT TO AND SUBJECT TO THE TERMS OF AECOM'S APPOINTMENT BY ITS CLIENT. AECOM ACCEPTS NO LIABILITY FOR ANY USE OF THIS DOCUMENT OTHER THAN BY ITS ORIGINAL CLIENT OR FOLLOWING AECOM'S EXPRESS AGREEMENT TO SUCH USE, AND ONLY FOR THE PURPOSES FOR WHICH IT WAS PREPARED AND PROVIDED.

AECOM
2 City Walk
Leeds, LS11 9AR
+44 (0) 113 391 6800 tel
+44 (0) 113 391 6899 fax
www.aecom.com

N

Drawing Number
60495529-SHT-00-0000-LA-010 A

Rev
08

ISO A1 594mm x 841mm
Last Plotted: 2019-07-23
Last saved by: CHLOE.TEMPLE
Filename: \\UKLDS2\PFPSW001\UKLDS2PFPSW001-V1\EIP\PROJECTS\ENVIRONMENTAL SERVICES - NG VIP ECOLOGY PHASE 2\03 EXECUTION\PEAK DISTRICT\TREE SURVEY\CAD\60495529-SHT-00-0000-LA-001 TO 010.DWG



0 25 50 m
1:1000

N

Printed on ___% Post-Consumer Recycled Content Paper

THIS DOCUMENT IS TO BE USED FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

KEY

- BS 5837: 2012 TREE SURVEY AREA
- NON-BS 5837: 2012 TREE SURVEY AREA
- EXISTING TREES PROPOSED TO BE RETAINED
- EXISTING TREES LIKELY TO REQUIRE REMOVAL
- AREA OF NO DIG
- TPF — TREE PROTECTION FENCING
- ROOT PROTECTION AREAS (RPA) - AS DEFINED BY BS 5837:2012

KEY PLAN



Copyright

Contains Ordnance Survey Data © Crown Copyright and database right 2015
Reproduced from Ordnance Survey digital map data © Crown copyright 2015. All rights reserved. Licence number National Grid Electricity - 100024241

SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

Purpose of Issue
FINAL

Client
NATIONAL GRID

Project Title
VISUAL IMPACT PROVISION(VIP) PEAK DISTRICT (EAST) PROJECT

Drawing Title
ESTIMATED POTENTIAL TREE REMOVALS AND TREE PROTECTION PLAN

Drawn	Checked	Approved	Date
CT	RC	CM	20/07/2019

AECOM Internal Project No.	Scale @ A1
60495529	1:1000

THIS DOCUMENT HAS BEEN PREPARED PURSUANT TO AND SUBJECT TO THE TERMS OF AECOM'S APPOINTMENT BY ITS CLIENT. AECOM ACCEPTS NO LIABILITY FOR ANY USE OF THIS DOCUMENT OTHER THAN BY ITS ORIGINAL CLIENT OR FOLLOWING AECOM'S EXPRESS AGREEMENT TO SUCH USE, AND ONLY FOR THE PURPOSES FOR WHICH IT WAS PREPARED AND PROVIDED.

AECOM
2 City Walk
Leeds, LS11 9AR
+44 (0) 113 391 6800 tel
+44 (0) 113 391 6899 fax
www.aecom.com

Drawing Number
60495529-SHT-00-0000-LA-011 A

Rev
08

Appendix F Cable Working Areas

File name \\UK.WSPGROUP.COM\CENTRAL DATA\PROJECTS\62100XXX\62100737 - NG VIP FEED\C DOCUMENTS\1 CPP SCHEME - DRAWINGS TO REVIEW\GUILDFORD DWG'S\MODIFIED\PDD_33492_LAY_077_P1.DWG, printed on 15 April 2019 13:45:26, by Conway, Mark

DO NOT SCALE

REV	DATE	BY	DESCRIPTION	CHK	APP
P01	17/07/2018	PP	FIRST ISSUE	CN	CN

DRAWING STATUS: S2 - FOR INFORMATION

wsp

Amber Court, William Armstrong Drive, Newcastle upon Tyne, NE4 7YQ, UK
T+ 44 (0) 191 226 2000, F+ 44 (0) 191 226 2104
wsp.com

CLIENT: NATIONAL GRID

ARCHITECT:

PROJECT: VIP PEAK EAST

TITLE: CABLE WORKING AREAS

SCALE @ A3:	CHECKED:		APPROVED:
1:50			
PROJECT No:	DESIGNED:	DRAWN:	DATE:
62100737		PP	17/07/2018

DRAWING No:	REV:
PDD_33492_LAY_077	P01

© WSP UK Ltd

AECOM Limited
5th Floor, 2 City Walk
Leeds LS11 9AR
United Kingdom

T: +44 (0)113 391 6800
aecom.com