

A417 Missing Link

Preliminary Environmental Information Report

Chapter 7 Landscape and Visual Effects - Appendices

28 September 2020

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A417 Missing Link

Preliminary Environmental Information Report

Appendix 7.1
LVIA Policy and Guidance

28 September 2020

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1 Legislative and policy framework

1.1 NPSNN policy

- 1.1.1 As discussed in Chapter 1, the primary basis for deciding whether or not to grant a Development Consent Order (DCO) is the National Policy Statement for National Networks (NPSNN)¹, which sets out policies to guide how DCO applications will be decided and how the effects of national networks infrastructure should be considered. **Table 1-1** identifies the NPSNN policies relevant to the Landscape and Visual Impact Assessment (LVIA) and then specifies where in the Preliminary Environmental Information (PEI) report chapter information is provided to address the policy.

Table 1-1 NPSNN policies relevant to LVIA

Relevant NPSNN paragraph reference	Requirement of the NPSNN	Where in the PEI report chapter is information provided to address this policy
5.144	The National Policy Statement for National Networks (NPSNN) notes that where a development is subject to an Environmental Impact Assessment (EIA), an assessment of any likely significant landscape and visual impacts should be undertaken by the applicant within the EIA and described within the Environmental Statement (ES).	This policy is addressed by the assessment of landscape and visual effects within this chapter.
5.146-148	The Applicant's assessment should consider any relevant national and local development policies, significant effects during construction and operation, and visibility and conspicuousness.	This policy is addressed by the inclusion and consideration of existing relevant policies in Appendix 7.1.
5.147	Compliance with the respective duties in section 11A of the National Parks and Access to Countryside Act 1949 and section 85 of the Countryside and Rights of Way Act 2000 is required.	Section 11A states fostering the economic and social well-being of local communities while conserving and enhancing the natural beauty, wildlife and cultural heritage of the area. If a conflict arises, the greater weight shall be attached to s5(1) (the conserving and enhancing the area). This is addressed in the landscape led environmental masterplan. See Figure 7.9 Environmental Masterplan. Section 85 is addressed by conserving and enhancing the natural beauty of the Area of Outstanding Natural Beauty (AONB) through the design enhancements as part of the scheme. See Figure 7.9 Environmental Masterplan.
5.148	<i>Significant road widening or the building of new roads in an AONB should comply with the requirements set out in Defra's English national parks and the broads: UK government vision and circular 2010 or successor documents.</i>	These link to s5(1) 1949 Act (conserving and enhancing the natural beauty, wildlife and cultural heritage). See Figure 7.9 Environmental Masterplan approach, and section 7.9 Design, Mitigation and Enhancement Measures.

Relevant NPSNN paragraph reference	Requirement of the NPSNN	Where in the PEI report chapter is information provided to address this policy
5.149	The NPSNN seeks careful design, having regard to siting, operational and other constraints, in order to avoid or reduce landscape harm and to provide reasonable mitigation where possible and appropriate.	The design of the scheme is landscape led, as set out in sections 1 and 2. See Figure 7.9 Environmental Masterplan, and section 7.9 Design, Mitigation and Enhancement Measures.
5.150-153	Great weight should be given to conserving landscape and scenic beauty in nationally designated areas. These areas have the highest status of protection in relation to landscape and scenic beauty. In decisions, the Secretary of State has a statutory duty to have regard to the statutory purposes which help ensure their continued protection. The Secretary of State should refuse development consent except in exceptional circumstances and where it can be demonstrated that it is in the public interest. For any significant road widening or the building of new roads in these areas, compelling reasons for the new or enhanced capacity are required, and with any benefits outweighing the costs significantly. The applicant should ensure the project will be carried out to high environmental standards and where possible include measures to enhance other aspects of the environment. Where necessary, the Secretary of State should consider the imposition of appropriate requirements to ensure these standards are delivered.	See Figure 7.9 Environmental Masterplan, and section 7.9 Design, Mitigation and Enhancement Measures.

1.1 National policy

Table 1-2 The National Planning Policy Framework (NPPF)

Relevant NPPF paragraph	NPPF ² policy	PEI report chapter in which policy is addressed
Strategic policies		
20	The section on Strategic Policies refers to strategies for infrastructure such as transport and “the conservation and enhancement of the natural, built and historic environment, including landscapes and green infrastructure, and planning measures to address climate change mitigation and adaptation.”	See Figure 7.9 Environmental Masterplan, and section 7.9 Design, Mitigation and Enhancement Measures.
Open space and recreation		

96	“access to a network of high-quality open spaces and opportunities for sport and physical activity is important for the health and well-being of communities.”	See Figure 7.9 Environmental Masterplan, and section 7.9 Design, Mitigation and Enhancement Measures.
Developments		
98	Developments “should protect and enhance public rights of way and access, including taking opportunities to provide better facilities for users, for example by adding links to existing rights of way networks including National Trails.”	See Figure 7.9 Environmental Masterplan, and section 7.9 Design, Mitigation and Enhancement Measures, and Environmental Masterplans for layout proposals to Public Right of Way (PRoW).
Promoting sustainable transport		
102	“the environmental impacts of transport infrastructure should be identified and assessed including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains” and that “opportunities to promote walking, cycling and public transport use are identified and pursued.”	See Figure 7.9 Environmental Masterplan, and section 7.9 Design, Mitigation and Enhancement Measures, and Environmental Masterplans for layout proposals to PRoW.
104	High quality walking and cycling networks should be provided for and that facilities such as cycle parking should be accommodated.	
170	The planning system should contribute to and enhance the natural, built and historic environment by protecting and enhancing valued landscapes, geological value and soils.	See Figure 7.9 Environmental Masterplan, and section 7.9 Design, Mitigation and Enhancement Measures.
172	Great weight is to be given to conserving landscape and scenic beauty in AONBs and National Parks.	

A green future: Our 25-year plan to improve the environment

- 1.1.1 In 2018, the Government published their plans for creating a greener future and how they intend to improve the environment³. The introduction states - landscape are goods in themselves and that broader landscapes are transformed by connecting habitats into larger corridors for wildlife.
- 1.1.2 Under the heading ‘Our 25-year goals’, the Government introduces their aims and goals, including:
- thriving plants and wildlife;
 - enhanced beauty, heritage and engagement with the natural environment; and
 - mitigating and adapting to climate change.
- 1.1.3 Chapters of relevance to the protection and enhancement of landscape in relation to the scheme include chapter 1 and 2, with relevant sections lifted and commented on below.
- 1.1.4 Chapter 1: using and managing land sustainably introduces the principles of developments (including infrastructure schemes like the A417) providing ‘environmental net gain’, improving soil health, expand woodland cover and enhance existing woodland having a net positive impact and bringing wider environmental improvements by recognising the significant heritage value and irreplaceable character of ancient woodland and veteran trees and focusing on woodland to maximise its many benefits by increasing tree planting, creating new forests as part of the government’s plan to plant 11 million trees.

- 1.1.5 Chapter 2: recovering nature and enhancing the beauty of landscapes, sets out their intention to protect and restore wildlife, and conserve and enhance the natural beauty of our landscapes by connecting wildlife sites or adding new wildlife habitats, in the region of 500,000 hectares. This landscape-scale approach to restore wildflower-rich grassland, meadows could include the A417 design intention to restore and enhance large areas of calcareous grassland, positively contributing to the Government’s Nature Recovery Network, along with extensive woodland planting and providing better access for people to nature. Carbon capture is an additional benefits of planting trees positively contributing to improving the environment, and although this will not offset the impacts of the scheme, they can help reduce them.
- 1.1.6 The Environmental Masterplan (PEI report Figure 7.9), including combined landscape, biodiversity and historic environment proposals will address and positively contribute to achieving environmental improvements as outlined within the Government’s 25-year plan.

1.2 Local policy

- 1.2.1 Local policy documents of relevance to the scheme include the adopted Cotswold District Local Plan to 2031, the Gloucester, Cheltenham and Tewkesbury Joint Core Strategy (JCS) 2011-2031 December 2017 and the DRAFT Tewkesbury Borough Plan 2011-2031.

Gloucestershire County Council

- 1.2.2 The scheme is situated within the Gloucestershire County boundary. Gloucestershire County Council is responsible for much of the area’s infrastructure, mineral working and associated development, and the disposal of waste. It does not set policy or consider domestic or infrastructure projects such as the realignment of the A417 trunk road. Therefore, at the county level no relevant planning policies to consider.

Stroud District Council (adopted November 2015)

- 1.2.3 The scheme is situated outside of Stroud District Council; however, their boundary crosses within a small proportion of the wider 3km study area, south-west of the scheme. This area is also situated within the Cotswolds AONB. Policies covering this area which include CP4 Place Making “*protecting and enhancing a sense of place with a locally inspired or distinctive character*” will be considered as part of its wider AONB context. Therefore, at the local level no relevant planning policies to consider.

Cotswold District Local Plan to 2031

- 1.2.4 Relevant polices within Cotswolds District Council’s local plan include:

Policy EN4: the wider natural and historic landscape

“1. Development will be permitted where it does not have a significant detrimental impact on the natural and historic landscape (including the tranquillity of the countryside) of Cotswold District or neighbouring areas.

“2. Proposals will take account of landscape and historic landscape character, visual quality and local distinctiveness. They will be expected to enhance,

restore and better manage the natural and historic landscape, and any significant landscape features and elements, including key views, settlement patterns and heritage assets.”

Policy EN5: Cotswolds area of outstanding natural beauty

“1. In determining development proposals within the AONB or its setting, the conservation and enhancement of the natural beauty of the landscape, its character and special qualities will be given great weight.

“2. Major development will not be permitted within the AONB unless it satisfies the exceptions set out in national Policy and Guidance.”

Policy EN6: special landscape areas

“Development within Special Landscape Areas will be permitted provided it does not have a significant detrimental impact upon the special character and key landscape qualities of the area including its tranquillity.”⁴

Gloucester, Cheltenham and Tewkesbury Joint Core Strategy (JCS) 2011 – 2031 December 2017

- 1.2.5 The Joint Core Strategy is a partnership between Gloucester City Council, Cheltenham Borough Council and Tewkesbury Borough Council to deliver a co-ordinated strategic development plan. The Joint Core Strategy identifies larger strategic issues which impact all three authorities whilst each authority retains individual local plans which provide planning guidance on smaller and local development issues.

Joint core strategy

- 1.2.6 Policies considered in this assessment are set out in Table 1-3 and where appropriate relevant extracts have been included for ease of reference⁵.

Table 1-3 Joint core strategy policies assessed

Policy number	Joint core strategy policy	PEI report chapter in which policy is addressed
Policy SD4: design requirement	<i>“Context, Character and Sense of Place; New development should respond positively to, and respect the character of, the site and its surroundings, enhancing local distinctiveness, and...materials appropriate to the site and its setting. Design should establish a strong sense of place using streetscapes and buildings to create attractive and comfortable places to live and having appropriate regard to the historic environment.”</i>	Chapter 7.6 Baseline conditions sets out the character of the site and wider area which is taken into consideration of the design. See Figure 7.9 Environmental Masterplan, and section 7.9 Design, Mitigation and Enhancement Measures.
Policy SD5: green belt	<i>“To ensure the Green Belt continues to serve its key functions, it will be protected from harmful development. Within its boundaries, development will be restricted to those limited types of development which are deemed appropriate by the NPPF, unless</i>	A section of the scheme on the scarp slope is within the Gloucestershire and Cheltenham Green

	<i>very special circumstances can be demonstrated. That is: ‘whether very special circumstances exist to outweigh the harm automatically caused to the Green Belt by virtue of the development being inappropriate and any other harm actually caused.’</i>	Belt. See the landscape section within 7.7 Baseline Conditions and 7.10 Assessment of Likely Significant Effects.
Policy SD6: landscape	<i>“1. Development will seek to protect landscape character for its own intrinsic beauty and for its benefit to economic, environmental and social well-being; “2. Proposals will have regard to the local distinctiveness and historic character of the different landscapes in the JCS area, drawing, as appropriate, upon existing Landscape Character Assessments and the Landscape Character and Sensitivity Analysis. They will be required to demonstrate how the development will protect or enhance landscape character and avoid detrimental effects on types, patterns and features which make a significant contribution to the character, history and setting of a settlement or area.”</i>	See landscape section within 7.7 Baseline Conditions, 7.10 Assessment of Likely Significant Effects and Figure 7.9 Environmental Masterplan.
Policy SD7: the Cotswolds AONB	<i>“All development proposals in or within the setting of the Cotswolds AONB will be required to conserve and, where appropriate, enhance its landscape, scenic beauty, wildlife, cultural heritage and other special qualities. Proposals will be required to be consistent with the policies set out in the Cotswolds AONB Management Plan.”</i>	See Figure 7.9 Environmental Masterplan for details of the landscape-led design of the highways scheme.
Policy SD14: health and environmental quality	<i>“1. High-quality development should protect and seek to improve environmental quality. Development should not create or exacerbate conditions that could impact on human health or cause health inequality. “2. New development must: vi. Take into account the quality and versatility of any agricultural land affected by proposals, recognising that the best agricultural land is a finite resource; vii. Have regard to any areas of tranquillity that are identified in adopted or emerging District plans and neighbourhood plans; and viii. Avoid any adverse impact from artificial light on intrinsically dark landscapes.”</i>	See Figure 7.9 Environmental Masterplan.
Policy INF1: transport network	<i>“developers should provide safe and accessible connections to the transport network to enable travel choice for residents and commuters. All proposals should ensure that: ii. connections are provided, where appropriate, to existing walking, cycling and passenger transport networks and should be designed to encourage maximum potential use; and iii. all opportunities are identified and taken, where appropriate, to extend and/or modify existing walking, cycling and public transport networks and links, to ensure that credible travel choices are provided by sustainable modes.”</i>	
Policy INF3: green infrastructure	<i>“1. The green infrastructure network of local and strategic importance will be conserved and enhanced,</i>	

	<p><i>in order to deliver a series of multifunctional, linked green corridors across the JCS area by:</i></p> <ul style="list-style-type: none"> • <i>improving the quantity and/or quality of assets;</i> • <i>improving linkages between assets in a manner appropriate to the scale of development, and</i> • <i>designing improvements in a way that supports the cohesive management of green infrastructure.</i> <p><i>“2. Development proposals should consider and contribute positively towards green infrastructure, including the wider landscape context and strategic corridors between major assets and populations;</i></p> <p><i>“3. Existing green infrastructure will be protected in a manner that reflects its contribution to ecosystem services (including biodiversity, landscape quality, the historic environment, public access, recreation and play) and the connectivity of the green infrastructure network. Development proposals that will have an impact on woodlands, hedges and trees will need to include a justification for why this impact cannot be avoided and should incorporate measures acceptable to the Local Planning Authority to mitigate the loss. Mitigation should be provided on-site or, where this is not possible, in the immediate environs of the site; and</i></p> <p><i>“4. Where assets are created, retained or replaced within a scheme, they should be properly integrated into the design and contribute to local character and distinctiveness. Proposals should also make provisions for future maintenance of green infrastructure.”</i></p>	
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Draft Tewkesbury Borough plan (2011-2031)

- 1.2.7 The Tewkesbury Borough plan is still in the process of being adopted by Tewkesbury Borough Council. The draft version provides site options for future development and draft policies for those areas not covered by national guidance or the Joint Core Strategy. Relevant draft policies for each topic are outlined below.⁶

Policy LAN1: special landscape areas

- 1.2.8 *“Proposals for new development within Special Landscape Areas, as identified on the Policies Map, will be permitted providing:*
- *the proposal would not cause harm to those features of the landscape character which are of significance;*
 - *the proposal maintains the quality of the natural and built environment and its visual attractiveness;*
 - *all reasonable opportunities for the enhancement of landscape character and the local environment are sought;*
 - *where a proposal would result in harm to the Special Landscape Area having regard to the above criteria, this harm should be weighed against the need for, and benefits from, the proposed development. Proposals causing harm to the Special Landscape Area will only be permitted where the benefits from the development would clearly and demonstrably outweigh the identified harm.”*

Policy LAN2: landscape protection zones

- 1.2.9 *“Within the Landscape Protection Zone, as identified on the Policies Map, special protection is given to the ecology and visual amenity of the river environment. In considering proposals for new development within the Landscape Protection Zone regard will be had to the following, as appropriate:*
- *the visual and ecological effect of the new development on the river banks or the associated landscape setting of the Severn Vale;*
 - *the impact of the development on the water environment;*
 - *whether the proposal would enable the protection of important landscape and environmental features within the designated area;*
 - *whether reasonable opportunities for the enhancement of the environment and landscape are sought, including appropriate provision for improved public access.”*
- 1.2.10 Key objectives of the Local Plan are to promote sustainable development, conserve and enhance the built and natural heritage of the Borough and stimulate an approach to new development which: respects local environment conditions in the detailed siting and design; takes full account of local eco-systems and biodiversity; supports innovative design solutions consistent with sustainability objectives; and supports more efficient use of land.

1.3 Supplementary and further guidance

- 1.3.1 The documents referred to below set out key principles which will be reflected within the emerging design and have been considered as part of this LVIA.
- 1.3.2 Design and environmental guidance documents produced by Cotswold District Council listed below, provide development advice on working with regionally-appropriate building materials, public access and enjoyment of the countryside, promoting the landscape features and systems, protecting and enhancing the tranquillity and dark skies and enhancing landscape character through plant species and local provenance. The Cotswolds AONB Management Plan, provides detail on the landscape character of the designation, and details policies regarding its management.

Supplementary guidance

- *Cotswolds AONB Management Plan 2018-2023.*
- *Conserving and Celebrating Cultural Capital in the Cotswolds AONB.*
- *Cotswolds Dark Skies and Artificial Light Position Statement (Adopted 2019).*
- *Cotswolds Tranquillity and Dark Skies.*
- *Cotswolds National Park Position Statement.*
- *Cotswolds Public Rights of Ways.*
- *Cotswolds Tree Species and provenance.*

Cotswolds AONB Management plan 2018- 2023

- 1.3.3 The purposes of the AONB are to:
- “conserve and enhance the natural beauty of the Cotswolds AONB; and increase the understanding and enjoyment of the special qualities of the Cotswolds AONB.”*

Special qualities of the Cotswolds AONB

1.3.4 What makes the AONB so distinctive and valuable at a national scale are its Special Qualities. These are the key areas for conservation and enhancement and what the policies and management plan is prioritised on. The Special Qualities are the key characteristics of the AONB and are a combination of historical, social, economic, cultural, geological, geomorphological and ecological elements:

- *“the unifying character of the limestone geology – its visible presence in the landscape and use as a building material;*
- *the Cotswold escarpment, including views from and to the AONB;*
- *the high wolds – a large open, elevated predominately arable landscape with commons, ‘big’ skies and long-distance views;*
- *river valleys, the majority forming the headwaters of the Thames, with high-quality water;*
- *distinctive dry-stone walls;*
- *internationally important flower-rich grasslands, particularly limestone grasslands;*
- *internationally important ancient broadleaved woodland, particularly along the crest of the escarpment;*
- *variations in the colour of the stone from one part of the AONB to another which add a vital element of local distinctiveness;*
- *the tranquillity of the area, away from major sources of inappropriate noise, development, visual clutter and pollution;*
- *extensive dark sky areas;*
- *distinctive settlements, developed in the Cotswold vernacular, high architectural quality and integrity;*
- *an accessible landscape for quiet recreation for both rural and urban users, with numerous walking and riding routes, including the Cotswolds Way National Trail;*
- *significant archaeological, prehistoric and historic associations dating back 6,000 years, including Neolithic stone monuments, ancient drove roads, Iron Age forts, Roman villas, ridge and furrow fields, medieval wool churches and country estates and parks;*
- *a vibrant heritage of cultural associations, including the Arts and Crafts movement of the 19th and 20th centuries, famous composers and authors and traditional events such as the Cotswolds Olympicks, cheese rolling and woolsack races.”*

AONB vision and policies

1.3.5 The AONB’s vision is to be *“a distinctive, unique, accessible living landscape treasured for its diversity which is recognised by all for its wide open views, dry stone walls, intimate valleys, flower rich grasslands, ancient woodlands, dark skies, tranquillity, archaeology, historic and cultural heritage and distinctive Cotswold stone architecture.”*⁷

1.3.6 To achieve their purpose and ‘vision’ the AONB have set out several ‘outcomes’ which cover key topics such as landscape and geology, local distinctiveness, tranquillity, dark Skies, and access and recreation, with associated policies. The relevant policies are listed below:

- Policy CC1: Developing a Consistent, Coordinated and Landscape-led Approach Across the Cotswolds AONB.
- Policy CC2: Compliance with Section 85 of the Countryside and Rights of Way Act (the ‘Duty of Regard’).
- Policy CC3: Working in Partnership.
- Policy CC4: Natural and Cultural Capital and Ecosystem Services – Principles.
- Policy CC5: Soils.
- Policy CC6: Water.
- Policy CC7: Climate Change – Mitigation.
- Policy CC8: Climate Change – Adaptation.
- Policy CE1: Landscape.
- Policy CE2: Geology.
- Policy CE3: Local Distinctiveness.
- Policy CE4: Tranquillity.
- Policy CE5: Dark Skies.
- Policy CE6: Historic Environment and Cultural Heritage.
- Policy CE7: Biodiversity.
- Policy CE8: Rural Land Management.
- Policy CE9: Problem Species, Pests and Diseases.
- Policy CE10: Development and Transport – Principles.
- Policy CE11: Major Development.
- Policy UE2: Access and Recreation.
- Policy UE3: Health and Well-being.

Cotswolds Conservation Board local distinctiveness and landscape change report

- 1.3.7 This document supplements the AONB Landscape Character Assessment and guidance in providing additional understanding and guidance on the uniqueness and special qualities which contributes to the Cotswolds local distinctiveness, particularly in relation to Policy CE3: Local Distinctiveness.
- 1.3.8 The built environment in defining local distinctiveness can be categorised in terms of settlement, boundaries, and roofs and walls:
- “Boundaries of many types exist within the AONB, though dry stone walls and hedges predominate. Formally, it is important to distinguish between boundaries within settlement and those that subdivide the wider landscape, and to recognise the subtle stylistic variations that exist within types. Dry stone walls are only found where stone is close to the surface, and the distinctiveness of the landscape of the AONB stems from a subtle balance between walls and hedges, not the dominance of one or the other. Gates, stiles and other details are crucial to the special character of a boundary”⁸.*
- 1.3.9 A strategic approach produced by the Gloucestershire Nature Partnership outlines priorities to conserve and enhance the counties biodiversity for the benefit of the environment and people. This is echoed through Gloucestershire Wildlife Trust’s Strategic Plan (2017-2022) and the National Trust’s strategic vision.
- 1.3.10 The Strategic Vision 2019 -2022 produced by Gloucestershire County Council provides guidance on transport and infrastructure in relation “*to safeguarding the county’s natural landscape and environment*”. Key areas of focus include:

- *“embedding green infrastructure into our thinking and planning for Gloucestershire’s future development and regeneration; and*
- *Planning and designing with health and wellbeing in mind.”⁹*

Environment Strategy 2017¹⁰ and Delivery Plan 2020-2025¹¹

1.3.11 The Highways England vision is for a strategic road network that works more harmoniously with its surroundings to deliver an improved environment. This includes investment to improve the appearance of the network and to protect and enhance the character and quality of the built and natural landscape. Key areas of focus include:

- addressing existing environmental problems and specifically reducing visual intrusion by revising existing landscape mitigation;
- amending the design of roads to better address national, regional and local priorities; and
- promoting schemes that are better integrated with the surrounding environment at a landscape scale, which also deliver associated ecosystem service benefits. This will be done in line with National Character Area profiles.

Cotswolds AONB position statements

1.3.12 Design and environmental guidance documents produced by Cotswolds Conservation Board listed below, provide development advice on working with regionally-appropriate building materials, landscape features and systems, and plant species to conserve and enhance the special qualities of the AONB and maintain local distinctiveness.

Cotswolds AONB national park position statement (adopted 2018)

1.3.13 *“Discussions over whether the Cotswolds should be considered for designation as a National Park have steadily grown over the last two years. These discussions chime with the Government’s 25 Year Environment Plan”¹². The Glover Review of National Parks and AONBs also state the Cotswolds AONB is a ‘strong candidate’ for National Park status¹³. Becoming a national park could provide a consistent approach to managing the area.*

Cotswolds AONB tree species and provenance position statement (adopted 2017)

- 1.3.14 The position statement provides guidance on woodland creation, restocking and individual tree planting. It also provides recommendations for extending or linking ancient woodland.
- 1.3.15 *“Future tree planting should seek to retain the character of existing Cotswold woodlands whilst considering species diversity, genetic diversity (provenance and origin) and assisted migration. Species selection also needs to take account of the context of the planting e.g. extending ancient woodland or creating a stand-alone plantation.”*
- 1.3.16 *“Woodland creation and restocking after felling should comprise ⅓ of trees from selected seed sources from the same Region of Provenance as the site to be planted (403 and 404 for the Cotswolds), ⅓ from the region to the south (404 and*

305) and ⅓ from northern France to increase resilience to climate change as recommended by the Forestry Commission.”¹⁴

Cotswolds AONB public rights of way position statement (adopted 2015)

- 1.3.17 As one of the most popular areas in Britain for outdoor recreation, the Cotswolds AONB has a good network of public rights of way (PROW) including the Cotswold Way National Trail. PROWs within the AONB should be safe, well-maintained, clearly waymarked and well connected to provide positive, high quality experiences to recreational users.¹⁵

Management of roadside verges position statement

- 1.3.18 *“Roadside verges are important to the special character of the Cotswold landscape.”*
- 1.3.19 *“The need to protect and enhance verges is made more urgent by the dramatic and continuing loss of Britain’s wildflower-rich grassland. Almost all of this has now been destroyed by agricultural improvement, development or neglect.”*
- 1.3.20 The statement provides recommendations for management of roadside vegetation and verges in an AONB and also SSSIs, which is relevant in the proximity of Barrow Wake and Crickley Hill. Consideration should be given to name road verges of exceptional wildlife interest as Protected Road Verges, which is a known practice in AONBs¹⁶.

Dark skies and artificial light position statement

- 1.3.21 There is a significant and extensive area of naturally dark night skies within the Cotswolds AONB. This is a Special Quality of the AONB, and a Dark Skies Area. The conservation of this area is under pressure by the genuine need for artificial lighting to ensure the safety of the public and these can be met by sensitive, well designed lighting in accordance with Policy CE5¹⁷.

Tranquillity position statement

- 1.3.22 Tranquillity is one of the Special Qualities of the AONB which make the Cotswolds ‘Outstanding’, it is a ‘state of calm and quietude’ which can substantially enhance people’s quality of life. Whilst some level of noise and visual disturbance is inevitable, great weight should be given to avoid, minimise and reduce adverse impacts on tranquillity in accordance with Policy CE4 in the Cotswolds AONB Management Plan¹⁸.

Cotswolds AONB landscape strategy and guidelines

- 1.3.23 The Cotswolds Conservation Board published their Landscape Strategy and Guidelines documents in June 2016 with the intention to help manage change in a sustainable and positive way. Strategies and guidelines are presented for each of the Landscape Character Areas located within the AONB, with potential forces of change identified for each LCT, with a description of the implications of these changes. Relevant chapters of the document include sections for LCT 2 Escarpment¹⁹; LCT 7 High Wold²⁰; LCT 8 High Wold Valley²¹; and LCT 18 Settled Unwooded Vale²².

1.3.24 With relevant strategies including:

- major road construction and improvement schemes on escarpment slopes;
- road upgrading and improvements, especially of minor country roads, as a result of development or general improvement schemes;
- visitor pressure at escarpment vantage points and circular walks commencing from car park areas;
- loss of dry-stone walls due to abandonment, development of volunteer hedges, replacement with hedges or fences or removal to build/restore a wall elsewhere;
- loss of hedges characteristic of the Settled Unwooded Vale due to inappropriate management or ‘abandonment’;
- loss of traditional orchards in recent years;
- inappropriate woodland creation and planting of shelterbelts and farm copses; and
- creation of woodland.

1.3.25 The “*potential landscape implication*” of these and the proposed “*landscape strategies and guidelines*” have been reviewed throughout the iterative design process and have been considered within the LVIA.

The road to good design 2018

1.3.26 The document sets out a vision, which aims to put people at the heart of Highways England’s work, by designing an inclusive, resilient and sustainable road network. This road network should be appreciated for its usefulness but also its elegance, reflecting in its design the beauty of the natural, built and historic environment through which it passes, and enhancing it where possible²³.

Stakeholder design vision

1.3.27 Gloucestershire Wildlife Trust, National Trust, Natural England, Environmental Agency and Historic England presented the collaborative Landscape Vision for the A417 Missing Link Road Scheme. The presentation outlined the key issues and impacts from the old A417 road and recommended a series of improvement strategies for the scheme.

1.3.28 Many of the proposed strategies were incorporated in the existing design through previous interactions with stakeholders. Those interventions which had not been considered, were reviewed and, where appropriate, incorporated into the design.

End notes & References

- ¹ Department for Transport, “National Policy Statement for National Networks,” 2014
- ² Ministry of Housing Communities and Local Government, “National Planning Policy Framework,” 2019.
- ³ HM Government, “A Green Future: Our 25 Year Plan to Improve the Environment,” 2018
- ⁴ Cotswold District Council, “Cotswold District Local Plan to 2031,” Cirencester, 2018
- ⁵ Gloucester City Council, Cheltenham Borough Council, and Tewkesbury Borough Council, “The Joint Core Strategy,” 2017
- ⁶ Pre submission version of the Tewkesbury Borough Plan (PSTBP).
- ⁷ Cotswolds Conservation Board, “Cotswolds AONB Management Plan 2018- 2023,” 2018
- ⁸ Countryside Agency (now Natural England), “Local Distinctiveness and Landscape Change,” 2003
- ⁹ Gloucestershire County Council, “Gloucestershire Looking to the Future 2019 - 2022,” 2019
- ¹⁰ Highways England, “Environment Strategy: Our approach,” 2017
- ¹¹ Highways England, “Delivery Plan 2015-2020,” 2015
- ¹² Cotswolds Conservation Board, “Cotswolds AONB National Park Position Statement,” 2018
- ¹³ J. Glover, “Landscapes Review: A final report,” 2018
- ¹⁴ Cotswolds Conservation Board, “Cotswolds AONB Tree Species and Provenance Position Statement,” 2017
- ¹⁵ Cotswolds Conservation Board, “Cotswolds AONB Public Rights of Way Position Statement,” 2015
- ¹⁶ Cotswolds Conservation Board, “Cotswolds AONB Management of Roadside Verges Position Statement,” 2015
- ¹⁷ Cotswolds Conservation Board, “Cotswolds AONB Dark Skies and Artificial Light,” 2019
- ¹⁸ Cotswolds Conservation Board, “Cotswolds AONB Tranquility Position Statement,” 2019
- ¹⁹ Cotswolds Conservation Board, “Cotswolds AONB Landscape Strategy and Guidelines - LCT 2 Escarpment,” 2016
- ²⁰ Cotswolds Conservation Board, “Cotswolds AONB Landscape Strategy and Guidelines - LCT 7 High Wold,” 2016
- ²¹ Cotswolds Conservation Board, “Cotswolds AONB Landscape Strategy and Guidelines - LCT 8 High Wold Valley,” 2016
- ²² Cotswolds Conservation Board, “Cotswolds AONB Landscape Strategy and Guidelines - LCT 18 Settled Unwooded Valley,” 2016
- ²³ Highways England, “The Road to Good Design,” 2018.

A417 Missing Link

Preliminary Environmental Information Report

Appendix 7.2
Visual Baseline

28 September 2020

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Foreword

As demonstrated by Figure 7.1 Visibility and Viewpoints and Figure 7.10 Photosheets, 46 viewpoints have been identified across the study area as representative views towards the scheme.

The following text provides an analysis of these existing views and should therefore be read in conjunction with Figure 7.10 Photosheets, which illustrate the existing summer and winter photography. Viewpoint locations were chosen as they provide an overview of the existing visual context and are considered representative viewpoints. All photographs have been taken from publicly accessible locations.

1 Visual baseline

Table 1-1 Viewpoint description table

Viewpoint location	Description
<p>VP 01 Roman Villa car park</p> <p>Grid reference: 51.829909, -2.1481919</p> <p>Elevation: 124.29mAOD</p> <p>Looking East</p> <p>Date and time of summer photography: 26.09.2019, 13:47</p>	<p>Taken from the English Heritage car park at the Roman Villa (ruins) looking east towards Crickley Hill.</p> <p>This is representative of users of the car park and Public Right of Way visiting the roman ruin.</p> <p>The view is framed by a clump of trees in the foreground the rolling topography of the lower slopes of Coopers Hill looking out across arable fields in the vale and to the dip slope of the escarpment in the distance. The dip slope is well wooded with Crickley Hill and Barrow Wake visible on the horizon</p> <p>There is a glimpsed long distance view of Cheltenham beyond a short section of the A417 which is visible. Views of the A417 are interrupted by a clump of trees along the lane in the foreground and lost as it climbs the escarpment.</p>
<p>VP 02 Cotswold Way National Trail at Coopers Hill</p> <p>Grid Ref: 51.831723, -2.155013</p> <p>Elevation: 192.41mAOD</p> <p>Looking North</p> <p>Date and time of summer 19 September 2019, 15:29</p>	<p>Representative of residents on the eastern side of Coopers Hill, and recreational users of the Cotswold Way and PRoW on Coopers Hill heading south.</p> <p>Taken from tractors bridleway north of Grove Farm.</p> <p>The vast view consists of the elevated escarpment edge leading up to the Cotswolds and the low vale. There are long distance views to Crickley Hill, Barrow Wake, and beyond to Cheltenham. There are longer distance views also to Gloucester and Brockworth. Features in the view include heavily wooded slopes, Wycombe Reservoirs and dispersed houses. The A417 can be seen climbing the escarpment to Air Balloon roundabout. Upper sections of the A417 are screened by tree cover and woodland. Birdlip radio station and masts are visible on the wooded horizon. Mixed arable and pasture fields can be seen on the dip slopes and in the vale.</p>
<p>VP 03 Droys Court</p> <p>Grid Ref: 51.835591, -2.146790</p> <p>Elevation: 87.31mAOD</p> <p>Looking East</p> <p>Date and time of summer 26.09.2019, 15:10</p>	<p>Taken from the road at Droys Court looking east towards the escarpment.</p> <p>Representative of residents at Droys Court and users of the PRoW network in the vicinity of Droys Court,</p> <p>A Long panoramic view of the escarpment and dip slope in the distance. The Peak, Barrow Wake and Crickley Hill are notable features along the skyline. The foreground is dominated by a large-scale regular arable field bounded by tall dense hedgerows which obscures views to the middle distance. Heavily wooded vale beyond further limits views to other low-lying features.</p> <p>The A417 can be seen to the north but is not visible climbing the dip slope. The large white dome at Bentham Country Club is a prominent feature to the north.</p>
<p>VP 04 A46 Painswick Road</p> <p>Grid ref: 51.839810, -2.1527034</p> <p>Elevation: 76.215mAOD</p> <p>Looking East</p> <p>Date and time of summer</p>	<p>Taken from the A46 Painswick Road looking east across the vale towards the escarpment.</p> <p>This is representative of road users of the A46 and residents situated along the A46</p> <p>A partial and interrupted view through a gateway in the hedgerow which dominates the view in the foreground. The view through the gap in the hedgerow is looking across a large scale arable field. Beyond this tree cover in</p>

Viewpoint location	Description
photography: 26.09.2019, 15:24	<p>the middle-distance obscures views across the low lying flat vale. The view rises to a high ridge in the background featuring the Peak, Barrow Wake and Crickley Hill. Birdlip radio station masts are visible beyond the skyline.</p> <p>There are no views of traffic along the A417 onto the escarpment. However, the area is locally disturbed by vehicular movement along Painswick road on which the view is taken.</p>
VP 05 Little Wycombe PRow Grid ref: 51.839618, - 2.1278608 Elevation: 89.158mAOD Looking East Date and time of summer photography: 09.09.2019 17:18	<p>Taken from a public right of way at Little Witcombe looking east towards Crickley Hill.</p> <p>This is representative of users of the public right of way and the community of Little Witcombe.</p> <p>The view is looking across a large-scale arable field, bounded by gappy hedgerow and mature hedgerow trees. Veteran field trees and low voltage wood poles are visible across the low lying flat vale. The view rises to a high ridge in the background featuring Crickley Hill and the peak. The slopes of the ridge are heavily wooded.</p>
VP 06 Old Coach Road overbridge A417 Grid Ref: 51.846368, - 2.1333895 Elevation: 83.402mAOD Looking East Date and time of summer photography: 26.09.2019, 15:44	<p>Taken from the Old Coach road overbridge crossing the A417 looking East.</p> <p>Representative of road users of the existing A417.</p> <p>An open view that A417 road corridor dominates that foreground and into the middle distance. Tree cover and roadside vegetation obscure views of the A417 as it ascends the escarpment. The land rises to a high ridge in the distance with views Barrow Wake, Crickley Hill and the Peak forming notable features along the skyline. The ridge and dip slope is densely wooded south of the Peak with calcareous grassland along the ridge and dip slope at Barrow Wake towards Crickley Hill. Views of the scheme are unlikely to be visible. (Note: not standard 160cm viewing height due to safety barrier.)</p>
VP 07 The Peak Grid ref: 51.834721, - 2.114010 Elevation: 255.81mAOD Looking North East Date and time of summer photography: 19.09.2019, 16:23	<p>Taken from the Cotswold Way National Trail at a local clearing at the Peak looking north towards Crickley Hill.</p> <p>This is representative of users of the Cotswold Way in the vicinity of the Peak. The main view is south orientated and framed by over grown scrub and trees looking along the wooded escarpment and down over the wooded dip slope. There are far reaching slot views looking west looking out over the low lying vales towards Coopers Hill, a notable feature in the middle distance and towards Forest of Dean in the far distance. Views north are obscured by overgrown shrub and ash with a glimpsed view of the top of Crickley Hill in the middle distance.</p>
VP 08 Cotswold Way National Trail/Gustav Holt Way west of Barrow Wake Grid ref: 51.835293, - 2.1048903 Elevation: 275.092mAOD Looking North	<p>Taken from the Cotswold Way National Trail and Gustav Holt Way public right looking north towards Barrow Wake and Crickley Hill.</p> <p>This is representative of users of the Cotswold Way National Trail and Gustav Holt local public right of way in the vicinity of Barrow Wake and the Peak. The scarp slope drops dramatically in the foreground with calcareous grassland and scrubby tree belts on the upper slopes and pastoral fields grazed by cows on the dip slope. The view looks over to Crickley Hill, a notable feature in the middle distance. and opens to the west of Crickley Hill to provide far reaching</p>

Viewpoint location	Description
Date and time of summer photography: 19.09.2019, 16:41	views across the low lying vales towards the Malvern Hills which are visible on the horizon. Tree cover on the dip slopes obscures views of the existing A417 as it descends the escarpment but then becomes visible in the low lying vales.
VP 09 Cotswold Way National Trail at Barrow Wake Grid Ref: 51.836641, - 2.101860 Elevation: 277.807mAOD Looking North West Date and time of summer photography 19.09.2019, 15:09 Date and time of winter photography 28 01 2020, 15:15	Taken from Cotswold Way in front of the Barrow Wake carpark. Representative of visitors to Barrow Wake and recreational users of the Cotswold Way heading north towards Crickley Hill along the scarp slope. The view in the foreground consists of the escarpment with rough grass and scrub on steep slopes. Grazed fields on slackened slopes in the midground, lead to vast open views to the east. Woodland can be seen on top of hills and into the valleys. There are filtered views of the A417 through roadside vegetation and is audibly noticeable. Crickley Hill is visible across the valley to the north.
VP 10 Barrow Wake viewpoint Grid ref: 51.836683, - 2.1014692 Elevation: 280.307mAOD Looking West Date and time of summer photography: 19.09.2019, 15:05	Taken from the promoted viewpoint at Barrow Wake along the Cotswold Way National Trail looking west towards Gloucester. This is representative of walkers on the Cotswold Way and people visiting the car park and promoted viewpoint A Long and expansive panoramic view to the Malvern Hills and the Forest of Dean. In the middle distance is a view across the escarpment to Crickley Hill and the Peak which frame the view down and across the Vales and Gloucester with Coopers Hill a notable feature across the valley. There are filtered views of the existing A417.
VP 11 Barrow Wake car park Grid Ref: 51.838561, - 2.1001107 Elevation: 269.622mAOD Looking North West Date and time of summer photography: 19.09.2019, 15:46	Taken from Barrow Wake at northern end of carpark, close to Geotech units. As viewpoint at Barrow Wake: This is representative of walkers on the Cotswold Way and people visiting the car park and promoted viewpoint A Long and expansive panoramic view to the Malvern Hills and the Forest of Dean. In the middle distance is a view across the escarpment to Crickley Hill and the Peak which frame the view down and across the Vales and Gloucester with Coopers Hill a notable feature across the valley. There are filtered views of the existing A417.
VP 12 Grove Farm Grid Ref: 51.840825, - 2.1022769 Elevation: 190.902mAOD Looking North East Date and time of summer photography: 19.09.2019, 15:29	Taken from tractors bridleway north of Grove Farm. Representative of residents at Grove Farm and recreational users of the bridleway. The view is very enclosed with a steep wooded escarpment to the north and woodland associated with the tractor site to the south. In the midground, there are filtered views to the A417 through dense, mature roadside vegetation. The A417 is very audible in the landscape.

Viewpoint location	Description
<p>VP 13 Cold Slad Lane junction with A417</p> <p>Grid Ref: 51.841282, - 2.1036203 Elevation: 194.17mAOD Looking East Date and time of summer photography: 09.09.2019 09:33</p>	<p>Taken from Cold Slad Lane facing east into the A417 road corridor.</p> <p>This is representative of recreational users of Cold Slad Lane and traffic users. The A417 road corridor dominates the view running east to west. The entrance to Grove Farm, Pinewood and Grove Lodge is visible to the south of the road and slopes out of view. Mixed mature roadside vegetation on both sides of the road limit further views to the midground and background. Constant traffic and loud noise further disrupt the view.</p>
<p>VP 14 Cold Slad Lane</p> <p>Grid Ref: 51.840974, - 2.1060625 Elevation: 186.4mAOD Looking South Date and time of summer photography: 09.09.2019 09:19</p>	<p>Taken from Cold Slad Lane, near properties facing Barrow Wake.</p> <p>This is representative of residents of properties along Cold Slad Lane. The view consists of small permanent pasture fields bounded by post and pale fencing and mature roadside vegetation of the A417 that screens further low-lying features. The land rises to the scarp slope of Barrow Wake and treed skyline of the Peak. The A417 is not visible from this location but is apparent due to the noise.</p>
<p>VP 15 Crickley Hill camp scheduled monument</p> <p>Grid Ref: 51.842409, 2.105351 Elevation: 251.137mAOD Looking South East Date and time of summer photography: 09.09.2019 12:01</p>	<p>Taken from the remnant hillfort just off the Cotswold Way National Trail looking South-east towards Barrow Wake.</p> <p>This is representative of users of the Cotswold Way National Trail in the vicinity of Crickley Hill Country Park and visitors to the Neolithic settlement and hill fort at Crickley Hill.</p> <p>This is an open view across the scarp to Barrow Wake. Cars parked at Barrow Wake are visible along the escarpment. The mast at Birdlip radio station is visible on the wooded skyline.</p>
<p>VP 16 Crickley Hill on Cotswold Way National Trail</p> <p>Grid Ref: 51.843152, - 2.1086884 Elevation: 260.23mAOD Looking South Date and time of summer photography: 09.09.2019 12:18</p>	<p>Taken from the Cotswold Way National Trail at Crickley Hill looking south towards Barrow Wake and the Peak.</p> <p>This is representative of users of the Cotswold Way at Crickley Hill and visitors to Crickley Hill Camp, a remnant hill fort at Crickley Hill Country park.</p> <p>This is an open view across to Barrow Wake in the middle distance. Cars parked at Barrow Wake are visible along the escarpment. The mast at Birdlip radio station is visible on the wooded horizon as is the farm on the dipslope at air balloon roundabout. The A417 becomes visible in the distance on the approach to the air balloon roundabout from the A436 but views of the road are obscured by woodland as it descends the escarpment. The view opens up to the south west with bike trails visible on the dip slope of the escarpment in the middle distance and views over arable fields in the lower vales across to Coopers Hill a notable feature in the distance.</p>

Viewpoint location	Description
<p>VP 17 Bridleway off Cotswold Way National Trail</p> <p>Grid ref: 51.852345, - 2.095487</p> <p>Elevation: 254.15mAOD</p> <p>Looking South</p> <p>Date and time of summer photography: 09.09.2019 10:29</p>	<p>Taken from a public right of way just off the Cotswold Way National Trail looking south towards Birdlip radio station.</p> <p>This is representative of users of the Cotswold Way National Trail in the vicinity of Crippet's Wood round barrows. The view is looking across a large-scale arable field bounded by a post and wire fence in disrepair and scrub. The far end of the field, Short wood is visible and beyond this is Ullen wood providing a well wooded view giving some enclosure. Traffic along Leckhampton Hill is visible through a gap in the trees. Birdlip radio station is visible on the horizon.</p>
<p>VP 18 Leckhampton Hill – visitor information board</p> <p>Grid ref: 51.858625, - 2.079827</p> <p>Elevation: 264.67mAOD</p> <p>Looking South West</p> <p>Date and time of summer photography: 19.09.2019, 09:58</p> <p>Date and time of winter photography 28.11.2019 10:18</p>	<p>Taken from the Cotswold Way at Leckhampton Hill looking south.</p> <p>This is representative of users of the Cotswold Way in the vicinity of Leckhampton Hill.</p> <p>This is an open view with calcareous grassland in the foreground which rolls away to a steep valley. The landform in the foreground is partially obscured by woodland with views beyond this towards Ullen wood which covers much of the view in the middle distance. Emma's Grove is visible to the west of Ullen wood and here the A417 becomes visible through breaks in the tree cover.</p> <p>An avenue of Lime trees along the skyline form a distinctive landscape feature as do the clump of trees at Cuckoopen Farm. The top of the plantation at Rushwood Kennels is also visible on the skyline. The mast at Birdlip radio station forms a prominent feature in the landscape with additional clutter in the way of electricity pylons and overhead cables central in the view. The trees at Shab Hill will be removed changing the wooded skyline and the scheme will be visible seen cutting through arable fields.</p>
<p>VP 19 Leckhampton camp and tumulus at trig point</p> <p>Grid ref: 51.864043, - 2.0757160</p> <p>Elevation: 292.965mAOD</p> <p>Looking South</p> <p>Date and time of summer photography: 19.09.2019,10:24</p> <p>Date and time of winter photography 28.11.2019 10:04</p>	<p>Taken from trig point at Leckhampton Camp just off the Cotswold Way National Trail looking south.</p> <p>This is representative of users of the Cotswold Way National Trail in the vicinity of Leckhampton Hill and visitors to Leckhampton camp and tumulus. This is a panoramic view which looks across to the wold. In the foreground the hillfort is evidenced in the landscape by the mound and elevated footpath. and forms the boundary to several large-scale arable fields. The landform drops away in the middle distance and Ullen wood is visible on the facing slope in the distance. Emma's Grove is visible to the west of Ullen wood and here the A417 becomes just visible through a break in the tree cover.</p> <p>The avenue of Lime trees is visible along the skyline as is the mast at Birdlip radio station. There are also several pylons and overhead electricity cables breaking the skyline across the view.</p> <p>The scheme will likely be visible in the centre of the view in front of the radio mast.</p>
<p>VP 20 Ochala Wood Crickley Hill Country Park</p> <p>Grid Ref: 51.846312, - 2.094902</p>	<p>Taken from public right of way north of Leckhampton Road looking South.</p> <p>This is representative of users of the public right of way and visitors to Crickley Hill Country Park on the eastern edge.</p>

Viewpoint location	Description
Elevation: 235.43mAOD Looking South Date and time of summer 09.09.2019 11.04 Date and time of winter photography 21.11.2019 10:19	The view consists of rolling landform with mature woodland on ridges in midground. The Leckhampton Road crosses the foreground and the junction of the Crickley Hill Country Park access road crosses the view to the north. Irregular medium scale fields are bounded by post and wire fencing, scrubby hedgerow and mature woodland. A wood pole electricity line crosses the view in the foreground. Two radio masts on ridge to west. The peaceful view is disrupted with loud constant traffic.
VP 21 Entrance to Crickley Hill Country Park Grid ref: 51.845558, - 2.094271 Elevation: 227.853mAOD Looking South West Date and time of summer photography: 09.09.2019 11:21	Taken from Leckhampton Hill at the entrance to Crickley Hill country park looking north. This is representative of road users of Leckhampton Hill. The view is an open view looking down Leckhampton Hill road. A large-scale arable field dominates the foreground. Mature hedgerow obscures views into Crickley Hill country park with a glimpsed view of the parkland at the entrance to the country park. The view is shortened by the rolling landform and Ullen Woods. Mature hedgerow trees bounding the roadside partially screen Air balloon roundabout. Beyond these hedgerow trees there is narrow view to the middle distance framed by Ullen wood where the mast at Birdlip radio station is visible on the skyline.
VP 22 Crickley Hill Country Park drive Grid ref: 51.845656, - 2.097689 Elevation: 250.715mAOD Looking South Date and time of summer photography: 09.09.2019 11.32	Taken from the entrance lane to Crickley Hill Country Park looking north east. This is representative of visitors at Crickley Hill Country Park and users of the public right of way An open view the rolling landform drops towards the road and rises to a high ridge in the middle distance. Mature and veteran parkland trees in the foreground obscure views with a glimpsed view of traffic at the Air balloon roundabout. Traffic along the A417 is visible along the high ridge in the middle distance with two radio masts visible on skyline.
VP 23 Gloucestershire Way on A417 at Air Balloon Grid Ref: 51.841615, - 2.0974874 Elevation: 247.285mAOD Looking North Date and time of summer 05.09.2019 14.51	Taken from the Gloucestershire Way at the junction of the A417 just off Air Balloon roundabout. The footpath forms part of the promoted Crickley Hill walking route. Representative of recreational users of the Gloucestershire Way and transport users of the A417 heading north towards the roundabout. The A427 corridor dominates the view and is further disrupted by constant traffic and the associated noise. The Air Balloon Pub is the focus of the view beyond the road and traffic. Wider views are screened by landform and vegetation behind the roadside vegetation to the west. There are glimpsed views north over the roundabout to the north side of Crickley Hill.
VP 24 Bridleway south of Ullen wood Grid Ref: 51.841570, - 2.087552 Elevation: 265.688mAOD Looking South Date and time of summer	Taken from a bridleway by Ullen Wood. Representative of recreational users of the bridleway. The view consists of a rolling large scale agricultural field bounded by Ullen Wood Ancient Woodland. The landform dips to Ullen Wood to the north and east. The Ancient Woodland creates a solid visual barrier, screening further views to the north. To the south, low woodland and two radio masts define the skyline in the midground where the land falls away out of view.

Viewpoint location	Description
09.09.2019 15.27	
VP 25 Gloucestershire Way at Shab Hill Grid Ref: 51.839791, - 2.091121 Elevation: 276.027mAOD Looking South East Date and time of summer photography: 05.09.2019 15:11	Taken from the Gloucestershire Way north of the Kennels. Representative of recreational users of the Gloucestershire Way between Emmas Grove and Rushwood Kennels. The view consists of medium scale permanent pasture fields bounded by dense mixed woodland and overgrown hedgerows. Calley Hill plantation is visible to the south east and a dense coniferous belt of woodland in the midground screens the kennels. Constant barking and heavy traffic sounds disrupt a relatively peaceful location. Pylons to the east on the high ridge are visible on the skyline.
VP 26 Cuckoopen Farm Grid Ref: 51.840479, - 2.0793128 Elevation: 276.273mAOD Looking South West Date and time of summer photography: 09.09.2019 15:47	Taken from Cuckoopen farm facing Stockwell. Representative of residents at Cuckoopen Farm and recreational users of the PRoW. The view consists of large scale arable fields in the foreground with Cuckoopen Farm to west of the view. Landform drops in the midground to a wooded valley, named Coldwell Bottom. Land rises beyond to a distinctive skyline featuring a mature tree avenue to the south where Stockwell farm is visible. Intermittent blocks of trees to the south west of the view allow a slot view to the kennels in the midground.
VP 27 Gloucestershire Way at Rushwood Kennels Grid ref: 51.838192, - 2.087277 Elevation: 275.883mAOD Looking North East Date and time of summer photography: 05.09.2019 14:31	Taken from an unnamed lane leading to Rushwood Kennels looking west. This is representative of walkers on the Gloucestershire Way in the vicinity of Rushwood Kennels and residents at Rushwood Kennels The view is enclosed by ash trees in the hedgerow bounding the lane and shortened by a row a conifer tree along the fields far boundary. The pastoral field in the foreground is grazed by sheep and bounded with post and wire fencing along the lane.
VP 28 Gloucestershire Way at Coldwell Bottom Grid Ref: 51.839140, - 2.0664382 Elevation: 225.96mAOD Looking South West Date and time of summer photography: 19.09.2019, 11:55	Taken from Gloucestershire Way at the east end of Coldwell Bottom. Representative of recreational users of the Gloucestershire Way heading towards Coldwell Bottom from South Coberley. The view consists of a small valley with medium scale regular fields bounded by post and wire fencing, evergreen shelter belts and scrubby vegetation. Cuckoopen Bank plantation can be seen on the north side of the valley. **Unlikely to get view from this location in the dry valley. Tranquillity within the Coldwell bottom will be affected by Shab Hill junction and new road alignment despite not being visible.

Viewpoint location	Description
<p>VP 29 Upper Coberley Byway</p> <p>Grid ref: 51.836695, - 2.0377064</p> <p>Elevation: 269.073mAOD</p> <p>Looking West</p> <p>Date and time of summer 19.09.2019, 11:15</p>	<p>Taken from a bridleway south of Upper Coberley looking west over the wold.</p> <p>This is representative of users of the bridleway and road users travelling south from Upper Coberley</p> <p>The view is an open rolling view typical of the Cotswold wold landscape. It is predominantly arable with some rough pasture with in field trees and hedgerow trees. The mast at Birdlip radio station is visible on the skyline aerial on skyline as is the existing A417. The new Shab Hill junction will likely be visible as will the returning of the valley head.</p>
<p>VP 30 Coldwell Bottom permissive path</p> <p>Grid Ref: 51.834185, - 2.078583</p> <p>Elevation: 225.63mAOD</p> <p>Looking South</p> <p>Date and time of summer 19.09.2019, 12:31</p>	<p>Taken from permissive path within Coldwell Bottom facing Shab Hill. Representative of recreational users of the Gloucestershire Way heading west within Coldwell Bottom.</p> <p>The view is enclosed by steep landform to the north, south and west making up Coldwell Bottom. Mature ash trees are scattered in the bottom of the valley. The mature woods of Calley Hill Plantation to the north screen further views to the midground and background. A slot view to Shab Hill is seen along the valley, visible by mature trees. No traffic noise can be heard, resulting in a very serene, quiet landscape.</p> <p>Shab Hill Junction will be visible with clump of trees removed. Manmade earthworks will extend towards the view shortening the valley. Existing high tranquillity will be significantly affected.</p>
<p>VP 31 Shab Hill permissive path</p> <p>Grid Ref: 51.833149, - 2.0855141</p> <p>Elevation: 275.833mAOD</p> <p>Looking South</p> <p>Date and time of summer 19.09.2019, 12:52</p>	<p>Taken from permissive path at Shab Hill. Representative of recreational users of the permissive path.</p> <p>The view consists of a large scale arable field bounded by a mix of degraded stone walls, post and wire fencing and mature woodland. The view is enclosed by field boundary vegetation and the landform of the field. The view is tranquil with distant road noise.</p> <p>*Shab hill junction would be visible in the foreground near horizon.</p>
<p>VP 32 PRow Shab Hill</p> <p>Grid Ref: 51.832496, - 2.088563</p> <p>Elevation: 284.547mAOD</p> <p>Looking North</p> <p>Date and time of summer 19.09.2019, 13:12</p>	<p>Taken from a footpath south of Shab Hill. Representative of recreational users of the footpath.</p> <p>Foreground consists of undulating landform to the north terminating at the kennels. Birdlip radio station is visible through the trees to the northwest with the radio mast on the skyline. Deciduous woodland defines the skyline to the north in the midground that screens further views. The existing A417 is clear to the west with passing traffic seen through roadside vegetation. Barrow wake junction is perceptible in the view.</p> <p>*Scheme will remove woodland left of kennels on embankment to north and across view to east.</p>
<p>VP 33 PRow west of Shab Hill</p>	<p>Taken from footpath between Barrow Wake and Shab Hill farm. Representative of recreational users of the footpath to and from Barrow Wake.</p>

Viewpoint location	Description
<p>Grid Ref: 51.833200, - 2.0979810 Elevation: 287.413mAOD Looking East Date and time of summer 19.09.2019, 14:17</p>	<p>The view consists of undulating arable farmland adjacent to the existing a417. The large fields are bounded by a mix of mostly post and wire fences and scrappy vegetation. Beech trees at Shab hill and Shab Hill farm are visible on the skyline. The view is disrupted by traffic noise from the A417.</p> <p>*Shab Hill junction and birdlip link road will be visible.</p>
<p>VP 34 Byway west of Hill Barn</p> <p>Grid ref: 51.830363, - 2.0734441 Elevation: 279.888mAOD Looking North West Date and time of summer 09.09.2019 16:40</p>	<p>Taken from a byway west of Hill Barn looking north west towards Shabb Hill.</p> <p>The is representative of road users of the byway.</p> <p>An open view across the wold with rolling landform which falls to north at Coldwell Bottom and rises to the two radio masts on the skyline which are clearly visible. A Pylon line crosses the background on the skyline to the north east. The solid belt of coniferous woodland at Rushwood Kennels is visible to the northeast. There is a slot view in the distance to passing traffic.</p>
<p>VP 35 View to Shab Hill from footpath north of Stockwell farm</p> <p>Grid Ref: 51.829062, - 2.0834970 Elevation: 278.713mAOD Looking North Date and time of summer 09.09.2019 16:31</p>	<p>Taken from a footpath north of Stockwell Farm.</p> <p>Representative of users of the footpath</p> <p>The view consists of a large scale arable field bounded by dry stone walls and post and wire fencing. The top of two radio masts visible beyond the high midground skyline. Scrubby hedgerow trees to west filter views of Stockwell Farm.</p>
<p>VP37 PRoW north of Stockwell</p> <p>Grid Ref: 51.829587, - 2.087556 Elevation: 280.342mAOD Looking North Date and time of summer 19.09.2019, 14:36</p>	<p>Taken from junction of three PRoWs north of Stockwell.</p> <p>Representative of recreational users of the PRoW network north of Stockwell.</p> <p>The view consists of a large scale arable field bounded by hedgerows, occasional small hedgerow trees and post and wire fencing. A very open view, the landform rises to the north to the midground and further elements are screened from view. Road noise is slightly audible, lowering the tranquillity of the view.</p> <p>*Enclosed views proposed scheme will be visible along the top of the hill field patterns and boundaries will be disrupted.</p>
<p>VP 38 Byway at Stockwell</p> <p>Grid ref: 51.827633, - 2.0856106 Elevation: 271.703mAOD Looking East Date and time of summer 26.09.2019 09.47</p>	<p>Taken from a restricted byway East of Stockwell facing East</p> <p>This is representative of users of the byway in the vicinity of Stockwell and residents at Stockwell.</p> <p>A shortened view by the rising land form and the coniferous shelterbelt along the field boundary. The view is dominated by a large scale arable field in the foreground with post and wire fencing delineating the byway and neighbouring field. To the south the existing A417 is visible on the distant horizon. Views to</p>

Viewpoint location	Description
	the east are enclosed by the trees bounding the lane and overgrown field boundaries.
VP 39 Birdlip Grid Ref: 51.825927, - 2.1011280 Elevation: 278.158mAOD Looking East Date and time of summer 26.09.2019, 13:47	Taken from a secluded spot along a rural de-trunked section of road east of Birdlip, facing North towards the existing A417 Representative of the community at Birdlip and road users. A near view over a large-scale arable field bounded by post and wire fence. The view is enclosed by a line of mature trees lining the existing A417 Embankments of the road are visible through small gaps in the trees.
VP 40 PRoW north of Birdlip Quarry Grid Ref: 51.823886, - 2.0768666 Elevation: 273.815mAOD Looking West Date and time of summer 26.09.2019, 09:59	Taken from the junction of bridleway and public right of way north of Birdlip quarry looking west. Representative of users of the bridleway and public right of way. The view overlooks rolling pasture farmland at the head of a dry valley. Fields are bounded by broken hedges, with some removed completely. Other fields are marked by post and wire fencing. Mature deciduous trees on near horizon enclose the view and prevent wider views west screening parts of the A417. There are partial and glimpsed views of the main road with movement of vehicles visible,
VP 41 Golden Heart Inn Grid ref: 51.822076, - 2.084408 Elevation: 253.485mAoD Looking North Date and time of summer 05.09.2019 14:06	Taken from the car park at the Golden Heart Inn along the existing A417 facing North. This is representative of residents and visitors to the Golden Heart Inn and road users of the existing A417. An enclosed view with road infrastructure and public house car park dominating the foreground. Mature trees at Birdlip quarry shorten the view but there are glimpsed views through the gappy hedgerow and trees bounding the road to pastoral fields beyond.
VP 42 Rural lane west of Cowley Wood Grid ref: 51.819245, - 2.072096 Elevation: 263.302mAOD Looking West Date and time of summer 26.09.2019, 10:21	Taken from a rural lane west of Cowley wood facing west towards Cowley roundabout. This is representative of users of the public right of way and road users. The view is enclosed the landform with the foreground dominated by a large scale pastoral field. Field boundaries are a mix of post and wire fences, dry stone walling and scrappy hedgerow with some mature ash trees in field boundaries. Mature trees at Cowley round about obscure the traffic but road infrastructure including lighting columns are clearly visible in the view.
VP 43 Brimpsfield Grid Ref: 51.815067, - 2.087925 Elevation: 264.522mAOD Looking North East	Taken from side of road, north of Brimpsfield looking East. Representative of road users and the community of Brimpsfield. The view consists of a rolling wooded landscape to the north and shallow valley in the middle distance where Watercombe farm is located but not visible. The foreground is dominated by a pastoral field bounded by post and wire fencing and drystone walling to the far

Viewpoint location	Description
Date and time of summer 26.09.2019, 12:04	boundary. Hedgerow field boundaries and trees enclose the view. Passing traffic can be seen on the a4417 on the far side of valley but Cowley roundabout is obscured by tree cover. Pylon line can be seen past the skyline and isolated properties on elevated land can be seen to the east.
VP 44 View north of Brimpsfield Grid ref: 51.816380, - 2.0885932 Elevation: 258.143mAOD Looking North Date and time of summer 26.09.2019, 11:52	Taken from public right of way north of Brimpsfield looking North-east towards Cowley roundabout. This is representative of users of the public right of way and the community at Brimpsfield. A partial and interrupted view through a gateway in the hedgerow which dominates the view in the foreground The view through the gap in the hedgerow is looking across a pastoral field. Beyond this the land rolls away into the valley. A network of small irregular fields enclosed with mature hedgerow and mixed woodland copse line the facing slope. Traffic along the exiting A417 is visible through gaps in the tree coverage along the ridge of the facing valley.
VP 45 Bridleway at Blacklains Farm Grid Ref: 51.817961, - 2.1038175 Elevation: 280.677mAOD Looking East Date and time of summer 26.09.2019, 12:31	Taken from footpath south of Blacklains Farm. Representative of elevated residential properties west of Hawcote Hill. The view consists of a rolling valley that rises to a localised high point, Hawcote hill. The A417 follows the skyline and behind Hawcote hill, with passing traffic making the road more perceptible in the view. To the north, green dual carriageway signs are visible through roadside trees. Hawcote copse screens sections of the A417. Nettleton is barely visible to the east. A pylon line is visible beyond the skyline, and a wood pole line crosses the view in the foreground. It is a peaceful view due to little noise disturbance.
VP 46 Bridleway west of Elkstone Grid Ref: 51.808662, - 2.062276 Elevation: 258.155mAOD Looking North West Date and time of summer 26.09.2019, 10:55	Taken from an un-named (check) local road looking North towards Highgate Farm. Representative of users of the existing A417 south of the scheme. An open view looking down the road with scrappy hedgerow flanking either side of the road. There is a slot view along the A417 road corridor and cutting slopes to a wooded skyline. Cowley Roundabout is not visible. The land rises to north with undulating large -scale arable fields with little tree cover and bounded by drystone walls. Highgate farm and another residential property are visible on the skyline in the middle distance. Electricity poles are visible from east to west. Cowley roundabout not visible, although the start of new A417 will likely be visible on the skyline.

A417 Missing Link

Preliminary Environmental Information Report

Appendix 7.3
Arboricultural Impact Assessment

28 September 2020

Arboricultural Impact Assessment (AIA)

Site: A417 Missing Link

Prepared for: Arup 63 St Thomas Street Bristol
BS1 6JZ

Prepared by Simon Brain *Chartered arboriculturist*

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Appendix

- 1 Tree Protection Plan
- 2 Survey sheets (tree work schedule)

1.0 Introduction

1.1 Instruction, Scope, Methodology, Mitigation & Limitations

- 1.2 Simon Brain (Managing Director) carried out this assessment site whom is a chartered arboriculturist, with 25 years' experience. I have compiled several hundred arboricultural constraints and impact surveys and reports and I have specific and detailed experience of major road improvement schemes through involvement in the A470, Llangefni, Sirhowy Enterprise Way, A30 and A40 road improvement schemes.
- 1.3 This Arboricultural Implications Assessment (AIA) is based on the proposed development as shown on the layout drawing reference HA551505-ARP-HGN-X-XX_XXXX_X-CM-000001 and incorporated into the Tree Constraints Plan to form the Tree Protection Plan (TPP) contained in Appendix 1 of this report.
- 1.4 The assessment will be carried out in line with the recommendations in BS 5837:2012 *Trees in relation to design, demolition and construction – Recommendations* and will evaluate the direct and indirect impacts of the proposed design and where necessary recommend mitigation.
- 1.5 The use of tree groups is referred to in BS5837:2012 in reference 4.4.2.2 where it is noted that within groups some individual trees will be assessed where there is a need to differentiate trees from the general group attributes. Within the tree groups the largest stem diameters have been provided in the survey sheets, assuming they are a reasonable representation of the entire group. The term "group" is intended to identify trees forming cohesive features by means of shelter planting, visually or culturally including biodiversity factors. As and where required sample trees are used within the Tree Protection Plan such as W7/W9 or W10. These are trees which are plotted within the group using dimensions from the survey sheets to provide an indicative canopy and RPA dimension and are unnumbered. This is for the AIA to consider constraints posed above and below ground and where appropriate make recommendations to mitigate impacts associated with the development sites' retained trees.

- 1.6 Where specialist design and construction techniques are required the site has been mapped with Special Measure Areas (SMA). Where SMA have been recommended further detailed specifications and methodology may be needed in an Arboricultural Method Statement (AMS). SMA also apply to areas of tree groups that are being partially removed and inspections to determine tree removal are required by an Arboricultural Clerk of Works (AcOW).
- 1.7 Below ground constraints are influenced by the root protection area and are determined in line with the recommendations set out in BS 5837:2012. These recommendations quantify the root protection area based on a measured stem diameter in accordance with Annex C, and the root protection area determined from Annex D.
- 1.8 It is important to understand that when considering the root protection area with regards to the circular plot as delineated on the TPP that a number of site factors can influence root morphology and disposition of tree roots.
- 1.9 Above ground constraints are considered above and below ground and in line with the recommendations in BS 5837:2012 to include; shade, dominance, current and future crown spread as well as the ultimate height of those retained trees.
- 1.10 Impacts associated with development sites and retained trees can be associated with single or multiple site operations that can subject trees to multiple impacts (*root severance, compaction, loss of photosynthetic material*), where this is applicable it will be highlighted in the AIA.
- 1.11 The mitigation measures proposed in this report are essential to ensure that trees marked for retention are adequately protected during the period of post and pre-construction.

2.0 Arboricultural Impact Assessment

2.1 Area for proposed development

2.1.2 The development proposals have been embedded within the Tree Constraints Plan data and are as shown in Appendix One (Tree Protection Plan TPP). The TPP shows the following arboricultural items: retained and removed trees, Construction Exclusion Zone (CEZ), Special Measure Areas (SMA) and the retention values of trees as measured by BS5837:2012.

2.1.3 The scheme proposals include direct impacts such the position of new highway infrastructure and earthworks affecting existing vegetation.

2.1.4 Other than the main carriageway improvements and associated embankments, remaining land use (within the redline planning boundary) and development proposals are unknown. In addition, several in direct and / or direct impacts of the scheme are anticipated on vegetation where temporary and or permanent works areas may be located but the details of such development are unknown. For example, the area of land adjacent to G44 is anticipated to have some development, possibly site offices which could impact on trees and these developments require submitting for analysis. A further example would be G51/H15 and T86-T92 which extends offline and could be used for drainage, but the proposal is currently unknown.

2.2 Direct impacts of development

The direct arboricultural impacts of the new road scheme result in the removal of vegetation for the installation of the permanent works. The permanent works include the following items:

- carriageway with on line (existing A417) and off-line positions throughout the route
- embankments and cuttings
- verges and hard shoulders
- visibility splays
- attenuation areas and proposals – areas unknown
- contractor compounds – areas unknown

- tie in points between old and new surfaces
- temporary works areas under – areas unknown

2.2.1 The extent of tree removal for the direct impact of highway infrastructure has been based on the proximity of the proposal to the principle arboricultural constraints; canopy extent, RPA extents and retention value. Where for example unacceptable breaches of RPA (>20% of anticipated modified RPA or circular plot) or canopy occur, the vegetation requires removal as indicated in Appendix 1 Tree Protection Plan and Appendix 2 Survey sheets.

2.3. In direct impacts of development

Indirect arboricultural impacts of the scheme largely occur where for example partial tree group loss is required for new infrastructure. The loss of areas of trees within continuous groups can have a disproportionately negative affect on the stability of retained trees as indicated within section 4.2 of the Tree Constraints Report. Therefore, consideration is given to factors such as the safety and stability of those remaining trees, particularly mature trees within falling range of the new highway and in some cases recommendations are made for the retained edge trees to be re-inspected for safety and /or to determine actual specific tree removal proposals. Some tree references such as hedges are unlikely to be affected by instances of altered exposure. The larger hedges and tree groups are also considered. The nature and type of vegetation present such as newly planted or establishing trees within these groups are unlikely to cause significant harm and / or fail. Where embankments, verges or cuttings facilitate partial group retention retained trees have been bounded by CEZ.

The risk of altered exposure and subsequent significant tree failure onto the highway is at its highest when retaining / partially removing sections of high canopy woodland near the highway, hence on-site arborist advice is required to determine the acceptability of ground disturbance to trees and advise on their safety.

2.4 Special Measures Areas and design changes

SMA are formed where there is a requirement for works within the RPA of retained trees that could potentially render the tree structurally unsound such as excavation of its rooting area. Therefore, an element of supervisory site attendance shall be required to judge the arboricultural impact of excavations (watching brief) on site and ensure that works undertaken do not cause a health and safety hazard by an appointed AcOW (Arb. Clerk of Works).

In other cases, and where cuttings and embankments are minimal design change has been requested such as T26, 28,30,31 and 34, where the use of a no dig surface has been recommended the details of which are found in section 2.5 – no dig surfacing as well as design change.

Where a Special Measures are required to assess impact and prescribe an acceptable construction working method this has been stated in the table below as an Arboricultural Method Statement (AMS) requirement.

2.4.1 Special Measures Areas

The table below shows the location of each SMA, the proposed development activity, the supervisory requirement on site, the need for an Arboricultural Method Statement and whether design change applies.

Table 1 Special Measures Areas					
Tree record reference	Development Activity	Supervisory requirement	AMS	Design change	Notes
W3	Roundabout footway tie in	Detail to be submitted for arboricultural review and determination of AMS requirement. Watching brief during excavations needed by AcOW	Yes, depending on findings	Possible no dig detail	
T25	Access road widening	Detail to be submitted for arboricultural review and determination of AMS requirement. Watching brief	Yes, depending on findings	Probable no dig detail in RPA	

		during excavations needed			
T26,28,30,31,34	Access road widening	Detail to be submitted for arboricultural review and determination of AMS requirement. Watching brief during excavations needed	Yes, depending on findings	Yes, design change required and probable no dig detail. Design to move road to edge of existing hard standing	
T33-51, G28 and T54/55	Access road widening	These trees remain unaffected if existing road surface is retained, if it is removed then an AMS is required			
W4	Tree loss for access road widening	Yes, following felling and inspection of edge trees is required for health and safety purposes	Possibly for no dig detail on footway	No	
T70	Embankment construction	Embankment toe works to be omitted in RPA, supervise excavation by AcOW.	No	No	
W7	Access road widening, up to 1m from existing road edge	Detail to be submitted for arboricultural review and determination of AMS requirement. Watching brief during excavations needed by AcOW (Arb. Clerk of Works)	Yes, depending on findings	Probable no dig detail for footway	

Table 1 Special Measures Areas					
Tree record reference	Development Activity	Supervisory requirement	AMS	Design change	Notes
G63/61	Access road widening	Yes AcOW to supervise works near trees			
W11, W12	Large woodland bisected by improvement works in general.	Will require tree removal to CEZ position and AcOW on site under an AMS to check extent of excavation in proximity to retained woodland edge and advise on any residual impact and / or tree removal and / or special measures.			
W15, G81, G91	Partially affected. Northern section to be removed.	AcOW to mark out any additionally affected trees on site following setting out of actual road position			

2.4.2 No dig construction

Should an absence of significant rooting material be found during excavation the supervising arborist may recommend design change. It is however envisaged that this SMA shall conform to the principles of no dig construction, typically 'no dig' requires the following

- Establishment of the California Bearing Ratio of the land in question order to inform engineers of type and capacity of load bearing cellular confinement system to be used.
- Appoint and confirm engineer for design and supply of a suitable load bearing geo cellular confinement system requiring no more than 25cm of excavation for top soil preparation only.
- Accord with Arboricultural Method Statement (AMS) and details therein including ensuring access and private driveways are constructed and finished to the agreed specifications before any other activity commences on site.
- The cellular confinement system shall be guaranteed by the supplier so as not to cause subsequent compaction for a period of ten years.

- Typically, a 'no dig' approach (based on APN12 Driveways close to trees) will be taken with the confinement system being laid directly onto the existing ground level; where local cuts and fills are required this shall be no more than 75cm in depth. This exercise shall be overseen by the arboriculturist on site.
- Typically, a confinement system of 150mm in depth is used.
- Edge restraints shall be required, and they shall be secured by means of small metal ties approximately 50cm+ long at appropriate intervals.
- The cellular confinement system shall be laid by pedestrian means under the consultant's on-site supervision. Small excavators can be used on the surface when it is newly laid and when ground boarding is provided.
- The system shall be filled with granular material that retains porosity and maintain a porous finished wearing surface such as pea gravel or resin bonded gravel. Proprietary surface coverings that may be suitable for some surfaces include Flexipave and Permadrive.
- All surface construction when complete shall be covered in on ground boarding throughout the SMA for the remainder of the build period.
- All surface construction is located with Special Measure Areas (SMA) as designated on the Tree Protections Plan (TPP) and shall therefore be supervised on site by a qualified consultant whom shall record all progress and oversee all new surface installations in the RPA's affected.

NOTE: The chronological order of events shall be as follows:

Following installation of the CEZ access is installed under supervision to no dig specification provided and all new surfacing's are protected by on ground boarding such as bog mats prior to any other construction activity commencing. It is however critical that ground boarding is proportionate to

the load anticipated to be exerted on the surface which can be confirmed in method statement.

3.0 Tree Preservation Orders

3.1 The Local Planning Authority has been approached for a status check for Tree Preservation Order (TPO) using interactive mapping <http://my.cotswold.gov.uk/mcd.aspx> . Individual TPO's apply to those trees located in G 101, G97 and an Area TPO applies to the following references* T142-T163. It is noted that the study area covers Cotswold and Tewkesbury Councils and those available maps are appended in Appendix 5 A417 TPO map. No information could be found within the boundaries of Tewkesbury district council.

* This requires confirmation by detailed cross examination of the actual TPO maps by from the LPA and this information can only be taken as a guide.

<https://magic.defra.gov.uk/MagicMap.aspx> confirms an ancient woodland designation is present on W14.

G 101, G97 and T142-T156, 158 and 160-162 remain unaffected. However, T163 requires removal. 159 and 157 require an AMS to be approved by the Local Planning Authority before any old sections of road are to be removed.

4.0 Trees to be removed, retained and those unaffected

4.1 Individual trees

Removed:8,21,27,29,32-37,58-60,95,103-107,114-121,126,137,138,152,163,191

Pollard for nature conservation: 52,57,66,102,124,139,211

Retained (subject to further protective measures):25,26,28,30,31,4-50, 53-55, 70,101,108-113,157,159,175,192,193

Unaffected:1-7,9-20,22-24,38,39,51,61-65,67-69,71-94,96-100,122,123, 125,127-136 140-151,153-156,158,160-162,164-174,176-190,194-210,212

4.2 Tree Groups

Largely removed (retain vegetation within CEZ on TPP): 17

Partial loss as shown (retained trees in CEZ): 4,23,26,31,38,55,57,59,64,71-75,78,102,108,118,120,124,132,

Removed:9,10,15,16,30,32,46,60,89,90,94,95,106-107,117,139,140

Unaffected and retained (further supervisory protective measures):

1-3,5-7,11-14,18-22,24,25,27-29,33-37,39-45,47-54,56,58,61,62,63,65-70,76,77,79,80,81,82-88,91,92,93,96-101,103-105,108-116,119,121,122,123,125-131,131,133-138

4.3 Hedgerows

Removed/largely removed: 2,6,7,8,9,16-17,24

Partial loss:18,25,27

Unaffected and retained: 1,3-5,7,9,11-15,19-21-23,26,28-32

4.4 Woodlands

Removed / largely removed: None

Partial removal (further protective measures apply):11,12,15,17,18

Unaffected and retained (further protective measures) :
1,2,3,4,5,6,7,8,9,10,13,14,16,19

4.5 Evaluation of tree losses

A total of 401 records are recorded on the site including 212 individual trees, 140 tree groups, 32 hedgerows and 19 groups.

Many of the tree records are to be retained and where removal is required this has been specified for the permanent works to be installed.

Trees that are due to be lost for the permanent works are to be mitigated using general landscape highway planting. In areas of partial tree loss within tree groups and woodlands the aim of replanting will be to support the retained areas of continuous cover with supplementary planting located adjacent to the retained vegetation and increasing its overall land coverage. Areas within the site shall be identified for woodland replanting consisting of native high canopy woodland species.

5.0 Root Protection Areas (RPA)-modifications

5.1 Root Protection Areas have been plotted in line with the guidance given in BS 5837: 2012 where ground constraints have had or are likely to effect the root morphology of trees e.g. where underground utilities or building foundations have obstructed root growth this shall require formal confirmation by excavation to establish presence or absence of significant rooting material.

6.0 Shading and associated constraints

6.1 The re development of the A417 does not encounter shading and or post construction arboricultural issues. The extents of clearance needed for the permanent works shall be maintained by Highways England in the future.

7.0 Tree pruning to facilitate development

7.1 There are no requirements for minor levels of tree pruning to facilitate the proposed development

8.0 New surfacing and ground level modifications

8.1 New surfacing is required in the form of a new surfacing's in the RPA of retained trees as specified in the survey sheets and on the TPP. The

construction of all new surfacing shall accord with section 2.4.2 'no dig' construction.

It is important to note that the removal of any hard surfacing's within the RPA of retained trees also requires careful working for example T38-51.

9.0 Construction Exclusion Zones

9.1 The Construction Exclusion Zone has been shown as a black fenced polyline on the TPP in Appendix 1.

9.2 The specification for the protective fence is shown on the TPP overview sheet. It is noted that the use of heras panels securely staked to the ground with driven metal retaining spikes is an acceptable fencing method. The CEZ shall be signed off by the AcOW as fit for purpose before any works begin.

10.0 Site supervision and monitoring

10.1 The appointment of an AcOW is essentially for the protection of retained trees and highway safety. Where trees have been delineated on the TPP as being in SMA there will be a requirement to oversee construction operations in these areas in order to ensure that no damage occurs to retained trees. In many SMA an AMS is also required. Site supervision is required by the AcOW during construction in all SMA. It is recommended that the following substantial completion the supervising arborist completes a final site check and hand over report.

10.2 To ensure that there is an auditable system of site monitoring, reports will be compiled following site visits and issued to the site manager, copies of which will be available on site always for inspection by a Council planning/Tree officer.

11.0 Installation of below ground infrastructure

11.1 Detailed plans have not been provided specifying the location of site utilities and design change may be sought where this has conflicted with RPA of retained trees.

- 11.2 Specialist advice with regards to the installation of utilities will need to be sought from engineers and must be reviewed by the consulting arboriculturist prior to commencement on site when operating in RPA/SMA.
- 11.3 The usual construction techniques for installing site utilities within an RPA/SMA will be unacceptable due to the level of root severance that would occur. The impact of root severance will have a detrimental effect on tree health as trees require a healthy root system in order to maintain water and mineral uptake from the soil. Severance of tree roots caused by trenching can lead to reduced water uptake which in turn impacts on the trees ability to supply water to the canopy, resulting in desiccation. A further complication associated with root severance can be problems associated with tree stability. The tree relies on an intact root system in order to maintain stability; this stability will be compromised by root severance.

12.0 Design change requirements

- 12.1 Design change requirements have been provided in relation to:

T26 -T34 where a tie in with the existing road is required. The works are located within RPA of retained trees and consideration of such a negative impact can be mitigated by design change. A resolve would be to move the access road to the north away from RPA. Should this not be achievable then further measures (including tree felling) will be required.

Also located at T70 where earthworks and general cut are required. It would be preferable to omit cuttings at this location in the RPA otherwise a new recommendation shall be required for either tree protection or tree management.

13.0 Amenity Value

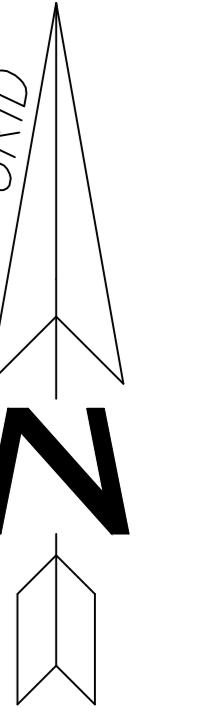
The visual amenity conferred by the trees on the site is significant in the wider landscape, it is however transitory to the road user and the significance of the visual amenity is a softening of the landscape in general due to the presence of trees. The conferred amenity shall in many cases be retained where either new tree groups, hedges or woodland will be seen from offline vantage points

and existing retained vegetation online remains unaffected. In some cases, the visual amenity is likely to increase due to the road moving closer to retained vegetation for example W11/12. The impact of tree losses throughout the A417 improvement scheme are to be mitigated by new landscape planting.

14.0 Concluding statement

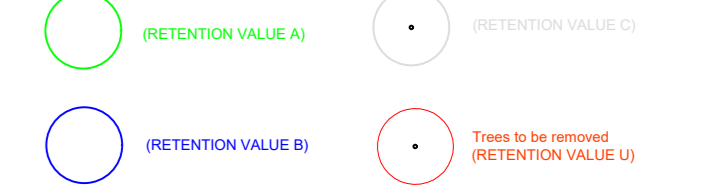
- 14.1 The proposed scheme was assessed in line with guidance provided in BS 5837:2012 *Trees in relation to design demolition and construction – Recommendations* with the aim to achieve a harmonious relationship between trees and structures that can be sustained in the long term.
- 14.2 It is my professional opinion as an arboriculturist that the proposed development should be allowed to proceed on the grounds that the design proposal has achieved a harmonious relationship between those trees retained on site and the proposed scheme. This is however based on the implementation of recommendations within this AIA for tree retention, protection and replacement.

Appendix 1 Tree Protection Plan



TREE PROTECTION PLAN

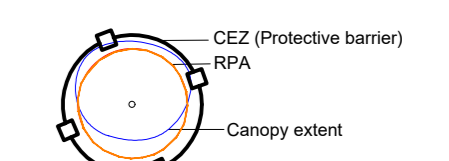
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Root Protection Areas (RPA) Construction Exclusion Zones (CEZ)

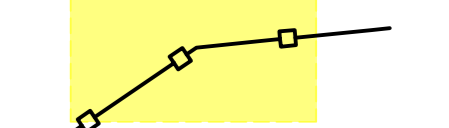
Root Protection Areas (RPA's) have been identified and are based on BS5837:2012. RPA's and Construction Exclusion Zones (CEZ) have been shown as detailed below. The CEZ shall act as the protective barrier for retained trees.

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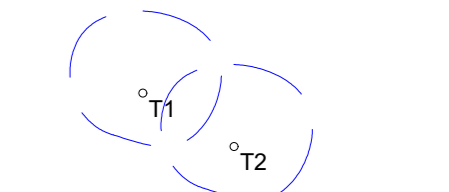
Special Measure Areas (SMA)

Special measure areas have been identified where further protective measures are required in Arboricultural Method Statement (AMS) format.

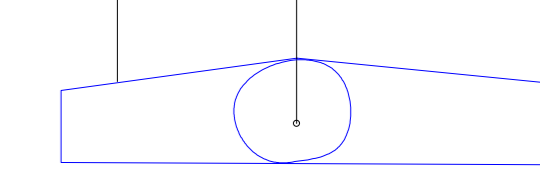


Tree and Group removal

Trees, groups, hedges and woodland to be removed are shown dashed as below



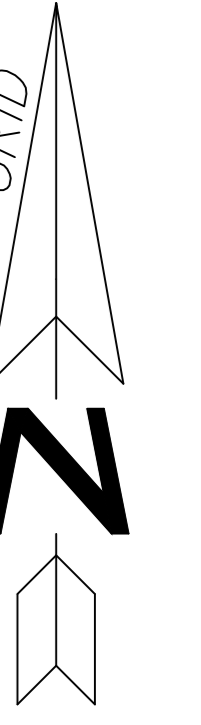
Woodland or group canopy extents
Un numbered individual sample tree within group



Amenity Tree Care

The Annexe, Willow Hill Cottage, School Lane,
Burwardsley, Chester, CH3 9NX
Tel. 01829 770075

Client:	Anup		
Project:	A417T		
Detail:	TREE PROTECTIONS PLAN - OV		
Drawn By:	Date:	Scale:	
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Dwg No:	Revision:		
TR-01-Sheet 1	V1		



TREE PROTECTION PLAN

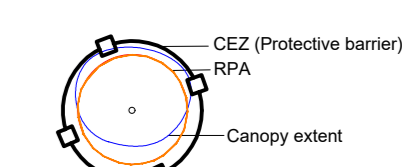
Retention value key

- RETENTION VALUE A
- RETENTION VALUE B
- RETENTION VALUE C
- TREES TO BE REMOVED

Root Protection Areas (RPA) Construction Exclusion Zones (CEZ)

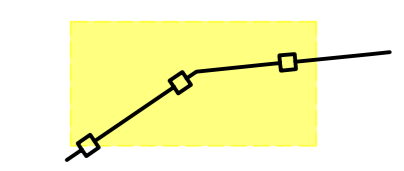
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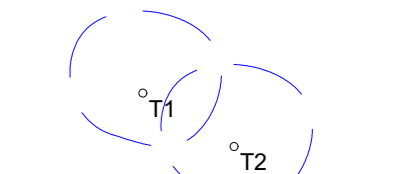
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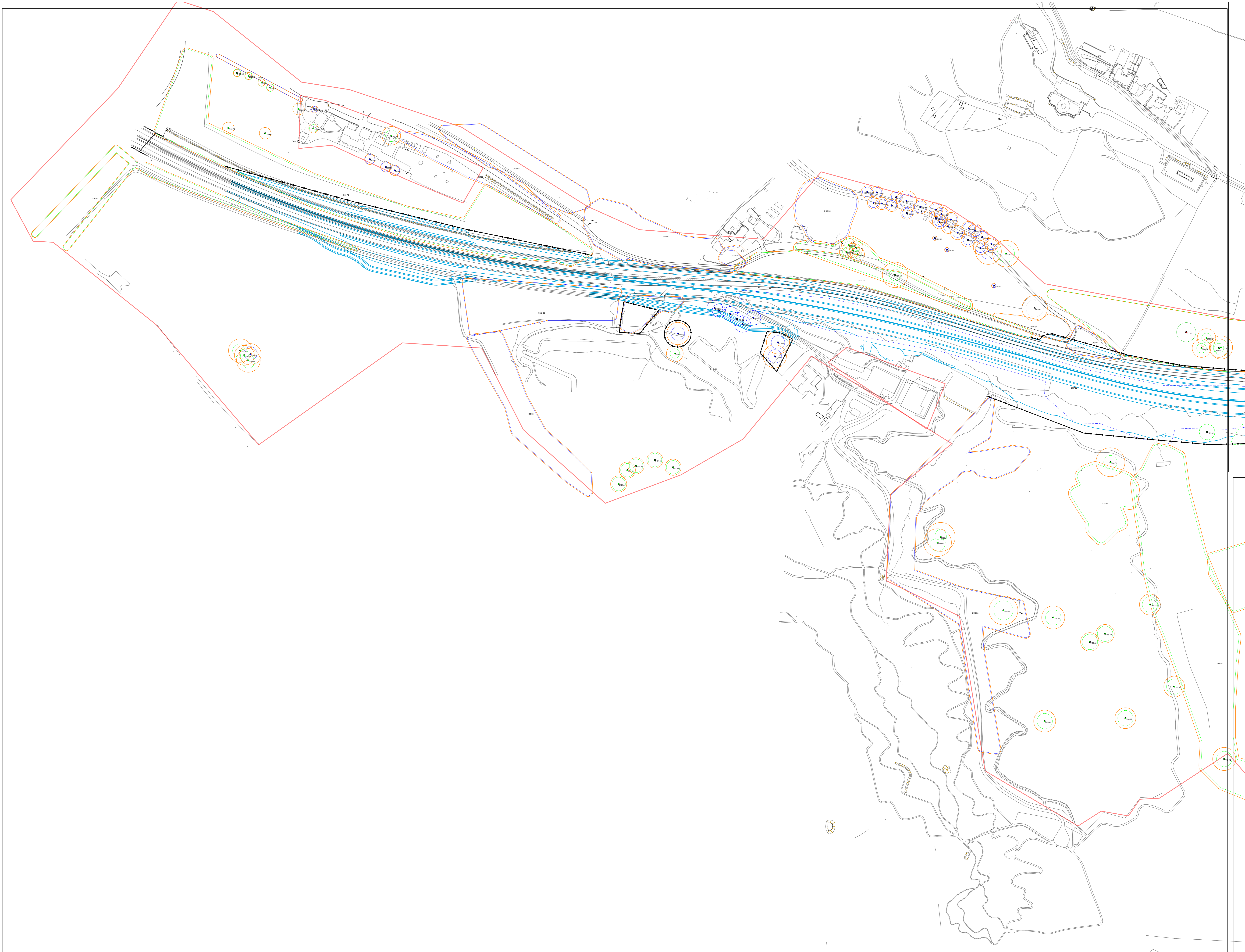
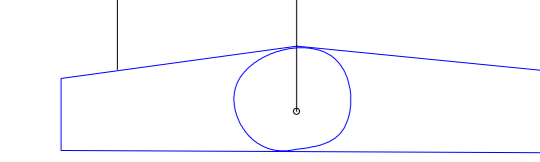


Tree and Group removal

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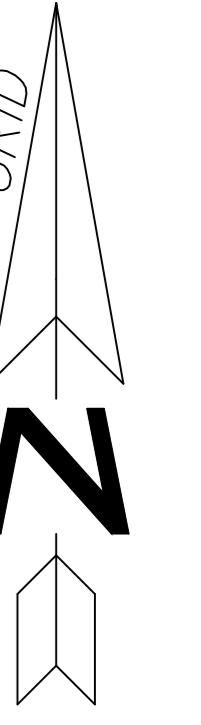
Woodland or group canopy extents
Un numbered individual sample tree within group



Amenity Tree Care

The Annexe, Willow Hill Cottage, School Lane,
Burwardsley, Chester, CH3 9NX
Tel. 01829 770075

Client:	Anup	
Project:	A417T	
Detail:	TREE PROTECTIONS PLAN - 1	
Drawn By:	Date:	Scale:
SB	03 12 19	1:1250(A4)
Drwg No:	Revision:	
TR-01-Sheet 1	V1	



TREE PROTECTION PLAN

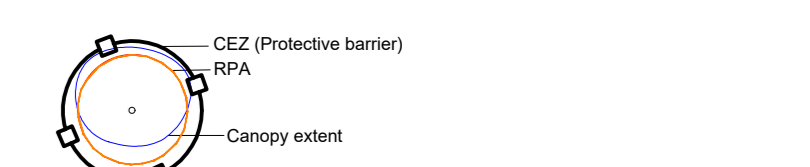
Retention value key

- RETENTION VALUE A
- RETENTION VALUE B
- RETENTION VALUE C
- TREES TO BE REMOVED

Root Protection Areas (RPA) Construction Exclusion Zones (CEZ)

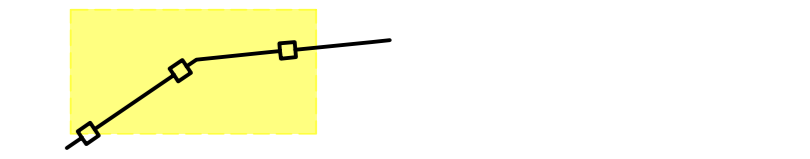
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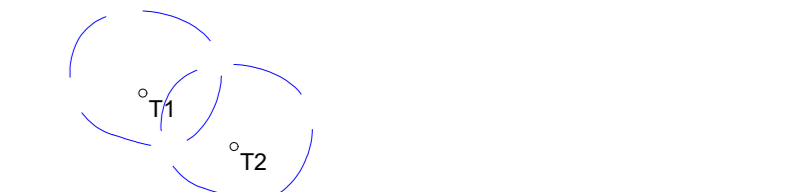
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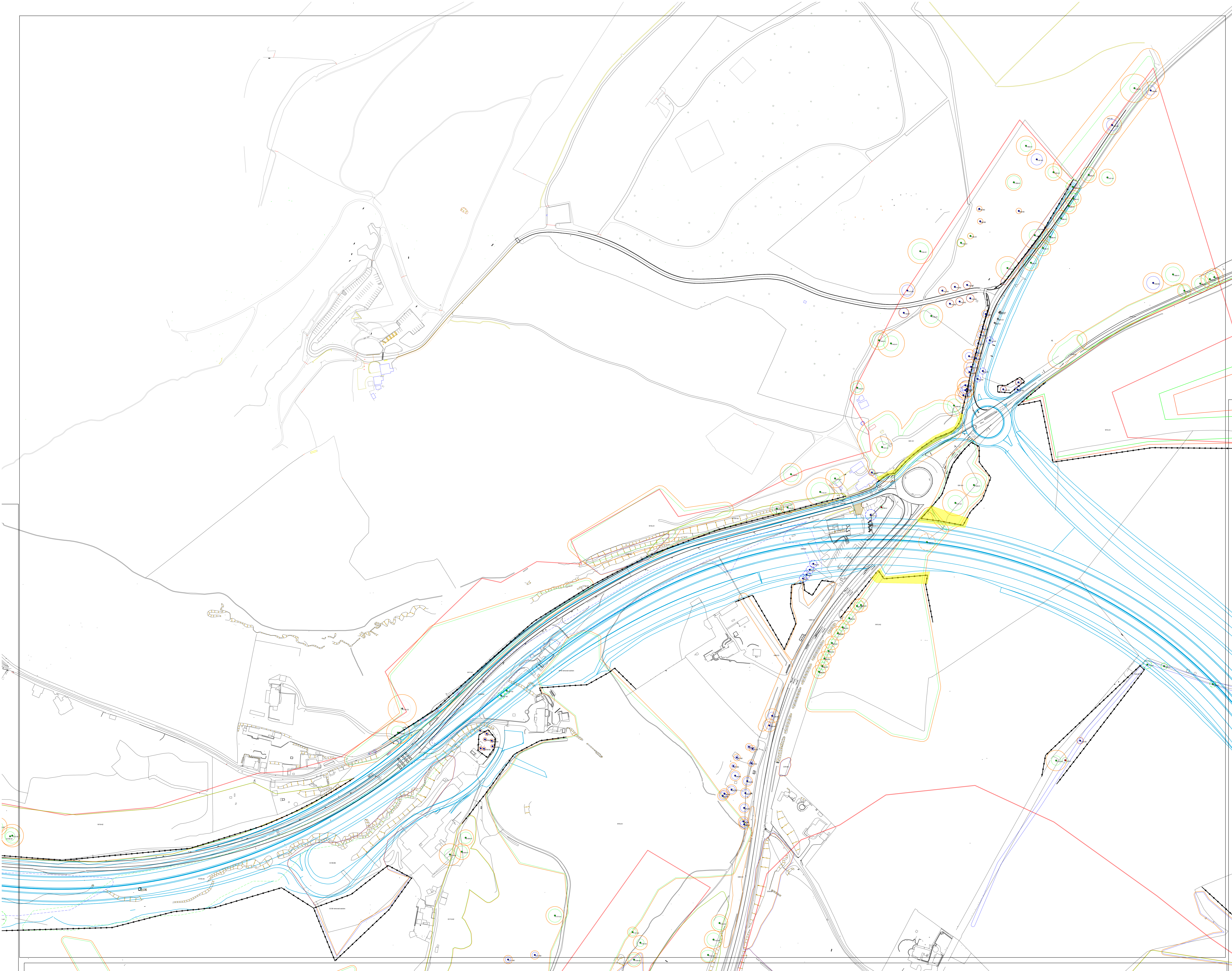
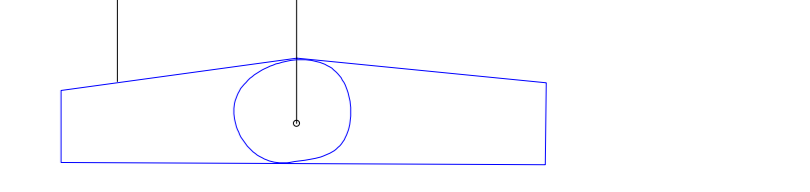


Tree and Group removal

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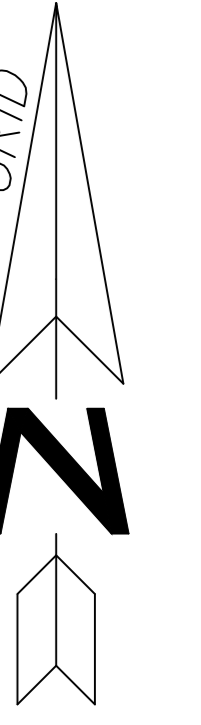
Woodland or group canopy extents
Un numbered individual sample tree within group



Amenity Tree Care

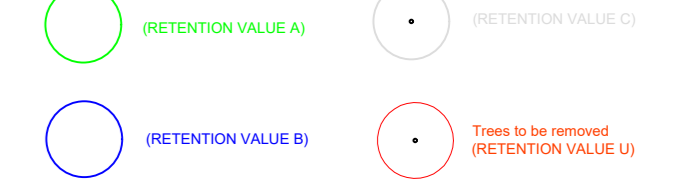
The Annexe, Willow Hill Cottage, School Lane,
Burwardsley, Chester, CH3 9NX
Tel. 01829 770075

Client:	Arup		
Project:	A417T		
Detail:	TREE PROTECTIONS PLAN - 2		
Drawn By:	Date:	Scale:	
BB	03 12 19	1:1250(A4)	
Orig No:	Revision:		
TR-01-Sheet 1	V1		



TREE PROTECTION PLAN

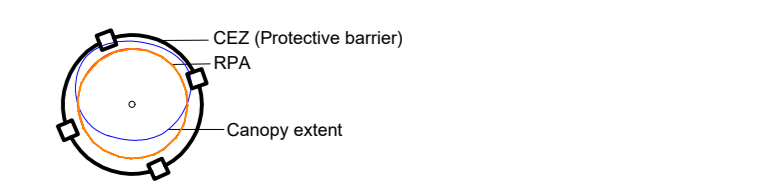
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Root Protection Areas (RPA) Construction Exclusion Zones (CEZ)

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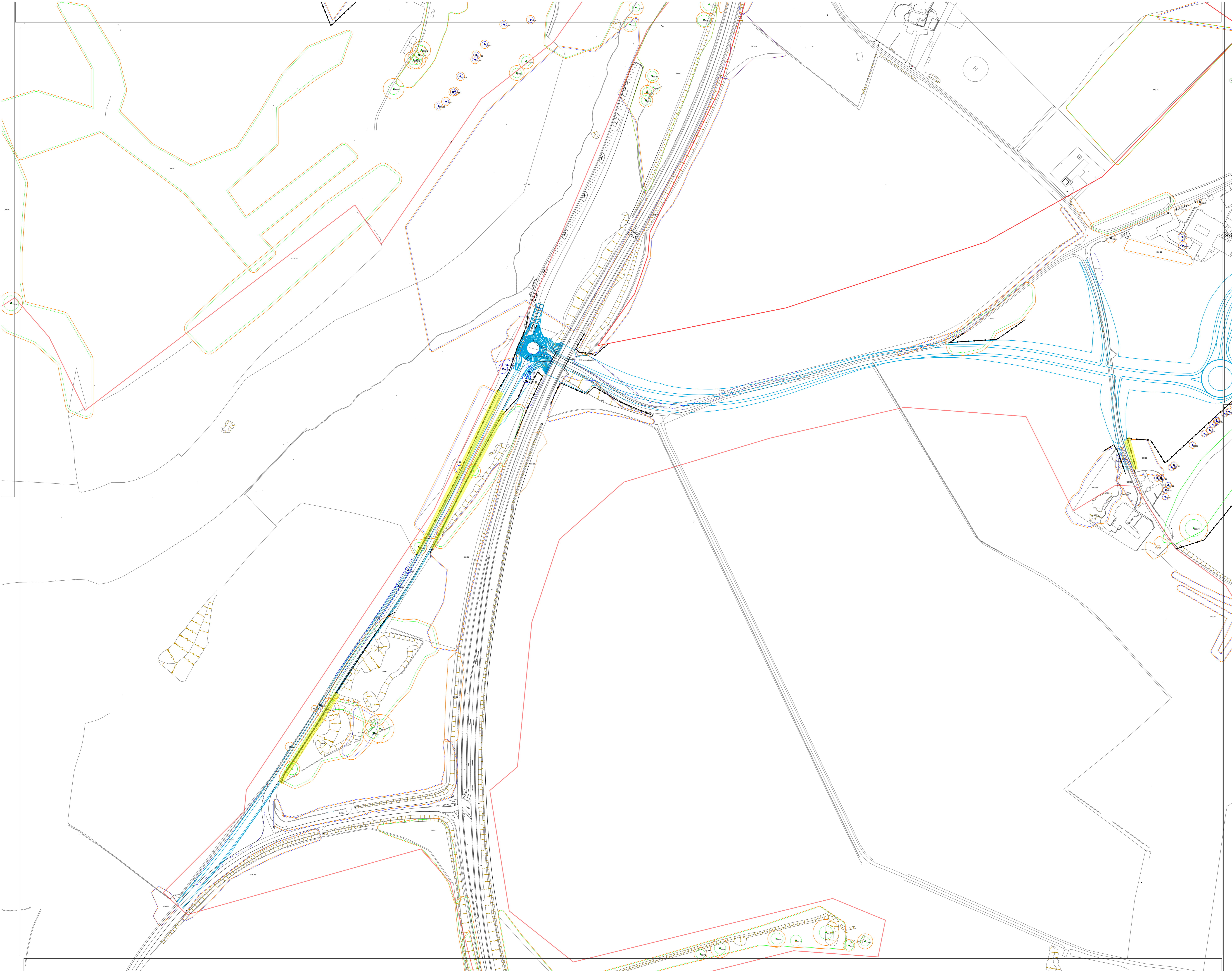
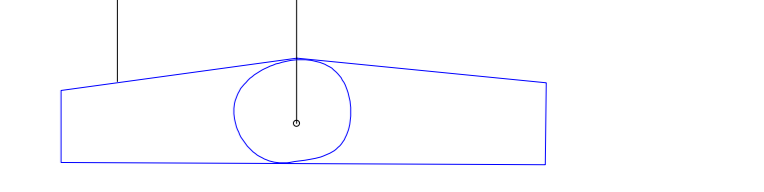


Tree and Group removal

Trees, groups, hedges and woodland to be removed are shown dashed as below



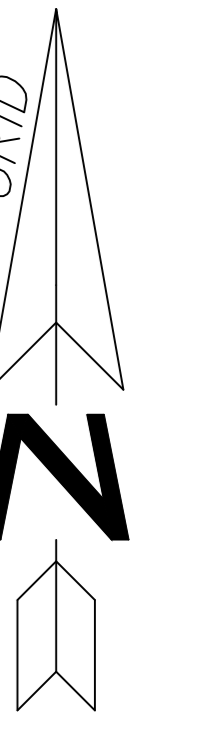
Woodland or group canopy extents
Un numbered individual sample tree within group



Amenity Tree Care

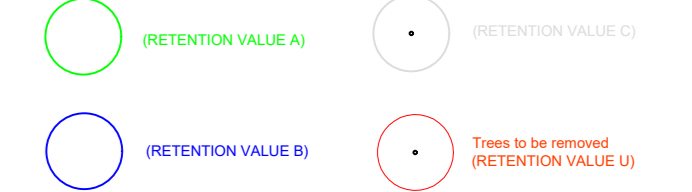
The Annexe, Willow Hill Cottage, School Lane,
Burwardsley, Chester, CH3 9NX
Tel. 01829 770075

Client:	Arup		
Project:	A417T		
Detail:	TREE PROTECTIONS PLAN - 3		
Drawn By:	Date:	Scale:	
SB	03 12 19	1:1250(A4)	
Drwg No:	Revision:		
TR-01-Sheet 1	V1		



TREE PROTECTION PLAN

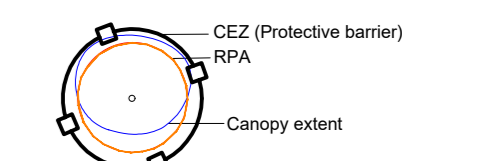
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Root Protection Areas (RPA) Construction Exclusion Zones (CEZ)

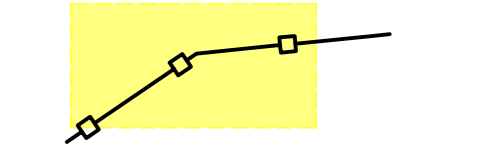
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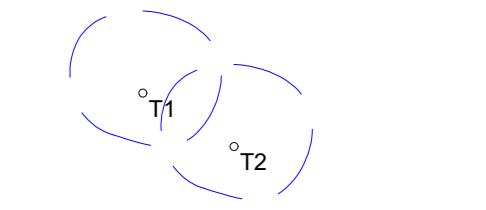
Special Measure Areas (SMA)

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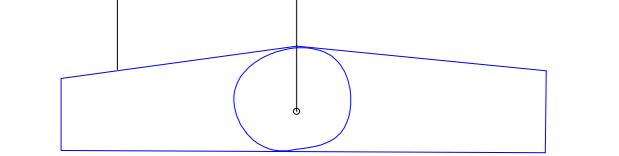


Tree and Group removal

Trees, groups, hedges and woodland to be removed are shown dashed as below



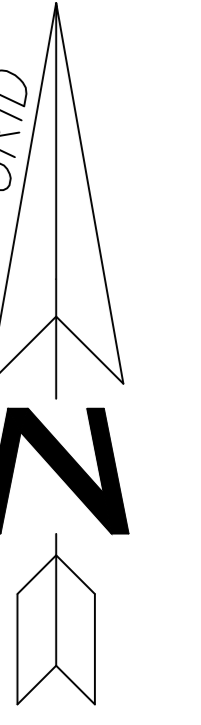
Woodland or group canopy extents
Un numbered individual sample tree within group



Amenity Tree Care

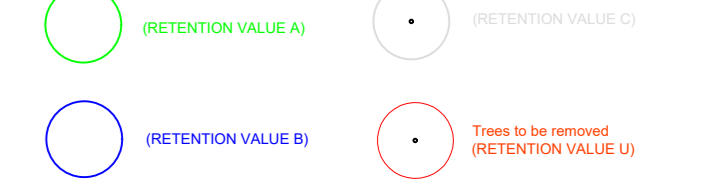
The Annexe, Willow Hill Cottage, School Lane,
Burwardsley, Chester, CH3 9NX
Tel. 01829 770075

Client:	Arup	
Project:	A417T	
Detail:	TREE PROTECTIONS PLAN - 4	
Drawn By:	Date:	Scale:
BB	03 12 19	1:1250(A4)
Orig No:	Revision:	
TR-01-Sheet 1	V1	



TREE PROTECTION PLAN

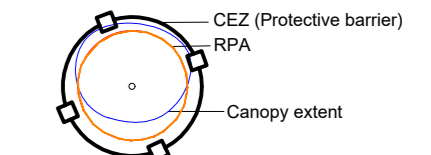
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Root Protection Areas (RPA) Construction Exclusion Zones (CEZ)

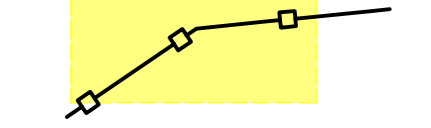
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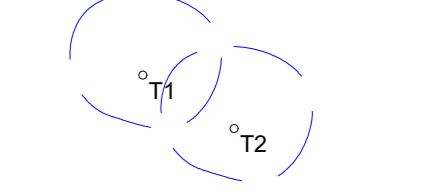
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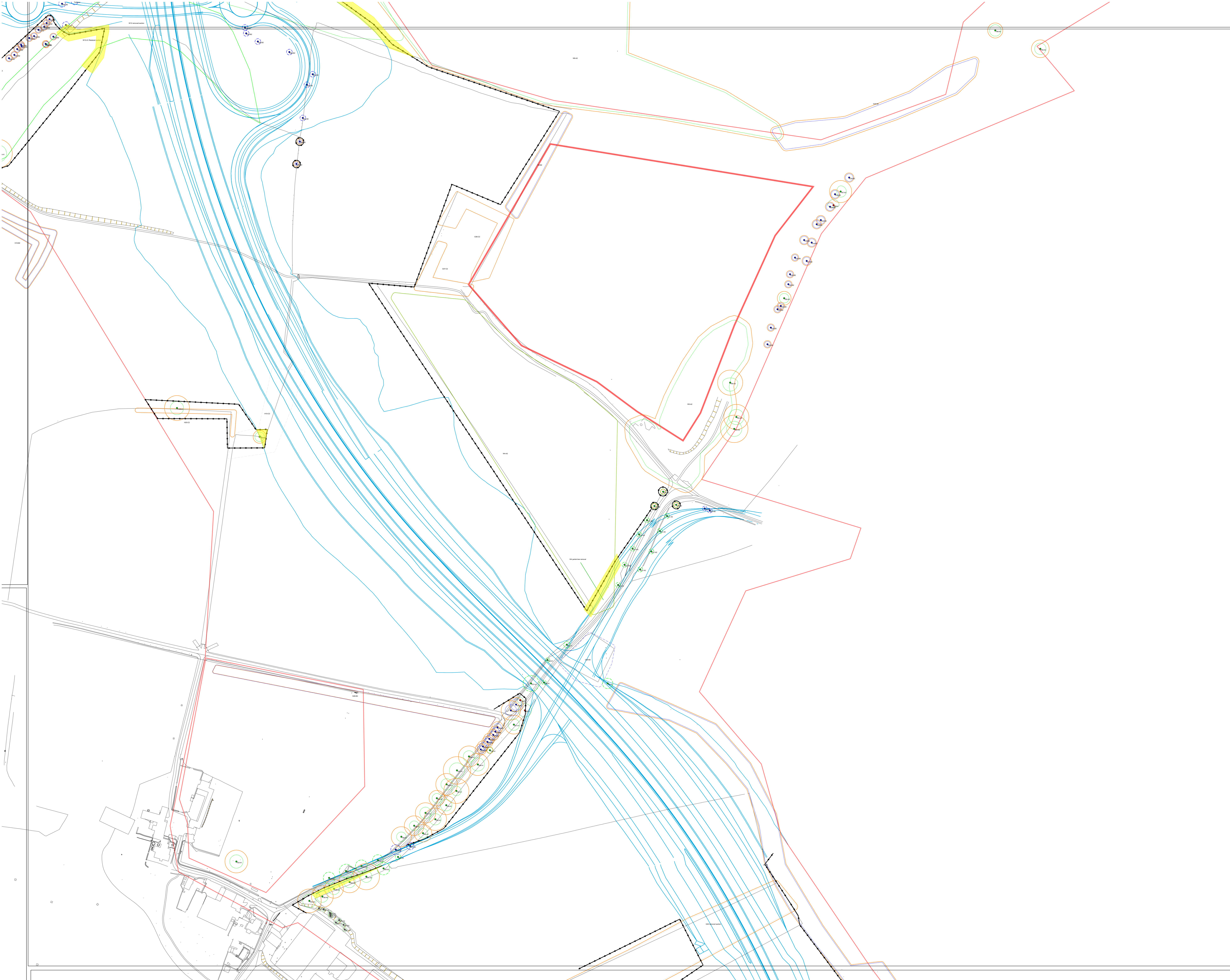
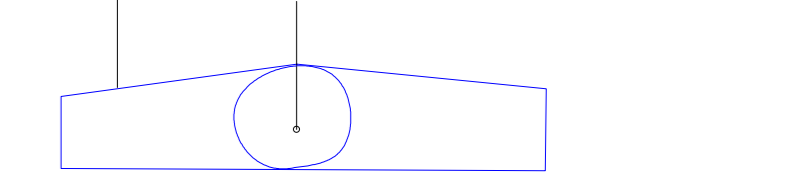


Tree and Group removal

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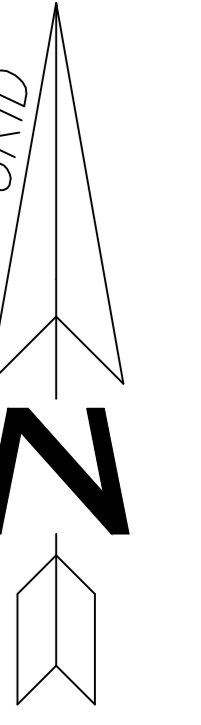
Woodland or group canopy extents



Amenity Tree Care

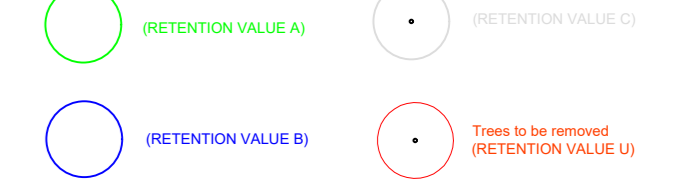
The Annexe, Willow Hill Cottage, School Lane,
Burwardsley, Chester, CH3 9NX
Tel. 01829 770075

Client:	Arup		
Project:	A417T		
Detail:	TREE PROTECTIONS PLAN - 5		
Drawn By:	Date:	Scale:	
BB	03 12 19	1:1250(A4)	
Orig No:	Revision:		
TR-01-Sheet 1	V1		



TREE PROTECTION PLAN

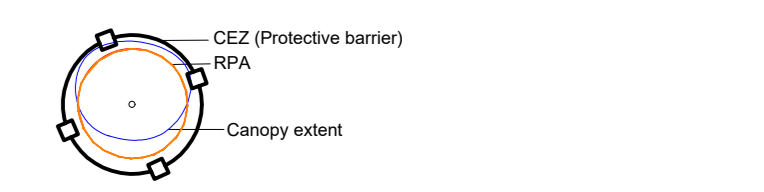
Retention value key



Root Protection Areas (RPA) Construction Exclusion Zones (CEZ)

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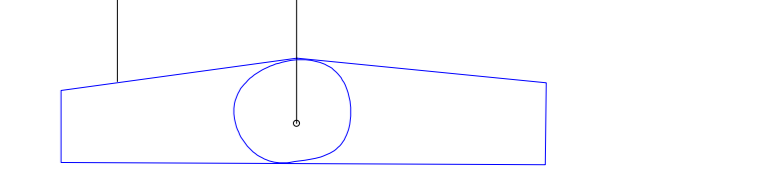


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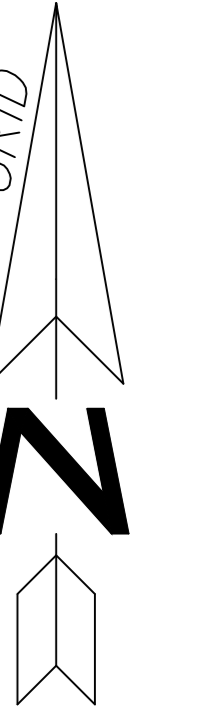
Woodland or group canopy extents
Un numbered individual sample tree within group



Amenity Tree Care

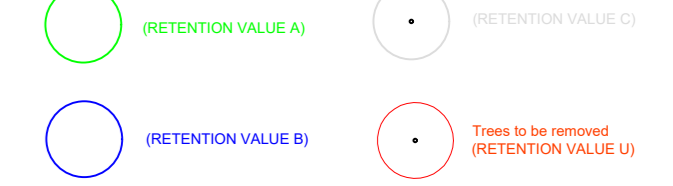
The Annexe, Willow Hill Cottage, School Lane,
Burwardsley, Chester, CH3 9NX
Tel. 01829 770075

Client:	Anup	
Project:	A417T	
Detail:	TREE PROTECTIONS PLAN - 6	
Drawn By:	Date:	Scale:
SB	03 12 19	1:1250(A4)
Dwg No:	Revision:	
TR-01-Sheet 1	V1	



TREE PROTECTION PLAN

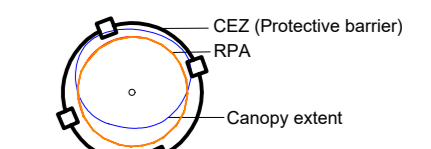
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Root Protection Areas (RPA) Construction Exclusion Zones (CEZ)

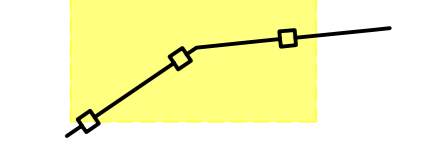
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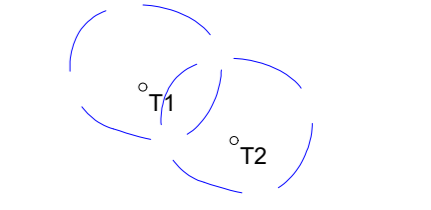
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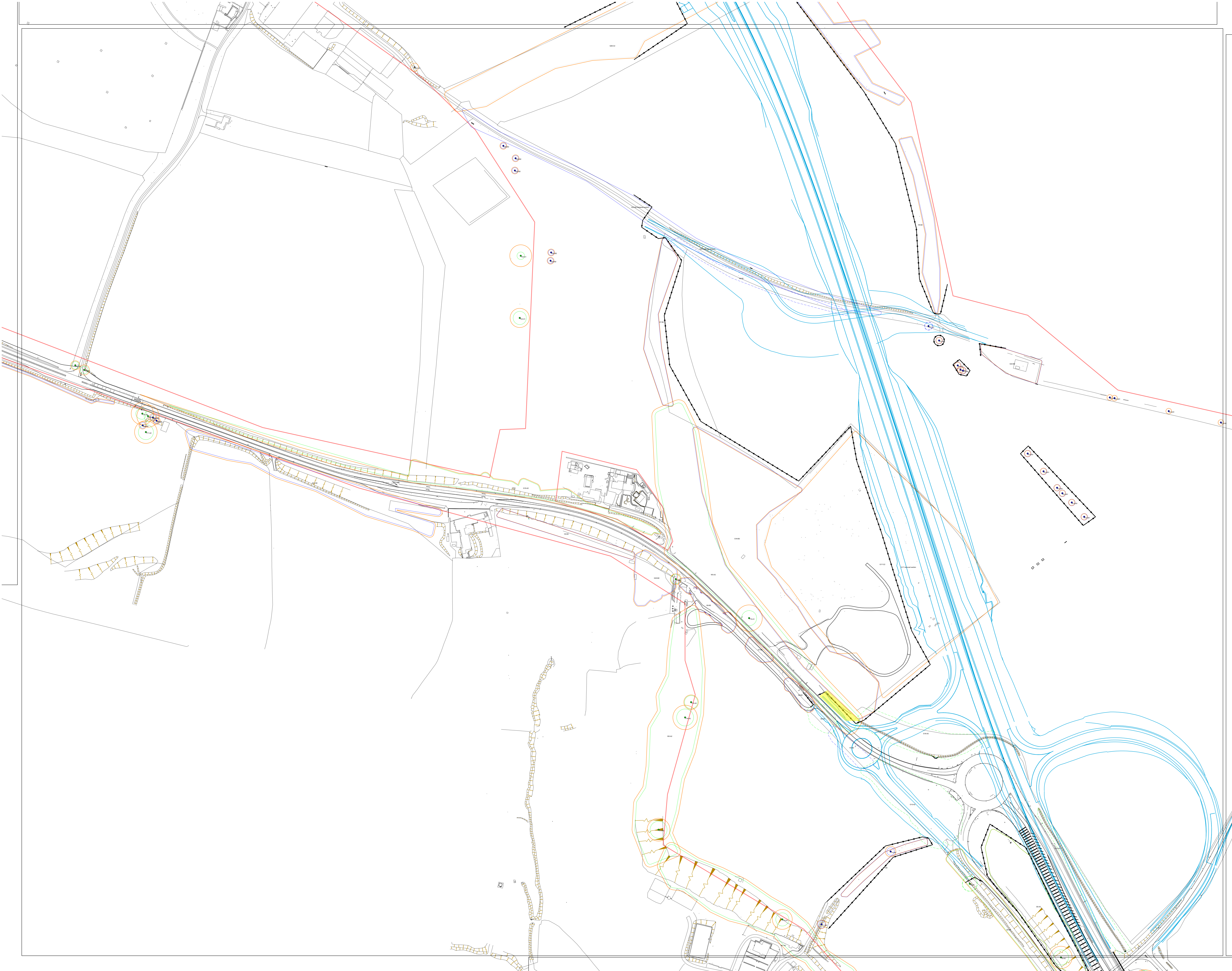
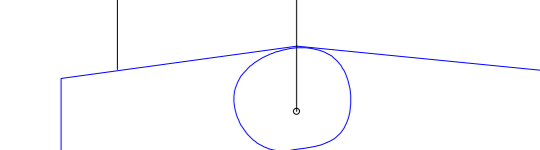


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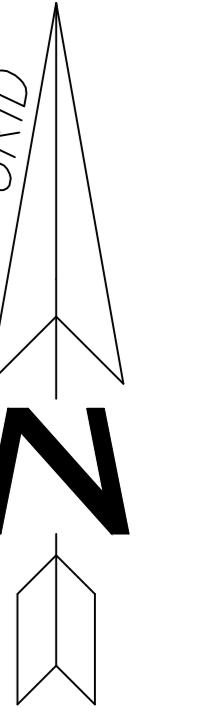
Woodland or group canopy extents
Un numbered individual sample tree within group



Amenity Tree Care

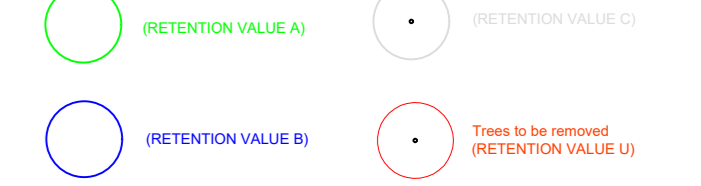
The Annexe, Willow Hill Cottage, School Lane,
Burwardsley, Chester, CH3 9NX
Tel. 01829 770075

Client:	Anup		
Project:	A417T		
Detail:	TREE PROTECTIONS PLAN - 6		
Drawn By:	Date:	Scale:	
BB	03 12 19	1:1250(A4)	
Drwg No:	Revision:		
TR-01-Sheet 1	V1		



TREE PROTECTION PLAN

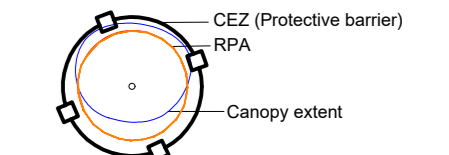
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Root Protection Areas (RPA) Construction Exclusion Zones (CEZ)

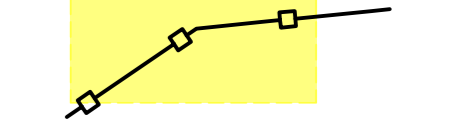
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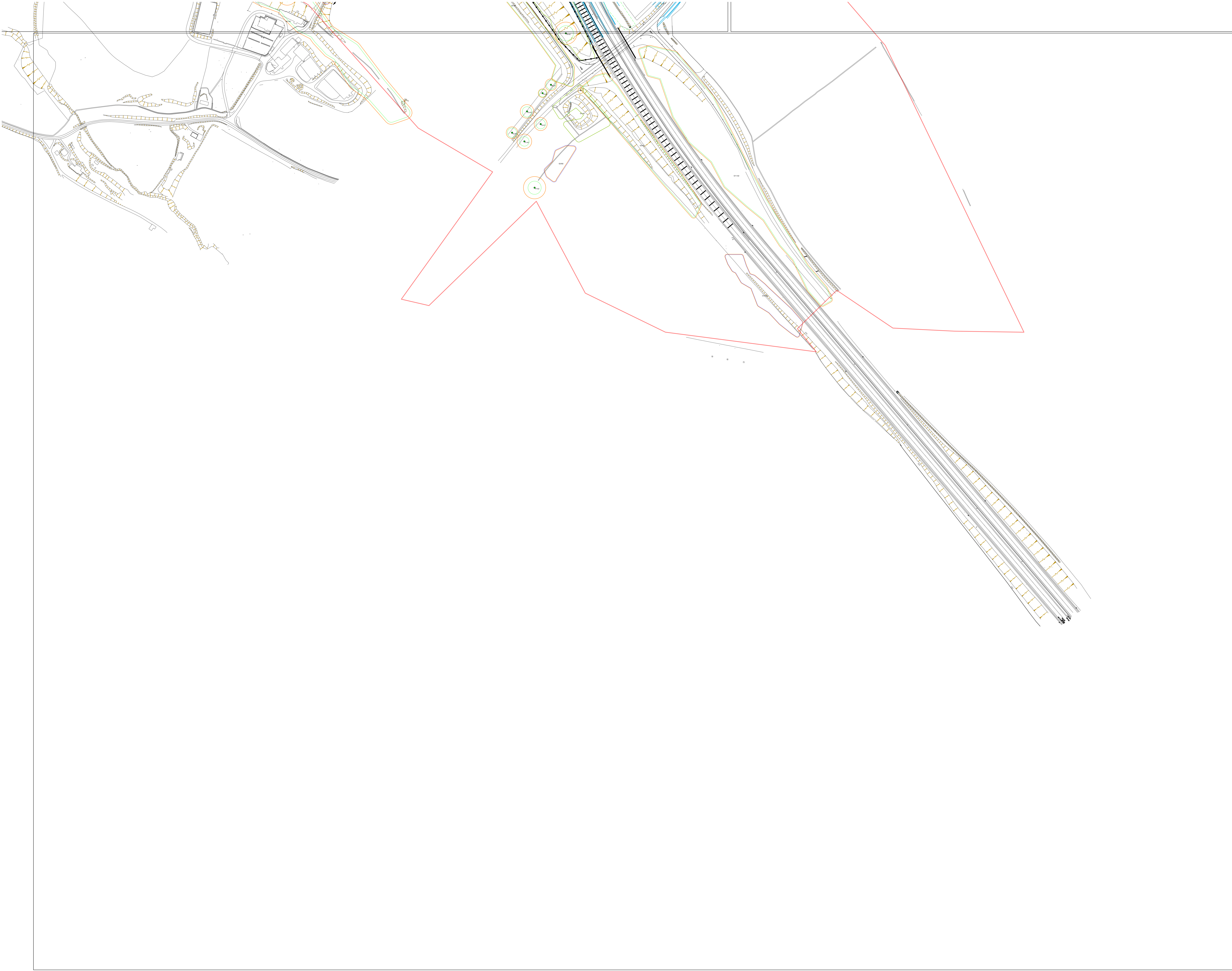
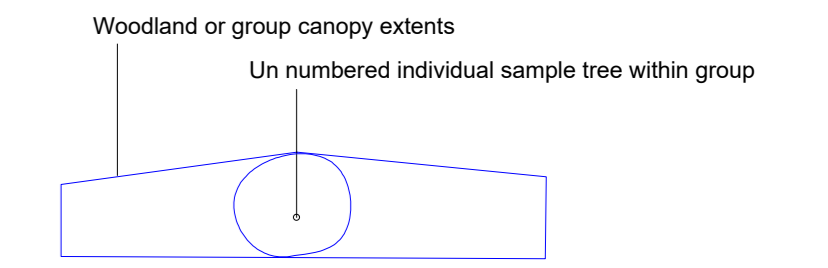
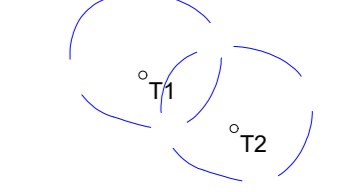
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Tree and Group removal

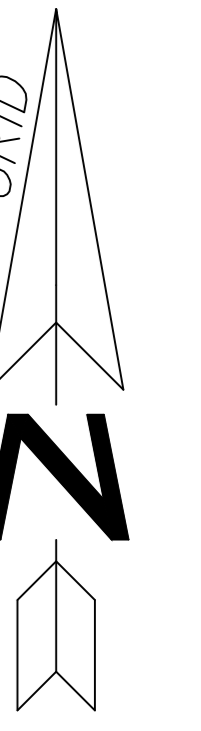
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Amenity Tree Care

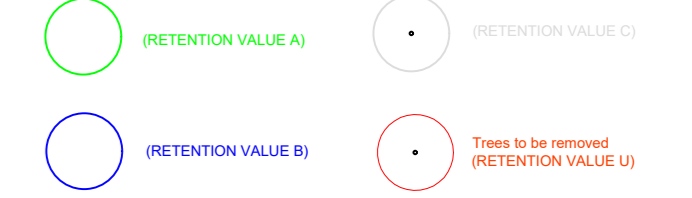
The Annexe, Willow Hill Cottage, School Lane,
Burwardsley, Chester, CH3 9NX
Tel. 01829 770075

Client:	Arup		
Project:	A417T		
Detail:	TREE PROTECTIONS PLAN - 9		
Drawn By:	Date:	Scale:	
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Orig No:	Revision:		
TR-01-Sheet 1	V1		



TREE PROTECTION PLAN

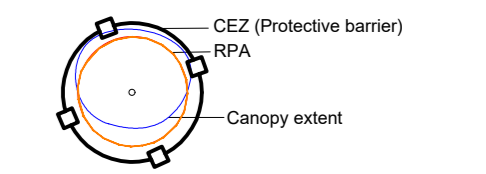
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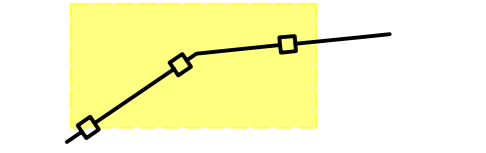
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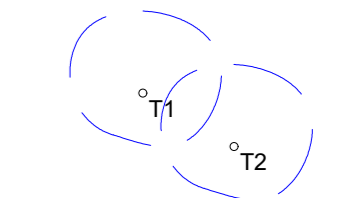
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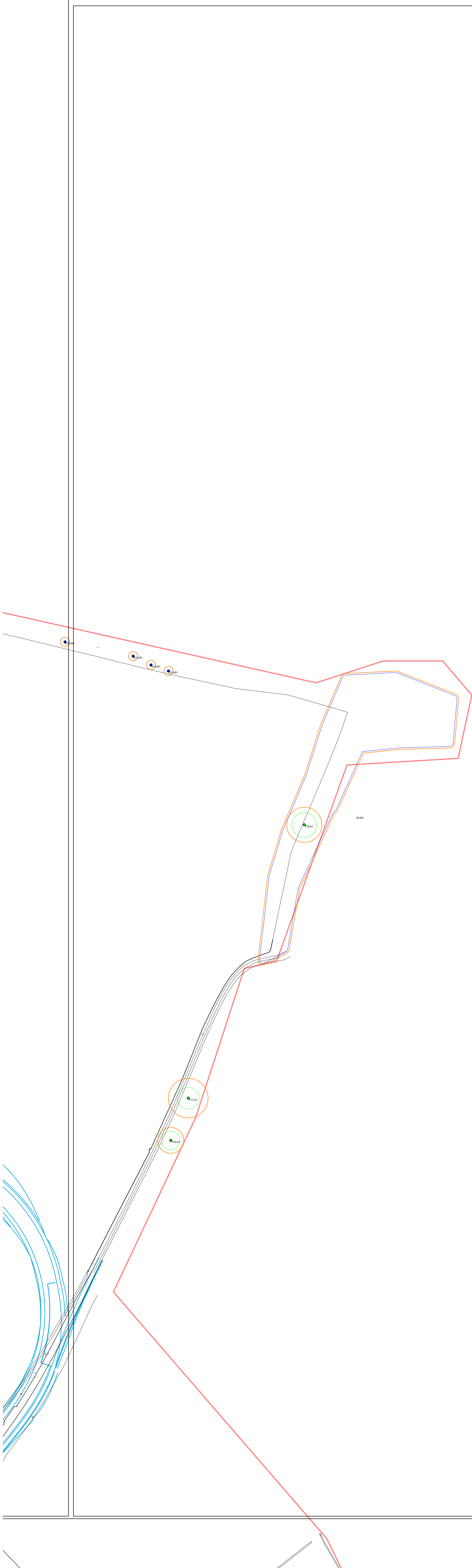
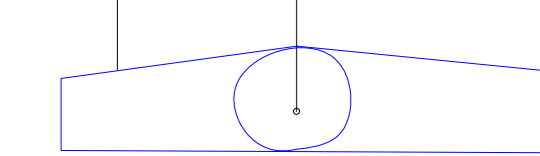


Tree and Group removal

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Woodland or group canopy extents
Un numbered individual sample tree within group



Amenity Tree Care

The Annexe, Willow Hill Cottage, School Lane,
Burwardsley, Chester, CH3 9NX
Tel. 01829 770075

Client:		
Arup		
Project:		
A417T		
Detail:		
TREE PROTECTIONS PLAN - 10		
Drawn By:	Date:	Scale:
SB	03 12 19	1:1250(A4)
Orig No:	Revision:	
TR-01-Sheet 1	V1	

Appendix 2 Survey sheets (tree work schedule)

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
T1	Large-leaved Lime	Tilia platyphyllos	M	650	1	15	4	5	5	5	5	A1	40+			Unaffected	7.8	191
T2	Large-leaved Lime	Tilia platyphyllos	M	520	1	11	4	5	5	5	5	A1	40+			Unaffected	6.2	122
T3	Horse Chestnut	Aesculus hippocastanum	M	600	1	9	4	5	6	5	5	A1	40+			Unaffected	7.2	163
T4	Horse Chestnut	Aesculus hippocastanum	M	575	1	9	4	5	5	5	5	A1	40+			Unaffected	6.9	150
T5	Large-leaved Lime	Tilia platyphyllos	M	375	1	8	0.5	4	4	4	4	A1	40+			Unaffected	4.5	64
T6	Horse Chestnut	Aesculus hippocastanum	M	520	1	9	4	5	5	5	5	A1	40+			Unaffected	6.2	122
T7	Ash	Fraxinus excelsior	M	986	4	12	0.5	7	7	7	7	A2	40+	Older coppice stool.		Unaffected	11.8	440
T8	Ash	Fraxinus excelsior	M	860	2	15	2	7	7	7	7	A2	40+			Remove for tie in point	10.3	335
T9	Ash	Fraxinus excelsior	OM	985	1	14	2	8	8	8	8	A2	40+	Notable individual.		Unaffected	11.8	439
T10	Ash	Fraxinus excelsior	EM	469	3	10	0	4	4	4	4	B2	40+	Ivy on stem. Unable to inspect stem due to Ivy.		Unaffected	5.6	100
T11	Sycamore	Acer pseudoplatanus	M	375	1	10	0	4	4	4	4	B2	40+			Unaffected	4.5	64
T12	Beech	Fagus sylvatica	M	880	1	18	0	7	7	7	7	A1	40+			Unaffected	10.6	350
T13	Beech	Fagus sylvatica	V	1007	4	18	0	9	9	9	9	A2	40+	Modified RPA likely to apply. Tag no 488.		Unaffected	12.1	459
T14	Beech	Fagus sylvatica	V	1083	4	18	0	9	9	9	9	A2	40+	Modified RPA likely to apply. Tag no 489.		Unaffected	13	531
T15	Ash	Fraxinus excelsior	M	640	3	18	0	7	7	7	7	A2	40+	Modified RPA likely to apply.		Unaffected	7.7	185
T16	Ash	Fraxinus excelsior	M	700	1	13	2	6	6	6	6	A1	40+	Diameter estimated.		Unaffected	8.4	222
T17	Ash	Fraxinus excelsior	V	1070	1	14	2	7	7	7	7	A1	40+	Tag no 369, veteran pollard.		Unaffected	12.8	518
T18	Ash	Fraxinus excelsior	M	950	1	14	2	8	8	8	8	A1	40+			Unaffected	11.4	408
T19	Ash	Fraxinus excelsior	M	1166	2	19	2	8	8	8	8	A1	40+	Veteran within mature high canopy woodland on edge of existing road of notable significance. Tag no 370.		Unaffected	14	615
T20	Ash	Fraxinus excelsior	M	480	1	13	2	5	5	5	5	A2	40+			Unaffected	5.8	104
T21	Ash	Fraxinus excelsior	M	488	2	10	0	4	4	4	4	B2	40+			Lost for highway improvements	5.9	108
T22	Common Oak	Quercus robur	M	850	1	14	0	7	7	7	7	A1	40+			Unaffected	10.2	327
T23	Ash	Fraxinus excelsior	M	970	1	8	0	4	4	4	4	A1	40+	Ash pollard.		Unaffected	11.6	426
T24	Sycamore	Acer pseudoplatanus	M	357	3	9	0	3	3	3	3	C2	40+	Self set regeneration.		Unaffected	4.3	58
T25	Sycamore	Acer pseudoplatanus	M	1040	1	16	0	7	7	7	7	A2	40+			Affected by access road widening. Supervise all excavations in SMA	12.5	489

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
T26	Sycamore	Acer pseudoplatanus	M	950	1	16	0	6	6	6	6	A2	40+			Requires relocation of proposed access road to edge of existing hard standing to facilitate retention	11.4	408
T27	Sycamore	Acer pseudoplatanus	M	780	1	16	0	6	6	6	6	A2	40+	Part of linear group. Large previously failure limb.		Lost for access road widening	9.4	275
T28	Sycamore	Acer pseudoplatanus	M	820	1	16	0	6	6	6	6	A2	40+	Part of linear group.		Requires relocation of proposed access road to edge of existing hard standing to facilitate retention	9.8	304
T29	Sycamore	Acer pseudoplatanus	M	1010	1	16	0	7	7	7	7	A2	40+	Part of linear group.		Lost for access road widening	12.1	461
T30	Sycamore	Acer pseudoplatanus	M	945	1	16	0	6	6	6	6	A2	40+	Part of linear group.		Requires relocation of proposed access road to edge of existing hard standing to facilitate retention	11.3	404
T31	Large-leaved Lime	Tilia platyphyllos	M	1150	1	16	0	6	6	6	6	A2	40+	Part of linear group.		Requires relocation of proposed access road to edge of existing hard standing to facilitate retention	13.8	598
T32	Sycamore	Acer pseudoplatanus	M	675	1	16	0	6	6	6	6	A2	40+	Part of linear group.		Lost for access road widening	8.1	206
T33	Large-leaved Lime	Tilia platyphyllos	M	675	1	16	0	6	6	6	6	A2	40+	Part of linear group.		Lost for access road widening	8.1	206
T34	Sycamore	Acer pseudoplatanus	M	1200	1	16	0	7	7	7	7	A2	40+	Part of linear group.		Lost for access road widening	14.4	651
T35	Large-leaved Lime	Tilia platyphyllos	SM	270	1	6	0	3	3	3	3	A2	40+	Part of linear group.		Lost for access road widening	3.2	33
T36	Sycamore	Acer pseudoplatanus	M	639	5	12	0	5	5	5	5	B2	40+	Part of linear group. Included bark present in main fork.		Lost for access road widening	7.7	185

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
T37	Sycamore	Acer pseudoplatanus	M	625	1	12	0	4	4	4	4	B2	40+	Part of linear group.		Lost for access road widening	7.5	177
T38	Large-leaved Lime	Tilia platyphyllos	M	880	1	15	0	5	5	5	5	A1	40+	Part of linear group.		Unaffected, install CEZ.	10.6	350
T39	Large-leaved Lime	Tilia platyphyllos	M	860	1	15	0	5	5	5	5	A1	40+	Part of linear group.		Unaffected, install CEZ.	10.3	335
T40	Sycamore	Acer pseudoplatanus	M	770	1	15	0	5	5	5	5	A1	40+	Part of linear group.		<10% RPA affected install CEZ and supervise excavations	9.2	268
T41	Sycamore	Acer pseudoplatanus	M	890	1	15	0	6	6	6	6	A1	40+	Part of linear group.		Unaffected, install CEZ.	10.7	358
T42	Sycamore	Acer pseudoplatanus	M	980	1	15	0	6	6	6	6	A1	40+	Part of linear group.		Unaffected, install CEZ.	11.8	434
T43	Sycamore	Acer pseudoplatanus	M	830	1	15	0	6	6	6	6	A1	40+	Part of linear group. Cavity on stem.		Unaffected, install CEZ.	10	312
T44	Sycamore	Acer pseudoplatanus	M	680	1	15	0	5	5	5	5	A1	40+	Part of linear group.		Unaffected, install CEZ.	8.2	209
T45	Large-leaved Lime	Tilia platyphyllos	M	1100	1	15	0	5	5	5	5	A1	40+	Part of linear group.		Unaffected, install CEZ.	13.2	547
T46	Large-leaved Lime	Tilia platyphyllos	M	945	1	15	0	6	6	6	6	A1	40+	Part of linear group.		Unaffected, install CEZ.	11.3	404
T47	Large-leaved Lime	Tilia platyphyllos	M	1200	1	15	0	8	8	8	8	A1	40+	Part of linear group.		Unaffected, install CEZ.	14.4	651
T48	Large-leaved Lime	Tilia platyphyllos	M	920	1	15	0	6	6	6	6	A1	40+	Part of linear group.		Unaffected, install CEZ.	11	383
T49	Sycamore	Acer pseudoplatanus	M	970	1	15	0	7	7	7	7	A1	40+	Part of linear group.		Unaffected, install CEZ.	11.6	426
T50	Large-leaved Lime	Tilia platyphyllos	EM	280	1	8	0	3	3	3	3	A1	40+	Part of linear group.		Unaffected, install CEZ.	3.4	35
T51	Sycamore	Acer pseudoplatanus	M	825	1	17	1	6	6	6	6	A1	40+			Unaffected	9.9	308
T52	Beech	Fagus sylvatica	M	90	1	17	1	7	7	7	7	U	<10	Dead.	Pollard / coppice for nature conservation	Pollard / coppice for nature conservation	1.1	4
T53	Common Oak	Quercus robur	M	1000	1	18	1	7	7	7	7	A1	40+			Unaffected, install CEZ.	12	452
T54	Unknown	Unknown	M	848	6	14	1	6	6	6	6	B2	40+	Included bark present in main fork.		Unaffected, install CEZ.	10.2	325
T55	English Elm	Ulmus procera	M	613	4	14	1	6	6	6	6	B2	40+	Included bark present in main fork.		Unaffected, install CEZ.	7.4	170
T56	English Elm	Ulmus procera	M	375	1	10	1	3	3	3	3	U	<10		Pollard / coppice for nature conservation	Pollard / coppice for nature conservation	4.5	64

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
T57	Sycamore	Acer pseudoplatanus	M	1400	1	16	1	8	8	8	8	A1	40+	Included bark present in main fork. Tag no 371 Veteran acer pollard.		Lost for main carriageway improvements and access road	15	707
T58	Small-leaved Lime	Tilia cordata	Y	280	1	8	1	2	2	2	2	A1	40+	Included bark present in main fork.		Lost for main carriageway improvements	3.4	35
T59	Small-leaved Lime	Tilia cordata	Y	280	1	8	1	2	2	2	2	A1	40+	Included bark present in main fork.		Lost for main carriageway improvements	3.4	35
T60	Small-leaved Lime	Tilia cordata	SM	300	1	8	1	3	3	3	3	A1	40+	Included bark present in main fork.		Lost for main carriageway improvements	3.6	41
T61	Ash	Fraxinus excelsior	M	599	5	8	1	5	5	5	5	A1	40+	Included bark present in main fork.		Lost for main carriageway improvements	7.2	162
T62	Ash	Fraxinus excelsior	OM	1200	1	18	1	8	8	8	8	A2	40+			Unaffected	14.4	651
T63	Ash	Fraxinus excelsior	M	1100	1	18	1	8	8	8	8	A2	40+			Unaffected	13.2	547
T64	Ash	Fraxinus excelsior	M	1100	1	18	1	5	9	8	8	A2	40+			Unaffected	13.2	547
T65	Ash	Fraxinus excelsior	M	600	1	12	1	5	5	5	5	A2	40+			Unaffected	7.2	163
T66	Ash	Fraxinus excelsior	M	900	1	12	1	6	2	6	6	U	<10	Large limb failure.	Pollard / coppice for nature conservation	Pollard / coppice for nature conservation	10.8	366
T67	Ash	Fraxinus excelsior	M	970	1	12	1	6	6	6	4	A2	40+	Veteran pollard tag no 372.		Unaffected	11.6	426
T68	Ash	Fraxinus excelsior	M	660	1	12	1	6	6	6	6	A2	40+			Unaffected	7.9	197
T69	Ash	Fraxinus excelsior	M	780	1	12	1	6	6	6	6	A2	40+			Unaffected	9.4	275
T70	Ash	Fraxinus excelsior	M	565	1	11	1	5	5	5	5	A1	40+			Retained as per TPP, install CEZ. Supervise excavation in RPA	6.8	144
T71	Sycamore	Acer pseudoplatanus	OM	1000	1	16	0	8	8	8	8	A2	40+	Part of linear group. Cavity on stem. Large previously failure limb. Older pollard.		Unaffected	12	452
T72	Large-leaved Lime	Tilia platyphyllos	M	984	2	15	0	5.5	6	4	7	A2	40+			Unaffected	11.8	438
T73	Large-leaved Lime	Tilia platyphyllos	M	980	1	15	0	5	6	6	4	A2	40+			Unaffected	11.8	434
T74	Ash	Fraxinus excelsior	M	675	4	12	0	5	5	5	5	B2	40+	Included bark present in main fork.		Unaffected	8.1	206
T75	Ash	Fraxinus excelsior	M	600	1	12	0	5	5	5	5	A2	40+	Diameter estimated.		Unaffected	7.2	163
T76	Ash	Fraxinus excelsior	M	700	1	12	0	6	6	6	6	A2	40+	Diameter estimated.		Unaffected	8.4	222
T77	Ash	Fraxinus excelsior	M	600	1	12	0	5	5	5	5	A2	40+	Diameter estimated.		Unaffected	7.2	163
T78	Ash	Fraxinus excelsior	M	636	2	12	0	5	5	5	5	A2	40+	Diameter estimated.		Unaffected	7.6	183
T79	Beech	Fagus sylvatica	M	450	1	10	0	4	4	4	4	A2	40+			Unaffected	5.4	92
T80	Beech	Fagus sylvatica	M	400	1	10	0	4	4	4	4	A2	40+			Unaffected	4.8	72
T81	Sycamore	Acer pseudoplatanus	M	566	2	12	0	6	3	6	6	A2	40+	Diameter estimated. In neighbouring property.		Unaffected	6.8	145

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
T82	Sycamore	Acer pseudoplatanus	M	894	2	14	0	4	6	6	6	A2	40+	Diameter estimated.		Unaffected	10.7	362
T83	Beech	Fagus sylvatica	M	640	1	12	0	4	4	4	4	A2	40+			Unaffected	7.7	185
T84	Beech	Fagus sylvatica	M	440	1	10	0	3	3	3	3	B2	40+			Unaffected	5.3	88
T85	Beech	Fagus sylvatica	M	450	1	9	0	5	5	5	5	A2	40+			Unaffected	5.4	92
T86	Common Oak	Quercus robur	M	570	1	10	0	5	5	5	5	A2	40+			Unaffected	6.8	147
T87	Common Oak	Quercus robur	M	840	1	13	0	6	6	6	6	A2	40+			Unaffected	10.1	319
T88	Common Oak	Quercus robur	M	780	1	13	0	6	6	7	6	A2	40+			Unaffected	9.4	275
T89	Ash	Fraxinus excelsior	M	86	1	13	0	6	6	6	6	A2	40+			Unaffected	1	3
T90	Ash	Fraxinus excelsior	M	1150	1	14	0	7	7	7	7	A2	40+	Veteran ash tag no 490.		Unaffected	13.8	598
T91	Ash	Fraxinus excelsior	M	520	1	14	0	5	5	5	5	A2	40+			Unaffected	6.2	122
T92	Ash	Fraxinus excelsior	M	671	5	11	0	5	5	5	5	A2	40+			Unaffected	8.1	204
T93	Sycamore	Acer pseudoplatanus	M	397	6	8	0	3	3	3	3	C2	40+	Self set regeneration.		Unaffected	4.8	71
T94	Ash	Fraxinus excelsior	M	280	1	9	0	3	3	3	3	C2	40+	Self set regeneration.		Unaffected	3.4	35
T95	Goat Willow	Salix caprea	M	332	4	6	0	4	4	4	4	C2	40+	Self set regeneration.		Lost for widening	4	50
T96	Horse Chestnut	Aesculus hippocastanum	M	1000	1	15	0	9	3	8	8	B2	40+	Unbalanced crown shape. Crown distorted due to group pressure.		Unaffected	12	452
T97	Beech	Fagus sylvatica	M	987	3	10	0	6	6	4	6	A1	40+	Part of linear group. Beech coppice of significance.		Unaffected	11.8	441
T98	Beech	Fagus sylvatica	M	1960	1	14	0	10	9	10	9	A1	40+	Part of linear group. Beech coppice of high significance. Veteran tag no 373.		Unaffected	15	707
T99	Ash	Fraxinus excelsior	M	290	1	9	0	3	3	3	3	B2	40+	Self set regeneration.		Unaffected	3.5	38
T100	Ash	Fraxinus excelsior	M	296	5	9	0	3	3	3	3	B2	40+	Self set regeneration.		Unaffected as located behind wall	3.6	40
T101	Beech	Fagus sylvatica	M	710	1	18	0	5	5	7	5	A2	40+	Part of linear group.		Ingress of 500mm for footway. No dig requirement in SMA, install CEZ	8.5	228
T102	Beech	Fagus sylvatica	M	710	1	18	0	5	3	7	2	U	40+	Part of linear group. Decay present on stem. Fungal brackets visible on stem.	Pollard / coppice for nature conservation	Pollard / coppice for nature conservation	8.5	228
T103	Ash	Fraxinus excelsior	M	450	1	11	0	5	3	5	5	B2	40+	Part of linear group.		Lost for access road improvements	5.4	92
T104	Ash	Fraxinus excelsior	M	375	1	11	0	3	6	5	5	B2	40+	Part of linear group.		Lost for access road improvements	4.5	64
T105	Ash	Fraxinus excelsior	M	425	1	11	0	3	5	5	5	B2	40+	Part of linear group.		Lost for access road improvements	5.1	82

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T106	Ash	Fraxinus excelsior	M	442	2	11	0	6	3	5	5	B2	40+	Part of linear group.		Lost for access road improvements	5.3	88
T107	Leyland Cypress	X Cupressocyparis leylandii	M	630	1	13	0	4	4	4	4	B2	40+	Domestic planting.		Lost for access road improvements	7.6	180
T108	Ash	Fraxinus excelsior	V	1090	1	13	0	7	7	7	7	A1	40+	Veteran pollard tag no 491.		Unaffected retain within CEZ	13.1	537
T109	Beech	Fagus sylvatica	M	1250	1	20	1	9	9	9	9	A1	40+	Part of linear group. Veteran beech tag no 491.		Unaffected retain within CEZ	15	707
T110	Bird Cherry	Prunus padus	M	450	1	10	1	4	4	4	4	C2	20+	Part of linear group.		Unaffected retain within CEZ	5.4	92
T111	Silver Birch	Betula pendula	M	375	1	11	1	4	4	4	4	B2	40+			Unaffected retain within CEZ	4.5	64
T112	Silver Birch	Betula pendula	M	400	1	11	1	4	4	4	4	B2	40+			Unaffected retain within CEZ	4.8	72
T113	Crab Apple	Malus sylvestris	SM	212	2	5	1	2	2	2	2	C2	20+			Unaffected retain within CEZ	2.5	20
T114	Ash	Fraxinus excelsior	M	605	2	10	1	4	4	4	4	B2	20+	Included bark present in main fork.		Remove for main carriageway	7.3	166
T115	Common Oak	Quercus robur	M	770	1	11	0	7	7	7	7	A1	40+			Remove for main carriageway	9.2	268
T116	Field Maple	Acer campestre	M	350	1	8	0	3	3	3	3	A1	40+			Remove for main carriageway	4.2	55
T117	Common Oak	Quercus robur	M	550	1	10	0	5	5	5	5	A1	40+			Remove for main carriageway	6.6	137
T118	Common Oak	Quercus robur	M	520	1	10	0	4	4	4	4	A1	40+			Remove for main carriageway	6.2	122
T119	Field Maple	Acer campestre	M	441	5	7	0	3	3	3	3	A1	40+			Remove for main carriageway	5.3	88
T120	Field Maple	Acer campestre	M	466	6	7	0	3	3	3	3	A1	40+			Remove for main carriageway	5.6	98
T121	Ash	Fraxinus excelsior	M	524	3	9	0	4	4	4	4	A1	40+	Included bark present in main fork.		Remove for main carriageway	6.3	124
T122	English Elm	Ulmus procera	M	909	6	10	0	5	5	5	5	A2	40+	Included bark present in main fork.		Unaffected	10.9	374
T123	Ash	Fraxinus excelsior	M	300	1	9	0	3	3	3	3	B2	40+			Unaffected	3.6	41
T124	English Elm	Ulmus procera	M	461	2	9	0	3	3	3	3	U	<10	Dieback in crown. Low bud/leaf density.	Pollard / coppice for nature conservation	Pollard / coppice for nature conservation	5.5	96
T125	Common Oak	Quercus robur	OM	900	1	13	0	6	6	6	6	C2	10+	Cavity on stem. Major bark wounding on stem. Not found on plan. Plotted by eye on plan.		Unaffected	10.8	366
T126	Beech	Fagus sylvatica	V	1200	1	13	0	8	8	8	8	A1	40+	Part of linear group. Growing inside fenced highway boundary. Tag no 492.		Lost for main carriageway	14.4	651

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T127	Beech	Fagus sylvatica	V	1140	1	15	0	8	8	8	8	A1	40+	Part of linear group. Exudation on stem. Growing inside fenced highway boundary. Tag no 493.		Unaffected install CEZ as shown	13.7	588
T128	Beech	Fagus sylvatica	M	1050	1	15	0	8	8	8	8	A1	40+	Part of linear group. Growing inside fenced highway boundary.		Unaffected install CEZ as shown	12.6	499
T129	Silver Birch	Betula pendula	M	636	2	13	0	6	6	6	6	A2	40+	Part of linear group.		Unaffected install CEZ as shown	7.6	183
T130	Silver Birch	Betula pendula	M	636	2	13	0	4	4	4	4	A2	40+	Part of linear group.		Unaffected install CEZ as shown	7.6	183
T131	Japanese Larch	Larix kaempferi	M	450	1	13	0	4	4	4	4	A2	40+	Part of linear group.		Unaffected install CEZ as shown	5.4	92
T132	Ash	Fraxinus excelsior	M	820	1	17	0	7	7	7	7	A2	40+	Part of linear group.		Unaffected install CEZ as shown	9.8	304
T133	Ash	Fraxinus excelsior	M	740	1	17	0	7	7	7	7	A2	40+	Part of linear group.		Unaffected install CEZ as shown	8.9	248
T134	Ash	Fraxinus excelsior	M	673	2	17	0	5	7	7	7	A2	40+	Part of linear group.		Unaffected install CEZ as shown	8.1	205
T135	Apple	Malus	M	566	3	8	0	4	4	2	4	B2	40+	Ornamental planting in verge.		Unaffected install CEZ as shown	6.8	145
T136	Goat Willow	Salix caprea	M	621	5	10	0	4	4	2	4	B2	40+	Ornamental planting in verge.		Unaffected install CEZ as shown	7.5	174
T137	Sycamore	Acer pseudoplatanus	M	620	1	12	0	5	5	5	5	B1	40+			Remove for main carriageway	7.4	174
T138	Apple	Malus	M	450	1	9	0	3	3	3	3	C1	20+	Mistletoe.		Remove for main carriageway	5.4	92
T139	Apple	Malus	M	400	1	6	0	2	2	2	2	U	<10	Cavity on stem.	Pollard / coppice for nature conservation	Pollard / coppice for nature conservation	4.8	72
T140	Silver Birch	Betula pendula	M	300	1	10	0	3	3	3	3	B1	20+	Private trees growing in garden.		Unaffected	3.6	41
T141	Horse Chestnut	Aesculus hippocastanum	M	920	1	18	0	6	6	6	6	A1	40+	Part of linear group.		Unaffected	11	383
T142	Sessile Oak	Quercus petraea	M	610	1	12	0	5	5	5	5	A1	40+	Part of linear group.		Unaffected	7.3	168
T143	Beech	Fagus sylvatica	M	1200	1	18	0	8	8	8	8	A1	40+	Part of linear group. Notable individual.		Unaffected	14.4	651
T144	Common Oak	Quercus robur	M	840	1	15	0	7	7	7	7	A1	40+	Part of linear group. Notable individual.		Unaffected	10.1	319

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
T145	Common Oak	Quercus robur	M	1010	1	16	0	8	8	8	8	A1	40+	Part of linear group. Decay present on stem. Fungal brackets visible on stem. Notable individual.		Unaffected	12.1	461
T146	Beech	Fagus sylvatica	M	450	1	10	0	5	5	5	5	B1	40+	Part of linear group.		Unaffected	5.4	92
T147	Common Oak	Quercus robur	M	690	1	12	0	6	6	6	6	B1	40+	Part of linear group. Major deadwood in crown.		Unaffected	8.3	215
T148	Sycamore	Acer pseudoplatanus	M	940	1	12	0	7	7	7	7	A2	40+	Part of linear group.		Unaffected	11.3	400
T149	Sycamore	Acer pseudoplatanus	M	488	6	12	0	5	5	5	5	B2	40+	Part of linear group. Ivy on stem. Unable to inspect stem due to Ivy. Multiple stems at ground level. Included bark present in main fork. Self set regeneration.		Unaffected	5.9	108
T150	Sycamore Ash Norway Maple English Elm	Acer pseudoplatanus, Fraxinus excelsior, Acer platanoides, Ulmus procera	M	637	8	12	0	5	5	5	5	B2	40+	Part of linear group. Ivy on stem. Unable to inspect stem due to Ivy. Multiple stems at ground level. Included bark present in main fork. Self set regeneration.		Unaffected	7.6	184
T151	Sycamore	Acer pseudoplatanus	M	600	1	12	0	4	4	4	4	B2	40+	Part of linear group. Ivy on stem. Unable to inspect stem due to Ivy.		Unaffected	7.2	163
T152	Ash	Fraxinus excelsior	M	300	1	8	0	3	3	3	3	B2	40+	Part of linear group. Self set regeneration.		Lost for main carriageway	3.6	41
T153	Beech	Fagus sylvatica	SM	350	1	8	0	4	4	4	4	B2	40+			Unaffected	4.2	55
T154	Beech	Fagus sylvatica	M	1100	1	18	0	9	9	9	9	A1	40+	Adjacent to site.		Unaffected	13.2	547
T155	Beech	Fagus sylvatica	M	375	1	12	0	4	4	4	4	A1	40+			Unaffected	4.5	64
T156	Common Oak	Quercus robur	M	260	1	10	0	3	3	3	3	A1	40+			Unaffected	3.1	31
T157	Ash	Fraxinus excelsior	V	1020	1	19	0	7	9	7	7	A1	40+	Veteran pollard tag no 493.		Install CEZ and supervise any excavations undertaken to remove old road surface adjacent to new proposal	12.2	471
T158	Common Oak	Quercus robur	M	725	1	14	0	7	7	7	7	A1	40+			Unaffected	8.7	238
T159	Ash	Fraxinus excelsior	V	1190	1	19	0	6	6	6	6	A1	40+	Decay present on stem. Fungal brackets visible on stem. Veteran pollard tag no 494.		Install CEZ and supervise any excavations undertaken to remove old road surface adjacent to new proposal	14.3	641
T160	Common Oak	Quercus robur	M	860	1	10	0	6	6	6	6	A1	40+			Unaffected	10.3	335
T161	Common Oak	Quercus robur	M	870	1	12	0	6	6	6	6	B1	40+	Decay present on stem. Fungal brackets visible on stem.		Unaffected	10.4	342
T162	Common Oak	Quercus robur	M	745	1	12	0	6	6	6	6	A1	40+			Unaffected	8.9	251

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
T163	Common Oak	Quercus robur	M	920	1	12	0	7	7	7	7	A1	40+			Lost for development due to footway and road alignments	11	383
T164	Sycamore	Acer pseudoplatanus	M	836	10	10	0	6	6	6	6	B2	40+	Multiple stems at ground level. Included bark present in main fork. Self set regeneration.		Unaffected	10	316
T165	Beech	Fagus sylvatica	M	1613	10	10	0	5	5	5	5	A2	40+			Unaffected	15	707
T166	Beech	Fagus sylvatica	M	762	5	10	0	5	5	5	5	B2	40+	Coppice		Unaffected	9.1	263
T167	Corsican Pine	Pinus nigra 'maritima'	M	740	1	17	0	6	6	6	6	A1	40+			Unaffected	8.9	248
T168	Beech	Fagus sylvatica	M	1000	1	17	0	8	8	8	8	A1	40+			Unaffected	12	452
T169	Ash	Fraxinus excelsior	M	900	1	17	0	7	7	7	7	B2	20+	Dieback in crown. Broken branches in crown. Major deadwood in crown.		Unaffected	10.8	366
T170	Beech	Fagus sylvatica	M	600	1	17	0	6	6	6	6	A1	40+			Unaffected	7.2	163
T171	Hawthorn	Crataegus monogyna	M	830	1	10	0	5	5	5	5	A1	40+	Part of linear group. Veteran tag no 494.		Unaffected	10	312
T172	Beech	Fagus sylvatica	M	1950	1	20	0	10	10	10	10	A1	40+	Part of linear group. Veteran tag no 495.		Unaffected	15	707
T173	Common Oak	Quercus robur	M	970	1	16	0	8	8	8	8	A1	40+	Open grown.		Unaffected	11.6	426
T174	Beech	Fagus sylvatica	M	1680	1	21	0	9	9	9	9	C2	10+	Decay present on stem. Fungal brackets visible on stem. Veteran pollard tag no 495.		Unaffected	15	707
T175	Beech	Fagus sylvatica	M	1020	1	18	0	7	7	7	7	A2	40+			Unaffected, if existing surface removed, AMS and supervision required	12.2	471
T176	Common Oak	Quercus robur	M	960	1	15	0	6	6	6	6	A1	40+			Unaffected	11.5	417
T177	Common Oak	Quercus robur	M	800	1	15	0	7	7	7	7	A1	40+			Unaffected	9.6	290
T178	Ash	Fraxinus excelsior	M	920	1	14	0	6	6	6	6	A2	40+	Cavity on stem.		Unaffected	11	383
T179	Ash	Fraxinus excelsior	M	1000	1	15	0	8	8	8	8	A2	40+			Unaffected	12	452
T180	Common Oak	Quercus robur	M	900	1	15	0	8	8	8	8	A2	40+	Dieback in crown.		Unaffected	10.8	366
T181	Ash	Fraxinus excelsior	M	900	1	15	0	8	8	8	8	A2	40+			Unaffected	10.8	366
T182	Common Oak	Quercus robur	M	800	1	15	0	8	8	8	8	A2	40+			Unaffected	9.6	290
T183	Ash	Fraxinus excelsior	M	800	1	15	0	8	8	8	8	A2	40+			Unaffected	9.6	290
T184	Ash	Fraxinus excelsior	M	900	1	15	0	8	8	8	8	A2	40+			Unaffected	10.8	366
T185	Common Oak	Quercus robur	M	1000	1	15	0	8	8	8	8	A2	40+			Unaffected	12	452
T186	Common Oak	Quercus robur	M	950	1	15	0	8	8	8	8	A2	40+			Unaffected	11.4	408
T187	Crack Willow	Salix fragilis	M	1500	1	12	0	10	10	10	10	A2	40+	Veteran pollard tag 496.		Unaffected	15	707
T188	Ash	Fraxinus excelsior	V	1500	1	16	0	8	3	6	6	A1	40+	Veteran pollard tag no 496.Diameter estimated.		Unaffected	15	707
T189	Ash	Fraxinus excelsior	V	1200	1	16	0	4	9	8	8	A1	40+	Veteran pollard tag no 496.Diameter estimated.		Unaffected	14.4	651

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
T190	Common Oak	Quercus robur	M	1600	1	11	0	7	7	7	7	A1	40+	Large oak veteran tag no 497.		Unaffected	15	707
T191	Ash	Fraxinus excelsior	M	1000	1	15	0	7	7	7	7	A1	40+			Lost for main works	12	452
T192	Silver Maple	Acer saccharinum	M	964	6	15	0	7	7	7	7	B2	40+	Multiple stems at ground level. Included bark present in main fork. Coppice stool.		Retain within CEZ as shown	11.6	420
T193	Maple	Acer pseudoplatanus	M	727	4	10	0	5	5	5	5	A1	40+	Mature tree.		Retain	8.7	239
T194	Sycamore	Acer pseudoplatanus	M	930	1	20	0	8	5	7	7	B2	40+	Decay present on stem. Fungal brackets visible on stem.		Unaffected	11.2	391
T195	Horse Chestnut	Aesculus hippocastanum	M	1025	1	16	0	5	8	7	7	A2	40+			Unaffected	12.3	475
T196	London Plane	Platanus X hispanica	M	860	1	16	0	7	7	4	4	A2	40+			Unaffected	10.3	335
T197	Horse Chestnut	Aesculus hippocastanum	M	1015	1	18	0	7	7	4	8	A2	40+			Unaffected	12.2	466
T198	Ash Common Oak	Fraxinus excelsior, Quercus robur	M	500	1	12	0	6	6	6	6	A2	40+			Unaffected	6	113
T199	Beech	Fagus sylvatica	M	500	1	12	0	6	6	6	6	A2	40+			Unaffected	6	113
T200	Beech	Fagus sylvatica	M	500	1	12	0	6	6	6	6	A2	40+	Diameter estimated. In neighbouring property.		Unaffected	6	113
T201	Yew	Taxus baccata	M	400	1	9	0	4	4	4	4	A2	40+	Diameter estimated. In neighbouring property.		Unaffected	4.8	72
T202	Magnolia	Magnolia	M	300	1	7	0	3	3	3	3	B1	40+	Diameter estimated. In neighbouring property.		Unaffected	3.6	41
T203	Ash	Fraxinus excelsior	M	450	1	11	0	5	5	5	5	B2	40+	Diameter estimated. In neighbouring property.		Unaffected	5.4	92
T204	Ash	Fraxinus excelsior	M	800	1	15	0	6	6	6	6	A1	40+	In neighbouring property.		Unaffected	9.6	290
T205	Sycamore	Acer pseudoplatanus	V	1100	1	20	0	6	6	6	6	A2	40+	Veteran pollard tag no 497. Not found on plan. Plotted by eye on plan.		Unaffected	13.2	547
T206	Hybrid Black Poplar	Populus serotina	M	1100	1	20	0	9	9	9	9	C2	20+	Broken branches in crown. Low arboricultural value.		Unaffected	13.2	547
T207	Ash	Fraxinus excelsior	M	1146	3	18	0	9	9	9	9	A2	20+	Multiple stems at ground level. Included bark present in main fork.		Unaffected	13.8	594
T208	Sycamore	Acer pseudoplatanus	M	1121	10	12	0	8	8	8	8	B2	40+	Multiple stems at ground level. Included bark present in main fork.		Unaffected	13.5	568
T209	Ash Sycamore	Fraxinus excelsior, Acer pseudoplatanus	M	602	2	12	0	6	6	6	6	B2	20+	Multiple stems at ground level. Included bark present in main fork.		Unaffected	7.2	164
T210	Sycamore	Acer pseudoplatanus	M	875	1	16	0	7	7	7	7	B2	20+	Ivy on stem. Unable to inspect stem due to ivy.		Unaffected	10.5	346
T211	Ash	Fraxinus excelsior	OM	1204	2	18	0	10	10	10	10	U	<10	Split main stem from bark inclusion.	Pollard / coppice for nature conservation	Pollard / coppice for nature conservation	14.4	656
T212	Beech	Fagus sylvatica	M	1000	1	18	0	8	8	8	8	A2	40+	Notable individual		Unaffected	12	452

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
G1	Large-leaved Lime Sycamore Field Maple Hazel Italian Alder English Elm	Tilia platyphyllos, Acer pseudoplatanus, Acer campestre, Corylus avellana, Alnus cordata, Ulmus procera	EM	250	1	9	0.5	3	3	3	3	A2	40+	Recently planted landscape buffer species.		Unaffected	3	28
G2	Sycamore Hazel English Elm Hawthorn	Acer pseudoplatanus, Corylus avellana, Ulmus procera, Crataegus monogyna	EM	200	1	6	0.5	3	3	3	3	B2	20+	Sparse hedge.		Unaffected	2.4	18
G3	Large-leaved Lime Sycamore Field Maple Hazel Italian Alder English Elm	Tilia platyphyllos, Acer pseudoplatanus, Acer campestre, Corylus avellana, Alnus cordata, Ulmus procera	EM	250	1	9	2	2	2	2	2	A2	40+	Recently planted landscape buffer species.		Unaffected	3	28
G4	Hazel English Elm Ash Common Oak Blackthorn	Corylus avellana, Ulmus procera, Fraxinus excelsior, Quercus robur, Prunus spinosa	EM	300	1	10	2	3	2	2	2	A2	40+	Recently planted landscape buffer species.		Northern tip of group to remove for tie in point	3.6	41
G5	Ash Sycamore Large-leaved Lime English Elm Wild Cherry Blackthorn Common Oak	Fraxinus excelsior, Acer pseudoplatanus, Tilia platyphyllos, Ulmus procera, Prunus avium, Prunus spinosa, Quercus robur	EM	250	1	10	2	3	3	3	3	A2	40+	Large linear feature.		Unaffected	3	28
G6	Ash Sycamore Bird Cherry Field Maple Hawthorn	Fraxinus excelsior, Acer pseudoplatanus, Prunus padus, Acer campestre, Crataegus monogyna	EM	300	1	10	0	3	3	3	3	B2	40+	Ash canker present.		Unaffected	3.6	41

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
G7	Ash Sycamore Bird Cherry Field Maple Hawthorn	Fraxinus excelsior, Acer pseudoplatanus, Prunus padus, Acer campestre, Crataegus monogyna	EM	300	1	10	0	3	3	3	3	B2	40+	Ash canker present.		Unaffected	3.6	41
G8	Ash Sycamore Bird Cherry Field Maple Hawthorn	Fraxinus excelsior, Acer pseudoplatanus, Prunus padus, Acer campestre, Crataegus monogyna	EM	300	1	10	0	3	3	3	3	B2	40+	Ash canker present.		Unaffected, install CEZ.	3.6	41
G9	Ash	Fraxinus excelsior	M	496	2	10	0	5	5	5	5	A2	40+			Lost for tie of in roundabout improvement and footway	6	111
G10	Hawthorn Bird Cherry Hazel Ash	Crataegus monogyna, Prunus padus, Corylus avellana, Fraxinus excelsior	M	300	1	12	0	4	4	4	4	A2	40+	Landscape buffer planting.		Lost for roundabout improvements	3.6	41
G11	Large-leaved Lime Sycamore Field Maple Hazel Italian Alder English Elm Austrian Pine	Tilia platyphyllos, Acer pseudoplatanus, Acer campestre, Corylus avellana, Alnus cordata, Ulmus procera, Pinus nigra	EM	250	1	9	2	2	2	2	2	A2	40+	Recently planted landscape buffer species.		Unaffected	3	28
G12	Field Maple Hazel Beech	Acer campestre, Corylus avellana, Fagus sylvatica	EM	200	1	9	2	2	2	2	2	B2	40+	Recently planted landscape buffer species.		Unaffected	2.4	18
G13	Hawthorn	Crataegus monogyna	M	250	1	8	2	3	3	3	3	B1	40+			Unaffected	3	28
G14	Hawthorn	Crataegus monogyna	M	275	1	6	2	3.5	3.5	3.5	3.5	B1	40+			Unaffected	3.3	34
G15	Hawthorn Ash Common Oak Scots Pine	Crataegus monogyna, Fraxinus excelsior, Quercus robur, Pinus sylvestris	M	275	1	9	2	3	3	3	3	A2	40+	Landscape buffer planting.		Lost for highway widening	3.3	34

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
G16	Hawthorn Ash Common Oak Scots Pine	Crataegus monogyna, Fraxinus excelsior, Quercus robur, Pinus sylvestris	M	275	1	9	2	3	3	3	3	A2	40+	Landscape buffer planting.		Lost for highway widening	3.3	34
G17	Ash Hawthorn Goat Willow	Fraxinus excelsior, Crataegus monogyna, Salix caprea	Y	150	1	7	2	3	3	3	3	C2	20+	Woodland regeneration, young trees.		Large area lost for direct footprint of new road and embankments which contains individual scattered trees, install CEZ outside improvements and retain those trees within CEZ	1.8	10
G18	Ash Hawthorn Sycamore Beech Goat Willow	Fraxinus excelsior, Crataegus monogyna, Acer pseudoplatanus, Fagus sylvatica, Salix caprea	SM	200	1	10	2	3	3	3	3	B2	20+	Woodland regeneration from adjacent high canopy trees of less significance than W3 (adjacent).Occasional dead tree.		Unaffected install CEZ	2.4	18
G19	Hawthorn Ash Common Oak Scots Pine Beech Yew	Crataegus monogyna, Fraxinus excelsior, Quercus robur, Pinus sylvestris, Fagus sylvatica, Taxus baccata	M	400	1	13	2	4	4	4	4	A2	40+	Established landscape buffer planting on edge of existing road of significance. RPA modified will act as barrier.		Unaffected	4.8	72
G20	Ash Hawthorn Hazel	Fraxinus excelsior, Crataegus monogyna, Corylus avellana	M	325	1	10	0	3	3	3	3	B2	40+	Established woodland area mainly hazel.		Unaffected	3.9	48
G21	Hawthorn Ash English Elm Hazel Beech	Crataegus monogyna, Fraxinus excelsior, Ulmus procera, Corylus avellana, Fagus sylvatica	SM	375	1	10	0	3	3	3	3	B2	40+	Established linear feature.		Unaffected	4.5	64

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
G22	Hawthorn Ash Hazel Leyland Cypress	Crataegus monogyna, Fraxinus excelsior, Corylus avellana, X Cupressocyparis leylandii	EM	150	1	6	0	2	2	2	2	B2	40+	Recently planted.		Unaffected	1.8	10
G23	Ash Blackthorn Large-leaved Lime Lombardy Poplar	Fraxinus excelsior, Prunus spinosa, Tilia platyphyllos, Populus nigra 'Italica'	SM	250	1	7	0	2	2	2	2	B2	40+	Young trees.		Some retained sections within CEZ as shown on TPP	3	28
G24	Hawthorn	Crataegus monogyna	M	300	1	8	0	3	3	3	3	B2	40+			Unaffected	3.6	41
G25	Hawthorn	Crataegus monogyna	M	300	1	8	0	3	3	3	3	B2	40+			Unaffected	3.6	41
G26	Hawthorn Leyland Cypress Sycamore	Crataegus monogyna, X Cupressocyparis leylandii, Acer pseudoplatanus	M	350	1	9	0	3	3	3	3	C2	40+	Windbreak planted trees of low arboricultural values.		Some retained sections within CEZ as shown on TPP	4.2	55
G27	Sycamore Goat Willow	Acer pseudoplatanus, Salix caprea	SM	250	1	9	0	2	2	2	2	C2	40+	Self set regeneration.		Unaffected	3	28
G28	Sycamore	Acer pseudoplatanus	M	491	3	12	1	4	4	4	4	B2	40+	Included bark present in main fork.		Unaffected	5.9	109
G29	Sycamore Large-leaved Lime Hawthorn	Acer pseudoplatanus, Tilia platyphyllos, Crataegus monogyna	SM	150	1	6	1	2	2	2	2	B2	20+			Unaffected	1.8	10
G30	Ash Hawthorn Blackthorn	Fraxinus excelsior, Crataegus monogyna, Prunus spinosa	SM	250	1	8	1	3	3	3	3	B2	40+			Lost for main carriageway improvements	3	28
G31	Ash Common Lime	Fraxinus excelsior, Tilia X europaea	EM	220	1	7	1	3	3	3	3	A2	40+			3 trees retained in group as shown on TPP by CEZ position	2.6	22
G32	Hawthorn	Crataegus monogyna	SM	200	1	5	1	2	2	2	2	B2	20+	Self set regeneration.		Lost for access road widening	2.4	18
G33	Hawthorn	Crataegus monogyna	M	325	1	7	1	3	3	3	3	B2	40+			Unaffected	3.9	48
G34	Hawthorn	Crataegus monogyna	M	410	2	7	1	4	4	4	4	B2	40+			Unaffected	4.9	76

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
G35	Elder Scots Pine Ash Hawthorn Japanese Larch	Sambucus nigra, Pinus sylvestris, Fraxinus excelsior, Crataegus monogyna, Larix kaempferi	M	400	1	12	1	3	3	3	3	B2	40+	Woodland appears on and off site.		Unaffected	4.8	72
G36	Cherry Laurel	Prunus laurocerasus	SM	150	1	5	1	2	2	2	2	C2	20+	Incongruent ornamental planting.		Unaffected	1.8	10
G37	Leyland Cypress	X Cupressocyparis leylandii Castlewellan Gold	SM	200	1	5	1	2	2	2	2	C2	20+	Incongruent ornamental planting.		Unaffected	2.4	18
G38	Hawthorn	Crataegus monogyna	SM	250	1	6	1	2	2	2	2	B2	40+			2no. Trees retained as shown on TPP	3	28
G39	Sycamore	Acer pseudoplatanus	M	325	1	12	0	3	3	3	3	B2	40+			Unaffected	3.9	48
G40	Ash Hawthorn Blackthorn Hazel Beech Field Maple	Fraxinus excelsior, Crataegus monogyna, Prunus spinosa, Corylus avellana, Fagus sylvatica, Acer campestre	M	150	1	10	0	3	3	3	3	A2	40+	Landscape buffer plantings.		Unaffected	1.8	10
G41	Ash Sycamore Hawthorn Field Maple Japanese Larch	Fraxinus excelsior, Acer pseudoplatanus, Crataegus monogyna, Acer campestre, Larix kaempferi	M	300	1	10	0	3	3	3	3	A2	40+	Large linear feature containing landscape buffer planting.		Unaffected	3.6	41
G42	Ash Sycamore Hawthorn Field Maple Beech	Fraxinus excelsior, Acer pseudoplatanus, Crataegus monogyna, Acer campestre, Fagus sylvatica	M	800	1	13	0	6	6	6	6	A2	40+	Established woodland with high canopy beech mature.		Unaffected	9.6	290
G43	Ash Sycamore Hawthorn Field Maple Beech	Fraxinus excelsior, Acer pseudoplatanus, Crataegus monogyna, Acer campestre, Fagus sylvatica	M	300	1	10	0	3	3	3	3	A2	40+	Establishing landscape buffer planting.		Unaffected	3.6	41
G44	Sycamore	Acer pseudoplatanus	M	566	2	12	0	4	4	4	4	B2	40+	Included bark present in main fork.		Unaffected	6.8	145

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
G45	Blackthorn Field Maple English Elm Ash	Prunus spinosa, Acer campestre, Ulmus procera, Fraxinus excelsior	SM	200	1	6	0	3	3	3	3	B2	40+	Young trees and sparse regeneration.		Unaffected	2.4	18
G46	Blackthorn Field Maple English Elm Ash Wild Cherry Goat Willow	Prunus spinosa, Acer campestre, Ulmus procera, Fraxinus excelsior, Prunus avium, Salix caprea	SM	200	1	6	0	3	3	3	3	B2	40+	Young trees and sparse regeneration.		Lost for access road widening	2.4	18
G47	Blackthorn Field Maple English Elm Ash Wild Cherry Goat Willow	Prunus spinosa, Acer campestre, Ulmus procera, Fraxinus excelsior, Prunus avium, Salix caprea	SM	200	1	6	0	3	3	3	3	B2	40+	Young trees and sparse regeneration.		Unaffected	2.4	18
G48	Blackthorn Field Maple English Elm Ash Wild Cherry Goat Willow	Prunus spinosa, Acer campestre, Ulmus procera, Fraxinus excelsior, Prunus avium, Salix caprea	SM	200	1	6	0	3	3	3	3	B2	40+	Young trees and sparse regeneration.		Unaffected	2.4	18
G49	Blackthorn Field Maple Ash European Larch	Prunus spinosa, Acer campestre, Fraxinus excelsior, Larix decidua	M	300	1	10	0	3	3	3	3	A2	40+	Landscape buffer planting.		Unaffected	3.6	41
G50	Blackthorn Field Maple Ash Sycamore	Prunus spinosa, Acer campestre, Fraxinus excelsior, Acer pseudoplatanus	EM	300	1	9	0	2	2	2	2	A2	40+	Young landscape buffer planting.		Unaffected	3.6	41
G51	Blackthorn Field Maple Ash Sycamore Hazel Common Alder Common Oak	Prunus spinosa, Acer campestre, Fraxinus excelsior, Acer pseudoplatanus, Corylus avellana, Alnus glutinosa, Quercus robur	M	300	1	10	0	3	3	3	3	A2	40+	Young landscape buffer planting forming copse.		Unaffected	3.6	41
G52	Sycamore	Acer pseudoplatanus	M	640	2	15	0	5	5	5	5	B2	40+	Part of linear group. Included bark present in main fork. Unbalanced crown shape. Crown distorted due to group pressure.		Unaffected	7.7	185

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
G53	Hawthorn Goat Willow	Crataegus monogyna, Salix caprea	M	220	1	6	0	3	3	3	3	C2	40+	Unmanaged hedge.		Unaffected	2.6	22
G54	Hawthorn Goat Willow Silver Birch Sycamore Field Maple Common Alder Whitebeam	Crataegus monogyna, Salix caprea, Betula pendula, Acer pseudoplatanus, Acer campestre, Alnus glutinosa, Sorbus aria	SM	200	1	9	0	3	3	3	3	B2	40+	Landscape buffer planting.		Unaffected	2.4	18
G55	Japanese Larch Hazel Sycamore Ash	Larix kaempferi, Corylus avellana, Acer pseudoplatanus, Fraxinus excelsior	SM	200	1	9	0	3	3	3	3	B2	40+	Part of linear group. Landscape buffer planting.		Partially removed tree group for roundabout. Remove all vegetation outside CEZ	2.4	18
G56	Hazel Sycamore Ash Goat Willow Beech	Corylus avellana, Acer pseudoplatanus, Fraxinus excelsior, Salix caprea, Fagus sylvatica	EM	180	1	9	0	3	3	3	3	B2	40+	Part of linear group.		Unaffected	2.2	15
G57	Hazel Sycamore Ash Goat Willow Beech Japanese Larch	Corylus avellana, Acer pseudoplatanus, Fraxinus excelsior, Salix caprea, Fagus sylvatica, Larix kaempferi	SM	200	1	10	0	3	3	3	3	B2	40+	Part of linear group. Landscape buffer planting.		Partially removed tree group for embankment cutting. Remove all vegetation outside CEZ	2.4	18
G58	Hazel Sycamore Ash Goat Willow Beech	Corylus avellana, Acer pseudoplatanus, Fraxinus excelsior, Salix caprea, Fagus sylvatica	EM	170	1	6	0	2	2	2	2	C2	40+	Self set regeneration.		Unaffected	2	13
G59	Beech	Fagus sylvatica	M	575	1	12	0	4	4	4	4	A2	40+	Formal planting - double row linear feature.		Partially lost, retain those sections within CEZ as shown	6.9	150
G60	Hawthorn	Crataegus monogyna	M	283	2	5	0	3	3	3	3	B2	40+	Self set regeneration.		Remove for permanent works	3.4	36

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
G61	Leyland Cypress Italian Alder Atlantic Cedar Field Maple	X Cupressocyparis leylandii, Alnus cordata, Cedrus libani atlantica, Acer campestre	M	400	1	10	0	4	4	4	4	B2	40+	Domestic planting.		Largely unaffected, localised impact to be assessed by AcOW at time of excavation	4.8	72
G62	Leyland Cypress Italian Alder Atlantic Cedar Field Maple Sycamore	X Cupressocyparis leylandii, Alnus cordata, Cedrus libani atlantica, Acer campestre, Acer pseudoplatanus	M	450	1	10	0	4	4	4	4	B2	40+	Domestic planting scattered deadwood throughout garden.		Unaffected	5.4	92
G63	Italian Alder Sycamore Field Maple Wild Cherry	Alnus cordata, Acer pseudoplatanus, Acer campestre, Prunus avium	M	400	1	10	0	4	4	4	4	B2	40+	Domestic windbreak planting.		Largely unaffected, localised impact to be assessed by AcOW at time of excavation	4.8	72
G64	Hawthorn Blackthorn	Crataegus monogyna, Prunus spinosa	M	300	1	6	0	3	3	3	3	B2	40+	Thorn shrub developed on hill side.		Largely unaffected, occasional tree loss	3.6	41
G65	Hawthorn Elder	Crataegus monogyna, Sambucus nigra	M	200	1	6	1	2	2	2	2	C2	20+	Part of linear group.		Unaffected	2.4	18
G66	Bird Cherry Field Maple Beech	Prunus padus, Acer campestre, Fagus sylvatica	M	325	1	10	1	2	2	2	2	A2	40+	Part of linear group. Landscape buffer planting.		Unaffected	3.9	48
G69	Silver Birch Hawthorn Ash	Betula pendula, Crataegus monogyna, Fraxinus excelsior	M	350	1	9	1	3	3	3	3	B2	20+	Self set regeneration.		Unaffected	4.2	55
G70	Hawthorn Elder	Crataegus monogyna, Sambucus nigra	SM	200	1	5	1	2	2	2	2	C2	20+	Self set regeneration.		Unaffected	2.4	18
G71	Hawthorn Elder Blackthorn	Crataegus monogyna, Sambucus nigra, Prunus spinosa	SM	200	1	5	1	2	2	2	2	C2	20+	Self set regeneration.		Several trees to be removed	2.4	18

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
G72	Ash Hawthorn Blackthorn Hazel Field Maple English Elm Common Oak	Fraxinus excelsior, Crataegus monogyna, Prunus spinosa, Corylus avellana, Acer campestre, Ulmus procera, Quercus robur	M	250	1	6	0	2	2	2	2	B2	40+	Larger area of scrub woodland.		Partially removed section outside CEZ.	3	28
G73	Ash	Fraxinus excelsior	SM	200	1	8	0	3	3	3	3	B2	40+	Domestic planting.		Partially removed section outside CEZ.	2.4	18
G74	Ash Silver Birch Sycamore	Fraxinus excelsior, Betula pendula, Acer pseudoplatanus	M	300	1	8	0	4	4	4	4	B2	40+	Domestic planting.		Partially removed section outside CEZ.	3.6	41
G75	Ash Sycamore Beech	Fraxinus excelsior, Acer pseudoplatanus, Fagus sylvatica	SM	200	1	10	0	2	2	2	2	B2	40+	Landscape buffer planting.		Partially removed section outside CEZ.	2.4	18
G76	Common Oak Ash Field Maple Blackthorn Wild Cherry	Quercus robur, Fraxinus excelsior, Acer campestre, Prunus spinosa, Prunus avium	SM	200	1	9	0	3	3	3	3	B2	40+	Part of linear group. Landscape buffer planting.		Unaffected	2.4	18
G77	Japanese Larch Ash Field Maple	Larix kaempferi, Fraxinus excelsior, Acer campestre	M	250	1	13	0	3	3	3	3	B2	40+	Part of linear group. Landscape buffer planting.		Unaffected	3	28
G78	Common Oak Ash Field Maple Blackthorn Wild Cherry Japanese Larch	Quercus robur, Fraxinus excelsior, Acer campestre, Prunus spinosa, Prunus avium, Larix kaempferi	SM	200	1	9	0	3	3	3	3	B2	40+	Part of linear group. Landscape buffer planting.		Small removed section outside CEZ on southern boundary.	2.4	18
G79	Ash	Fraxinus excelsior	EM	200	1	9	0	2	2	2	2	B2	40+	Part of linear group. Self set regeneration.		Unaffected	2.4	18
G80	Beech	Fagus sylvatica	M	600	1	18	0	4	4	4	4	A2	40+	Part of linear group. Growing inside fenced highway boundary.		Unaffected	7.2	163

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
G81	Beech Ash Common Oak English Elm	Fagus sylvatica, Fraxinus excelsior, Quercus robur, Ulmus procera	M	450	1	13	0	3	3	3	3	A2	40+	Part of linear group. Growing inside fenced highway boundry. Maturing landscape buffer planting.		Largely unaffected install CEZ as shown, AcOW to asupervise excavation on south of group and determine any additional impact	5.4	92
G82	Ash Hawthorn Blackthorn Goat Willow Common Oak	Fraxinus excelsior, Crataegus monogyna, Prunus spinosa, Salix caprea, Quercus robur	M	250	1	6	0	2	2	2	2	B2	40+	Part of linear group. Large area containing sparse self set regeneration located on steep banking.		Unaffected	3	28
G83	Ash Hawthorn Blackthorn Goat Willow Common Oak English Elm Hazel Wild Cherry Beech Japanese Larch	Fraxinus excelsior, Crataegus monogyna, Prunus spinosa, Salix caprea, Quercus robur, Ulmus procera, Corylus avellana, Prunus avium, Fagus sylvatica, Larix kaempferi	M	250	1	9	0	3	3	3	3	A2	40+	Part of linear group. Landscape buffer planting.		Unaffected	3	28
G84	Ash	Fraxinus excelsior	M	600	1	13	0	5	5	5	5	A2	40+	Part of linear group.		Unaffected	7.2	163
G85	Ash Silver Birch	Fraxinus excelsior, Betula pendula	Y	150	1	5	0	2	2	2	2	C2	40+	Self set regeneration growing on verge embankment.		Unaffected	1.8	10
G86	Ash	Fraxinus excelsior	M	450	1	12	0	4	4	4	4	B2	40+	Self set regeneration growing in field adjacent.		Unaffected	5.4	92
G87	Leyland Cypress Red Maple Apple Hawthorn	X Cupressocyparis leylandii, Acer rubrum, Malus, Crataegus monogyna	M	300	1	6	0	2	2	2	2	B2	40+	Ornamental planting in garden paddock.		Unaffected	3.6	41
G88	Wild Cherry Goat Willow Ash Beech	Prunus avium, Salix caprea, Fraxinus excelsior, Fagus sylvatica	EM	200	1	7	0	2	2	2	2	C2	40+	Sparse landscape buffer plants.		Unaffected	2.4	18
G89	Wild Cherry	Prunus avium	M	325	1	8	0	3	3	3	3	B2	40+			Remove for main carriageway	3.9	48

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
G90	Wild Cherry Goat Willow Ash Hawthorn	Prunus avium, Salix caprea, Fraxinus excelsior, Crataegus monogyna	M	200	1	6	0	3	3	3	3	B2	40+			Remove for main carriageway	2.4	18
G91	Norway Maple Horse Chestnut Beech Common Lime	Acer platanoides, Aesculus hippocastanum, Fagus sylvatica, Tilia X europaea	M	800	1	18	0	6	6	6	6	A1	40+	Part of linear group. Significant arboricultural continuous feature.		Largely unaffected. AcOW to mark out any additionally affected trees on site following setting out of actual road position	9.6	290
G92	Ash	Fraxinus excelsior	M	721	2	12	0	5	5	5	5	B2	40+	Part of linear group. Ivy on stem. Unable to inspect stem due to Ivy.		Unaffected, install CEZ.	8.7	235
G93	Sycamore Ash	Acer pseudoplatanus, Fraxinus excelsior	M	354	3	8	0	3	3	3	3	B2	40+	Part of linear group. Ivy on stem. Unable to inspect stem due to Ivy. Self set regeneration.		Unaffected, install CEZ.	4.2	57
G94	Hawthorn	Crataegus monogyna	M	277	1	6	0	3	3	3	3	B2	40+	Part of linear group. Self set regeneration.		Remove for main carriageway	3.3	35
G95	Ash Elder	Fraxinus excelsior, Sambucus nigra	SM	240	1	6	0	2	2	2	2	C2	40+	Part of linear group. Self set regeneration.		Lost for main carriageway	2.9	26
G96	Beech	Fagus sylvatica	M	250	1	7	0	3	3	3	3	B2	40+			Unaffected	3	28
G97	Beech Sycamore Ash Common Oak	Fagus sylvatica, Acer pseudoplatanus, Fraxinus excelsior, Quercus robur	M	949	10	10	0	3	3	3	3	A2	40+	Woodland edge trees.		Unaffected	11.4	407
G98	Ash Hawthorn	Fraxinus excelsior, Crataegus monogyna	M	700	1	17	0	6	6	6	6	A1	40+	Ivy on stem. Unable to inspect stem due to Ivy. Hedge containing mainly ash standards.		Unaffected	8.4	222
G99	Beech	Fagus sylvatica	M	789	4	17	0	6	6	6	6	A1	40+	Coppice.		Unaffected	9.5	282
G100	Beech	Fagus sylvatica	M	885	5	17	0	6	6	6	6	A1	40+	Coppice.		Unaffected	10.6	354
G101	Beech Ash	Fagus sylvatica, Fraxinus excelsior	M	400	1	13	0	4	4	4	4	A1	40+	Mature trees growing mainly on immediate road edge.		Unaffected	4.8	72
G102	Hawthorn Sycamore Ash	Crataegus monogyna, Acer pseudoplatanus, Fraxinus excelsior	M	275	1	6	0	3	3	3	3	B2	40+	Part of linear group. Self set regeneration.		Small tree to be removed outside CEZ	3.3	34
G103	Beech	Fagus sylvatica	M	600	1	16	0	5	5	5	5	A1	40+			Unaffected	7.2	163

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
G104	Beech Common Oak Hawthorn Whitebeam Goat Willow Holly Field Maple Hazel	Fagus sylvatica, Quercus robur, Crataegus monogyna, Sorbus aria, Salix caprea, Ilex aquifolium, Acer campestre, Corylus avellana	M	350	1	12	0	4	4	4	4	A2	40+	Established landscape buffer planting on verge embankment.		Unaffected	4.2	55
G105	Beech Common Oak Hawthorn Whitebeam Goat Willow Holly Field Maple Hazel	Fagus sylvatica, Quercus robur, Crataegus monogyna, Sorbus aria, Salix caprea, Ilex aquifolium, Acer campestre, Corylus avellana	EM	200	1	8	0	2	2	2	2	B2	40+	Landscape buffer planting and self set regeneration on steep verge embankment.		Unaffected	2.4	18
G106	Beech Sycamore Norway Maple Common Alder Ash Common Oak Hawthorn	Fagus sylvatica, Acer pseudoplatanus, Acer platanoides, Alnus glutinosa, Fraxinus excelsior, Quercus robur, Crataegus monogyna	M	450	1	12	0	3	3	3	3	B2	40+	Established landscape buffer planting.		Remove for main carriageway	5.4	92
G107	Scots Pine Dawn Redwood	Pinus sylvestris, Metasequoia glyptostroboides	M	450	1	12	0	3	3	3	3	A2	40+	Private trees.		Remove for main carriageway	5.4	92
G108	Apple	Malus	EM	150	1	5	0	2	2	2	2	B2	20+	Private trees. Orchard planting.		Single tree lost, install CEZ for remaining retained trees in group	1.8	10
G109	Common Oak	Quercus robur	M	700	1	15	0	6	6	6	6	A1	40+			Unaffected	8.4	222
G110	Japanese Larch	Larix kaempferi	M	660	1	15	0	5	5	5	5	A1	40+			Unaffected	7.9	197
G111	Hawthorn	Crataegus monogyna	M	375	1	8	0	3	3	3	3	B2	40+	Self set regeneration.		Unaffected	4.5	64
G112	Ash	Fraxinus excelsior	M	800	1	12	0	5	5	5	5	A2	40+	Ash maidens some with decay at base.		Unaffected	9.6	290
G113	Ash Common Oak Lawson Cypress Hawthorn	Fraxinus excelsior, Quercus robur, Chamaecyparis lawsoniana, Crataegus monogyna	M	450	1	12	0	5	5	5	5	A2	40+	Domestic property planting.		Unaffected	5.4	92

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
G114	Ash Common Oak Beech	Fraxinus excelsior, Quercus robur, Fagus sylvatica	M	700	1	15	0	6	6	6	6	A2	40+	Mature trees growing on escarpment.		Unaffected	8.4	222
G115	Crack Willow Common Oak Ash Walnut Hazel Hawthorn Blackthorn	Salix fragilis, Quercus robur, Fraxinus excelsior, Juglans regia, Corylus avellana, Crataegus monogyna, Prunus spinosa	M	400	1	12	0	4	4	4	4	B2	40+	Unmanaged hedge containing occasional mature trees.		Unaffected	4.8	72
G116	Crack Willow	Salix fragilis	M	700	1	16	0	6	6	6	6	A1	40+	Oak copse.		Unaffected	8.4	222
G117	Ash Crack Willow Common Oak Hybrid Black Poplar Norway Maple Wild Cherry Goat Willow	Fraxinus excelsior, Salix fragilis, Quercus robur, Populus serotina, Acer platanoides, Prunus avium, Salix caprea	M	450	1	13	0	5	5	5	5	B2	40+	A large linear feature growing inside fenced highway and private land. Extensive areas of self set regeneration growing in inside fenced highway and mature trees growing on and outside fenced highway.		Remove for main carriageway	5.4	92
G118	Ash Crack Willow Common Oak Hybrid Black Poplar Norway Maple Wild Cherry Goat Willow Western Balsam Poplar	Fraxinus excelsior, Salix fragilis, Quercus robur, Populus serotina, Acer platanoides, Prunus avium, Salix caprea, Populus trichocarpa	M	1000	1	27	0	7	7	7	7	B2	40+	A large linear feature growing inside fenced highway on private land. Mistletoe present.		Several trees removed for main carriageway	12	452
G119	Ash Crack Willow Common Oak Goat Willow	Fraxinus excelsior, Salix fragilis, Quercus robur, Salix caprea	M	500	1	15	0	5	5	5	5	B2	40+	Linear feature growing inside fenced highway on private land.		Unaffected	6	113
G120	Silver Maple Crack Willow Goat Willow	Acer saccharinum, Salix fragilis, Salix caprea	M	325	1	10	0	3	3	3	3	B2	40+	Self set regeneration.		Partially lost, install CEA as shown and AcOW to inspect retained tree edge	3.9	48

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
G121	Ash Sycamore Common Oak	Fraxinus excelsior, Acer pseudoplatanus, Quercus robur	M	700	1	13	0	7	7	7	7	A1	40+	Mature trees. Not found on plan. Plotted by eye on plan.		Unaffected	8.4	222
G122	Ash Sycamore Common Oak Hawthorn Blackthorn Field Maple Silver Birch Bird Cherry	Fraxinus excelsior, Acer pseudoplatanus, Quercus robur, Crataegus monogyna, Prunus spinosa, Acer campestre, Betula pendula, Prunus padus	SM	300	1	10	0	4	4	4	4	B2	40+	Landscape buffer planting.		Unaffected due to extent of existing hard standing, no CEZ required	3.6	41
G123	Sycamore Ash Holly Hazel Hawthorn Wild Cherry Crack Willow	Acer pseudoplatanus, Fraxinus excelsior, Ilex aquifolium, Corylus avellana, Crataegus monogyna, Prunus avium, Salix fragilis	M	300	1	13	0	3	3	3	3	A2	40+	Landscape buffer planting.		Unaffected	3.6	41
G124	Sycamore Ash Holly Hazel Hawthorn Wild Cherry Crack Willow Aspen	Acer pseudoplatanus, Fraxinus excelsior, Ilex aquifolium, Corylus avellana, Crataegus monogyna, Prunus avium, Salix fragilis, Populus tremula	M	350	1	13	0	3	3	3	3	A2	40+	Landscape buffer planting.		Remove those trees outside CEZ	4.2	55
G125	Ash	Fraxinus excelsior	M	300	1	10	0	4	4	4	4	A2	40+	Hedge standards.		Unaffected	3.6	41
G126	Ash Hazel Hawthorn Common Oak	Fraxinus excelsior, Corylus avellana, Crataegus monogyna, Quercus robur	M	375	1	11	0	4	4	4	4	B2	40+	Hedge containing occasional mature tree. Landscape buffer planting.		Unaffected	4.5	64
G127	Ash Hazel Hawthorn Common Oak Japanese Larch Beech	Fraxinus excelsior, Corylus avellana, Crataegus monogyna, Quercus robur, Larix kaempferi, Fagus sylvatica	M	400	1	14	0	4	4	4	4	B2	40+	Hedge containing occasional mature tree. Landscape buffer planting.		Unaffected	4.8	72

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
G128	Ash Hazel Hawthorn Common Oak Japanese Larch Beech Leyland Cypress	Fraxinus excelsior, Corylus avellana, Crataegus monogyna, Quercus robur, Larix kaempferi, Fagus sylvatica, X Cupressocyparis leylandii	M	400	1	16	0	4	4	4	4	B2	40+	Domestic boundary planting.		Unaffected	4.8	72
G129	Ash Hazel Hawthorn Common Oak Japanese Larch Beech	Fraxinus excelsior, Corylus avellana, Crataegus monogyna, Quercus robur, Larix kaempferi, Fagus sylvatica	M	400	1	16	0	4	4	4	4	A2	40+	Mature landscape buffer planting.		Unaffected	4.8	72
G130	Ash Hazel Hawthorn Common Oak Japanese Larch Beech	Fraxinus excelsior, Corylus avellana, Crataegus monogyna, Quercus robur, Larix kaempferi, Fagus sylvatica	M	500	1	16	0	4	4	4	4	A2	40+	Mature landscape buffer planting.		Unaffected	6	113
G131	Ash Japanese Larch Beech Scots Pine	Fraxinus excelsior, Larix kaempferi, Fagus sylvatica, Pinus sylvestris	M	600	1	20	0	4	4	4	4	A2	40+	Mature landscape buffer planting.		Unaffected	7.2	163
G132	Sycamore Ash Norway Spruce Hazel	Acer pseudoplatanus, Fraxinus excelsior, Picea abies, Corylus avellana	SM	300	1	10	0	3	3	3	3	B2	40+	Landscape buffer planting.		Partial loss woutside CEZ, AcOW to inspect retained edge and advise	3.6	41
G133	Sycamore Ash Norway Spruce Hazel Hawthorn	Acer pseudoplatanus, Fraxinus excelsior, Picea abies, Corylus avellana, Crataegus monogyna	M	300	1	10	0	3	3	3	3	C2	40+	Low arboricultural value.		Unaffected	3.6	41
G134	Sycamore Hawthorn	Acer pseudoplatanus, Crataegus monogyna	M	200	1	5	0	2	2	2	2	B2	40+			Unaffected	2.4	18
G135	Sycamore	Acer pseudoplatanus	M	610	3	12	0	5	5	5	5	B2	40+			Unaffected	7.3	168

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
G136	Sycamore	Acer pseudoplatanus	M	532	2	11	0	5	5	5	5	B2	20+	Ivy on stem. Unable to inspect stem due to Ivy. Multiple stems at ground level. Included bark present in main fork.		Unaffected	6.4	128
G137	Sycamore Ash Corsican Pine Common Oak Beech	Acer pseudoplatanus, Fraxinus excelsior, Pinus nigra 'maritima', Quercus robur, Fagus sylvatica	M	800	1	20	0	8	8	8	8	B2	20+	Significance area of woodland. Not found on plan. Plotted by eye on plan. In neighbouring property.		Unaffected	9.6	290
G138	Corsican Pine	Pinus nigra 'maritima'	M	800	1	28	0	5	5	5	5	A2	40+	Notable individuals growing mainly on top of steep embankment.		Unaffected	9.6	290
G139	Sycamore Ash Common Oak Beech Hawthorn Crab Apple Corsican Pine Leyland Cypress Hybrid Black Poplar	Acer pseudoplatanus, Fraxinus excelsior, Quercus robur, Fagus sylvatica, Crataegus monogyna, Malus sylvestris, Pinus nigra 'maritima', X Cupressocyparis leylandii, Populus serotina	M	400	1	13	0	5	5	5	5	B2	40+	Previously planted buffer for commercial premises located behind highway landscape buffer planting.		Remove for main carriageway	4.8	72
G140	Sycamore Ash Common Oak Beech Hawthorn	Acer pseudoplatanus, Fraxinus excelsior, Quercus robur, Fagus sylvatica, Crataegus monogyna	M	400	1	13	0	5	5	5	5	A2	40+	Mature landscape buffer planting. Restricted access due to road proximity.		Remove for main carriageway	4.8	72
H1	Ash English Elm Hazel	Fraxinus excelsior, Ulmus procera, Corylus avellana	Y	150	1	5	0	2	2	2	2	B2	40+			Unaffected	1.8	10
H2	Hawthorn Bird Cherry	Crataegus monogyna, Prunus padus	M	250	1	5	0	3	3	3	3	B2	40+	Unmanaged hedge growing on verge.		Lost for roundabout	3	28
H3	Ash Sycamore Common Oak Hawthorn Blackthorn	Fraxinus excelsior, Acer pseudoplatanus, Quercus robur, Crataegus monogyna, Prunus spinosa	SM	250	1	10	0.5	2	2	2	2	B2	40+			Unaffected	3	28

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
H4	Hawthorn	Crataegus monogyna	M	150	1	5	0	2	2	2	2	B2	40+	Managed hedge.		Unaffected	1.8	10
H5	Ash Hawthorn	Fraxinus excelsior, Crataegus monogyna	M	150	1	4	0	1	1	1	1	B2	40+	Managed hedge.		Unaffected	1.8	10
H6	Ash Hawthorn Blackthorn	Fraxinus excelsior, Crataegus monogyna, Prunus spinosa	M	150	1	4	0	2	2	2	2	B2	40+	Managed hedge.		Removed for highway improvements	1.8	10
H7	Ash Blackthorn Hawthorn	Fraxinus excelsior, Prunus spinosa, Crataegus monogyna	SM	200	1	5	0	2	2	2	2	B2	40+	Unmanaged hedge.		Unaffected, install CEZ.	2.4	18
H8	Ash Sycamore Hawthorn Blackthorn	Fraxinus excelsior, Acer pseudoplatanus, Crataegus monogyna, Prunus spinosa	M	250	1	5	1	2	2	2	2	B2	40+	Unmanaged hedge.		Largely removed, install CEZ as shown on TPP, retain those trees within CEZ	3	28
H9	Elder Hawthorn	Sambucus nigra, Crataegus monogyna	M	250	1	5	1	2	2	2	2	B2	20+			Unaffected	3	28
H10	Hawthorn	Crataegus monogyna	SM	200	1	5	1	2	2	2	2	C2	20+	Unmanaged hedge.		Mainly removed, install CEZ as shown on TPP	2.4	18
H11	Hawthorn Hazel Blackthorn	Crataegus monogyna, Corylus avellana, Prunus spinosa	M	150	1	2	0	1	1	1	1	B2	40+			Unaffected	1.8	10
H12	Ash Hawthorn Blackthorn Hazel	Fraxinus excelsior, Crataegus monogyna, Prunus spinosa, Corylus avellana	M	150	1	5	0	1	1	1	1	B2	40+			Unaffected	1.8	10
H13	Sycamore Ash Hawthorn	Acer pseudoplatanus, Fraxinus excelsior, Crataegus monogyna	M	212	2	5	0	1	1	1	1	B2	40+			Unaffected	2.5	20
H14	Blackthorn	Prunus spinosa	M	150	1	5	0	2	2	2	2	B2	40+			Unaffected	1.8	10
H15	Blackthorn Field Maple Ash Hazel Common Oak	Prunus spinosa, Acer campestre, Fraxinus excelsior, Corylus avellana, Quercus robur	M	300	1	6	0	3	3	3	3	A2	40+	Unmanaged hedge containing occasional mature trees.		Unaffected	3.6	41

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
H16	Hawthorn	Crataegus monogyna	M	220	1	6	0	2	2	2	2	B2	40+	Unmanaged hedge.		Lost for access road widening	2.6	22
H17	Hawthorn	Crataegus monogyna	M	220	1	6	0	2	2	2	2	B2	40+	Unmanaged hedge.		Lost for access road widening	2.6	22
H18	Hawthorn Goat Willow Crab Apple	Crataegus monogyna, Salix caprea, Malus sylvestris	M	220	1	6	0	2	2	2	2	B2	40+	Unmanaged hedge.		Remove small section of hedge on southerly point for access road	2.6	22
H19	Hawthorn Blackthorn Field Maple Ash	Crataegus monogyna, Prunus spinosa, Acer campestre, Fraxinus excelsior	M	300	1	11	0	3	3	3	3	B2	40+	Occasional mature trees growing in hedge.		Largely off site and unaffected	3.6	41
H20	Hawthorn	Crataegus monogyna	M	200	1	5	1	2	2	2	2	C2	20+	Unmanaged hedge.		Retained as per TPP, install CEZ	2.4	18
H21	Leyland Cypress	X Cupressocyparis leylandii	M	200	1	8	1	3	3	3	3	C2	20+			Unaffected	2.4	18
H22	Leyland Cypress	X Cupressocyparis leylandii	M	200	1	8	1	4	4	4	4	C2	20+			Unaffected retain within CEZ	2.4	18
H23	Leyland Cypress	X Cupressocyparis leylandii	M	170	1	8	1	2	2	2	2	C2	20+			Unaffected retain within CEZ	2	13
H24	Leyland Cypress	X Cupressocyparis leylandii	M	300	1	16	0	4	4	4	4	C2	40+			Remove for permanent works	3.6	41
H25	English Elm Field Maple Hazel Hawthorn Blackthorn	Ulmus procera, Acer campestre, Corylus avellana, Crataegus monogyna, Prunus spinosa	M	200	1	5	0	2	2	2	2	B2	40+	Unmanaged hedge containing sparse regeneration and dense areas.		Partially removed section outside CEZ	2.4	18
H26	Leyland Cypress	X Cupressocyparis leylandii	M	400	1	14	0	4	4	4	4	C2	40+	Ornamental planting around domestic property.		Unaffected	4.8	72
H27	Ash Hazel	Fraxinus excelsior, Corylus avellana	SM	283	2	10	0	3	3	3	3	B2	40+	Self set regeneration.		Partially removed section outside CEZ	3.4	36
H28	Ash Common Oak Hawthorn Blackthorn	Fraxinus excelsior, Quercus robur, Crataegus monogyna, Prunus spinosa	M	375	1	8	0	3	3	3	3	A2	40+	Occasional mature trees growing in unmanaged hedge.		Unaffected	4.5	64
H29	Ash Common Oak Hawthorn Blackthorn	Fraxinus excelsior, Quercus robur, Crataegus monogyna, Prunus spinosa	M	600	1	12	0	5	5	5	5	A2	40+	Mature trees growing in unmanaged hedge.		Unaffected	7.2	163

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
H30	Ash Sycamore Common Oak Hawthorn Blackthorn Crack Willow	Fraxinus excelsior, Acer pseudoplatanus, Quercus robur, Crataegus monogyna, Prunus spinosa, Salix fragilis	SM	400	1	13	0	4	4	4	4	B2	40+	Unmanaged hedge containing occasional mature trees.		Unaffected	4.8	72
H31	Sycamore Ash Holly Hazel Hawthorn Wild Cherry Crack Willow Aspen	Acer pseudoplatanus, Fraxinus excelsior, Ilex aquifolium, Corylus avellana, Crataegus monogyna, Prunus avium, Salix fragilis, Populus tremula	M	150	1	5	0	2	2	2	2	B2	40+	Managed hedge.		Unaffected	1.8	10
H32	Ash Hazel Hawthorn Common Oak	Fraxinus excelsior, Corylus avellana, Crataegus monogyna, Quercus robur	M	450	1	15	0	4	4	4	4	B2	40+	Hedge containing occasional mature tree forming domestic boundary.		Unaffected	5.4	92
W1	Beech Sycamore Ash Scots Pine Field Maple	Fagus sylvatica, Acer pseudoplatanus, Fraxinus excelsior, Pinus sylvestris, Acer campestre	M	600	1	18	0	5	5	5	5	A2	40+	Part of linear group. Ivy on stem. Unable to inspect stem due to ivy. Unable to inspect stem due to undergrowth. Steep banking unable to access. Large significant woodland area on edge of site not all mapped.		Unaffected	7.2	163
W2	Beech Sycamore Ash Scots Pine Field Maple	Fagus sylvatica, Acer pseudoplatanus, Fraxinus excelsior, Pinus sylvestris, Acer campestre	M	500	1	12	0	3	3	3	3	A2	40+	Part of linear group. Ivy on stem. Unable to inspect stem due to ivy. Unable to inspect stem due to undergrowth. Steep banking unable to access. Large significant woodland area on edge of site. Modified RPA likely to apply.		Unaffected	6	113
W3	Hawthorn Ash Common Oak Scots Pine Beech	Crataegus monogyna, Fraxinus excelsior, Quercus robur, Pinus sylvestris, Fagus sylvatica	M	700	1	15	2	5	5	5	5	A2	40+	Mature high canopy woodland on edge of existing road of notable significance. RPA modified steep bank to road which will act as barrier.		Short tie in point with old surface requiring footway excavations on verge. Details of works to be submitted for AMS review.	8.4	222

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
W4	Ash Hawthorn Blackthorn Norway Spruce Common Alder Silver Birch Hazel	Fraxinus excelsior, Crataegus monogyna, Prunus spinosa, Picea abies, Alnus glutinosa, Betula pendula, Corylus avellana	SM	250	1	11	1	3	3	3	3	A2	40+	Large linear feature containing numerous Picea.		Small loss to south of group. CEZ for retained trees to be installed. Retained edge to be inspected by AcOW	3	28
W5	Ash Beech	Fraxinus excelsior, Fagus sylvatica	M	900	1	18	1	6	6	6	6	A2	40+	High canopy woodland of significant interest.		Unaffected	10.8	366
W6	Elder Scots Pine Ash Hawthorn Japanese Larch Small-leaved Lime Sycamore	Sambucus nigra, Pinus sylvestris, Fraxinus excelsior, Crataegus monogyna, Larix kaempferi, Tilia cordata, Acer pseudoplatanus	M	600	1	15	1	5	5	5	5	A2	40+	Large linear feature woodland edge adjacent to site.		Unaffected	7.2	163
W7	Goat Willow Ash Horse Chestnut Beech	Salix caprea, Fraxinus excelsior, Aesculus hippocastanum, Fagus sylvatica	M	700	1	20	0	6	6	6	6	A1	40+	High canopy beech woodland of significant arboricultural interest.		Access road widening and footway to move 1m into woodland maximum. Install CEZ and full AMS prior to works required. AcOW to supervise	8.4	222
W8	Ash Beech Sycamore	Fraxinus excelsior, Fagus sylvatica, Acer pseudoplatanus	M	700	1	20	0	6	6	6	6	A1	40+	High canopy beech woodland of significant arboricultural interest.		Access road widening and footway to move 1m, not affecting trees as located further back off verge	8.4	222
W9	Beech Sycamore Goat Willow Ash Hazel Hawthorn	Fagus sylvatica, Acer pseudoplatanus, Salix caprea, Fraxinus excelsior, Corylus avellana, Crataegus monogyna	M	450	1	14	0	4	4	4	4	B2	40+	Part of linear group. Woodland and areas of sparse regeneration growing on edge of road. The group is linked to wider woodland.		Embankment and footway ingress into woodland by up to 1m. AcOW to supervise, install CEZ as shown	5.4	92

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
W10	Beech Sycamore Ash Hazel	Fagus sylvatica, Acer pseudoplatanus, Fraxinus excelsior, Corylus avellana	M	600	1	19	0	5	5	5	5	A2	40+	Part of linear group. Isolated woodland containing mainly high canopy beech of significant interest.		Embankment and footway ingress into woodland by up to 2m. AcOW to supervise, install CEZ as shown	7.2	163
W11	Hawthorn Beech Ash Goat Willow Hazel	Crataegus monogyna, Fagus sylvatica, Fraxinus excelsior, Salix caprea, Corylus avellana	M	450	1	14	1	4	4	4	4	A2	40+	Unmanaged high canopy woodland of significant arboricultural interest. Occasional mature trees growing in areas.		Large woodland bisected by improvement works in general. Will require tree removal to CEZ position and AcOW on site under an AMS to check extent of excavation in proximity to retained woodland edge and advise on any residual impact and / or tree removal and / or special measures	5.4	92
W12	Hawthorn Beech Hazel	Crataegus monogyna, Fagus sylvatica, Corylus avellana	M	900	1	20	1	8	8	8	8	A1	40+	Continuous high canopy woodland of significant arboricultural interest developed on steep banking, mainly beech. Individual stem positions required for further detail in vicinity of new road edge.		Large woodland bisected by improvement works in general. Will require tree removal to CEZ position and AcOW on site under an AMS to check extent of excavation in proximity to retained woodland edge and advise on any residual impact and / or tree removal and / or special measures	10.8	366

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
W13	Bird Cherry Field Maple Beech Hawthorn Ash	Prunus padus, Acer campestre, Fagus sylvatica, Crataegus monogyna, Fraxinus excelsior	M	275	1	10	1	3	3	3	3	A2	40+	Part of linear group. Establishing landscape buffer planting on edge of site.		Unaffected	3.3	34
W14	Ash Sycamore Beech Scots Pine Corsican Pine Hazel Common Oak Silver Birch	Fraxinus excelsior, Acer pseudoplatanus, Fagus sylvatica, Pinus sylvestris, Pinus nigra 'maritima', Corylus avellana, Quercus robur, Betula pendula	M	500	1	16	0	5	5	5	5	A1	40+	Mature high canopy woodland of significant arboricultural value, large areas covered on edge of site.		Unaffected	6	113
W15	Ash Beech	Fraxinus excelsior, Fagus sylvatica	M	600	1	18	0	5	5	5	5	A2	40+	Part of linear group. Large woodland dominated by high canopy Beech of notable individual and collective significance.		Partially affected. Northern section to be removed. AcOW to mark out affected trees on site following setting out of actual road position	7.2	163
W16	Common Oak Beech Ash	Quercus robur, Fagus sylvatica, Fraxinus excelsior	M	700	1	15	0	5	5	5	5	A1	40+	High canopy woodland of significant arboricultural importance growing on top of steep embankment.		Unaffected	8.4	222
W17	Common Oak Beech Ash English Elm Hawthorn Red Maple	Quercus robur, Fagus sylvatica, Fraxinus excelsior, Ulmus procera, Crataegus monogyna, Acer rubrum	M	600	1	15	0	5	5	5	5	A1	40+	High canopy woodland of significant arboricultural importance growing on steep embankment. Unmanaged and therefore mixed aged.		Largely unaffected, AcOW to walk and review on site following setting out	7.2	163

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	N	S	E	W	Category	Life Exp	Comments	Recommendations	Recommendations following AIA	RPA-R	RPA-SqM
W18	Common Oak Beech Apple Hawthorn English Elm Japanese Larch Crab Apple Sycamore Silver Birch Lawson Cypress Bird Cherry Goat Willow Whitebeam Large-leaved Lime	Quercus robur, Fagus sylvatica, Malus, Crataegus monogyna, Ulmus procera, Larix kaempferi, Malus sylvestris, Acer pseudoplatanus, Betula pendula, Chamaecyparis lawsoniana, Prunus padus, Salix caprea, Sorbus aria, Tilia platyphyllos	M	500	1	15	0	5	5	5	5	A1	40+	Very large woodland of significant arboricultural interest and value, located on steep embankment. Mature trees growing on southern boundary and landscape buffer planting to north with scattered regeneration growing on woodland edge.		Woodland section to north of group lost for toe of embankment. AcOW to walk site when works marked out and advise on individual trees to retain / remove on woodland edge. Unknown proposal opposite G108 to be marked on site and assessed.	6	113
W19	Sycamore Ash Common Oak Beech Hawthorn Crab Apple Corsican Pine Leyland Cypress	Acer pseudoplatanus, Fraxinus excelsior, Quercus robur, Fagus sylvatica, Crataegus monogyna, Malus sylvestris, Pinus nigra 'maritima', X Cupressocyparis leylandii	M	400	1	13	0	5	5	5	5	A2	40+	Significance area of woodland located within fenced highway and within steep embankment. Restricted access for survey due to road proximity. A number of trees of significant arboricultural importance within embankment require details confirming. A number of conifer growing mainly outside fenced highway boundary. Landscape buffer planting growing at lower level within fenced highway boundary formal woodland edge.		Road improvements mainly within existing road surfacing so no disturbance anticipated. Intervention required for health and safety management following safety audit. AcOW to supervise excavations near property to eastern edge of group	4.8	72

Tree Survey and Constraints Report

Site: A417T

Prepared for: Arup 63 St Thomas Street Bristol
BS1 6JZ

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Appendices

- Appendix 1 Survey key
- Appendix 2 BS5837 Cascade Chart
- Appendix 3 Survey Schedule
- Appendix 4 Tree Constraints Plan
- Appendix 5 A417 TPO map

1.0 Introduction, instruction and methodology

Instruction

- 1.1 Amenity Tree Care has been instructed to prepare the following Tree Constraints Report for those trees located on the proposed A417T road improvement scheme. Amenity Tree Care are instructed in accordance with the Arup Invitation to Tender (ITT) Arboricultural Assessment scope as follows:

As part of the environmental assessment works and to accompany the application the following works are required which should be carried out in accordance with BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations:

- Tree and woodland survey, including veteran tree survey (veteran trees will require tagging and marked on plans) and other trees of interest within the project red line boundary;
 - Schedule of tree works and a Tree Protection Plan as .dwg file (in accordance with BS3998:2010) – to identify all trees that require work, to be removed or retained;
 - Arboriculture Impact Assessment - to evaluate the direct and indirect effects of the proposed design and where necessary recommend mitigation, NOTE this shall include a full Tree Protection Plan;
 - All woodland should be included in the surveys and the impact on all woodland should be quantified;
 - Identify likely impacts related to tree health issues, especially (but not limited to) ash dieback, as this will likely affect future woodland and tree cover in the area;
 - Assessment of hedgerows affected by the scheme;
 - Preparation of a formal Arboriculture Report in accordance with BS 5837:2012;
- and all documents should comply with industry standard documents and methods.

The following restrictions apply to access:

- Access to the live carriageway of the A417 trunk road (including verges and earthworks) on foot is strictly prohibited;
- No vehicles are to be stopped on the road or verge of the A417 at any time;
- Access is not permitted within 5m of the A417 carriageway, trees within this restricted area will need to be surveyed visually only.

Arboricultural surveys require walkover pedestrian access to areas of the site to assess the respective tree subjects. Where it is possible to measure tree stems this shall be completed where access restrictions apply this shall be stated in the tree constraints report and plan (specifically in the survey schedule). Tree heights can be taken from outside the restricted areas provided in section 4 using a laser ace measuring device (clinometer) where possible. Assessment of retention value, physiological condition, structural condition, age and canopy dimensions are to be made in accordance with the access restrictions

- 1.2 Simon Brain (Managing Director) surveyed the site whom is a chartered arboriculturist, with 20 years' experience accompanied by a junior surveyor. I have compiled several hundred arboricultural constraints reports and I have specific and detailed experience of major road improvement schemes through involvement in the A470, Llangefni, Sirhowy Enterprise and A40 / A30 road improvement schemes.

Arboricultural constraints

- 1.3 The tree constraints report has been carried out in line with the recommendations in BS 5837:2012 *Trees in relation to design, demolition and construction – Recommendations* and will evaluate the direct and indirect constraints of the current tree population on the site.
- 1.5 The constraints assessment considers trees on or off site as well as above and below ground constraints such as canopy extent, Root Protection Area (RPA) / extent of any likely modifications to RPA position, first significant branch and crown height. The constraints report provides a retention value category (appendix 2 BS5837 cascade chart) that shall also be used to inform any future design layout as these constraints can have a direct influence on the use of the site as a highway. Above ground, constraints are considered in line with the recommendations in section 5.2 of BS 5837:2012. No assessments are made of potential direct sunlight obstruction as it is considered this constraint does not apply to road specific development applications.
- 1.6 Whilst further consideration will be required at the design stage in the form of an Arboricultural Impact Assessment (AIA) the tree constraints survey and report shall be used to inform and influence the final design of the scheme prior to the AIA being undertaken. This shall facilitate an opportunity for trees identified as meriting retention within the constraints report to be included in an assessment of any modifications to scheme that need to be made to achieve tree retention. This process has been requested as part of the instruction and it is therefore considered that the proposal shall avoid uncontrolled arboricultural impacts because of improper planning referred to in BS5837:2012 sections 4.4.1.2 and 4.4.1.3.
- 1.7 Below ground constraints are influenced by the RPA and are determined in line with the recommendations set out in section 4.6 of BS 5837:2012. These recommendations quantify the RPA based on a measured stem diameter in accordance with Annex C, and the RPA determined from Annex D. Those trees with two to five stems are calculated using the calculation in 4.6.1.
- 1.8 It is important to understand that when considering the RPA with regards to the circular plot as provided by BS5837:2012 and delineated on the Tree Constraints Plan (TCP) that many site factors are influencing root morphology on this site because of the prevailing local conditions at site level. Site related factors that modify the physical shape of the RPA such as the presence of root barriers are present on this site. RPA modifications are considered to apply but they require confirmation of trial excavation prior to them being delineated within and Tree Constraints Plan. Some assumptions can be made such as the highway acting as a root barrier. Larger hedgerows that are likely to have an RPA overlap from hedge bank and into adjacent land are shown on the tree constraints plan. It must however be noted that without formal excavation any modified RPA cannot be determined.
- 1.9 The tree survey has identified veteran trees to be considered at the earliest opportunity in the design process as stated in BS5837:2012 section 4.5.11. Such trees rely on continued ecological functionality, essentially requiring no disturbance.

The maintenance of these environmental conditions within these areas is critical to successful tree retention. All such trees are categorised as A2/3 or A3.

- 2.0 The Local Planning Authority has been approached for a status check for Tree Preservation Order (TPO) using interactive mapping <http://my.cotswold.gov.uk/mcd.aspx>. Individual TPO's apply to those trees located in G 101, G97 and an Area TPO applies to the following references* T142-T163. It is noted that the study area covers Cotswold and Tewkesbury Councils and those available maps are appended in Appendix 5 A417 TPO map. No information could be found within the boundaries of Tewkesbury district council.

* This requires confirmation by detailed cross examination of the actual TPO maps by from the LPA and this information can only be taken as a guide.

<https://magic.defra.gov.uk/MagicMap.aspx> confirms an ancient woodland designation is present on W14.

2.0 Report Limitations

- 2.1 The inspection has been carried out from ground level only, using visual observation methods as this is a preliminary report as requested by the client, should a more detailed inspection be required then this will be highlighted in the recommendations.
- 2.2 Trees are living organisms whose health and condition can change rapidly, the health, condition and safety of trees should be checked on a regular basis, preferably at least once a year. The conclusions and recommendations in this report are valid for a period of one year from the date of this report. This period of validity may be reduced in the case of any change in conditions to or in proximity to the tree/s or due to access restrictions at the time of inspection.
- 2.3 No analysis of soil samples was undertaken.
- 2.4 Any legal descriptions or information given to the consultant are understood to be accurate and no responsibility is assumed by Amenity Tree Care Ltd for legal matters that may arise from this report and the consultant shall not be required to give testimony or to attend court unless subsequent contractual arrangements are made.
- 2.5 Any alteration or deletion from this report will invalidate it and the conclusions of this report will remain valid for twelve months from the date of the report.
- 2.6 The responsibility for any tree work(s) undertaken on the surveyed trees rests with the land managers.

3.0 Methodology and data collection

- 3.1 The site was visited during late November 2019 and the trees were assessed visually utilising the Visual Tree Assessment (VTA) methodology. The survey system and report are based on BS5837:2012 and the (ITT) Arboricultural Assessment Scope, provided by Arup to Amenity Tree Care.
- 3.2 Where possible trees been assessed with general regard to condition, health and structural suitability, retention value and commented upon in the report within Appendix 3 site survey sheets. The survey sheets contain individual, group, woodland and hedgerow records which includes detailed information relating to tree species, height, stem diameters, crown dimensions, crown height, age class, four cardinal point canopy measurements and estimated remaining contribution. The RPA is provided as a radius and total square meter coverage.
- 3.3 Where dimensions have been recorded trees the following measurement conventions have been observed:
- a) Height, crown spread, and crown clearance have been recorded to the nearest half metre (crown spread has been rounded up) for dimensions up to 10m and the nearest whole meter for dimensions over 10m.
 - b) Stem diameters have been recorded in millimetres and rounded to the nearest 10mm
 - c) Where dimensions have been estimated, due for example to access this has been stated.
- 3.4 The use of tree groups is referred to in BS5837:2012 in reference 4.4.2.2 where it is noted that within groups some individual trees will be assessed where there is a need to differentiate trees from the general group attributes. Within the tree groups the largest stem diameters have been provided in the survey sheets, assuming they are a reasonable representation of the entire group.
- The term “group” is intended to identify trees forming cohesive features by means of shelter planting, visually or culturally including biodiversity factors. Where individual scattered trees are present with similar dimensions and are in proximity to each other they have been grouped together in the survey sheets.
- 3.5 Recommendations for remedial tree works (Preliminary Management Recommendations) have been provided based on the tree(s) current condition. Management recommendations are provided in the survey sheets for individual trees, tree groups and woodland.
- 3.6 Hedgerows are recorded in accordance with section 4.4.2.8 where lateral spread, average height and diameter are included. Comments made for hedgerows relate to landscape, heritage, cultural, ecological value and connectivity in the wider landscape and they have been shown as hedgerows on the TCP. In most of cases the canopy extent or hedgerow width is the principle constraint. RPA modifications only occasionally apply which is due to the hedge bank height of over 1m making

them raised sufficiently to accommodate substantial tree roots within them. Where the RPA has become the principle constraint for example where the size of trees growing within the hedge/group are sufficiently large to be considered to have RPA overlapping into the adjacent land this has been shown on the constraints plan.

- 3.7 Tree positions have been given for some of the individual trees growing within the site boundaries by the topographical survey provided however, not all individual trees within the site are positioned within the topographical supplied. In some areas of the site the topographical coverage is partial, and it appears aerial imagery has been used to delineate tree position. The topographical provides background OS data such as drain, road edge, kerbs etc and where tree positions have not been provided, they have been plotted on site by measuring to known points within the topographical on site and using fixed aerial imagery. The topographical data has provided the exact canopy extents of some substantial tree groups and woodlands, where this has not been provided OS data has been used on site along with aerial imagery to position tree canopies. In some areas no data (OS or topographical) has been provided and tree position has been gained using GPS, for example south of the A417 bike park near G121.
- 3.8 The red line boundary provided for the site includes a buffer zone from the anticipated working zones to ensure trees growing outside the physical site boundary that may have an overlapping RPA or canopy into site are captured. In some cases, for example T173 there has been a need to plot trees outside the redline boundary which still have an RPA overlap into the site boundary.
- 3.9.1 Included in the sites survey sheets contained in appendix 3 is a comments section. During the survey comments have been based on the following arboricultural and landscape considerations and constraints:
- Whether the reference formed part of group shelter / cohesive feature
 - The visual amenity and strategic landscape position
 - Ultimate height and related highway constraints
 - Species suitability for environment
 - Existing highway planting
 - Third party vegetation
 - Arboricultural longevity
 - Basic ecological contribution of groups and hedgerows and woodlands
 - Site specific constraints
 - Future maintenance
 - An assessment of the applicability of any modified RPA

4.0 Arboricultural Constraints

- 4.1 The principle arboricultural constraints are listed in the sites survey sheets and shown on the TCP contained within appendix 4. These principle constraints are; Tree Preservation Order (TPO), canopy extent, RPA extents and retention value.
- 4.2 It is important to understand the significance of cohesive arboricultural features which are often linked and afford mutual shelter to their component parts. In many areas of the site continuous groups of vegetation are formed by tree groups, woodlands and hedgerows. The loss of areas of trees within continuous groups can have a disproportionately negative affect on the stability of those retained trees growing within the remaining areas. This impact is reduced in areas of young new plantings and greater in mature woodland. The A417 site exhibits numerous areas of cohesive vegetation that could be affected by altered exposure if areas of trees were to be removed within the continuous group. The site also contains areas of existing and relatively new highway plantings that are young where partial felling would have less of an impact on resultant tree stability.

5.0 Survey area

- 5.1 The survey area consists of the existing A417 road corridor extending in the south from the Cowley roundabout to the Air Ballon Roundabout in the north and east toward the Witcombe area.

The redline survey boundary provided for the road improvements contains the A417 road network infrastructure single carriageway sections. The survey boundary also contains numerous areas where new road improvements, outside the existing A417 infrastructure which include agricultural land, hedges, banks, existing residential properties, road underpasses, scrub and woodland.

The red line survey boundary also contains areas of proposed compound use for construction and several areas of site that extend in thin land sections often into adjacent woodland and / or agricultural fields, for example G35. These areas often contain running water streams and the purpose of the red line boundary in these areas is not known at this stage, it could be connected to external drainage for the scheme.

6.0 Summary

- 6.1 401 records have been recorded across the site compromising of 212 individual trees, 140 tree groups, 32 hedgerows and 19 woodlands. Still correct after verifying?
- 6.2 In summary the following retention values have been recorded:

A1 (93 records)	T1, T2, T3, T4, T5, T6, T12, T16, T17, T18, T19, T22, T23, T38, T39, T40, T41, T42, T43, T44, T45, T46, T47, T48, T49, T50, T51, T53, T57, T58, T59, T60, T61, T70, T97, T98, T108, T109, T115, T116, T117, T118, T119, T120, T121, T126, T
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	127, T128, T141, T142, T143, T144, T145, T154, T155, T156, T157, T158, T159, T160, T162, T163, T167, T168, T170, T171, T172, T173, T176, T177, T188, T189, T190, T191, T193, T204, G91, G98, G99, G100, G101, G103, G109, G110, G116, G121, W7, W8, W12, W14, W16, W17, W18
A2 (128 records)	T7, T8, T9, T13, T14, T15, T20, T25, T26, T27, T28, T29, T30, T31, T32, T33, T34, T35, T62, T63, T64, T65, T67, T68, T69, T71, T72, T73, T75, T76, T77, T78, T79, T80, T81, T82, T83, T85, T86, T87, T88, T89, T90, T91, T92, T101, T122, T129, T130, T131, T132, T133, T134, T148, T165, T175, T178, T179, T180, T181, T182, T183, T184, T185, T186, T187, T195, T196, T197, T198, T199, T200, T201, T205, T207, T212, G1, G3, G4, G5, G9, G10, G11, G15, G16, G19, G31, G40, G41, G42, G43, G49, G50, G51, G59, G66, G80, G81, G83, G84, G97, G104, G107, G112, G113, G114, G123, G124, G125, G129, G130, G131, G138, G140, H15, H28, H29, W1, W2, W3, W4, W5, W6, W10, W11, W13, W15, W19
B1 (8 records)	T137, T140, T146, T147, T161, T202, G13, G14
B2 (134 records)	T10, T11, T21, T36, T37, T54, T55, T74, T84, T96, T99, T100, T103, T104, T105, T106, T107, T111, T112, T114, T123, T135, T136, T149, T150, T151, T152, T153, T164, T166, T169, T192, T194, T203, T208, T209, T210, G2, G6, G7, G8, G12, G18, G20, G21, G22, G23, G24, G25, G28, G29, G30, G32, G33, G34, G35, G38, G39, G44, G45, G46, G47, G48, G52, G54, G55, G56, G57, G60, G61, G62, G63, G64, G69, G72, G73, G74, G75, G76, G77, G78, G79, G82, G86, G87, G89, G90, G92, G93, G94, G96, G102, G105, G106, G108, G111, G115, G117, G118, G119, G120, G122, G126, G127, G128, G132, G134, G135, G136, G137, G139, H1, H2, H3, H4, H5, H6, H7, H8, H9, H11, H12, H13, H14, H16, H17, H18, H19, H25, H27, H30, H31, H32, W9
C1 (1 record)	T138
C2 (30 records)	T24, T93, T94, T95, T110, T113, T125, T174, T206, G17, G26, G27, G36, G37, G53, G58, G65, G70, G71, G85, G88, G95, G133, H10, H20, H21, H22, H23, H24, H26
U (7 records)	T52, T56, T66, T102, T124, T139, T211

- 6.3 There are 221 category A records that include individual trees, tree groups, woodlands and hedgerows all exhibiting significant visual amenity in the local and wider landscape. Many of these records are part of wider continuous arboricultural features, which are dominant in the wider landscape such as W14 (Ancient woodland designation). Three category A3 records were identified including the following trees: 13, 14, 17, 18, 57, 67, 90, 98, 108, 109, 126, 127, 157, 159, 171, 172, 174, 187, 188, 189, 190 and 205.

The category A records on the site are the most significant arboricultural records in terms of the provision of wider public amenity and landscape context.

- 6.4 The site contains 142 category B records. A number of these records cover large areas of trees which are publicly prominent and others which provide arboricultural and ecological connectivity.

The category B records are important arboricultural assets as they provide amenity value in the local and wider landscape and exhibit arboricultural quality and longevity. They contribute significantly to wider ecological connectivity across the site.

- 6.5 A total number of 363 out of 401 records are important arboricultural assets and have been awarded high retention values (A1/A2 to B1/B2) due to their longevity and visual prominence.

- 6.4 Some trees (31) have been categorised as retention value 'C' due to their limited arboricultural merit or impaired condition which are unlikely to pose as a constraint to the road improvement scheme. Their loss could be mitigated by replacement planting.

- 6.5 7 Category U trees have been recorded on the site. These trees require prompt management intervention to ensure health and safety of road users and contractors working on the site.

7.0 Concluding statement

- 7.1 The site contains a great variety of vegetation from young to early mature highway plantings, mature woodland, scrub and hedgerows all of which positively impact the wider landscape. The higher retention values (A1/A2 to B1/B2) trees that are growing in the study area confer significant visual amenity due to many forming cohesive features that dominate the landscape. 90.5% of the total records are higher retention values and as the area contains such a number of significant arboricultural assets every effort shall be required at design and implementation stages to adequately protect these records.

Appendix 1

Survey Key

Tree No. Sequential reference number e.g. T1, T2 for individual trees, where trees are determined to be a group they will be denoted as follows G1, G2 and W1, W2 for woodlands.

Species: Recorded and listed by both common name and scientific name

Stem: Principal above ground structural component(s) of a tree that supports its branches.

Height: Provides indication of the height of the tree and is measured in meters from ground level to the upper canopy edge and is recorded up to the nearest half meter for heights up to 10 meters and the nearest meter for heights over 10 meters.

Stem diameter: Measured at a height of 1.5 meters from ground level using a diameter tape and recorded in millimetres. Where the stem cannot be measured at 1.5 meters due to irregular swellings on the stem or low branching then the position of measurement will be taken in accordance with the specification in Annex C of BS 5837:2012

Crown spread: Measured at the four cardinal points of a compass (north, south, east, and west) from the centre of the stem and rounded up to the nearest meter in order to provide an accurate representation of the crown spread in order to show above ground constraints.

Crown height: Measured distance between the lowest points of the crown from ground level.

Life stage: A method of age estimation e.g. young - the first one third of the estimated life expectancy, middle mature- the second third of the estimated life expectancy, mature- The last third of the estimated life expectancy , over mature- trees showing obvious signs of senescence

First significant branch (FSB): The direction of growth of the first significant branch from the point of attachment.

Comments: A brief evaluation and description of the tree in order to inform on significant defects or characteristics relating to tree form. Where comments are not present it should be assumed that no relevant features were exhibited.

Recommendations: Arboricultural recommendations based on the current land use only and are provided where action is required in order to aid in the long term management of the tree or for reasons of site safety.

Survey restrictions: It may be necessary on occasion to estimate tree dimensions where access is not available or where structure(s) or vegetation is precluding the visual assessment. Where dimensions are estimated it will clearly be marked in the tree survey schedule and be suffixed with #.

Root protection area (RPA) Layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the trees viability. All stem diameters are calculated in line with the guidance given in BS 5837:2012 Annex D

Tree categorisation: a method of apportioning a value (non-fiscal) to trees in order to identify the quality and value of existing tree stocks, allowing for informed decisions to be made regarding which trees are to be retained or removed dependant on development occurring. Category U-Those in such a condition that cannot realistically be retained as living trees in the context of the current land use for longer than 10 years. Category A-Trees of a high quality with an estimated life expectancy of at least forty years. Category B-Trees of a moderate quality with an estimated remaining life expectancy of at least 20 years. Category C-Trees of a low quality with an estimated remaining life expectancy of at least 10 years.

Please refer to Table 1 Cascade chart for tree quality assessment, including subcategories, reference BS 5837:2012

Estimated remaining contribution: estimated remaining life expectancy e.g. <10, 10+, 20+, 40+

Statutory wildlife obligations: The Wildlife and Countryside Act 1981

The Wildlife and Countryside Act 1981 as amended, the Countryside and rights of Way Act 2000 and the Conservation (Natural Habitats) Regulations 1994.

These regulations protect all wild birds and make it an offence to intentionally or recklessly disturb any wild bird listed on Schedule 1 while it is nest building, or at a nest containing eggs or young, or disturb the dependent young of such a bird.

Furthermore the Act makes it an offence (with exception to species listed in Schedule 2) to intentionally:

- kill, injure, or take any wild bird,
- take, damage or destroy the nest of any wild bird while that nest is in use or being built (also [take, damage or destroy the nest of a wild bird included in Schedule ZA1] under the Natural Environment and Rural Communities Act 2006), or
- take or destroy an egg of any wild bird

Bats are protected under Schedule 2 of the Conservation (Natural Habitats) Regulations 1994 making it an offence to damage or destroy a roost site even if the roost is not occupied at the time. The potential fines for each offence is £5000 and if more than one bat is involved in the incident then the fine can be extended to £5000 per bat. A prison sentence can be issued with offenders serving up to six months in prison.

Appendix 2

Table 1 cascade chart

Category and definition	Criteria (including subcategories where appropriate)	Identification on plan		
Trees unsuitable for retention (see Note)				
<p>Category U</p> <p>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</p>	<ul style="list-style-type: none"> • Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality <p>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7</p>	<p>1 Mainly arboricultural qualities</p>	<p>2 Mainly landscape qualities</p>	<p>3 Mainly cultural values, including conservation</p>
Trees to be considered for retention				
<p>Category A</p> <p>Trees of high quality with an estimated remaining life expectancy of at least 40 years</p>	<p>Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)</p>	<p>Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features</p>	<p>Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)</p>	
<p>Category B</p> <p>Trees of moderate quality with an estimated remaining life expectancy of at least 20 years</p>	<p>Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation</p>	<p>Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality</p>	<p>Trees with material conservation or other cultural value</p>	
<p>Category C</p> <p>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</p>	<p>Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories</p>	<p>Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits</p>	<p>Trees with no material conservation or other cultural value</p>	

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Appendix 3 Survey Schedule

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	North (m)	South (m)	East (m)	West (m)	Category	Life Exp	Comments	Recommendations	RPA-R	RPA-SqM
T1	Large-leaved Lime	Tilia platyphyllos	M	650	1	15	4	5	5	5	5	A1	40+			7.8	191
T2	Large-leaved Lime	Tilia platyphyllos	M	520	1	11	4	5	5	5	5	A1	40+			6.2	122
T3	Horse Chestnut	Aesculus hippocastanum	M	600	1	9	4	5	6	5	5	A1	40+			7.2	163
T4	Horse Chestnut	Aesculus hippocastanum	M	575	1	9	4	5	5	5	5	A1	40+			6.9	150
T5	Large-leaved Lime	Tilia platyphyllos	M	375	1	8	0.5	4	4	4	4	A1	40+			4.5	64
T6	Horse Chestnut	Aesculus hippocastanum	M	520	1	9	4	5	5	5	5	A1	40+			6.2	122
T7	Ash	Fraxinus excelsior	M	986	4	12	0.5	7	7	7	7	A2	40+	Older coppice stool.		11.8	440
T8	Ash	Fraxinus excelsior	M	860	2	15	2	7	7	7	7	A2	40+			10.3	335
T9	Ash	Fraxinus excelsior	OM	985	1	14	2	8	8	8	8	A2	40+	Notable individual.		11.8	439
T10	Ash	Fraxinus excelsior	EM	469	3	10	0	4	4	4	4	B2	40+	Ivy on stem. Unable to inspect stem due to Ivy.		5.6	100
T11	Sycamore	Acer pseudoplatanus	M	375	1	10	0	4	4	4	4	B2	40+			4.5	64
T12	Beech	Fagus sylvatica	M	880	1	18	0	7	7	7	7	A1	40+			10.6	350
T13	Beech	Fagus sylvatica	V	1007	4	18	0	9	9	9	9	A2	40+	Modified RPA likely to apply. Tag no 488.		12.1	459
T14	Beech	Fagus sylvatica	V	1083	4	18	0	9	9	9	9	A2	40+	Modified RPA likely to apply. Tag no 489.		13	531
T15	Ash	Fraxinus excelsior	M	640	3	18	0	7	7	7	7	A2	40+	Modified RPA likely to apply.		7.7	185
T16	Ash	Fraxinus excelsior	M	700	1	13	2	6	6	6	6	A1	40+	Diameter estimated.		8.4	222
T17	Ash	Fraxinus excelsior	V	1070	1	14	2	7	7	7	7	A1	40+	Tag no 369, veteran pollard.		12.8	518
T18	Ash	Fraxinus excelsior	M	950	1	14	2	8	8	8	8	A1	40+			11.4	408
T19	Ash	Fraxinus excelsior	M	1166	2	19	2	8	8	8	8	A1	40+	Veteran within mature high canopy woodland on edge of existing road of notable significance. Tag no 370.		14	615
T20	Ash	Fraxinus excelsior	M	480	1	13	2	5	5	5	5	A2	40+			5.8	104
T21	Ash	Fraxinus excelsior	M	488	2	10	0	4	4	4	4	B2	40+			5.9	108
T22	Common Oak	Quercus robur	M	850	1	14	0	7	7	7	7	A1	40+			10.2	327
T23	Ash	Fraxinus excelsior	M	970	1	8	0	4	4	4	4	A1	40+	Ash pollard.		11.6	426
T24	Sycamore	Acer pseudoplatanus	M	357	3	9	0	3	3	3	3	C2	40+	Self set regeneration.		4.3	58
T25	Sycamore	Acer pseudoplatanus	M	1040	1	16	0	7	7	7	7	A2	40+			12.5	489
T26	Sycamore	Acer pseudoplatanus	M	950	1	16	0	6	6	6	6	A2	40+			11.4	408
T27	Sycamore	Acer pseudoplatanus	M	780	1	16	0	6	6	6	6	A2	40+	Part of linear group. Large previously failure limb.		9.4	275
T28	Sycamore	Acer pseudoplatanus	M	820	1	16	0	6	6	6	6	A2	40+	Part of linear group.		9.8	304

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	North (m)	South (m)	East (m)	West (m)	Category	Life Exp	Comments	Recommendations	RPA-R	RPA-SqM
T29	Sycamore	Acer pseudoplatanus	M	1010	1	16	0	7	7	7	7	A2	40+	Part of linear group.		12.1	461
T30	Sycamore	Acer pseudoplatanus	M	945	1	16	0	6	6	6	6	A2	40+	Part of linear group.		11.3	404
T31	Large-leaved Lime	Tilia platyphyllos	M	1150	1	16	0	6	6	6	6	A2	40+	Part of linear group.		13.8	598
T32	Sycamore	Acer pseudoplatanus	M	675	1	16	0	6	6	6	6	A2	40+	Part of linear group.		8.1	206
T33	Large-leaved Lime	Tilia platyphyllos	M	675	1	16	0	6	6	6	6	A2	40+	Part of linear group.		8.1	206
T34	Sycamore	Acer pseudoplatanus	M	1200	1	16	0	7	7	7	7	A2	40+	Part of linear group.		14.4	651
T35	Large-leaved Lime	Tilia platyphyllos	SM	270	1	6	0	3	3	3	3	A2	40+	Part of linear group.		3.2	33
T36	Sycamore	Acer pseudoplatanus	M	639	5	12	0	5	5	5	5	B2	40+	Part of linear group. Included bark present in main fork.		7.7	185
T37	Sycamore	Acer pseudoplatanus	M	625	1	12	0	4	4	4	4	B2	40+	Part of linear group.		7.5	177
T38	Large-leaved Lime	Tilia platyphyllos	M	880	1	15	0	5	5	5	5	A1	40+	Part of linear group.		10.6	350
T39	Large-leaved Lime	Tilia platyphyllos	M	860	1	15	0	5	5	5	5	A1	40+	Part of linear group.		10.3	335
T40	Sycamore	Acer pseudoplatanus	M	770	1	15	0	5	5	5	5	A1	40+	Part of linear group.		9.2	268
T41	Sycamore	Acer pseudoplatanus	M	890	1	15	0	6	6	6	6	A1	40+	Part of linear group.		10.7	358
T42	Sycamore	Acer pseudoplatanus	M	980	1	15	0	6	6	6	6	A1	40+	Part of linear group.		11.8	434
T43	Sycamore	Acer pseudoplatanus	M	830	1	15	0	6	6	6	6	A1	40+	Part of linear group. Cavity on stem.		10	312
T44	Sycamore	Acer pseudoplatanus	M	680	1	15	0	5	5	5	5	A1	40+	Part of linear group.		8.2	209
T45	Large-leaved Lime	Tilia platyphyllos	M	1100	1	15	0	5	5	5	5	A1	40+	Part of linear group.		13.2	547
T46	Large-leaved Lime	Tilia platyphyllos	M	945	1	15	0	6	6	6	6	A1	40+	Part of linear group.		11.3	404
T47	Large-leaved Lime	Tilia platyphyllos	M	1200	1	15	0	8	8	8	8	A1	40+	Part of linear group.		14.4	651
T48	Large-leaved Lime	Tilia platyphyllos	M	920	1	15	0	6	6	6	6	A1	40+	Part of linear group.		11	383
T49	Sycamore	Acer pseudoplatanus	M	970	1	15	0	7	7	7	7	A1	40+	Part of linear group.		11.6	426
T50	Large-leaved Lime	Tilia platyphyllos	EM	280	1	8	0	3	3	3	3	A1	40+	Part of linear group.		3.4	35
T51	Sycamore	Acer pseudoplatanus	M	825	1	17	1	6	6	6	6	A1	40+			9.9	308

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	North (m)	South (m)	East (m)	West (m)	Category	Life Exp	Comments	Recommendations	RPA-R	RPA-SqM
T52	Beech	Fagus sylvatica	M	90	1	17	1	7	7	7	7	U	<10	Dead.	Pollard / coppice for nature conservation	1.1	4
T53	Common Oak	Quercus robur	M	1000	1	18	1	7	7	7	7	A1	40+			12	452
T54	Unknown	Unknown	M	848	6	14	1	6	6	6	6	B2	40+	Included bark present in main fork.		10.2	325
T55	English Elm	Ulmus procera	M	613	4	14	1	6	6	6	6	B2	40+	Included bark present in main fork.		7.4	170
T56	English Elm	Ulmus procera	M	375	1	10	1	3	3	3	3	U	<10		Pollard / coppice for nature conservation	4.5	64
T57	Sycamore	Acer pseudoplatanus	M	1400	1	16	1	8	8	8	8	A1	40+	Included bark present in main fork. Tag no 371 Veteran acer pollard.		15	707
T58	Small-leaved Lime	Tilia cordata	Y	280	1	8	1	2	2	2	2	A1	40+	Included bark present in main fork.		3.4	35
T59	Small-leaved Lime	Tilia cordata	Y	280	1	8	1	2	2	2	2	A1	40+	Included bark present in main fork.		3.4	35
T60	Small-leaved Lime	Tilia cordata	SM	300	1	8	1	3	3	3	3	A1	40+	Included bark present in main fork.		3.6	41
T61	Ash	Fraxinus excelsior	M	599	5	8	1	5	5	5	5	A1	40+	Included bark present in main fork.		7.2	162
T62	Ash	Fraxinus excelsior	OM	1200	1	18	1	8	8	8	8	A2	40+			14.4	651
T63	Ash	Fraxinus excelsior	M	1100	1	18	1	8	8	8	8	A2	40+			13.2	547
T64	Ash	Fraxinus excelsior	M	1100	1	18	1	5	9	8	8	A2	40+			13.2	547
T65	Ash	Fraxinus excelsior	M	600	1	12	1	5	5	5	5	A2	40+			7.2	163
T66	Ash	Fraxinus excelsior	M	900	1	12	1	6	2	6	6	U	<10	Large limb failure.	Pollard / coppice for nature conservation	10.8	366
T67	Ash	Fraxinus excelsior	M	970	1	12	1	6	6	6	4	A2	40+	Veteran pollard tag no 372.		11.6	426
T68	Ash	Fraxinus excelsior	M	660	1	12	1	6	6	6	6	A2	40+			7.9	197
T69	Ash	Fraxinus excelsior	M	780	1	12	1	6	6	6	6	A2	40+			9.4	275
T70	Ash	Fraxinus excelsior	M	565	1	11	1	5	5	5	5	A1	40+			6.8	144
T71	Sycamore	Acer pseudoplatanus	OM	1000	1	16	0	8	8	8	8	A2	40+	Part of linear group. Cavity on stem. Large previously failure limb. Older pollard.		12	452
T72	Large-leaved Lime	Tilia platyphyllos	M	984	2	15	0	5.5	6	4	7	A2	40+			11.8	438
T73	Large-leaved Lime	Tilia platyphyllos	M	980	1	15	0	5	6	6	4	A2	40+			11.8	434
T74	Ash	Fraxinus excelsior	M	675	4	12	0	5	5	5	5	B2	40+	Included bark present in main fork.		8.1	206
T75	Ash	Fraxinus excelsior	M	600	1	12	0	5	5	5	5	A2	40+	Diameter estimated.		7.2	163
T76	Ash	Fraxinus excelsior	M	700	1	12	0	6	6	6	6	A2	40+	Diameter estimated.		8.4	222
T77	Ash	Fraxinus excelsior	M	600	1	12	0	5	5	5	5	A2	40+	Diameter estimated.		7.2	163
T78	Ash	Fraxinus excelsior	M	636	2	12	0	5	5	5	5	A2	40+	Diameter estimated.		7.6	183
T79	Beech	Fagus sylvatica	M	450	1	10	0	4	4	4	4	A2	40+			5.4	92
T80	Beech	Fagus sylvatica	M	400	1	10	0	4	4	4	4	A2	40+			4.8	72
T81	Sycamore	Acer pseudoplatanus	M	566	2	12	0	6	3	6	6	A2	40+	Diameter estimated. In neighbouring property.		6.8	145

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	North (m)	South (m)	East (m)	West (m)	Category	Life Exp	Comments	Recommendations	RPA-R	RPA-SqM
T82	Sycamore	Acer pseudoplatanus	M	894	2	14	0	4	6	6	6	A2	40+	Diameter estimated.		10.7	362
T83	Beech	Fagus sylvatica	M	640	1	12	0	4	4	4	4	A2	40+			7.7	185
T84	Beech	Fagus sylvatica	M	440	1	10	0	3	3	3	3	B2	40+			5.3	88
T85	Beech	Fagus sylvatica	M	450	1	9	0	5	5	5	5	A2	40+			5.4	92
T86	Common Oak	Quercus robur	M	570	1	10	0	5	5	5	5	A2	40+			6.8	147
T87	Common Oak	Quercus robur	M	840	1	13	0	6	6	6	6	A2	40+			10.1	319
T88	Common Oak	Quercus robur	M	780	1	13	0	6	6	7	6	A2	40+			9.4	275
T89	Ash	Fraxinus excelsior	M	86	1	13	0	6	6	6	6	A2	40+			1	3
T90	Ash	Fraxinus excelsior	M	1150	1	14	0	7	7	7	7	A2	40+	Veteran ash tag no 490.		13.8	598
T91	Ash	Fraxinus excelsior	M	520	1	14	0	5	5	5	5	A2	40+			6.2	122
T92	Ash	Fraxinus excelsior	M	671	5	11	0	5	5	5	5	A2	40+			8.1	204
T93	Sycamore	Acer pseudoplatanus	M	397	6	8	0	3	3	3	3	C2	40+	Self set regeneration.		4.8	71
T94	Ash	Fraxinus excelsior	M	280	1	9	0	3	3	3	3	C2	40+	Self set regeneration.		3.4	35
T95	Goat Willow	Salix caprea	M	332	4	6	0	4	4	4	4	C2	40+	Self set regeneration.		4	50
T96	Horse Chestnut	Aesculus hippocastanum	M	1000	1	15	0	9	3	8	8	B2	40+	Unbalanced crown shape. Crown distorted due to group pressure.		12	452
T97	Beech	Fagus sylvatica	M	987	3	10	0	6	6	4	6	A1	40+	Part of linear group. Beech coppice of significance.		11.8	441
T98	Beech	Fagus sylvatica	M	1960	1	14	0	10	9	10	9	A1	40+	Part of linear group. Beech coppice of high significance. Veteran tag no 373.		15	707
T99	Ash	Fraxinus excelsior	M	290	1	9	0	3	3	3	3	B2	40+	Self set regeneration.		3.5	38
T100	Ash	Fraxinus excelsior	M	296	5	9	0	3	3	3	3	B2	40+	Self set regeneration.		3.6	40
T101	Beech	Fagus sylvatica	M	710	1	18	0	5	5	7	5	A2	40+	Part of linear group.		8.5	228
T102	Beech	Fagus sylvatica	M	710	1	18	0	5	3	7	2	U	40+	Part of linear group. Decay present on stem. Fungal brackets visible on stem.	Pollard / coppice for nature conservation	8.5	228
T103	Ash	Fraxinus excelsior	M	450	1	11	0	5	3	5	5	B2	40+	Part of linear group.		5.4	92
T104	Ash	Fraxinus excelsior	M	375	1	11	0	3	6	5	5	B2	40+	Part of linear group.		4.5	64
T105	Ash	Fraxinus excelsior	M	425	1	11	0	3	5	5	5	B2	40+	Part of linear group.		5.1	82
T106	Ash	Fraxinus excelsior	M	442	2	11	0	6	3	5	5	B2	40+	Part of linear group.		5.3	88
T107	Leyland Cypress	X Cupressocyparis leylandii	M	630	1	13	0	4	4	4	4	B2	40+	Domestic planting.		7.6	180
T108	Ash	Fraxinus excelsior	V	1090	1	13	0	7	7	7	7	A1	40+	Veteran pollard tag no 491.		13.1	537
T109	Beech	Fagus sylvatica	M	1250	1	20	1	9	9	9	9	A1	40+	Part of linear group. Veteran beech tag no 491.		15	707
T110	Bird Cherry	Prunus padus	M	450	1	10	1	4	4	4	4	C2	20+	Part of linear group.		5.4	92
T111	Silver Birch	Betula pendula	M	375	1	11	1	4	4	4	4	B2	40+			4.5	64
T112	Silver Birch	Betula pendula	M	400	1	11	1	4	4	4	4	B2	40+			4.8	72
T113	Crab Apple	Malus sylvestris	SM	212	2	5	1	2	2	2	2	C2	20+			2.5	20
T114	Ash	Fraxinus excelsior	M	605	2	10	1	4	4	4	4	B2	20+	Included bark present in main fork.		7.3	166
T115	Common Oak	Quercus robur	M	770	1	11	0	7	7	7	7	A1	40+			9.2	268
T116	Field Maple	Acer campestre	M	350	1	8	0	3	3	3	3	A1	40+			4.2	55
T117	Common Oak	Quercus robur	M	550	1	10	0	5	5	5	5	A1	40+			6.6	137

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	North (m)	South (m)	East (m)	West (m)	Category	Life Exp	Comments	Recommendations	RPA-R	RPA-SqM
T118	Common Oak	Quercus robur	M	520	1	10	0	4	4	4	4	A1	40+			6.2	122
T119	Field Maple	Acer campestre	M	441	5	7	0	3	3	3	3	A1	40+			5.3	88
T120	Field Maple	Acer campestre	M	466	6	7	0	3	3	3	3	A1	40+			5.6	98
T121	Ash	Fraxinus excelsior	M	524	3	9	0	4	4	4	4	A1	40+	Included bark present in main fork.		6.3	124
T122	English Elm	Ulmus procera	M	909	6	10	0	5	5	5	5	A2	40+	Included bark present in main fork.		10.9	374
T123	Ash	Fraxinus excelsior	M	300	1	9	0	3	3	3	3	B2	40+			3.6	41
T124	English Elm	Ulmus procera	M	461	2	9	0	3	3	3	3	U	<10	Dieback in crown. Low bud/leaf density.	Pollard / coppice for nature conservation	5.5	96
T125	Common Oak	Quercus robur	OM	900	1	13	0	6	6	6	6	C2	10+	Cavity on stem. Major bark wounding on stem. Not found on plan. Plotted by eye on plan.		10.8	366
T126	Beech	Fagus sylvatica	V	1200	1	13	0	8	8	8	8	A1	40+	Part of linear group. Growing inside fenced highway boundry. Tag no 492.		14.4	651
T127	Beech	Fagus sylvatica	V	1140	1	15	0	8	8	8	8	A1	40+	Part of linear group. Exudation on stem. Growing inside fenced highway boundry. Tag no 493.		13.7	588
T128	Beech	Fagus sylvatica	M	1050	1	15	0	8	8	8	8	A1	40+	Part of linear group. Growing inside fenced highway boundry.		12.6	499
T129	Silver Birch	Betula pendula	M	636	2	13	0	6	6	6	6	A2	40+	Part of linear group.		7.6	183
T130	Silver Birch	Betula pendula	M	636	2	13	0	4	4	4	4	A2	40+	Part of linear group.		7.6	183
T131	Japanese Larch	Larix kaempferi	M	450	1	13	0	4	4	4	4	A2	40+	Part of linear group.		5.4	92
T132	Ash	Fraxinus excelsior	M	820	1	17	0	7	7	7	7	A2	40+	Part of linear group.		9.8	304
T133	Ash	Fraxinus excelsior	M	740	1	17	0	7	7	7	7	A2	40+	Part of linear group.		8.9	248
T134	Ash	Fraxinus excelsior	M	673	2	17	0	5	7	7	7	A2	40+	Part of linear group.		8.1	205
T135	Apple	Malus	M	566	3	8	0	4	4	2	4	B2	40+	Ornamental planting in verge.		6.8	145
T136	Goat Willow	Salix caprea	M	621	5	10	0	4	4	2	4	B2	40+	Ornamental planting in verge.		7.5	174
T137	Sycamore	Acer pseudoplatanus	M	620	1	12	0	5	5	5	5	B1	40+			7.4	174
T138	Apple	Malus	M	450	1	9	0	3	3	3	3	C1	20+	Mistletoe.		5.4	92
T139	Apple	Malus	M	400	1	6	0	2	2	2	2	U	<10	Cavity on stem.	Pollard / coppice for nature conservation	4.8	72
T140	Silver Birch	Betula pendula	M	300	1	10	0	3	3	3	3	B1	20+	Private trees growing in gardeen.		3.6	41
T141	Horse Chestnut	Aesculus hippocastanum	M	920	1	18	0	6	6	6	6	A1	40+	Part of linear group.		11	383
T142	Sessile Oak	Quercus petraea	M	610	1	12	0	5	5	5	5	A1	40+	Part of linear group.		7.3	168
T143	Beech	Fagus sylvatica	M	1200	1	18	0	8	8	8	8	A1	40+	Part of linear group. Notable individual.		14.4	651
T144	Common Oak	Quercus robur	M	840	1	15	0	7	7	7	7	A1	40+	Part of linear group. Notable individual.		10.1	319
T145	Common Oak	Quercus robur	M	1010	1	16	0	8	8	8	8	A1	40+	Part of linear group. Decay present on stem. Fungal brackets visible on stem. Notable individual.		12.1	461

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	North (m)	South (m)	East (m)	West (m)	Category	Life Exp	Comments	Recommendations	RPA-R	RPA-SqM
T146	Beech	Fagus sylvatica	M	450	1	10	0	5	5	5	5	B1	40+	Part of linear group.		5.4	92
T147	Common Oak	Quercus robur	M	690	1	12	0	6	6	6	6	B1	40+	Part of linear group. Major deadwood in crown.		8.3	215
T148	Sycamore	Acer pseudoplatanus	M	940	1	12	0	7	7	7	7	A2	40+	Part of linear group.		11.3	400
T149	Sycamore	Acer pseudoplatanus	M	488	6	12	0	5	5	5	5	B2	40+	Part of linear group. Ivy on stem. Unable to inspect stem due to Ivy. Multiple stems at ground level. Included bark present in main fork. Self set regeneration.		5.9	108
T150	Sycamore Ash Norway Maple English Elm	Acer pseudoplatanus, Fraxinus excelsior, Acer platanoides, Ulmus procera	M	637	8	12	0	5	5	5	5	B2	40+	Part of linear group. Ivy on stem. Unable to inspect stem due to Ivy. Multiple stems at ground level. Included bark present in main fork. Self set regeneration.		7.6	184
T151	Sycamore	Acer pseudoplatanus	M	600	1	12	0	4	4	4	4	B2	40+	Part of linear group. Ivy on stem. Unable to inspect stem due to Ivy.		7.2	163
T152	Ash	Fraxinus excelsior	M	300	1	8	0	3	3	3	3	B2	40+	Part of linear group. Self set regeneration.		3.6	41
T153	Beech	Fagus sylvatica	SM	350	1	8	0	4	4	4	4	B2	40+			4.2	55
T154	Beech	Fagus sylvatica	M	1100	1	18	0	9	9	9	9	A1	40+	Adjacent to site.		13.2	547
T155	Beech	Fagus sylvatica	M	375	1	12	0	4	4	4	4	A1	40+			4.5	64
T156	Common Oak	Quercus robur	M	260	1	10	0	3	3	3	3	A1	40+			3.1	31
T157	Ash	Fraxinus excelsior	V	1020	1	19	0	7	9	7	7	A1	40+	Veteran pollard tag no 493.		12.2	471
T158	Common Oak	Quercus robur	M	725	1	14	0	7	7	7	7	A1	40+			8.7	238
T159	Ash	Fraxinus excelsior	V	1190	1	19	0	6	6	6	6	A1	40+	Decay present on stem. Fungal brackets visible on stem. Veteran pollard tag no 494.		14.3	641
T160	Common Oak	Quercus robur	M	860	1	10	0	6	6	6	6	A1	40+			10.3	335
T161	Common Oak	Quercus robur	M	870	1	12	0	6	6	6	6	B1	40+	Decay present on stem. Fungal brackets visible on stem.		10.4	342
T162	Common Oak	Quercus robur	M	745	1	12	0	6	6	6	6	A1	40+			8.9	251
T163	Common Oak	Quercus robur	M	920	1	12	0	7	7	7	7	A1	40+			11	383
T164	Sycamore	Acer pseudoplatanus	M	836	10	10	0	6	6	6	6	B2	40+	Multiple stems at ground level. Included bark present in main fork. Self set regeneration.		10	316
T165	Beech	Fagus sylvatica	M	1613	10	10	0	5	5	5	5	A2	40+			15	707
T166	Beech	Fagus sylvatica	M	762	5	10	0	5	5	5	5	B2	40+	Coppice		9.1	263
T167	Corsican Pine	Pinus nigra 'maritima'	M	740	1	17	0	6	6	6	6	A1	40+			8.9	248
T168	Beech	Fagus sylvatica	M	1000	1	17	0	8	8	8	8	A1	40+			12	452
T169	Ash	Fraxinus excelsior	M	900	1	17	0	7	7	7	7	B2	20+	Dieback in crown. Broken branches in crown. Major deadwood in crown.		10.8	366
T170	Beech	Fagus sylvatica	M	600	1	17	0	6	6	6	6	A1	40+			7.2	163

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	North (m)	South (m)	East (m)	West (m)	Category	Life Exp	Comments	Recommendations	RPA-R	RPA-SqM
T171	Hawthorn	Crataegus monogyna	M	830	1	10	0	5	5	5	5	A1	40+	Part of linear group. Veteran tag no 494.		10	312
T172	Beech	Fagus sylvatica	M	1950	1	20	0	10	10	10	10	A1	40+	Part of linear group. Veteran tag no 495.		15	707
T173	Common Oak	Quercus robur	M	970	1	16	0	8	8	8	8	A1	40+	Open grown.		11.6	426
T174	Beech	Fagus sylvatica	M	1680	1	21	0	9	9	9	9	C2	10+	Decay present on stem. Fungal brackets visible on stem. Veteran pollard tag no 495.		15	707
T175	Beech	Fagus sylvatica	M	1020	1	18	0	7	7	7	7	A2	40+			12.2	471
T176	Common Oak	Quercus robur	M	960	1	15	0	6	6	6	6	A1	40+			11.5	417
T177	Common Oak	Quercus robur	M	800	1	15	0	7	7	7	7	A1	40+			9.6	290
T178	Ash	Fraxinus excelsior	M	920	1	14	0	6	6	6	6	A2	40+	Cavity on stem.		11	383
T179	Ash	Fraxinus excelsior	M	1000	1	15	0	8	8	8	8	A2	40+			12	452
T180	Common Oak	Quercus robur	M	900	1	15	0	8	8	8	8	A2	40+	Dieback in crown.		10.8	366
T181	Ash	Fraxinus excelsior	M	900	1	15	0	8	8	8	8	A2	40+			10.8	366
T182	Common Oak	Quercus robur	M	800	1	15	0	8	8	8	8	A2	40+			9.6	290
T183	Ash	Fraxinus excelsior	M	800	1	15	0	8	8	8	8	A2	40+			9.6	290
T184	Ash	Fraxinus excelsior	M	900	1	15	0	8	8	8	8	A2	40+			10.8	366
T185	Common Oak	Quercus robur	M	1000	1	15	0	8	8	8	8	A2	40+			12	452
T186	Common Oak	Quercus robur	M	950	1	15	0	8	8	8	8	A2	40+			11.4	408
T187	Crack Willow	Salix fragilis	M	1500	1	12	0	10	10	10	10	A2	40+	Veteran pollard tag 496.		15	707
T188	Ash	Fraxinus excelsior	V	1500	1	16	0	8	3	6	6	A1	40+	Veteran pollard tag no 496.Diameter estimated.		15	707
T189	Ash	Fraxinus excelsior	V	1200	1	16	0	4	9	8	8	A1	40+	Veteran pollard tag no 496.Diameter estimated.		14.4	651
T190	Common Oak	Quercus robur	M	1600	1	11	0	7	7	7	7	A1	40+	Large oak veteran tag no 497.		15	707
T191	Ash	Fraxinus excelsior	M	1000	1	15	0	7	7	7	7	A1	40+			12	452
T192	Silver Maple	Acer saccharinum	M	964	6	15	0	7	7	7	7	B2	40+	Multiple stems at ground level. Included bark present in main fork. Coppice stool.		11.6	420
T193	Cappadocian Maple	Acer cappadocicum	M	727	4	10	0	5	5	5	5	A1	40+	Mature tree.		8.7	239
T194	Sycamore	Acer pseudoplatanus	M	930	1	20	0	8	5	7	7	B2	40+	Decay present on stem. Fungal brackets visible on stem.		11.2	391
T195	Horse Chestnut	Aesculus hippocastanum	M	1025	1	16	0	5	8	7	7	A2	40+			12.3	475
T196	London Plane	Platanus X hispanica	M	860	1	16	0	7	7	4	4	A2	40+			10.3	335
T197	Horse Chestnut	Aesculus hippocastanum	M	1015	1	18	0	7	7	4	8	A2	40+			12.2	466
T198	Ash Common Oak	Fraxinus excelsior, Quercus robur	M	500	1	12	0	6	6	6	6	A2	40+			6	113
T199	Beech	Fagus sylvatica	M	500	1	12	0	6	6	6	6	A2	40+			6	113
T200	Beech	Fagus sylvatica	M	500	1	12	0	6	6	6	6	A2	40+	Diameter estimated. In neighbouring property.		6	113

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	North (m)	South (m)	East (m)	West (m)	Category	Life Exp	Comments	Recommendations	RPA-R	RPA-SqM
T201	Yew	Taxus baccata	M	400	1	9	0	4	4	4	4	A2	40+	Diameter estimated. In neighbouring property.		4.8	72
T202	Magnolia	Magnolia	M	300	1	7	0	3	3	3	3	B1	40+	Diameter estimated. In neighbouring property.		3.6	41
T203	Ash	Fraxinus excelsior	M	450	1	11	0	5	5	5	5	B2	40+	Diameter estimated. In neighbouring property.		5.4	92
T204	Ash	Fraxinus excelsior	M	800	1	15	0	6	6	6	6	A1	40+	In neighbouring property.		9.6	290
T205	Sycamore	Acer pseudoplatanus	V	1100	1	20	0	6	6	6	6	A2	40+	Veteran pollard tag no 497. Not found on plan. Plotted by eye on plan.		13.2	547
T206	Hybrid Black Poplar	Populus serotina	M	1100	1	20	0	9	9	9	9	C2	20+	Broken branches in crown. Low arboricultural value.		13.2	547
T207	Ash	Fraxinus excelsior	M	1146	3	18	0	9	9	9	9	A2	20+	Multiple stems at ground level. Included bark present in main fork.		13.8	594
T208	Sycamore	Acer pseudoplatanus	M	1121	10	12	0	8	8	8	8	B2	40+	Multiple stems at ground level. Included bark present in main fork.		13.5	568
T209	Ash Sycamore	Fraxinus excelsior, Acer pseudoplatanus	M	602	2	12	0	6	6	6	6	B2	20+	Multiple stems at ground level. Included bark present in main fork.		7.2	164
T210	Sycamore	Acer pseudoplatanus	M	875	1	16	0	7	7	7	7	B2	20+	Ivy on stem. Unable to inspect stem due to ivy.		10.5	346
T211	Ash	Fraxinus excelsior	OM	1204	2	18	0	10	10	10	10	U	<10	Split main stem from bark inclusion.	Pollard / coppice for nature conservation	14.4	656
T212	Beech	Fagus sylvatica	M	1000	1	18	0	8	8	8	8	A2	40+	Notable individual		12	452
G1	Large-leaved Lime Sycamore Field Maple Hazel Italian Alder English Elm	Tilia platyphyllos, Acer pseudoplatanus, Acer campestre, Corylus avellana, Alnus cordata, Ulmus procera	EM	250	1	9	0.5	3	3	3	3	A2	40+	Recently planted landscape buffer species.		3	28
G2	Sycamore Hazel English Elm Hawthorn	Acer pseudoplatanus, Corylus avellana, Ulmus procera, Crataegus monogyna	EM	200	1	6	0.5	3	3	3	3	B2	20+	Sparse hedge.		2.4	18
G3	Large-leaved Lime Sycamore Field Maple Hazel Italian Alder English Elm	Tilia platyphyllos, Acer pseudoplatanus, Acer campestre, Corylus avellana, Alnus cordata, Ulmus procera	EM	250	1	9	2	2	2	2	2	A2	40+	Recently planted landscape buffer species.		3	28

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G4	Hazel English Elm Ash Common Oak Blackthorn	Corylus avellana, Ulmus procera, Fraxinus excelsior, Quercus robur, Prunus spinosa	EM	300	1	10	2	3	2	2	2	A2	40+	Recently planted landscape buffer species.		3.6	41
G5	Ash Sycamore Large-leaved Lime English Elm Wild Cherry Blackthorn Common Oak	Fraxinus excelsior, Acer pseudoplatanus, Tilia platyphyllos, Ulmus procera, Prunus avium, Prunus spinosa, Quercus robur	EM	250	1	10	2	3	3	3	3	A2	40+	Large linear feature.		3	28
G6	Ash Sycamore Bird Cherry Field Maple Hawthorn	Fraxinus excelsior, Acer pseudoplatanus, Prunus padus, Acer campestre, Crataegus monogyna	EM	300	1	10	0	3	3	3	3	B2	40+	Ash canker present.		3.6	41
G7	Ash Sycamore Bird Cherry Field Maple Hawthorn	Fraxinus excelsior, Acer pseudoplatanus, Prunus padus, Acer campestre, Crataegus monogyna	EM	300	1	10	0	3	3	3	3	B2	40+	Ash canker present.		3.6	41
G8	Ash Sycamore Bird Cherry Field Maple Hawthorn	Fraxinus excelsior, Acer pseudoplatanus, Prunus padus, Acer campestre, Crataegus monogyna	EM	300	1	10	0	3	3	3	3	B2	40+	Ash canker present.		3.6	41
G9	Ash	Fraxinus excelsior	M	496	2	10	0	5	5	5	5	A2	40+			6	111
G10	Hawthorn Bird Cherry Hazel Ash	Crataegus monogyna, Prunus padus, Corylus avellana, Fraxinus excelsior	M	300	1	12	0	4	4	4	4	A2	40+	Landscape buffer planting.		3.6	41

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G11	Large-leaved Lime Sycamore Field Maple Hazel Italian Alder English Elm Austrian Pine	Tilia platyphyllos, Acer pseudoplatanus, Acer campestre, Corylus avellana, Alnus cordata, Ulmus procera, Pinus nigra	EM	250	1	9	2	2	2	2	2	A2	40+	Recently planted landscape buffer species.		3	28
G12	Field Maple Hazel Beech	Acer campestre, Corylus avellana, Fagus sylvatica	EM	200	1	9	2	2	2	2	2	B2	40+	Recently planted landscape buffer species.		2.4	18
G13	Hawthorn	Crataegus monogyna	M	250	1	8	2	3	3	3	3	B1	40+			3	28
G14	Hawthorn	Crataegus monogyna	M	275	1	6	2	3.5	3.5	3.5	3.5	B1	40+			3.3	34
G15	Hawthorn Ash Common Oak Scots Pine	Crataegus monogyna, Fraxinus excelsior, Quercus robur, Pinus sylvestris	M	275	1	9	2	3	3	3	3	A2	40+	Landscape buffer planting.		3.3	34
G16	Hawthorn Ash Common Oak Scots Pine	Crataegus monogyna, Fraxinus excelsior, Quercus robur, Pinus sylvestris	M	275	1	9	2	3	3	3	3	A2	40+	Landscape buffer planting.		3.3	34
G17	Ash Hawthorn Goat Willow	Fraxinus excelsior, Crataegus monogyna, Salix caprea	Y	150	1	7	2	3	3	3	3	C2	20+	Woodland regeneration, young trees.		1.8	10
G18	Ash Hawthorn Sycamore Beech Goat Willow	Fraxinus excelsior, Crataegus monogyna, Acer pseudoplatanus, Fagus sylvatica, Salix caprea	SM	200	1	10	2	3	3	3	3	B2	20+	Woodland regeneration from adjacent high canopy trees of less significance than W3 (adjacent). Occasional dead tree.		2.4	18
G19	Hawthorn Ash Common Oak Scots Pine Beech Yew	Crataegus monogyna, Fraxinus excelsior, Quercus robur, Pinus sylvestris, Fagus sylvatica, Taxus baccata	M	400	1	13	2	4	4	4	4	A2	40+	Established landscape buffer planting on edge of existing road of significance. RPA modified will act as barrier.		4.8	72
G20	Ash Hawthorn Hazel	Fraxinus excelsior, Crataegus monogyna, Corylus avellana	M	325	1	10	0	3	3	3	3	B2	40+	Established woodland area mainly hazel.		3.9	48

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G21	Hawthorn Ash English Elm Hazel Beech	Crataegus monogyna, Fraxinus excelsior, Ulmus procera, Corylus avellana, Fagus sylvatica	SM	375	1	10	0	3	3	3	3	B2	40+	Established linear feature.		4.5	64
G22	Hawthorn Ash Hazel Leyland Cypress	Crataegus monogyna, Fraxinus excelsior, Corylus avellana, X Cupressocyparis leylandii	EM	150	1	6	0	2	2	2	2	B2	40+	Recently planted.		1.8	10
G23	Ash Blackthorn Large-leaved Lime Lombardy Poplar	Fraxinus excelsior, Prunus spinosa, Tilia platyphyllos, Populus nigra 'Italica'	SM	250	1	7	0	2	2	2	2	B2	40+	Young trees.		3	28
G24	Hawthorn	Crataegus monogyna	M	300	1	8	0	3	3	3	3	B2	40+			3.6	41
G25	Hawthorn	Crataegus monogyna	M	300	1	8	0	3	3	3	3	B2	40+			3.6	41
G26	Hawthorn Leyland Cypress Sycamore	Crataegus monogyna, X Cupressocyparis leylandii, Acer pseudoplatanus	M	350	1	9	0	3	3	3	3	C2	40+	Windbreak planted trees of low arboricultural values.		4.2	55
G27	Sycamore Goat Willow	Acer pseudoplatanus, Salix caprea	SM	250	1	9	0	2	2	2	2	C2	40+	Self set regeneration.		3	28
G28	Sycamore	Acer pseudoplatanus	M	491	3	12	1	4	4	4	4	B2	40+	Included bark present in main fork.		5.9	109
G29	Sycamore Large-leaved Lime Hawthorn	Acer pseudoplatanus, Tilia platyphyllos, Crataegus monogyna	SM	150	1	6	1	2	2	2	2	B2	20+			1.8	10
G30	Ash Hawthorn Blackthorn	Fraxinus excelsior, Crataegus monogyna, Prunus spinosa	SM	250	1	8	1	3	3	3	3	B2	40+			3	28
G31	Ash Common Lime	Fraxinus excelsior, Tilia X europaea	EM	220	1	7	1	3	3	3	3	A2	40+			2.6	22
G32	Hawthorn	Crataegus monogyna	SM	200	1	5	1	2	2	2	2	B2	20+	Self set regeneration.		2.4	18

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G33	Hawthorn	Crataegus monogyna	M	325	1	7	1	3	3	3	3	B2	40+			3.9	48
G34	Hawthorn	Crataegus monogyna	M	410	2	7	1	4	4	4	4	B2	40+			4.9	76
G35	Elder Scots Pine Ash Hawthorn Japanese Larch	Sambucus nigra, Pinus sylvestris, Fraxinus excelsior, Crataegus monogyna, Larix kaempferi	M	400	1	12	1	3	3	3	3	B2	40+	Woodland appears on and off site.		4.8	72
G36	Cherry Laurel	Prunus laurocerasus	SM	150	1	5	1	2	2	2	2	C2	20+	Incongruent ornamental planting.		1.8	10
G37	Leyland Cypress	X Cupressocyparis leylandii Castlewellan Gold	SM	200	1	5	1	2	2	2	2	C2	20+	Incongruent ornamental planting.		2.4	18
G38	Hawthorn	Crataegus monogyna	SM	250	1	6	1	2	2	2	2	B2	40+			3	28
G39	Sycamore	Acer pseudoplatanus	M	325	1	12	0	3	3	3	3	B2	40+			3.9	48
G40	Ash Hawthorn Blackthorn Hazel Beech Field Maple	Fraxinus excelsior, Crataegus monogyna, Prunus spinosa, Corylus avellana, Fagus sylvatica, Acer campestre	M	150	1	10	0	3	3	3	3	A2	40+	Landscape buffer plantings.		1.8	10
G41	Ash Sycamore Hawthorn Field Maple Japanese Larch	Fraxinus excelsior, Acer pseudoplatanus, Crataegus monogyna, Acer campestre, Larix kaempferi	M	300	1	10	0	3	3	3	3	A2	40+	Large linear feature containing landscape buffer planting.		3.6	41
G42	Ash Sycamore Hawthorn Field Maple Beech	Fraxinus excelsior, Acer pseudoplatanus, Crataegus monogyna, Acer campestre, Fagus sylvatica	M	800	1	13	0	6	6	6	6	A2	40+	Established woodland with high canopy beech mature.		9.6	290

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G43	Ash Sycamore Hawthorn Field Maple Beech	Fraxinus excelsior, Acer pseudoplatanus, Crataegus monogyna, Acer campestre, Fagus sylvatica	M	300	1	10	0	3	3	3	3	A2	40+	Establishing landscape buffer planting.		3.6	41
G44	Sycamore	Acer pseudoplatanus	M	566	2	12	0	4	4	4	4	B2	40+	Included bark present in main fork.		6.8	145
G45	Blackthorn Field Maple English Elm Ash	Prunus spinosa, Acer campestre, Ulmus procera, Fraxinus excelsior	SM	200	1	6	0	3	3	3	3	B2	40+	Young trees and sparse regeneration.		2.4	18
G46	Blackthorn Field Maple English Elm Ash Wild Cherry Goat Willow	Prunus spinosa, Acer campestre, Ulmus procera, Fraxinus excelsior, Prunus avium, Salix caprea	SM	200	1	6	0	3	3	3	3	B2	40+	Young trees and sparse regeneration.		2.4	18
G47	Blackthorn Field Maple English Elm Ash Wild Cherry Goat Willow	Prunus spinosa, Acer campestre, Ulmus procera, Fraxinus excelsior, Prunus avium, Salix caprea	SM	200	1	6	0	3	3	3	3	B2	40+	Young trees and sparse regeneration.		2.4	18
G48	Blackthorn Field Maple English Elm Ash Wild Cherry Goat Willow	Prunus spinosa, Acer campestre, Ulmus procera, Fraxinus excelsior, Prunus avium, Salix caprea	SM	200	1	6	0	3	3	3	3	B2	40+	Young trees and sparse regeneration.		2.4	18
G49	Blackthorn Field Maple Ash European Larch	Prunus spinosa, Acer campestre, Fraxinus excelsior, Larix decidua	M	300	1	10	0	3	3	3	3	A2	40+	Landscape buffer planting.		3.6	41
G50	Blackthorn Field Maple Ash Sycamore	Prunus spinosa, Acer campestre, Fraxinus excelsior, Acer pseudoplatanus	EM	300	1	9	0	2	2	2	2	A2	40+	Young landscape buffer planting.		3.6	41

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G51	Blackthorn Field Maple Ash Sycamore Hazel Common Alder Common Oak	Prunus spinosa, Acer campestre, Fraxinus excelsior, Acer pseudoplatanus, Corylus avellana, Alnus glutinosa, Quercus robur	M	300	1	10	0	3	3	3	3	A2	40+	Young landscape buffer planting forming copse.		3.6	41
G52	Sycamore	Acer pseudoplatanus	M	640	2	15	0	5	5	5	5	B2	40+	Part of linear group. Included bark present in main fork. Unbalanced crown shape. Crown distorted due to group pressure.		7.7	185
G53	Hawthorn Goat Willow	Crataegus monogyna, Salix caprea	M	220	1	6	0	3	3	3	3	C2	40+	Unmanaged hedge.		2.6	22
G54	Hawthorn Goat Willow Silver Birch Sycamore Field Maple Common Alder Whitebeam	Crataegus monogyna, Salix caprea, Betula pendula, Acer pseudoplatanus, Acer campestre, Alnus glutinosa, Sorbus aria	SM	200	1	9	0	3	3	3	3	B2	40+	Landscape buffer planting.		2.4	18
G55	Japanese Larch Hazel Sycamore Ash	Larix kaempferi, Corylus avellana, Acer pseudoplatanus, Fraxinus excelsior	SM	200	1	9	0	3	3	3	3	B2	40+	Part of linear group. Landscape buffer planting.		2.4	18
G56	Hazel Sycamore Ash Goat Willow Beech	Corylus avellana, Acer pseudoplatanus, Fraxinus excelsior, Salix caprea, Fagus sylvatica	EM	180	1	9	0	3	3	3	3	B2	40+	Part of linear group.		2.2	15
G57	Hazel Sycamore Ash Goat Willow Beech Japanese Larch	Corylus avellana, Acer pseudoplatanus, Fraxinus excelsior, Salix caprea, Fagus sylvatica, Larix kaempferi	SM	200	1	10	0	3	3	3	3	B2	40+	Part of linear group. Landscape buffer planting.		2.4	18

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G58	Hazel Sycamore Goat Willow Beech	Corylus avellana, Acer pseudoplatanus, Fraxinus excelsior, Salix caprea, Fagus sylvatica	EM	170	1	6	0	2	2	2	2	C2	40+	Self set regeneration.		2	13
G59	Beech	Fagus sylvatica	M	575	1	12	0	4	4	4	4	A2	40+	Formal planting - double row linear feature.		6.9	150
G60	Hawthorn	Crataegus monogyna	M	283	2	5	0	3	3	3	3	B2	40+	Self set regeneration.		3.4	36
G61	Leyland Cypress Italian Alder Atlantic Cedar Field Maple	X Cupressocyparis leylandii, Alnus cordata, Cedrus libani atlantica, Acer campestre	M	400	1	10	0	4	4	4	4	B2	40+	Domestic planting.		4.8	72
G62	Leyland Cypress Italian Alder Atlantic Cedar Field Maple Sycamore	X Cupressocyparis leylandii, Alnus cordata, Cedrus libani atlantica, Acer campestre, Acer pseudoplatanus	M	450	1	10	0	4	4	4	4	B2	40+	Domestic planting scattered deadwood throughout garden.		5.4	92
G63	Italian Alder Sycamore Field Maple Wild Cherry	Alnus cordata, Acer pseudoplatanus, Acer campestre, Prunus avium	M	400	1	10	0	4	4	4	4	B2	40+	Domestic windbreak planting.		4.8	72
G64	Hawthorn Blackthorn	Crataegus monogyna, Prunus spinosa	M	300	1	6	0	3	3	3	3	B2	40+	Thorn shrub developed on hill side.		3.6	41
G65	Hawthorn Elder	Crataegus monogyna, Sambucus nigra	M	200	1	6	1	2	2	2	2	C2	20+	Part of linear group.		2.4	18
G66	Bird Cherry Field Maple Beech	Prunus padus, Acer campestre, Fagus sylvatica	M	325	1	10	1	2	2	2	2	A2	40+	Part of linear group. Landscape buffer planting.		3.9	48
G69	Silver Birch Hawthorn Ash	Betula pendula, Crataegus monogyna, Fraxinus excelsior	M	350	1	9	1	3	3	3	3	B2	20+	Self set regeneration.		4.2	55
G70	Hawthorn Elder	Crataegus monogyna, Sambucus nigra	SM	200	1	5	1	2	2	2	2	C2	20+	Self set regeneration.		2.4	18

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G71	Hawthorn Elder Blackthorn	Crataegus monogyna, Sambucus nigra, Prunus spinosa	SM	200	1	5	1	2	2	2	2	C2	20+	Self set regeneration.		2.4	18
G72	Ash Hawthorn Blackthorn Hazel Field Maple English Elm Common Oak	Fraxinus excelsior, Crataegus monogyna, Prunus spinosa, Corylus avellana, Acer campestre, Ulmus procera, Quercus robur	M	250	1	6	0	2	2	2	2	B2	40+	Larger area of scrub woodland.		3	28
G73	Ash	Fraxinus excelsior	SM	200	1	8	0	3	3	3	3	B2	40+	Domestic planting.		2.4	18
G74	Ash Silver Birch Sycamore	Fraxinus excelsior, Betula pendula, Acer pseudoplatanus	M	300	1	8	0	4	4	4	4	B2	40+	Domestic planting.		3.6	41
G75	Ash Sycamore Beech	Fraxinus excelsior, Acer pseudoplatanus, Fagus sylvatica	SM	200	1	10	0	2	2	2	2	B2	40+	Landscape buffer planting.		2.4	18
G76	Common Oak Ash Field Maple Blackthorn Wild Cherry	Quercus robur, Fraxinus excelsior, Acer campestre, Prunus spinosa, Prunus avium	SM	200	1	9	0	3	3	3	3	B2	40+	Part of linear group. Landscape buffer planting.		2.4	18
G77	Japanese Larch Ash Field Maple	Larix kaempferi, Fraxinus excelsior, Acer campestre	M	250	1	13	0	3	3	3	3	B2	40+	Part of linear group. Landscape buffer planting.		3	28
G78	Common Oak Ash Field Maple Blackthorn Wild Cherry Japanese Larch	Quercus robur, Fraxinus excelsior, Acer campestre, Prunus spinosa, Prunus avium, Larix kaempferi	SM	200	1	9	0	3	3	3	3	B2	40+	Part of linear group. Landscape buffer planting.		2.4	18
G79	Ash	Fraxinus excelsior	EM	200	1	9	0	2	2	2	2	B2	40+	Part of linear group. Self set regeneration.		2.4	18
G80	Beech	Fagus sylvatica	M	600	1	18	0	4	4	4	4	A2	40+	Part of linear group. Growing inside fenced highway boundry.		7.2	163
G81	Beech Ash Common Oak English Elm	Fagus sylvatica, Fraxinus excelsior, Quercus robur, Ulmus procera	M	450	1	13	0	3	3	3	3	A2	40+	Part of linear group. Growing inside fenced highway boundry. Maturing landscape buffer planting.		5.4	92

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	North (m)	South (m)	East (m)	West (m)	Category	Life Exp	Comments	Recommendations	RPA-R	RPA-SqM
G82	Ash Hawthorn Blackthorn Goat Willow Common Oak	Fraxinus excelsior, Crataegus monogyna, Prunus spinosa, Salix caprea, Quercus robur	M	250	1	6	0	2	2	2	2	B2	40+	Part of linear group. Large area containing sparse self set regeneration located on steep banking.		3	28
G83	Ash Hawthorn Blackthorn Goat Willow Common Oak English Elm Hazel Wild Cherry Beech Japanese Larch	Fraxinus excelsior, Crataegus monogyna, Prunus spinosa, Salix caprea, Quercus robur, Ulmus procera, Corylus avellana, Prunus avium, Fagus sylvatica, Larix kaempferi	M	250	1	9	0	3	3	3	3	A2	40+	Part of linear group. Landscape buffer planting.		3	28
G84	Ash	Fraxinus excelsior	M	600	1	13	0	5	5	5	5	A2	40+	Part of linear group.		7.2	163
G85	Ash Silver Birch	Fraxinus excelsior, Betula pendula	Y	150	1	5	0	2	2	2	2	C2	40+	Self set regeneration growing on verge embankment.		1.8	10
G86	Ash	Fraxinus excelsior	M	450	1	12	0	4	4	4	4	B2	40+	Self set regeneration growing in field adjacent.		5.4	92
G87	Leyland Cypress Red Maple Apple Hawthorn	X Cupressocyparis leylandii, Acer rubrum, Malus, Crataegus monogyna	M	300	1	6	0	2	2	2	2	B2	40+	Ornamental planting in garden paddock.		3.6	41
G88	Wild Cherry Goat Willow Ash Beech	Prunus avium, Salix caprea, Fraxinus excelsior, Fagus sylvatica	EM	200	1	7	0	2	2	2	2	C2	40+	Sparse landscape buffer plants.		2.4	18
G89	Wild Cherry	Prunus avium	M	325	1	8	0	3	3	3	3	B2	40+			3.9	48
G90	Wild Cherry Goat Willow Ash Hawthorn	Prunus avium, Salix caprea, Fraxinus excelsior, Crataegus monogyna	M	200	1	6	0	3	3	3	3	B2	40+			2.4	18
G91	Norway Maple Horse Chestnut Beech Common Lime	Acer platanoides, Aesculus hippocastanum, Fagus sylvatica, Tilia X europaea	M	800	1	18	0	6	6	6	6	A1	40+	Part of linear group. Significant arboricultural continuous feature.		9.6	290
G92	Ash	Fraxinus excelsior	M	721	2	12	0	5	5	5	5	B2	40+	Part of linear group. Ivy on stem. Unable to inspect stem due to Ivy.		8.7	235

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	North (m)	South (m)	East (m)	West (m)	Category	Life Exp	Comments	Recommendations	RPA-R	RPA-SqM
G93	Sycamore Ash	Acer pseudoplatanus, Fraxinus excelsior	M	354	3	8	0	3	3	3	3	B2	40+	Part of linear group. Ivy on stem. Unable to inspect stem due to Ivy. Self set regeneration.		4.2	57
G94	Hawthorn	Crataegus monogyna	M	277	1	6	0	3	3	3	3	B2	40+	Part of linear group. Self set regeneration.		3.3	35
G95	Ash Elder	Fraxinus excelsior, Sambucus nigra	SM	240	1	6	0	2	2	2	2	C2	40+	Part of linear group. Self set regeneration.		2.9	26
G96	Beech	Fagus sylvatica	M	250	1	7	0	3	3	3	3	B2	40+			3	28
G97	Beech Sycamore Ash Common Oak	Fagus sylvatica, Acer pseudoplatanus, Fraxinus excelsior, Quercus robur	M	949	10	10	0	3	3	3	3	A2	40+	Woodland edge trees.		11.4	407
G98	Ash Hawthorn	Fraxinus excelsior, Crataegus monogyna	M	700	1	17	0	6	6	6	6	A1	40+	Ivy on stem. Unable to inspect stem due to Ivy. Hedge containing mainly ash standards.		8.4	222
G99	Beech	Fagus sylvatica	M	789	4	17	0	6	6	6	6	A1	40+	Coppice.		9.5	282
G100	Beech	Fagus sylvatica	M	885	5	17	0	6	6	6	6	A1	40+	Coppice.		10.6	354
G101	Beech Ash	Fagus sylvatica, Fraxinus excelsior	M	400	1	13	0	4	4	4	4	A1	40+	Mature trees growing mainly on immediate road edge.		4.8	72
G102	Hawthorn Sycamore Ash	Crataegus monogyna, Acer pseudoplatanus, Fraxinus excelsior	M	275	1	6	0	3	3	3	3	B2	40+	Part of linear group. Self set regeneration.		3.3	34
G103	Beech	Fagus sylvatica	M	600	1	16	0	5	5	5	5	A1	40+			7.2	163
G104	Beech Common Oak Hawthorn Whitebeam Goat Willow Holly Field Maple Hazel	Fagus sylvatica, Quercus robur, Crataegus monogyna, Sorbus aria, Salix caprea, Ilex aquifolium, Acer campestre, Corylus avellana	M	350	1	12	0	4	4	4	4	A2	40+	Established landscape buffer planting on verge embankment.		4.2	55
G105	Beech Common Oak Hawthorn Whitebeam Goat Willow Holly Field Maple Hazel	Fagus sylvatica, Quercus robur, Crataegus monogyna, Sorbus aria, Salix caprea, Ilex aquifolium, Acer campestre, Corylus avellana	EM	200	1	8	0	2	2	2	2	B2	40+	Landscape buffer planting and self set regeneration on steep verge embankment.		2.4	18

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	North (m)	South (m)	East (m)	West (m)	Category	Life Exp	Comments	Recommendations	RPA-R	RPA-SqM
G106	Beech Sycamore Norway Maple Common Alder Ash Common Oak Hawthorn	Fagus sylvatica, Acer pseudoplatanus, Acer platanoides, Alnus glutinosa, Fraxinus excelsior, Quercus robur, Crataegus monogyna	M	450	1	12	0	3	3	3	3	B2	40+	Established landscape buffer planting.		5.4	92
G107	Scots Pine Dawn Redwood	Pinus sylvestris, Metasequoia glyptostroboides	M	450	1	12	0	3	3	3	3	A2	40+	Private trees.		5.4	92
G108	Apple	Malus	EM	150	1	5	0	2	2	2	2	B2	20+	Private trees. Orchard planting.		1.8	10
G109	Common Oak	Quercus robur	M	700	1	15	0	6	6	6	6	A1	40+			8.4	222
G110	Japanese Larch	Larix kaempferi	M	660	1	15	0	5	5	5	5	A1	40+			7.9	197
G111	Hawthorn	Crataegus monogyna	M	375	1	8	0	3	3	3	3	B2	40+	Self set regeneration.		4.5	64
G112	Ash	Fraxinus excelsior	M	800	1	12	0	5	5	5	5	A2	40+	Ash maidens some with decay at base.		9.6	290
G113	Ash Common Oak Lawson Cypress Hawthorn	Fraxinus excelsior, Quercus robur, Chamaecyparis lawsoniana, Crataegus monogyna	M	450	1	12	0	5	5	5	5	A2	40+	Domestic property planting.		5.4	92
G114	Ash Common Oak Beech	Fraxinus excelsior, Quercus robur, Fagus sylvatica	M	700	1	15	0	6	6	6	6	A2	40+	Mature trees growing on escarpment.		8.4	222
G115	Crack Willow Common Oak Ash Walnut Hazel Hawthorn Blackthorn	Salix fragilis, Quercus robur, Fraxinus excelsior, Juglans regia, Corylus avellana, Crataegus monogyna, Prunus spinosa	M	400	1	12	0	4	4	4	4	B2	40+	Unmanaged hedge containing occasional mature trees.		4.8	72
G116	Crack Willow	Salix fragilis	M	700	1	16	0	6	6	6	6	A1	40+	Oak copse.		8.4	222

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G117	Ash Crack Willow Common Oak Hybrid Black Poplar Norway Maple Wild Cherry Goat Willow	Fraxinus excelsior, Salix fragilis, Quercus robur, Populus serotina, Acer platanoides, Prunus avium, Salix caprea	M	450	1	13	0	5	5	5	5	B2	40+	A large linear feature growing inside fenced highway and private land. Extensive areas of self set regeneration growing in inside fenced highway and mature trees growing on and outside fenced highway.		5.4	92
G118	Ash Crack Willow Common Oak Hybrid Black Poplar Norway Maple Wild Cherry Goat Willow Western Balsam Poplar	Fraxinus excelsior, Salix fragilis, Quercus robur, Populus serotina, Acer platanoides, Prunus avium, Salix caprea, Populus trichocarpa	M	1000	1	27	0	7	7	7	7	B2	40+	A large linear feature growing inside fenced highway on private land. Mistletoe present.		12	452
G119	Ash Crack Willow Common Oak Goat Willow	Fraxinus excelsior, Salix fragilis, Quercus robur, Salix caprea	M	500	1	15	0	5	5	5	5	B2	40+	Linear feature growing inside fenced highway on private land.		6	113
G120	Silver Maple Crack Willow Goat Willow	Acer saccharinum, Salix fragilis, Salix caprea	M	325	1	10	0	3	3	3	3	B2	40+	Self set regeneration.		3.9	48
G121	Ash Sycamore Common Oak	Fraxinus excelsior, Acer pseudoplatanus, Quercus robur	M	700	1	13	0	7	7	7	7	A1	40+	Mature trees. Not found on plan. Plotted by eye on plan.		8.4	222
G122	Ash Sycamore Common Oak Hawthorn Blackthorn Field Maple Silver Birch Bird Cherry	Fraxinus excelsior, Acer pseudoplatanus, Quercus robur, Crataegus monogyna, Prunus spinosa, Acer campestre, Betula pendula, Prunus padus	SM	300	1	10	0	4	4	4	4	B2	40+	Landscape buffer planting.		3.6	41

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G123	Sycamore Ash Holly Hazel Hawthorn Wild Cherry Crack Willow	Acer pseudoplatanus, Fraxinus excelsior, Ilex aquifolium, Corylus avellana, Crataegus monogyna, Prunus avium, Salix fragilis	M	300	1	13	0	3	3	3	3	A2	40+	Landscape buffer planting.		3.6	41
G124	Sycamore Ash Holly Hazel Hawthorn Wild Cherry Crack Willow Aspen	Acer pseudoplatanus, Fraxinus excelsior, Ilex aquifolium, Corylus avellana, Crataegus monogyna, Prunus avium, Salix fragilis, Populus tremula	M	350	1	13	0	3	3	3	3	A2	40+	Landscape buffer planting.		4.2	55
G125	Ash	Fraxinus excelsior	M	300	1	10	0	4	4	4	4	A2	40+	Hedge standards.		3.6	41
G126	Ash Hazel Hawthorn Common Oak	Fraxinus excelsior, Corylus avellana, Crataegus monogyna, Quercus robur	M	375	1	11	0	4	4	4	4	B2	40+	Hedge containing occasional mature tree. Landscape buffer planting.		4.5	64
G127	Ash Hazel Hawthorn Common Oak Japanese Larch Beech	Fraxinus excelsior, Corylus avellana, Crataegus monogyna, Quercus robur, Larix kaempferi, Fagus sylvatica	M	400	1	14	0	4	4	4	4	B2	40+	Hedge containing occasional mature tree. Landscape buffer planting.		4.8	72
G128	Ash Hazel Hawthorn Common Oak Japanese Larch Beech Leyland Cypress	Fraxinus excelsior, Corylus avellana, Crataegus monogyna, Quercus robur, Larix kaempferi, Fagus sylvatica, X Cupressocyparis leylandii	M	400	1	16	0	4	4	4	4	B2	40+	Domestic boundary planting.		4.8	72

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G129	Ash Hazel Hawthorn Common Oak Japanese Larch Beech	Fraxinus excelsior, Corylus avellana, Crataegus monogyna, Quercus robur, Larix kaempferi, Fagus sylvatica	M	400	1	16	0	4	4	4	4	A2	40+	Mature landscape buffer planting.		4.8	72
G130	Ash Hazel Hawthorn Common Oak Japanese Larch Beech	Fraxinus excelsior, Corylus avellana, Crataegus monogyna, Quercus robur, Larix kaempferi, Fagus sylvatica	M	500	1	16	0	4	4	4	4	A2	40+	Mature landscape buffer planting.		6	113
G131	Ash Japanese Larch Beech Scots Pine	Fraxinus excelsior, Larix kaempferi, Fagus sylvatica, Pinus sylvestris	M	600	1	20	0	4	4	4	4	A2	40+	Mature landscape buffer planting.		7.2	163
G132	Sycamore Ash Norway Spruce Hazel	Acer pseudoplatanus, Fraxinus excelsior, Picea abies, Corylus avellana	SM	300	1	10	0	3	3	3	3	B2	40+	Landscape buffer planting.		3.6	41
G133	Sycamore Ash Norway Spruce Hazel Hawthorn	Acer pseudoplatanus, Fraxinus excelsior, Picea abies, Corylus avellana, Crataegus monogyna	M	300	1	10	0	3	3	3	3	C2	40+	Low arboricultural value.		3.6	41
G134	Sycamore Hawthorn	Acer pseudoplatanus, Crataegus monogyna	M	200	1	5	0	2	2	2	2	B2	40+			2.4	18
G135	Sycamore	Acer pseudoplatanus	M	610	3	12	0	5	5	5	5	B2	40+			7.3	168
G136	Sycamore	Acer pseudoplatanus	M	532	2	11	0	5	5	5	5	B2	20+	Ivy on stem. Unable to inspect stem due to Ivy. Multiple stems at ground level. Included bark present in main fork.		6.4	128

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G137	Sycamore Ash Corsican Pine Common Oak Beech	Acer pseudoplatanus, Fraxinus excelsior, Pinus nigra 'maritima', Quercus robur, Fagus sylvatica	M	800	1	20	0	8	8	8	8	B2	20+	Significance area of woodland. Not found on plan. Plotted by eye on plan. In neighbouring property.		9.6	290
G138	Corsican Pine	Pinus nigra 'maritima'	M	800	1	28	0	5	5	5	5	A2	40+	Notable individuals growing mainly on top of steep embankment.		9.6	290
G139	Sycamore Ash Common Oak Beech Hawthorn Crab Apple Corsican Pine Leyland Cypress Hybrid Black Poplar	Acer pseudoplatanus, Fraxinus excelsior, Quercus robur, Fagus sylvatica, Crataegus monogyna, Malus sylvestris, Pinus nigra 'maritima', X Cupressocyparis leylandii, Populus serotina	M	400	1	13	0	5	5	5	5	B2	40+	Previously planted buffer for commercial premises located behind highway landscape buffer planting.		4.8	72
G140	Ash Hazel Hawthorn Common Oak Japanese Larch Beech Common Alder	Fraxinus excelsior, Corylus avellana, Crataegus monogyna, Quercus robur, Larix kaempferi, Fagus sylvatica, Alnus glutinosa	M	450	1	16	0	4	4	4	4	A2	40+	Mature landscape buffer planting. Restricted access due to road proximity.		5.4	92
H1	Ash English Elm Hazel	Fraxinus excelsior, Ulmus procera, Corylus avellana	Y	150	1	5	0	2	2	2	2	B2	40+			1.8	10
H2	Hawthorn Bird Cherry	Crataegus monogyna, Prunus padus	M	250	1	5	0	3	3	3	3	B2	40+	Unmanaged hedge growing on verge.		3	28
H3	Ash Sycamore Common Oak Hawthorn Blackthorn	Fraxinus excelsior, Acer pseudoplatanus, Quercus robur, Crataegus monogyna, Prunus spinosa	SM	250	1	10	0.5	2	2	2	2	B2	40+			3	28
H4	Hawthorn	Crataegus monogyna	M	150	1	5	0	2	2	2	2	B2	40+	Managed hecge.		1.8	10

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H5	Ash Hawthorn	Fraxinus excelsior, Crataegus monogyna	M	150	1	4	0	1	1	1	1	B2	40+	Managed hedge.		1.8	10
H6	Ash Hawthorn Blackthorn	Fraxinus excelsior, Crataegus monogyna, Prunus spinosa	M	150	1	4	0	2	2	2	2	B2	40+	Managed hedge.		1.8	10
H7	Ash Blackthorn Hawthorn	Fraxinus excelsior, Prunus spinosa, Crataegus monogyna	SM	200	1	5	0	2	2	2	2	B2	40+	Unmanaged hedge.		2.4	18
H8	Ash Sycamore Hawthorn Blackthorn	Fraxinus excelsior, Acer pseudoplatanus, Crataegus monogyna, Prunus spinosa	M	250	1	5	1	2	2	2	2	B2	40+	Unmanaged hedge.		3	28
H9	Elder Hawthorn	Sambucus nigra, Crataegus monogyna	M	250	1	5	1	2	2	2	2	B2	20+			3	28
H10	Hawthorn	Crataegus monogyna	SM	200	1	5	1	2	2	2	2	C2	20+	Unmanaged hecge.		2.4	18
H11	Hawthorn Hazel Blackthorn	Crataegus monogyna, Corylus avellana, Prunus spinosa	M	150	1	2	0	1	1	1	1	B2	40+			1.8	10
H12	Ash Hawthorn Blackthorn Hazel	Fraxinus excelsior, Crataegus monogyna, Prunus spinosa, Corylus avellana	M	150	1	5	0	1	1	1	1	B2	40+			1.8	10
H13	Sycamore Ash Hawthorn	Acer pseudoplatanus, Fraxinus excelsior, Crataegus monogyna	M	212	2	5	0	1	1	1	1	B2	40+			2.5	20
H14	Blackthorn	Prunus spinosa	M	150	1	5	0	2	2	2	2	B2	40+			1.8	10
H15	Blackthorn Field Maple Ash Hazel Common Oak	Prunus spinosa, Acer campestre, Fraxinus excelsior, Corylus avellana, Quercus robur	M	300	1	6	0	3	3	3	3	A2	40+	Unmanaged hedge containing occasional mature trees.		3.6	41
H16	Hawthorn	Crataegus monogyna	M	220	1	6	0	2	2	2	2	B2	40+	Unmanaged hedge.		2.6	22
H17	Hawthorn	Crataegus monogyna	M	220	1	6	0	2	2	2	2	B2	40+	Unmanaged hedge.		2.6	22

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H18	Hawthorn Goat Willow Crab Apple	Crataegus monogyna, Salix caprea, Malus sylvestris	M	220	1	6	0	2	2	2	2	B2	40+	Unmanaged hedge.		2.6	22
H19	Hawthorn Blackthorn Field Maple Ash	Crataegus monogyna, Prunus spinosa, Acer campestre, Fraxinus excelsior	M	300	1	11	0	3	3	3	3	B2	40+	Occasional mature trees growing in hedge.		3.6	41
H20	Hawthorn	Crataegus monogyna	M	200	1	5	1	2	2	2	2	C2	20+	Unmanaged hecge.		2.4	18
H21	Leyland Cypress	X Cupressocyparis leylandii	M	200	1	8	1	3	3	3	3	C2	20+			2.4	18
H22	Leyland Cypress	X Cupressocyparis leylandii	M	200	1	8	1	4	4	4	4	C2	20+			2.4	18
H23	Leyland Cypress	X Cupressocyparis leylandii	M	170	1	8	1	2	2	2	2	C2	20+			2	13
H24	Leyland Cypress	X Cupressocyparis leylandii	M	300	1	16	0	4	4	4	4	C2	40+			3.6	41
H25	English Elm Field Maple Hazel Hawthorn Blackthorn	Ulmus procera, Acer campestre, Corylus avellana, Crataegus monogyna, Prunus spinosa	M	200	1	5	0	2	2	2	2	B2	40+	Unmanaged hedge containing sparse regeneration and dense areas.		2.4	18
H26	Leyland Cypress	X Cupressocyparis leylandii	M	400	1	14	0	4	4	4	4	C2	40+	Ornamental planting around domestic property.		4.8	72
H27	Ash Hazel	Fraxinus excelsior, Corylus avellana	SM	283	2	10	0	3	3	3	3	B2	40+	Self set regeneration.		3.4	36
H28	Ash Common Oak Hawthorn Blackthorn	Fraxinus excelsior, Quercus robur, Crataegus monogyna, Prunus spinosa	M	375	1	8	0	3	3	3	3	A2	40+	Occasional mature trees growing in unmanaged hedge.		4.5	64
H29	Ash Common Oak Hawthorn Blackthorn	Fraxinus excelsior, Quercus robur, Crataegus monogyna, Prunus spinosa	M	600	1	12	0	5	5	5	5	A2	40+	Mature trees growing in unmanaged hedge.		7.2	163

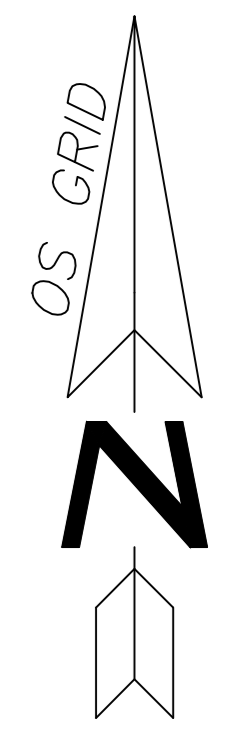
Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	North (m)	South (m)	East (m)	West (m)	Category	Life Exp	Comments	Recommendations	RPA-R	RPA-SqM
H30	Ash Sycamore Common Oak Hawthorn Blackthorn Crack Willow	Fraxinus excelsior, Acer pseudoplatanus, Quercus robur, Crataegus monogyna, Prunus spinosa, Salix fragilis	SM	400	1	13	0	4	4	4	4	B2	40+	Unmanaged hedge containing occasional mature trees.		4.8	72
H31	Sycamore Ash Holly Hazel Hawthorn Wild Cherry Crack Willow Aspen	Acer pseudoplatanus, Fraxinus excelsior, Ilex aquifolium, Corylus avellana, Crataegus monogyna, Prunus avium, Salix fragilis, Populus tremula	M	150	1	5	0	2	2	2	2	B2	40+	Managed hedge.		1.8	10
H32	Ash Hazel Hawthorn Common Oak	Fraxinus excelsior, Corylus avellana, Crataegus monogyna, Quercus robur	M	450	1	15	0	4	4	4	4	B2	40+	Hedge containing occasional mature tree forming domestic boundary.		5.4	92
W1	Beech Sycamore Ash Scots Pine Field Maple	Fagus sylvatica, Acer pseudoplatanus, Fraxinus excelsior, Pinus sylvestris, Acer campestre	M	600	1	18	0	5	5	5	5	A2	40+	Part of linear group. Ivy on stem. Unable to inspect stem due to ivy. Unable to inspect stem due to undergrowth. Steep banking unable to access. Large significant woodland area on edge of site not all mapped.		7.2	163
W2	Beech Sycamore Ash Scots Pine Field Maple	Fagus sylvatica, Acer pseudoplatanus, Fraxinus excelsior, Pinus sylvestris, Acer campestre	M	500	1	12	0	3	3	3	3	A2	40+	Part of linear group. Ivy on stem. Unable to inspect stem due to ivy. Unable to inspect stem due to undergrowth. Steep banking unable to access. Large significant woodland area on edge of site. Modified RPA likely to apply.		6	113
W3	Hawthorn Ash Common Oak Scots Pine Beech	Crataegus monogyna, Fraxinus excelsior, Quercus robur, Pinus sylvestris, Fagus sylvatica	M	700	1	15	2	5	5	5	5	A2	40+	Mature high canopy woodland on edge of existing road of notable significance. RPA modified steep bank to road which will act as barrier.		8.4	222

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	North (m)	South (m)	East (m)	West (m)	Category	Life Exp	Comments	Recommendations	RPA-R	RPA-SqM
W4	Ash Hawthorn Blackthorn Norway Spruce Common Alder Silver Birch Hazel	Fraxinus excelsior, Crataegus monogyna, Prunus spinosa, Picea abies, Alnus glutinosa, Betula pendula, Corylus avellana	SM	250	1	11	1	3	3	3	3	A2	40+	Large linear feature containing numerous Picea.		3	28
W5	Ash Beech	Fraxinus excelsior, Fagus sylvatica	M	900	1	18	1	6	6	6	6	A2	40+	High canopy woodland of significant interest.		10.8	366
W6	Elder Scots Pine Ash Hawthorn Japanese Larch Small-leaved Lime Sycamore	Sambucus nigra, Pinus sylvestris, Fraxinus excelsior, Crataegus monogyna, Larix kaempferi, Tilia cordata, Acer pseudoplatanus	M	600	1	15	1	5	5	5	5	A2	40+	Large linear feature woodland edge adjacent to site.		7.2	163
W7	Goat Willow Ash Horse Chestnut Beech	Salix caprea, Fraxinus excelsior, Aesculus hippocastanum, Fagus sylvatica	M	700	1	20	0	6	6	6	6	A1	40+	High canopy beech woodland of significant arboricultural interest.		8.4	222
W8	Ash Beech Sycamore	Fraxinus excelsior, Fagus sylvatica, Acer pseudoplatanus	M	700	1	20	0	6	6	6	6	A1	40+	High canopy beech woodland of significant arboricultural interest.		8.4	222
W9	Beech Sycamore Goat Willow Ash Hazel Hawthorn	Fagus sylvatica, Acer pseudoplatanus, Salix caprea, Fraxinus excelsior, Corylus avellana, Crataegus monogyna	M	450	1	14	0	4	4	4	4	B2	40+	Part of linear group. Woodland and areas of sparse regeneration growing on edge of road. The group is linked to wider woodland.		5.4	92
W10	Beech Sycamore Ash Hazel	Fagus sylvatica, Acer pseudoplatanus, Fraxinus excelsior, Corylus avellana	M	600	1	19	0	5	5	5	5	A2	40+	Part of linear group. Isolated woodland containing mainly high canopy beech of significant interest.		7.2	163
W11	Hawthorn Beech Ash Goat Willow Hazel	Crataegus monogyna, Fagus sylvatica, Fraxinus excelsior, Salix caprea, Corylus avellana	M	450	1	14	1	4	4	4	4	A2	40+	Unmanaged high canopy woodland of significant arboricultural interest. Occasional mature trees growing in areas.		5.4	92

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	North (m)	South (m)	East (m)	West (m)	Category	Life Exp	Comments	Recommendations	RPA-R	RPA-SqM
W12	Hawthorn Beech Hazel	Crataegus monogyna, Fagus sylvatica, Corylus avellana	M	900	1	20	1	8	8	8	8	A1	40+	Continuous high canopy woodland of significant arboricultural interest developed on steep banking, mainly beech. Individual stem positions required for further detail in vicinity of new road edge.		10.8	366
W13	Bird Cherry Field Maple Beech Hawthorn Ash	Prunus padus, Acer campestre, Fagus sylvatica, Crataegus monogyna, Fraxinus excelsior	M	275	1	10	1	3	3	3	3	A2	40+	Part of linear group. Establishing landscape buffer planting on edge of site.		3.3	34
W14	Ash Sycamore Beech Scots Pine Corsican Pine Hazel Common Oak Silver Birch	Fraxinus excelsior, Acer pseudoplatanus, Fagus sylvatica, Pinus sylvestris, Pinus nigra 'maritima', Corylus avellana, Quercus robur, Betula pendula	M	500	1	16	0	5	5	5	5	A1	40+	Mature high canopy woodland of significant arboricultural value, large areas covered on edge of site.		6	113
W15	Ash Beech	Fraxinus excelsior, Fagus sylvatica	M	600	1	18	0	5	5	5	5	A2	40+	Part of linear group. Large woodland dominated by high canopy Beech of notable individual and collective significance.		7.2	163
W16	Common Oak Beech Ash	Quercus robur, Fagus sylvatica, Fraxinus excelsior	M	700	1	15	0	5	5	5	5	A1	40+	High canopy woodland of significant arboricultural importance growing on top of steep embankment.		8.4	222
W17	Common Oak Beech Ash English Elm Hawthorn Red Maple	Quercus robur, Fagus sylvatica, Fraxinus excelsior, Ulmus procera, Crataegus monogyna, Acer rubrum	M	600	1	15	0	5	5	5	5	A1	40+	High canopy woodland of significant arboricultural importance growing on steep embankment. Unmanaged and therefore mixed aged.		7.2	163

Tree No.	Common Name	Latin name	Age	Diameter(mm)	Stems	Height (m)	Crown Height (m)	North (m)	South (m)	East (m)	West (m)	Category	Life Exp	Comments	Recommendations	RPA-R	RPA-SqM
W18	Common Oak Beech Apple Hawthorn English Elm Japanese Larch Crab Apple Sycamore Silver Birch Lawson Cypress Bird Cherry Goat Willow Whitebeam Large-leaved Lime	Quercus robur, Fagus sylvatica, Malus, Crataegus monogyna, Ulmus procera, Larix kaempferi, Malus sylvestris, Acer pseudoplatanus, Betula pendula, Chamaecyparis lawsoniana, Prunus padus, Salix caprea, Sorbus aria, Tilia platyphyllos	M	500	1	15	0	5	5	5	5	A1	40+	Very large woodland of significant arboricultural interest and value, located on steep embankment. Mature trees growing on southern boundary and landscape buffer planting to north with scattered regeneration growing on woodland edge.		6	113
W19	Sycamore Ash Common Oak Beech Hawthorn Crab Apple Corsican Pine Leyland Cypress	Acer pseudoplatanus, Fraxinus excelsior, Quercus robur, Fagus sylvatica, Crataegus monogyna, Malus sylvestris, Pinus nigra 'maritima', X Cupressocyparis leylandii	M	400	1	13	0	5	5	5	5	A2	40+	Significance area of woodland located within fenced highway and within steep embankment. Restricted access for survey due to road proximity. A number of trees of significant arboricultural importance within embankment require details confirming. A number of conifer growing mainly outside fenced highway boundary. Landscape buffer planting growing at lower level within fenced highway boundary formal woodland edge.		4.8	72

Appendix 4 Tree Constraints Plan



TREE CONSTRAINTS PLAN

Retention value key

- RETENTION VALUE A
- RETENTION VALUE B
- Trees to be removed (RETENTION VALUE C) OR RPA AREA

Root Protection Areas (RPA)

RPA's have been identified and are based on BS5837:2012. RPA's have been shown as an orange polyline.

- T123 RPA
- Canopy extent

Woodland or group canopy extents

- Group RPA

Amenity Tree Care

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Burwardsley, Chester, CH3 9NX
Tel. 01829 770075

Client:
Arup

Project:
A417T

Detail:
TREE CONSTRAINTS PLAN - OV

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Dwg No: **TR-01-Sheet 1** Revision: **V1**

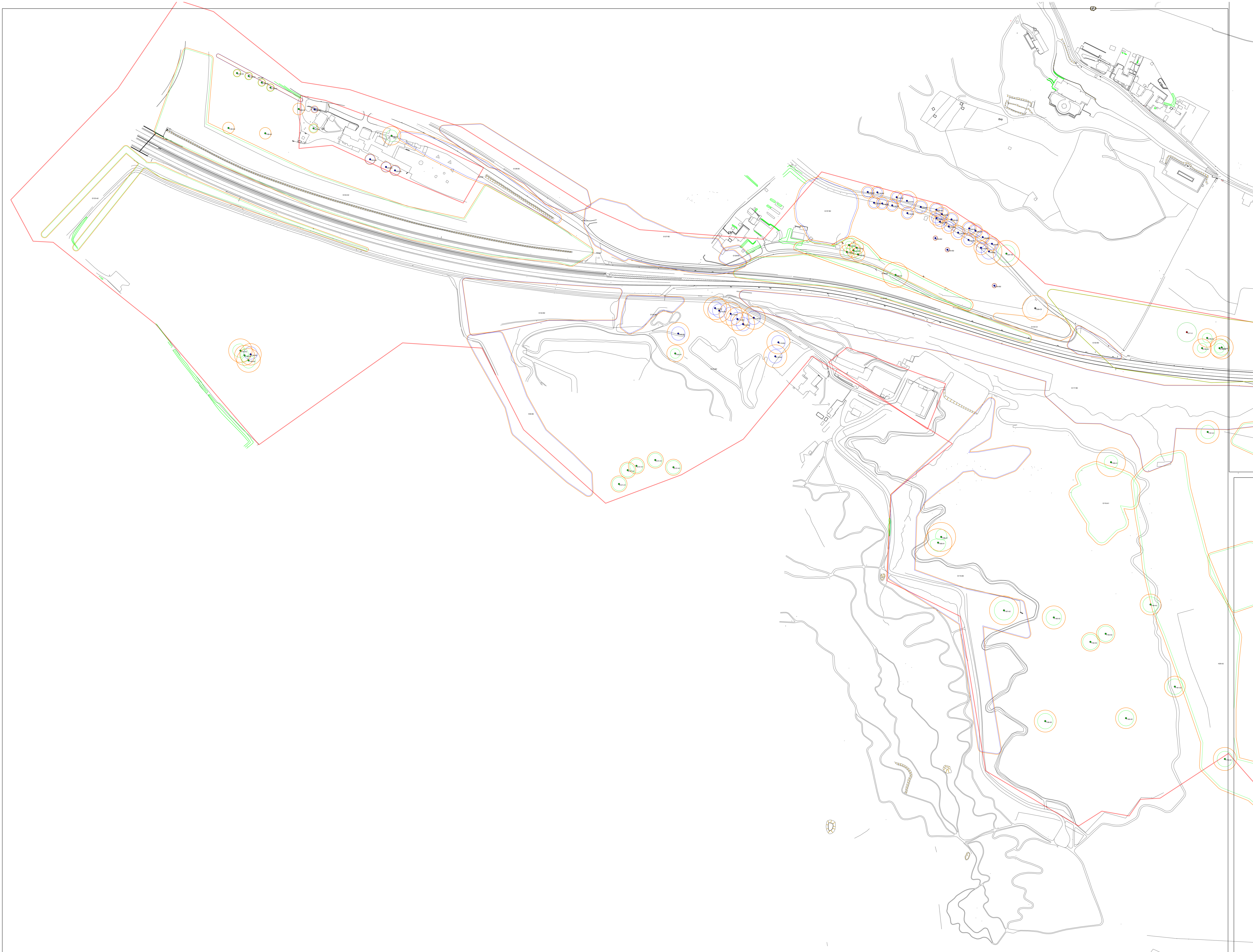


TREE CONSTRAINTS PLAN

- Retention value key
- RETENTION VALUE A
 - RETENTION VALUE B
 - RETENTION VALUE C
 - Trees to be removed (RETENTION VALUE D) (NO RPA shown)

Root Protection Areas (RPA)
RPA's have been identified and are based on BS5837:2012. RPA's have been shown as an orange polyline.

- RPA
- Canopy extent
- Woodland or group canopy extents
- Group RPA



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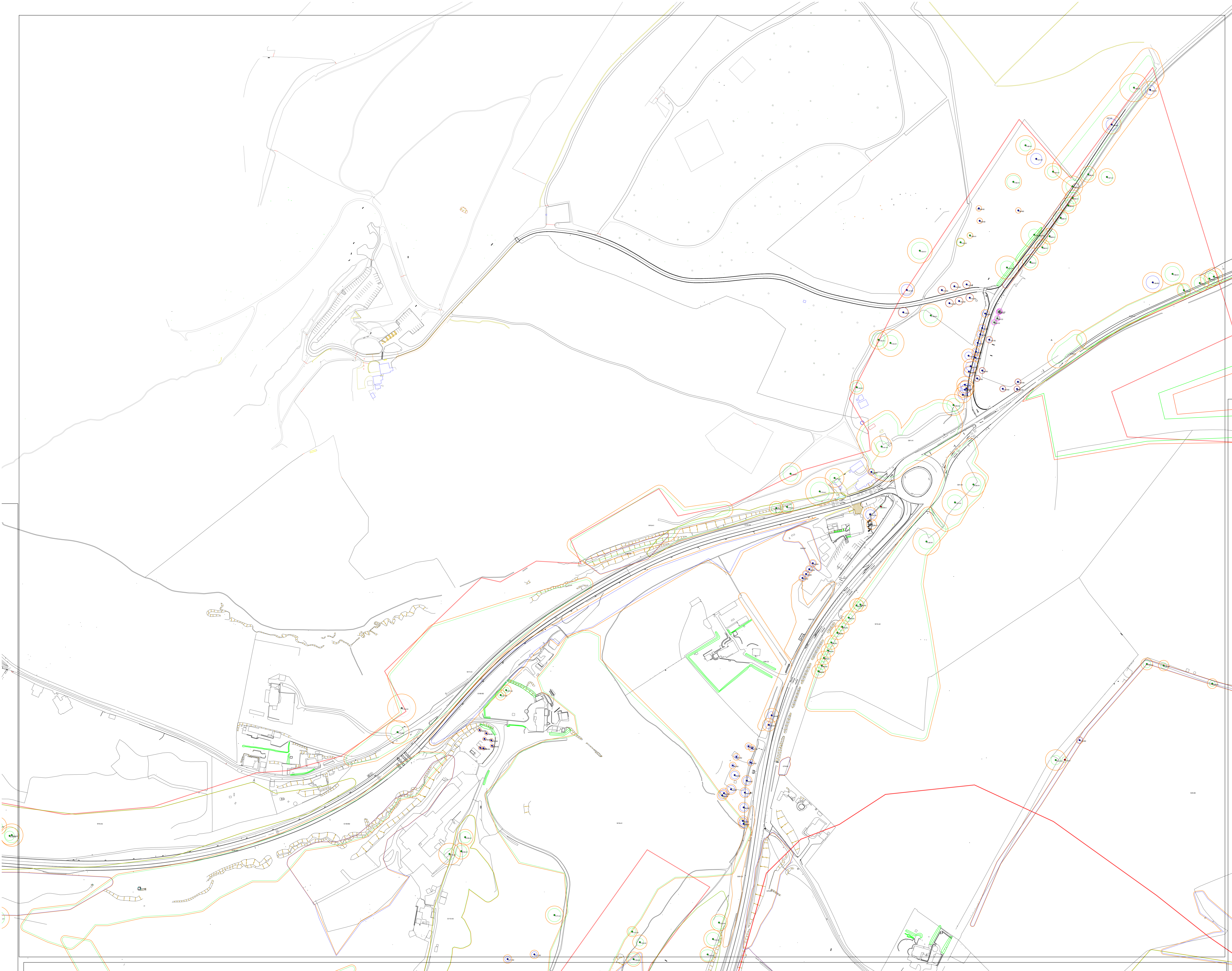
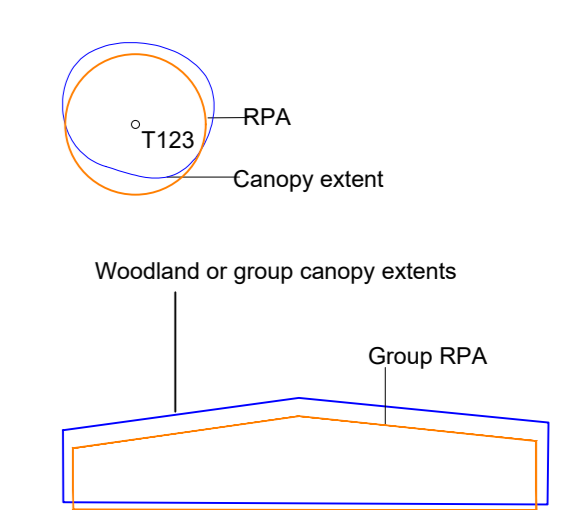
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Draw No:	Revision:		
TR-01-Sheet 1	V1		



TREE CONSTRAINTS PLAN

- Retention value key
- RETENTION VALUE A
 - RETENTION VALUE B
 - Tree to be removed
 - RETENTION VALUE C

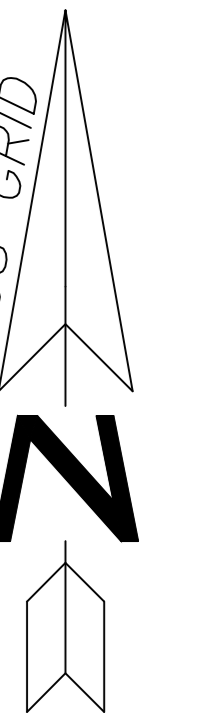
Root Protection Areas (RPA)
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Client:	Arup		
Project:	A417T		
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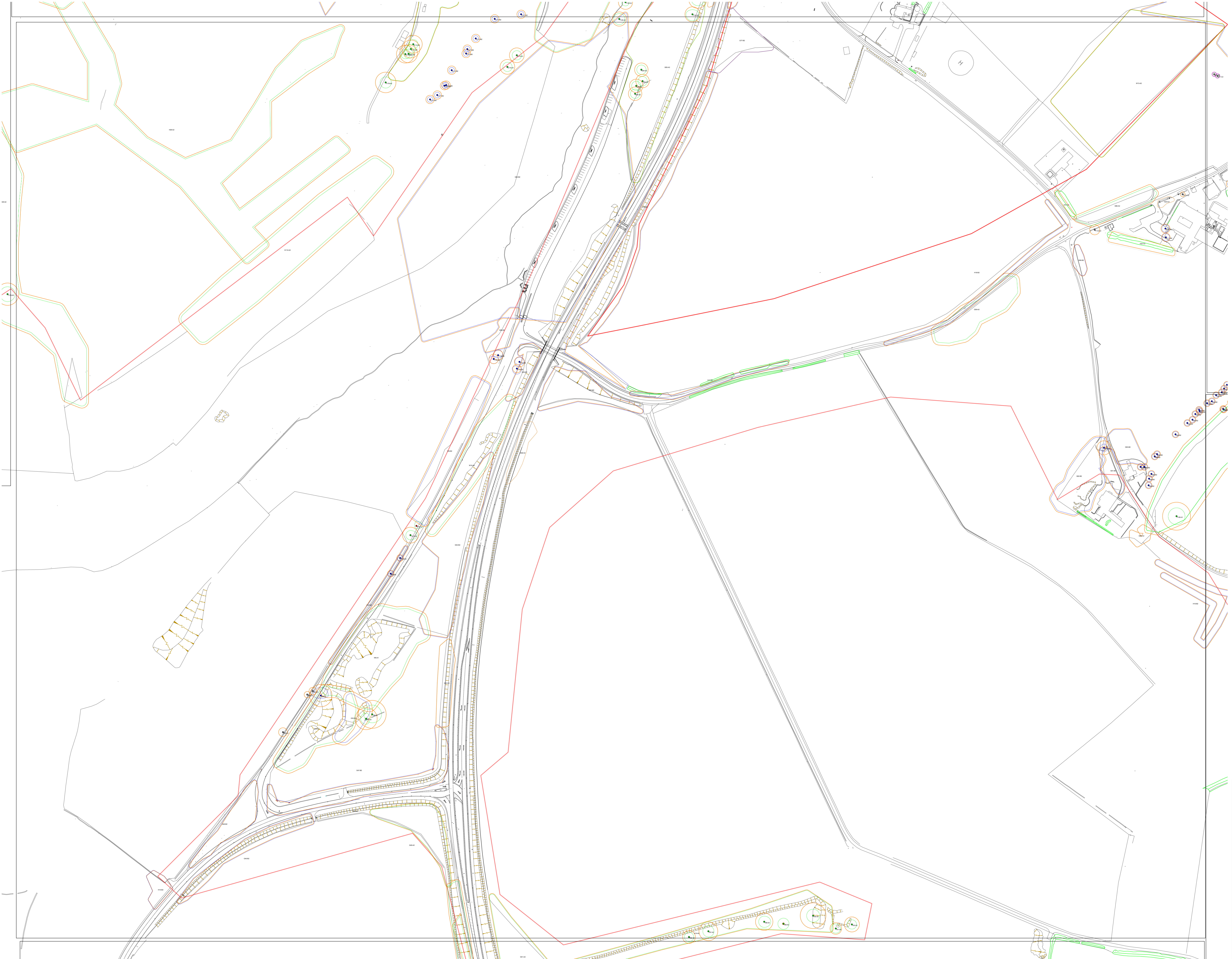


TREE CONSTRAINTS PLAN

- Retention value key
- RETENTION VALUE A
 - RETENTION VALUE B
 - RETENTION VALUE C
 - Trees to be removed (RETENTION VALUE D) OR RPA AREA

Root Protection Areas (RPA)
RPA's have been identified and are based on BS5837:2012. RPA's have been shown as an orange polyline.

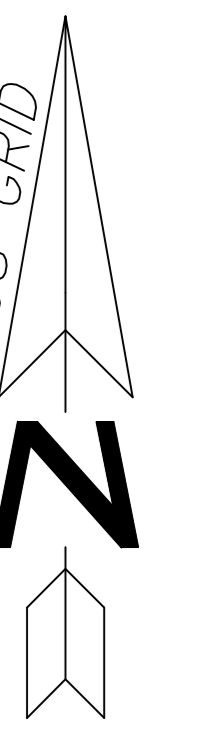
- RPA
- Canopy extent
- Woodland or group canopy extents
- Group RPA



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Tel. 01829 770075

Client:	Anup		
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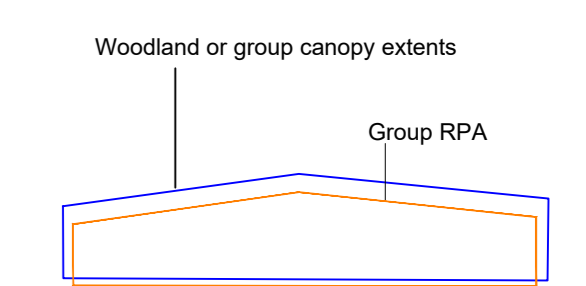
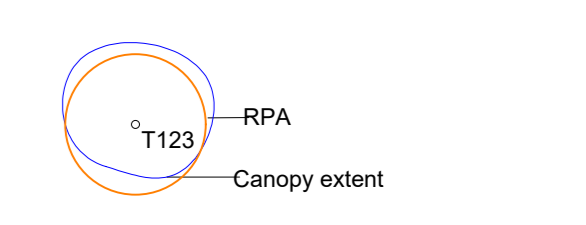


TREE CONSTRAINTS PLAN

Retention value key

- RETENTION VALUE A
- RETENTION VALUE B
- Trees to be removed (RETENTION VALUE C) SEE RPA ABOVE

Root Protection Areas (RPA)
RPA's have been identified and are based on BS5837:2012. RPA's have been shown as an orange polyline.



Amenity Tree Care

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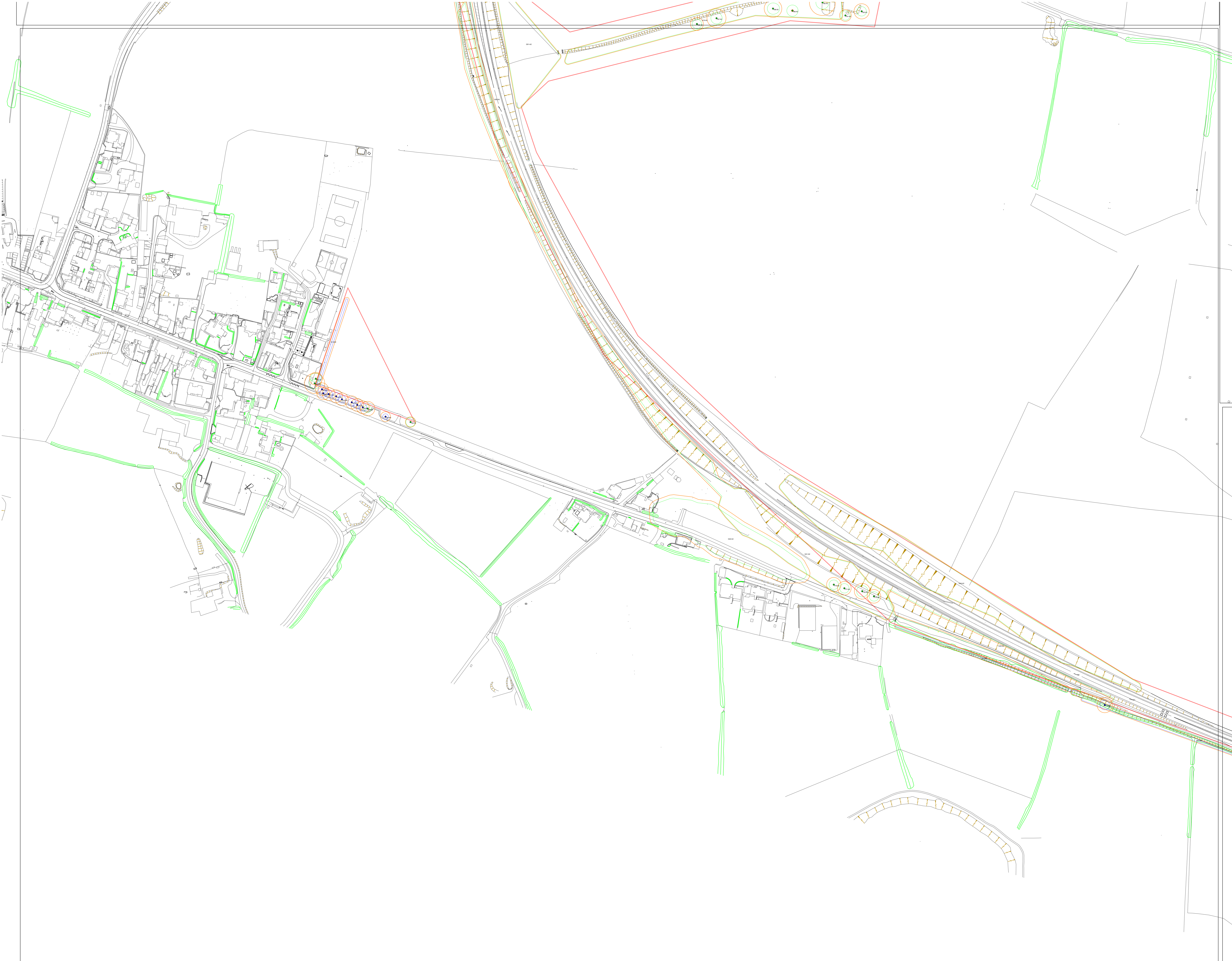
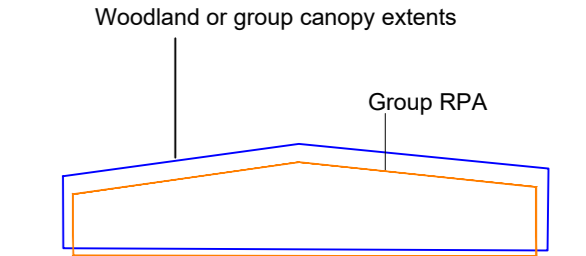
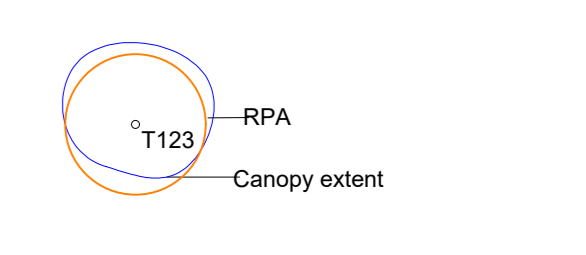
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Arup		
Project:		
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TREE CONSTRAINTS PLAN

- Retention value key
- RETENTION VALUE A
 - RETENTION VALUE B
 - Trees to be removed (RETENTION VALUE C) see RPA notes

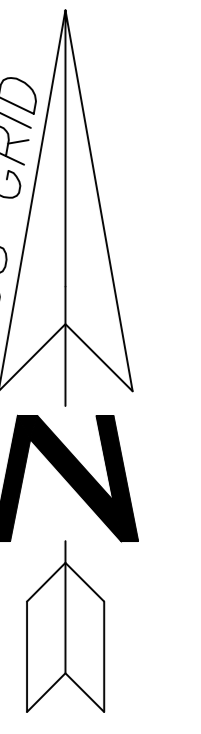
Root Protection Areas (RPA)
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Amenity Tree Care

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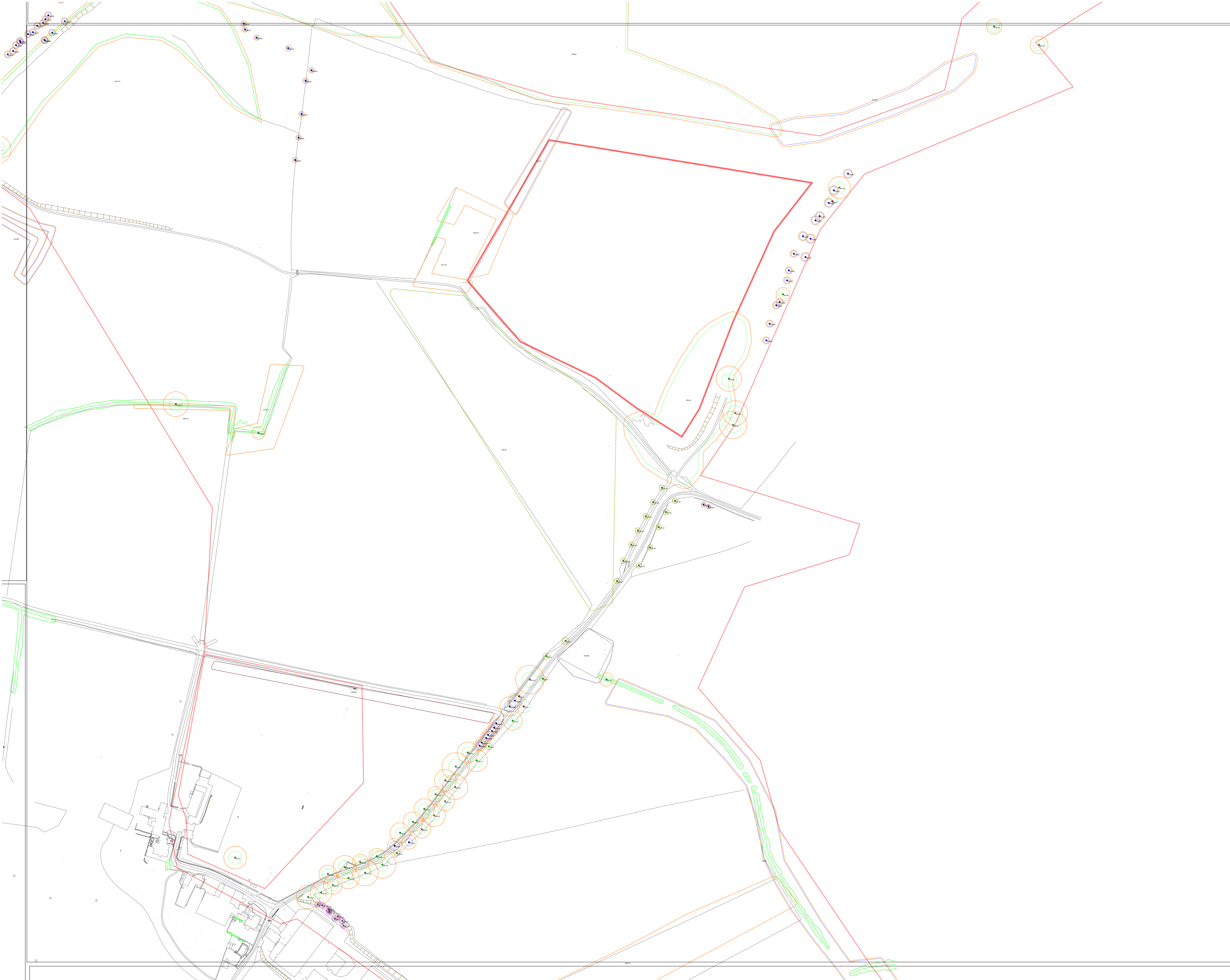
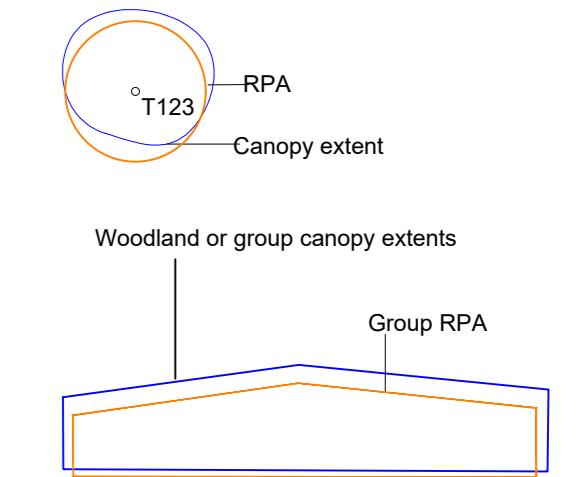
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TREE CONSTRAINTS PLAN

- Retention value key
- RETENTION VALUE A
 - RETENTION VALUE B
 - RETENTION VALUE C
 - Trees to be removed (RETENTION VALUE D) ALL RPA EXCEPT

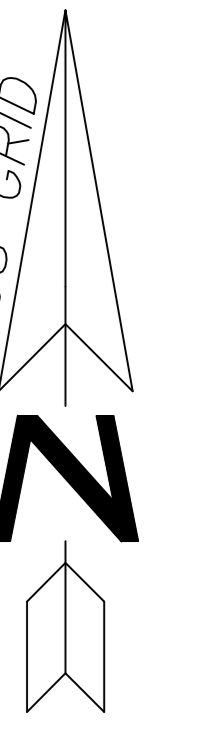
Root Protection Areas (RPA)
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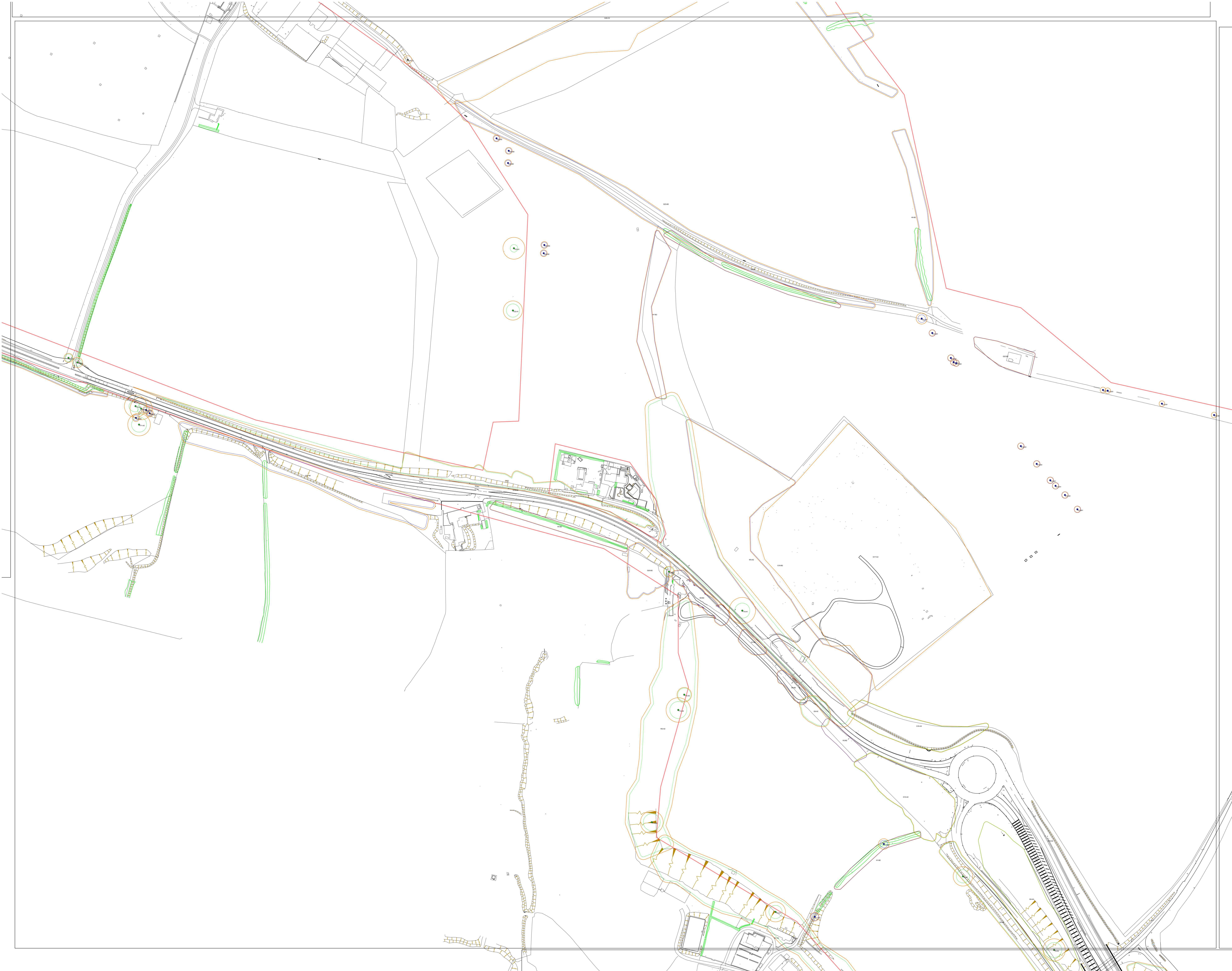
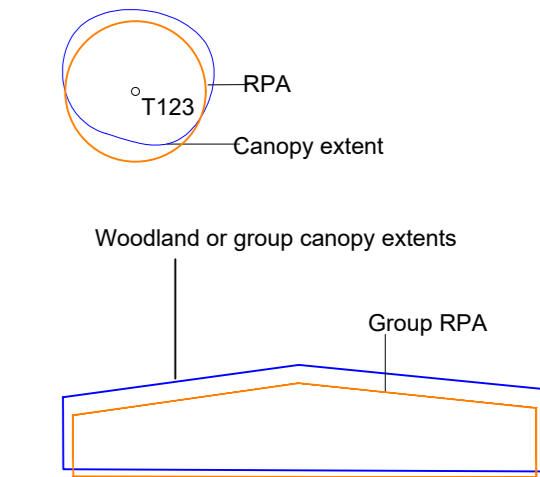
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TREE CONSTRAINTS PLAN

- Retention value key
- RETENTION VALUE A
 - RETENTION VALUE B
 - RETENTION VALUE C
 - Trees to be removed (RETENTION VALUE D) (ALL RPA EXCEPT)

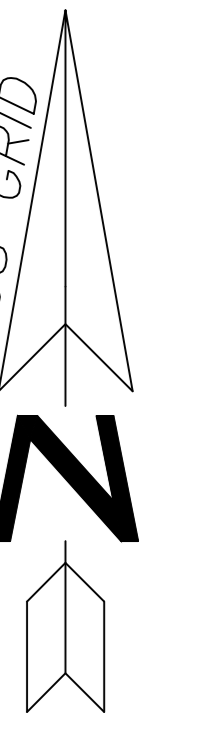
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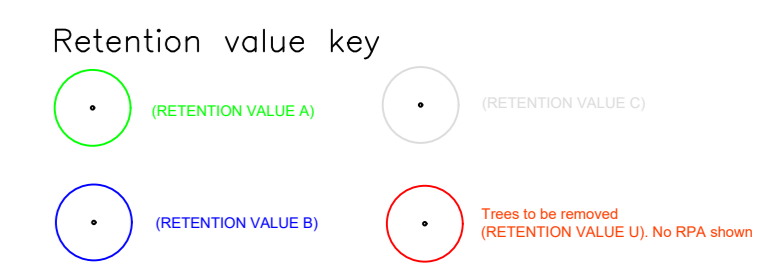
Amenity Tree Care

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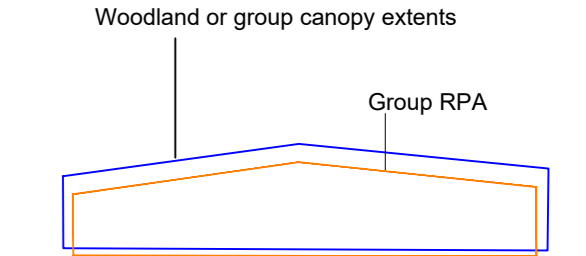
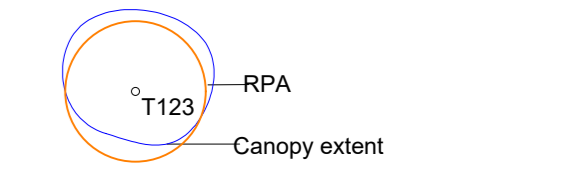
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TREE CONSTRAINTS PLAN



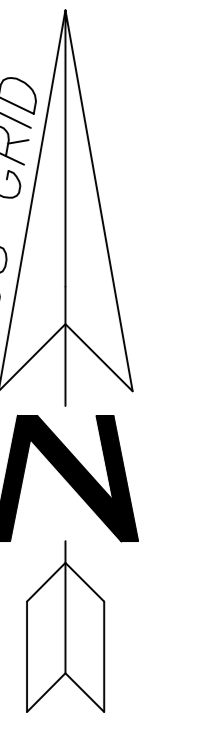
Root Protection Areas (RPA)
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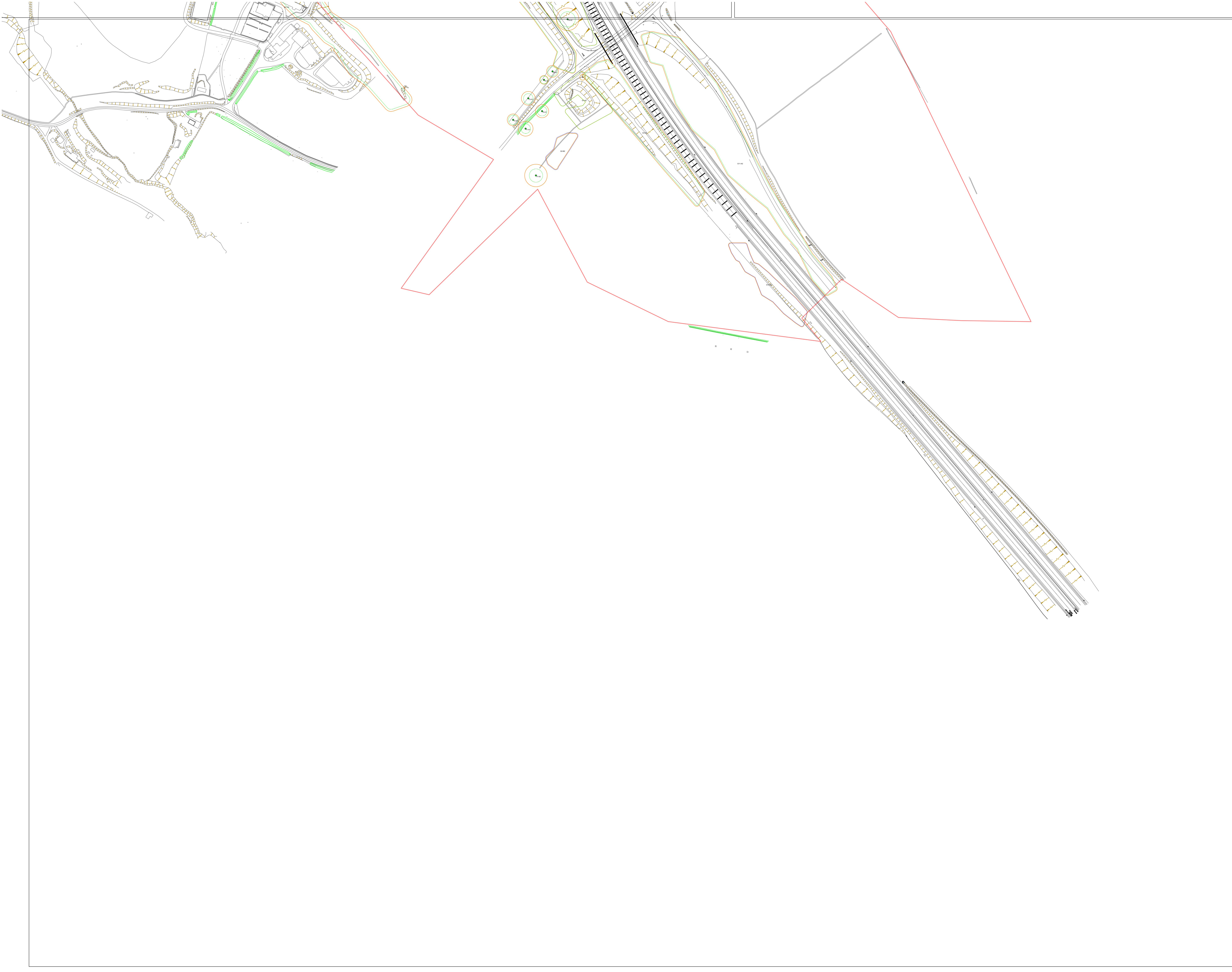
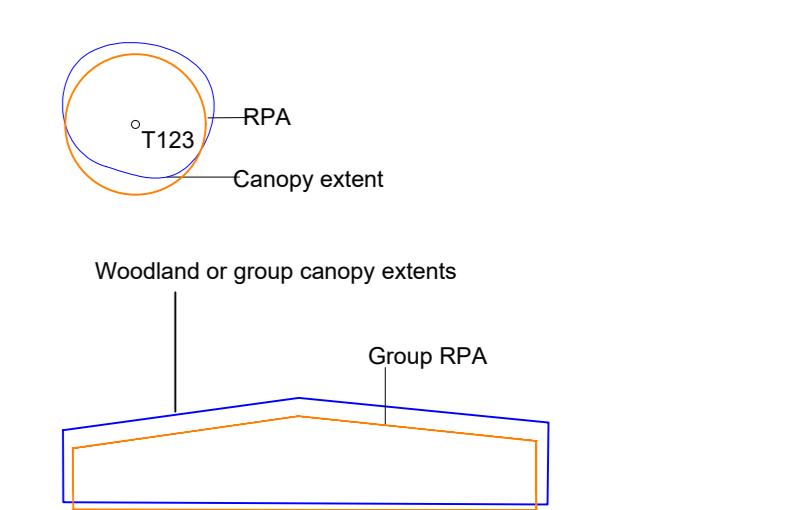
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TREE CONSTRAINTS PLAN

- Retention value key
- RETENTION VALUE A
 - RETENTION VALUE B
 - Trees to be removed (RETENTION VALUE C) OR RPA AREA

Root Protection Areas (RPA)
RPA's have been identified and are based on BS5837:2012. RPA's have been shown as an orange polyline.



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Tel. 01829 770075

Client:	Arup		
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Appendix 5 TPO map



A417 Missing Link

Preliminary Environmental Information Report

Appendix 7.4
Visually Verifiable Montage Methodology

28 September 2020

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1.1 Photography and imaging	i
1.2 Visualisations	ii

1.1 Photography and imaging

- 1.1.1 For this Preliminary Environmental Information (PEI) report, verified viewpoint photography was undertaken in winter by a professional photographer and survey team, over four survey dates. Surveys were undertaken on 15th and 23rd January, and 4th and 7th February.
- 1.1.2 Additional baseline viewpoint photography in summer and winter was carried out by qualified landscape architects following best practice guidelines required to produce capture suitable photographs to be used in LVIA and visual representations. This photography is presented on Photosheets in Figure 7.10.
- 1.1.3 The purpose of the verified viewpoint photography is to simulate the likely visual changes that would result from the proposed scheme and produce printed images of a size and resolution to sufficiently match the perspective in the same view. However, as these are simulations, they should never be considered as a substitute for visiting the actual viewpoint in person.
- 1.1.4 The photomontages produced from the verified viewpoint photography are subject to the same inherent limitations as photographs, for example the scene would only appear under the same conditions that prevailed at the time the original photograph was taken. The photomontages therefore provide an illustrative tool indicating the potential visual impact of the future scheme.
- 1.1.5 The methodology applied to produce the verified view data collection and baseline viewpoint photography is described below and was undertaken in accordance with GLVIA3 and LI TGN 06/19.
- 1.1.6 Viewpoint locations were provided via an online Grid Reference Finder. Permissions from landowners were required and granted where applicable. Sample photographs from previous site visits were also supplied for reference purposes.

Photography

Verified photography

- 1.1.7 Verified photography was undertaken by a professional photographer and a survey team, who captured high resolution digital photographs using a full-frame Sony A7rIV Digital SLR camera with a 35mm fixed focal-length lens for daytime views and a Panasonic S1 for night views. For each shot the camera was fixed to a custom made high precision panoramic camera mount on a Lecia Survey tripod at a height of 1.65m above the ground with a panoramic scale of 15 degrees to provide sufficient overlap of portrait frames.
- 1.1.8 Full 360 degree sequence of images overlapping 100% and sharing the same point of perspective. A photograph was taken of the camera in its location. For the daytime views an aperture of F8 was selected to provide optimal resolution for the 61mp sensor. For night views an aperture of 2.8 was selected to provide enough exposure for the very low light conditions. The 24mp camera was chosen in place of the 61mp camera for the night views for its superior low light capability. Where night versions of the views were required a survey nail was placed in the ground directly under the point of perspective as indicated by a laser 'plummet' integral to the mount so when the view was revisited at night the camera could be positioned to within +/- 1mm in the E and N as it was previously. The height was within 100mm.

- 1.1.9 Survey markers or fixed survey points were placed out in the landscape within the view to help facilitate accurate camera matching. Photography and survey data collection was done sequentially from the same tripod location.

LVA baseline photography

- 1.1.10 Baseline viewpoint photography was undertaken using a Nikon D610 Full Frame Digital SLR fitted with a fixed 50mm Lens at 6016 x 4016 pixels. For each shot the camera was mounted on a tripod positioned at a height of 1.6m above the ground with a panoramic scale of 15 degrees to provide sufficient overlap of frames. Baseline viewpoint photography was also captured in RAW and stitched using Image Composite Editor to create a seamless panoramic image that is a geometrically accurate two-dimensional projection of the scene. Baseline photography was not used in the production of the photomontages.

Survey

- 1.1.11 Survey data was carried out using a Leica total station to record a set of co-ordinates with the view which are aligned to Ordnance Survey using a Leica Viva GNSS system. Where there were insufficient fixed survey points, temporary survey points were placed, and the survey was undertaken at the same time as the photography. The standard accuracy for temporary survey points is +/- 2mm Eastings and Northings and 25mm above ordnance datum (AOD).
- 1.1.12 If the subject is more than 5km from the camera the earth's curvature affects the view. Control points close to the subject are therefore recorded to provide an accurate correction to distortion caused by the earth's curvature.

Image processing

- 1.1.13 For the verified photography all images were captured in RAW format. They were then converted into TIFF format using software Lightroom and CaptureOne and remapped to remove all lens distortion. The individual frames stitched together to create a seamless image in an equirectangular projection using PTGUI.
- 1.1.14 The image was then placed into a background template in Photoshop and relevant camera information (meta data) added in a text layer. For views with night versions these were layered on top of the daytime versions and positioned until geometric registration was achieved at the horizon to negate the vertical offset setup tolerance. To match night images in terms of accurate representation of light levels to the naked eye was based on qualitative assessment by the photographer and a representative from the landscape team which included at least 10mins of acclimatisation to darkness and use of a red light to preserve this when operating the equipment. In order to better represent the reduced colour perception of the human eye in low light conditions colour saturation levels were reduced in all areas of the image apart from those illuminated by artificial light.

1.2 Visualisations

3D model

- 1.2.1 A three-dimensional computer model of the proposed scheme was produced based on two-dimensional detailed design drawings of the scheme, including proposed materials.
- 1.2.2 The drawings of the proposed scheme were inserted into 3D Studio Max ensuring that a real-world scale and the same co-ordinate system as the survey data was used.

- 1.2.3 The georeferenced model was then overlaid onto Digital Terrain Model (DTM) data.

Camera matching

- 1.2.4 The alignment values for camera position and orientation were calculated in proprietary (and commercially confidential) 'resection' process which also cross references the survey and photographic data for any errors. The intrinsic and extrinsic camera data and Ordnance Survey (OS) coordinates were entered into a spreadsheet together with an offset value for a local point of origin to reduce their numerical size of coordinate data for accurate 3ds Max operation.
- 1.2.5 A script was then run in 3ds Max to automatically create a fully aligned 3ds Max V-ray 'spherical panorama' camera, render out survey points and create a text summary of the data used. This creates a scene within the virtual camera which simulates the same view as that represented in the original viewpoint photography.
- 1.2.6 Wireline renders of the DTM were then used to confirm this alignment, providing a highly accurate verification system.

Rendering

- 1.2.7 VRaySun and VRaySky are lighting features within 3D Studio Max. These were used, along with physically accurate material properties, to calculate the effect of the sun and daylight conditions on the appearance of the scheme, and to then create photorealistic images.

Post production

- 1.2.8 Adobe Photoshop was used to combine the photorealistic image with the relevant baseline viewpoint photograph. Reference points in both the photorealistic image and baseline photograph were aligned. Photoshop masks were then used to hide parts of the photorealistic image which would be obscured behind land, trees, buildings or other structures, so that the final visualisation only shows parts of the model that would be visible. This is a qualitative process using skill and care to ensure that the photomontages provide objectively accurate views of the proposed scheme.

Presentation

- 1.2.9 The finished final photomontages are presented alongside the corresponding baseline viewpoint photographs at the same size, to provide a direct comparison.
- 1.2.10 Viewpoint OS grid coordinates and viewpoint height AOD are noted on the visualisation figure. Additional information on the visualisation figure includes: details of the camera; the lens focal length; the horizontal field of view; the direction of the view; and the distance of the viewpoint. The photomontages and baseline viewpoint photography are presented on Photosheets in Figure 7.10.