

WHARTON

Natural
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Consultants

Arboricultural Impact & Method Statement

SITE LOCATION

West Midlands Safari Park
Spring Grove,
Bewdley
DY12 1LF

ISSUE DATE

27th July 2023

OUR REFERENCE

220927 1561 AIMS V1

PREPARED FOR

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Arboricultural Impact & Method Statement

VERSION: V1 DATE: July 2023
REF NO: 220927 1561 AIMS V1 FINAL



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Table of Contents

1. Introduction	4
1.1 Terms of instruction	4
1.2 Aims of the Arboricultural Assessment	4
1.3 Scope of the Project	4
1.4 Caveats and Limitations	5
1.5 Confidentiality	5
2. Site Overview	6
2.1 Site description	6
3. Relevant Legislation, Policy, Statutory and Non-Statutory Designations	7
3.2 Legislation	7
3.3 National and Local Planning Policy	7
3.4 Related Guidance	7
4. Arboricultural Desk Study	8
4.1 Arboricultural Desk Study	8
5. Arboricultural Walkover Survey	9
5.2 Method of data collection	9
5.3 Arboricultural Survey Results	9
6. Arboricultural Impact Assessment	11
6.1 Purpose of the AIA	11
6.2 Proposed Development Description	11
6.3 Reference documents	11
6.4 Assumptions and Limitations	11
6.5 Arboricultural Impacts from the Proposed Development	12
6.6 Below Ground Constraints	12
6.7 Above Ground Constraints	13
6.8 Tree Planting and Green Infrastructure	14
7. Arboricultural Method Statement (AMS)	15
7.1 Scope of the AMS	15
7.2 Implementation of the Arboricultural Method Statement	15
7.3 General protection measures for retained trees	15
7.4 Anticipated Works Phasing	16
7.5 Site Clearance, Pre-Demolition and Construction Works	17
7.6 Facilitation tree pruning	19
7.7 Construction Exclusion Zone	19
7.8 Tree Protection Fencing Specification	20
7.9 Construction Works	20
7.10 Post-Construction Works	21
8. Conclusions	23
9. Recommendations	24
10. References	25

Arboricultural Impact & Method Statement

VERSION: V1 DATE: July 2023
REF NO: 220927 1561 AIMS V1 FINAL



Appendix 1: Site Location Plan

Appendix 2: BS5837:2012 Survey and Assessment Methodology

Appendix 3: BS5837:2012 Tree Schedule

Appendix 4: Arboricultural Plans

Appendix 5: Glossary of Terms

Appendix 6: Legislation and Policies

Appendix 7: Tree Protective Fencing Specification



1. Introduction

1.1 Terms of instruction

- 1.1.1 COGEO (hereafter the 'Client') commissioned Wharton Natural Infrastructure Consultants Ltd ('Wharton') to undertake an arboricultural assessment and prepare an Arboricultural Impact Assessment (AIA) and Arboricultural Method Statement (AMS). It is prepared in relation to West Midlands Safari Park, Bewdley (hereafter referred to as the 'Site').
- 1.1.2 The Principal Author of this report is James Butler-White *BSc (Hons) MA ArborA*, Senior Arboricultural Consultant at Wharton. The Principal Author is a Professional Member of the Arboricultural Association (AA) and Associate Member of the Institute of Chartered Foresters (ICF).

1.2 Aims of the Arboricultural Assessment

- 1.2.1 Trees may form a constraint to the Proposed Development and therefore a detailed tree survey was undertaken following the methodology as set out in *BS5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations* (The British Standards Institution, 2012) hereafter referred to as 'BS5837:2012'.
- 1.2.2 This AIA and accompanying AMS is required to fulfil the requirements of the Local Planning Authority (LPA), Wyre Forest District Council, to make an informed decision on our client's planning application. This approach accords with best practice as set out in BS5837:2012, which is a planning policy requirement of most Local Planning Authorities (LPAs) in the UK.
- 1.2.3 The assessment has considered trees directly on Site or within influencing distance (a 10m buffer based on the surveyor's discretion, hereafter the 'Study Area') to ensure that arboricultural features which are outside the developable area but whose root protection areas or crowns extents extend into the developable area, are recorded, and considered.

1.3 Scope of the Project

- 1.3.1 The scope and level of detail included within this AIA is appropriate with that required for the adequate consideration of arboricultural features as part of a detailed, full planning application.
- 1.3.2 Information provided complies with the requirements of BS5837:2012, Table B.1 and broadly comprises four stages, these are:
- i. Undertake a survey of trees on the Site and those within the Study Area to fulfil the requirements of BS5837:2012.
 - ii. Provide a Tree Constraints Plan for the Site demonstrating the above and below-ground constraints including Root Protection Areas (RPA) and canopy spreads.
 - iii. Provide an AIA to evaluate the impacts and effects which are likely to arise from the Proposed Development and identify mitigation for retained trees, where necessary.
 - iv. Provide a Tree Protection Plan (TPP) and an Arboricultural Method Statement (AMS).
- 1.3.3 BS5837:2012 outlines guidance on how to assess an arboricultural feature's quality and advises on assessing both direct and indirect impacts. Neither a methodology for defining impacts nor specific criteria for determining an arboricultural feature's perceived sensitivity are provided.
- 1.3.4 If a disagreement arises regarding compliance with associated planning decisions, this document may be utilised as a reference.



1.4 Caveats and Limitations

- 1.4.1 The contents of this report are valid for a period of one year (12 months) from the date of this survey.
- 1.4.2 This is a report which should be to accompany a planning application and provides no detail specifically in relation to the health and safety of the trees. This report in no way constitutes a tree risk-benefit or health and safety survey. Where concerns for tree health and safety exist the necessary and appropriate tree inspections should be carried out.
- 1.4.3 Trees are growing dynamic structures. Whilst reasonable effort has been made to identify defects within the trees inspected, no guarantee can be given as to the absolute safety or otherwise of any individual tree. No tree is ever safe due to the unpredictable laws and forces of nature. As a result of this, natural failure of intact trees will occur; extreme climatic conditions can cause damage to even apparently healthy trees.
- 1.4.4 All tree inspections were undertaken from ground level and no climbing inspections were undertaken.
- 1.4.5 Where trees have been captured beyond the Site boundary, all dimensions of trees and their associated parts are based on estimation unless otherwise stated. If trees are located within the Site boundary, measurements will not be estimated unless otherwise stated within the comments of the Tree Schedule.
- 1.4.6 This is an arboricultural report and as such no reliance should be given to comments relating to buildings, engineering, or soil. Further, this is an arboricultural report and therefore does not rely on ecological or archaeological data. If either is commented upon within the report further professional advice should be sought.
- 1.4.7 Assessment of statutory and non-statutory constraints have been carried out using publicly accessible third-party information and aerial imagery. While this is deemed to be broadly accurate, in some instances no specific date is given for the information and images used and Wharton cannot and will not accept liability for any deficiencies in third party information.
- 1.4.8 The survey has only been undertaken from land within the Client's ownership, from public land or from areas where formal access has been prior arranged.

1.5 Confidentiality

- 1.5.1 The report is for the sole use of the Client as named on this report and its reproduction or use by anyone else is forbidden unless written consent is given by the author. This report shall not be relied upon or transferred to any other parties without the express written authorisation of Wharton.



2. Site Overview

2.1 Site description

2.1.1 Table 1 provides a description of the Site, with the Site location, denoted by a red line boundary, presented at Appendix 1.

Table 1 Site Description and Overview

Item	Description
Site Name	West Midlands Safari Park, Spring Grove Bewdley, DY12 1LF
Ordnance Survey National Grid Reference	SO 80440 75611
Site Description, surrounding land use and Topography	<p>The Site comprises a Safari Park with animal enclosures, theme park and wider leisure grounds located to the west of Kidderminster and east of Bewdley. The proposal site comprises of a yard and associated offices with open grassland and a formal lawn and gardens.</p> <p>The Site is c.81ha in size and is bordered immediately to the north by the Kidderminster Road, which flanks the entire northern boundary. To the east and south the Site is bordered by woodland and a nature reserve. To the west the Stourport Road (A456) flanks the entire western boundary.</p>



3. Relevant Legislation, Policy, Statutory and Non-Statutory Designations

3.1.1 This report has been compiled with reference to the following legislation, policy, and guidance.

3.2 Legislation

- The Town and Country Planning Act 1990.
- The Town and Country Planning (Tree Preservation) (England) Regulations 2012.
- The Forestry Act 1967

3.2.1 Other legislation that affords a lesser or indirect level of protection to trees includes the following:

- The Wildlife & Countryside Act 1981 (as amended).
- Conservation of Species and Habitat Regulations 2017 (as amended).
- Natural Environment and Rural Communities Act 2006 (Section 41 England and Section 42 Wales).
- Hedgerow Regulations (1997).

3.3 National and Local Planning Policy

- National Planning Policy Framework (NPPF), July 2021¹
- Wyre Forest Local Plan²

3.4 Related Guidance

- British Standards Institute. BS 5837: 2012 Trees in relation to design, demolition and construction – Recommendations. London: BSI.
- British Standards Institution. (2010). British Standard 3998:2010, Tree Work - Recommendations. British Standards Institution, London.
- Forestry Commission and Natural England, Ancient woodland, ancient trees, and veteran trees: protecting them from development (2018).
- Tree Council & Ancient Tree Forum Ancient Tree Forum, Lonsdale, D (ed.) (2013) Ancient and other Veteran Trees: Further Guidance on Management.
- Owen & Alderman (2008) and Reed, H. (2000), Veteran Trees: A Guide to Good Management.
- Royal Institute of British Architects, RIBA Plan of Work 2020 Overview, RIBA (2020).

3.4.1 Full details on the Legislation, Statutory and Non-Statutory Designations listed above have been provided in Appendix 6.

¹ Ministry of Housing, Communities & Local Government (2021) National Planning Policy Framework. [Online] Available at <https://www.gov.uk/government/publications/national-planning-policy-framework--2> (Last accessed 27th September 2022).

² Wyre Forest District Local Plan (2016-2036) [Online] available at < <https://wyreforestdc-consult.objective.co.uk/kse/event/36887/section/5855474> > (Last accessed 27th September 2022).



4. Arboricultural Desk Study

4.1 Arboricultural Desk Study

4.1.1 A desk study has been undertaken as a means of identifying if any statutory and non-statutory constraints or designations are present within the Site or Study Area. This desk study includes consideration of the following environmental constraints:

- Tree Preservation Orders (TPO).
- Conservation Areas.
- Ancient Woodland and Ancient, Veteran, or Notable trees.

Tree Preservation Orders and Conservation Areas

4.1.2 The presence of any Tree Preservation Orders (TPO) within the Study Area has been confirmed at the time of writing this report.

4.1.3 It has been confirmed by email on the 27th of September 2022 by Wyre Forest District Council's Planning Department that there are several TPO designations across the Site which are protected under TPO 2012 (Land at West Midlands Safari Park, Kidderminster). However, the Site does not fall within a local Conservation Area.

4.1.4 Provisional Tree Preservation Orders (TPO) may be made whenever a local planning authority deems it appropriate with only those persons interested in the land served with a copy of the Order. A further search for the presence of TPOs should be carried out prior to commencement of any tree works or removals specified within this report.

Ancient Woodland

4.1.5 The presence of ancient woodland designation within or bordering the Site was checked using Natural England's Multi Agency Geographical Information for the Countryside (MAGIC) map³ on 27th of September 2022. It was confirmed that there is no Ancient Woodland within influencing distance of the Site.

Ancient, Veteran and Notable trees

4.1.6 The presence of Ancient, Veteran, or Notable trees⁴ associated with the application boundary were checked using Woodland Trust's Ancient Tree Inventory on 27th of September 2022.

4.1.7 It was confirmed that there are no Ancient, Veteran or Notable trees within influencing distance of the application boundary.

³ Magic (DEFRA), 2018. Multi Agency Geographic Information for the Countryside (Online). Available at: < <https://magic.defra.gov.uk/MagicMap.aspx> > (Last Accessed 27th September 2022).

⁴ Ancient Tree Inventory, 2018. Ancient Tree Inventory [Online]. Available at: < <https://ati.woodlandtrust.org.uk> > (Last Accessed 27th September 2022).



5. Arboricultural Walkover Survey

5.1.1 The walkover survey and arboricultural assessment was undertaken on the 15th of September 2022 by James Butler-White, Senior Arboricultural Consultant. The weather at the time of the survey was dry, cloudy with sunny intervals.

5.1.2 There were no limitations to the assessment.

5.2 Method of data collection

5.2.1 The arboricultural survey was undertaken in accordance with BS5837:2012, with OS master maps forming the base mapping.

5.2.2 The trees on the Site were surveyed without reference to the Site layout as detailed in Clause 4.4.1.1 of BS5837:2012. However, for the purposes of this arboricultural assessment, the design proposal for the Site has been considered.

5.2.3 The survey recorded trees either as individual specimens or as groups, where these trees were aerodynamically, culturally, or visually important as groups. The tree numbers associated with each tree are cross-referenced within the schedule and plans at Appendix 3 and 4 respectively.

5.2.4 A specific methodology for identifying and documenting Ancient, Veteran, or Notable trees in the field is not provided by BS5837:2012. While the term 'Veteran' is defined in paragraph 3.12 of BS5837:2012, the term 'Ancient' or 'Notable' is not given. There are currently several published approaches that are available associated with defining and classifying Ancient, Veteran, or Notable trees. However, due to the intricacy and subjectivity of this subject, different definitions and methodologies exist.

5.2.5 For this BS5837:2012 survey, the methodology set out by the Recognition of Ancient, Veteran & Notable Trees – RAVEN (Julian Forbes-Laird, 2018) has been adopted to survey and assess potential Ancient, Veteran or Notable trees.

5.2.6 It should be noted that Table 1 of BS5837:2012 only gives recommendations in relation to remaining years. A tree may be considered to have a longer remaining life, however, still be of a lower category given its maturity, condition, or overall impact to the application site.

5.2.7 Full details of the survey methodology used are provided in Appendix 2.

5.3 Arboricultural Survey Results

5.3.1 Full details of the trees are provided within the Tree Schedule and the location of each tree and their associated constraints including canopy spread and root protection areas are illustrated on the Tree Constraints Plan (TCP) at Appendix 4.

Table 2 Arboricultural features recorded and quality categories in accordance with BS5837:2012

	Category A	Category B	Category C	Category U
Trees	4	25	3	1
Groups	1	5	5	0
Hedges	0	0	0	0
Total	5	30	8	1

Arboricultural Impact & Method Statement

VERSION: V1 DATE: July 2023
REF NO: 220927 1561 AIMS V1 FINAL



- 5.3.2 A total of 33no. individual trees and 11no. groups of trees have been surveyed. These include 5no. category A, 30no. category B, 8no. category C & 1no category U.
- 5.3.3 Trees T1, T2 and G1 are protected under woodland order W8, G4 woodland order W9, trees T4 to T15 group G9, T20, T21 and G9 under woodland order W7 and trees T22 to T33 and G10 and G11 are protected under woodland order W2. These are referenced in more detail within the Tree Schedule at Appendix 3.
- 5.3.4 In line with BS5837:2012, the category A and B trees should be considered as providing a substantial contribution to a Site. Therefore, category A and B trees should be retained and incorporated into the Proposed Development where feasible.
- 5.3.5 Generally, category C trees are of low quality or are young specimens, which can be readily replaced, therefore, should not be considered a constraint to Proposed Development. However, it is understood that, wherever possible, trees will be retained for the benefits that they currently provide as well as helping to ensure a continuity of tree cover and providing a mature landscape to the Proposed Development.



6. Arboricultural Impact Assessment

6.1 Purpose of the AIA

6.1.1 The purpose of the AIA is to assess the direct and indirect impacts and effects associated with construction of the Proposed Development on existing trees. Where necessary, the AIA further identifies necessary compensation and mitigation measures where these are deemed appropriate.

6.2 Proposed Development Description

6.2.1 The Proposed Development is for the construction of a new solar array farm towards the northern boundary of the Site, with two new substations to the north and south. There will also be a requirement to excavate and route a utility cable from the north of the site to the south.

6.3 Reference documents

6.3.1 As background information, the following documentation set out in *Table 3* below, has been referenced.

Table 3 Document and Plans Provided

Document Description	Reference No.	Prepared By	Date
Topographical Survey	Full site TOPO Plan	Unknown	-
Site Layout Plan COGEO	321 - WMSP - Layout Plan_COGEO BASE - Email	COGEO	July 2023

6.4 Assumptions and Limitations

6.4.1 This AIA has been compiled based on the following assumptions and limitations:

Assumptions

- All proposed site clearance, earthworks, and construction activities were completed ahead of the Site being fenced off and were restricted to the immediate application area (as denoted by the red line boundary) and not into areas of third-party land beyond the development land.
- The proposed service layout design is the most optimal route to avoid further impacts to the trees on the Site. The design has been well-considered, and any impacts cannot be reasonably avoided.

Limitations

- Impacts arising to any trees beyond the Study Area have not been considered.
- The extent of earthworks across the Proposed Development has not been fully disclosed in detail with only site observations made during the walkover survey to be relied upon.
- Details on enabling works, such as the installation or diversion of services and utilities by statutory undertakers beyond the Site, were not considered during an assessment of the impacts.



6.5 Arboricultural Impacts from the Proposed Development

6.5.1 The Site Layout Plan COGEO has been overlaid on the TCP to allow for an assessment of any conflicts with the existing arboricultural resource and to determine those arboricultural features to be retained and removed. This is denoted on the Tree Retention and Removals Plan provided at Appendix 4.

6.5.2 This plan helps to illustrate the relationship between the RPAs associated with the trees and the Proposed Development and outlines any impacts, conflicts or mitigating effects. The RPA for the trees has been calculated as prescribed by BS5837:2012 and are shown as pink dashed circles on the Tree Retention and Removals Plan.

Arboricultural Features to be Removed

6.5.3 To facilitate the Proposed Development, the removal of, 2no. category C tree groups (G6, G7) and 3no. category B individual trees, T12, T13 and T15 will be necessary.

6.5.4 Section 5.1.1 of BS5837:2012 recognises that the competing needs of development mean that trees are only one factor requiring consideration. It also states that misplaced tree retention can be detrimental on a Site where it will cause excessive pressure on those trees being retained and could necessitate their removal in the future.

6.6 Below Ground Constraints

Root Protection Areas

6.6.1 The below ground constraints are generally summarised as the Root Protection Areas (RPA). BS5837:2012 defines the root protection area as *'the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability'* and is an area within which the requirements of the tree *'must be given priority'*.

6.6.2 The RPA is an area equivalent to a circle with a radius 12 times the diameter of the trees measured at 1.5 metres for single stemmed trees. For trees with more than one stem, one of two calculation methods should be used, dependent on the number of stems.

6.6.3 In all cases, the stem diameter(s) should be measured in accordance with Annex C, and the RPA should be guided from Annex D of BS5837:2012.

6.6.4 The RPA is an area in which no ground works should be undertaken without due care in relation to the retained tree(s) and this is to avoid soil compaction, changes in levels or soil contamination which could alter the trees condition and/or stability. The shape of the RPA and its exact location will depend upon arboricultural considerations and existing ground conditions.

6.6.5 This does not mean that some works can be proposed within the RPAs of retained trees however, this needs to be limited to as low as practicable. The BS5837:2012 states that incursion *"should not exceed 20% of any existing unsurfaced ground within the RPA"* and encroachment upon the RPA should be avoided, in general, with excavation avoided as this poses the greatest risk to root severance.

Existing RPA incursions

6.6.6 Individual trees T1, T2, T15, T16, T20 and tree groups G1, G7, G10 all have existing incursions into their RPAs from the existing compacted car parking bays, retaining walls and existing buildings.

New RPA incursions

6.6.7 The default position should be that structures are located outside the RPAs of trees to be retained. However, where there is an overriding justification for construction within the RPA, technical solutions might be available to prevent damage to the tree(s). Recommended within BS



5837:2012, paragraph 5.3.1.

6.6.8 To install the proposed utility route from the substation to the north terminating at a further substation to the south, there will be new incursions within the RPA the trees T9, T11 and T14 and the peripheries of G10. The proposed RPA incursions outlined fall within the tolerance limits as detailed within Section 7.4.2 of BS5837:2012.

6.6.9 To facilitate a working zone when excavating the proposed service trenches and to reduce the likelihood of ground compaction throughout development, there will be a requirement to install temporary ground guards within the RPAs of trees T9, T11 and T14. Ground-Guards to be installed as illustrated with a red hatch on the Tree Protection Plan at Appendix 4.

Underground Utilities

6.6.10 The Site Layout Plan COGEO (Ref: 321 - WMSP - Layout Plan_COGEO BASE - Email) indicates the requirement for utility trenches to be excavated within the RPAs of trees detailed above in section 6.6.g.

6.6.11 Given there is undisturbed ground within the RPAs of most of these trees, it is assumed that there will be rooting activity, to varying degrees, within the areas of proposed incursion. Therefore, to excavate the trenches appropriately, minimising potential for damage to the rooting area, a combination of hand digging and an Air Spade will be utilised. This is highlighted on the tree protection plan in a light blue hatch. Using compressed air, the roots and trench can be exposed. The ACoW will be on site throughout these works when working within the RPAs of the retained trees.

6.6.12 At the time of writing, no information has been provided on excavation depths for the utility trenches. A detailed methodology is provided in section 7.9 to ensure any roots greater than 25mm in diameter are retained.

6.7 Above Ground Constraints

Tree Crowns

6.7.1 The above ground constraints predominantly refer to the impact of the canopy of any retained tree on the Site either by size and form, shadowing, and nuisance factors. The above ground constraints imposed by tree/s, woodland/s and hedge crowns should be considered in relation to the following:

- The crown's extent and its relationship to any structures. The primary consideration should be whether there will be enough space to prevent branches from damaging structures, post-construction and whether the proximity of the crown will appear oppressive to occupiers and visitors and result in future pressure for removal.
- The proportion of open space beneath the crown and if this will obstruct construction access or on-site activities and is it adequate for the passage of both vehicles and pedestrians.
- Seasonal nuisance (e.g., leaf fall blocking gutters, fruit fall creating slippery patches and honey dew dripping on vehicles and surfaces).

6.7.2 Pruning urban trees to regulate their spatial requirements is a routine practice and might be used to address the issues raised above. However, pruning is not acceptable in all situations, and professional guidance should be obtained before depending on it to address any of the issues outlined.

Shade and Proximity

6.7.3 The above ground constraints predominantly refer to the impact of the canopy of any retained



tree on the Site either by size and form, shadowing, and nuisance factors.

6.7.4 The possible influence of retained arboricultural features in terms of shade and fears of safety, breakage, or collapse has been assessed.

Species Characteristics

6.7.5 Consideration has also given to species characteristics such as:

- Deciduous or evergreen.
- Density of foliage.

6.7.6 The characteristics of individual tree species – such as whether they are likely to drop fruit, sticky sap, flowers, or cones- may be regarded as a nuisance by future owners or occupiers and may cause resentment towards trees.

6.8 Tree Planting and Green Infrastructure

Compensation and Mitigation

6.8.1 To provide a measured compensation for the loss of trees/groups T3, G6, G7 and the partial removal of tree group G10, a significant commitment to new tree planting should be proposed throughout the Proposed Development.

6.8.2 T3 (Pedunculate oak) is young specimen which would be suitable for translocation within the Site, to minimise tree loss.

6.8.3 From a general arboricultural perspective, new tree, woodland, and hedge planting should seek to achieve the following:

- Maintain or increase the overall area of canopy cover.
- Increase species diversity to build future resilience into the local population.
- Plant trees which are appropriate to the Proposed Development with an ambition to includes those species which will develop into large specimens with the capacity to contribute positively towards the urban forest, provisioning and regulating of ecosystem services, landscape character and public amenity.

6.8.4 The guidance of BS8545:2014 will be followed in relation to the aftercare of the trees to be planted. This will include amongst general irrigation, formative pruning:

- A formal assessment of young tree health and development should be carried out annually.
- This assessment should include foliar appearance (i.e., lack of leaf chlorosis and/or necrosis), leaf size and leaf canopy density, extension growth and incremental girth development.
- Continual assessment on an ad hoc basis should be carried out throughout the year, to inform maintenance requirements.



7. Arboricultural Method Statement (AMS)

7.1 Scope of the AMS

7.1.1 The scope of this AMS is twofold:

- v. Provide an AMS specifically in relation to the physical protection of trees, to reduce the impact on retained trees, and those located adjacent to the Site.
- vi. Provide a Tree Protection Plan.

7.1.2 The document is also intended as a reference point for all Site Operatives and a copy will remain with the Site Manager for the duration of the development. This document may be used as a point of reference if there were to be a dispute over compliance with related planning decisions.

7.2 Implementation of the Arboricultural Method Statement

7.2.1 It is understood that the Client and their Principal Contractor are responsible for ensuring that the Site works, and subsequent construction of the Proposed Development follow the measures detailed within this AMS.

7.2.2 The Client and Principal Contractor have responsibility to ensure that works at the Site comply with current legislation in respect of protected trees, as well as to ensure that works at the Site comply with planning obligations/conditions.

7.3 General protection measures for retained trees

7.3.1 During construction, retained trees must be adequately protected. Most of the time, this protection will include the installation of mandatory tree protection barriers at the extent of the calculated Root Protection Areas (RPAs) to create construction exclusion zones (CEZ).

7.3.2 The tree-protection measures should adhere to the recommendations in BS5837:2012. The purpose of these measures should be understood and well-considered from the start, as they protect trees to be retained within and adjacent to the Site while allowing adequate access for the implementation of the Proposed Development.

7.3.3 Tree-protection fencing should be robust enough to restrict being breached from the type of construction activity taking place on Site and suitable for the degree and proximity of works to retained trees. Fencing to be installed must be periodically inspected to ensure that they remain fit for purpose and, where required, maintained, or improved throughout the duration of demolition and construction activities on Site.

7.3.4 Tree Protection Fencing should encompass a rigid wire mesh, metal fencing panel (Heras™). In most situations, these panels should be affixed to scaffold poles driven vertically into the ground. To offer additional resistance against impacts where construction activity is anticipated to be more intense, supporting struts; acting as a brace, should also be provided.

7.3.5 Barriers will be erected prior to the start of any demolition and/or construction work unless they already exist. When barriers are installed, the area is designated as a CEZ. Protective barriers will not be removed or altered unless the appointed Project Arboriculturist has been consulted and the acting local authority has agreed.

7.3.6 Site compounds, Portakabins, Containers, and other temporary structures may be used in RPAs in some cases if prior consent is obtained from the acting local planning authority. Prior to installation, the method for installing the buildings and an assessment of whether temporary ground protection is required must be agreed upon and specified with the project Arboriculturist.



7.3.7 Loads that are wide or tall should not encounter retained trees. Oil, bitumen, cement, or any other potentially hazardous material to trees should not be stacked or discharged within 10 metres of a tree stem. Concrete should not be mixed within 10 metres of a tree.

7.3.8 No fires will be lit where flames are expected to extend to within 5m of tree foliage, branches, or trunk, taking wind direction and fire size into account. Any part of a retained tree should not have notice boards, telephone cables, or other services attached to it.

Ongoing arboricultural monitoring of retained trees

7.3.9 Any trees that are to be retained and have the potential to be impacted by development demolition or construction should be routinely monitored both during and after construction.

7.3.10 The goal of arboricultural monitoring is to ensure that all tree protection measures are fit for purpose, that they are implemented in accordance with any approved details, and that any previously unforeseen arboricultural issues are quickly identified and appropriately addressed. This is particularly relevant where there is public access, as recommended in section 8.8.3 of BS5837:2012 - Post Development Management of Existing Trees, to satisfy the landowner's duty of care.

7.4 Anticipated Works Phasing

Sequence of operations

7.4.1 This AMS makes several recommendations for the Site. For convenience, all the recommendations in this report have been listed in Table 4 below with the relevant sections listed.

7.4.2 To ensure a successful development, it is imperative that all these recommendations are carried out in a similar order to the tabulated form below. The timing of these stages may be altered in accordance with any future changes to the construction programme.

Table 4 Works Phasing Programme

Phase / Timing	Recommendation	Section
Pre-Development	Appoint Arboricultural Clerk of Works (ACoW) to oversee all arboricultural issues on-site	7.5
	Facilitation tree removal and tree works	7.6
	Erect tree protection fencing to BS5837:2012 specifications as appropriate and install temporary ground protection	7.8
	Implement reporting process for all unforeseen arboricultural incidents	7.5
	Implement use of progress sheet to build up evidence base of good practice on-site	7.5
	Initial / pre-commencement meeting	7.5
During Development	Installation of underground services trenches in RPA's of T9, T11 and T14 and G10.	7.9



Phase / Timing	Recommendation	Section
	Installation of ground guards in the RPA's T9, T11 and T14	7.9
Post-Development	Post Construction Works	
	General maintenance / remedial tree works	7.10

7.5 Site Clearance, Pre-Demolition and Construction Works

Appointment of Arboricultural Clerk of Works (ACoW)

- 7.5.1 It is recommended that the Principal Contractor appoint a suitably qualified arboriculturist to act as an ACoW. The ACoW will be responsible for all arboricultural matters on Site and will be appointed to monitor and oversee the implementation of the works required in this AMS.
- 7.5.2 The role of the ACoW is a relatively formal one and their involvement should be limited to several Site visits where decisions can be made relatively quickly.
- 7.5.3 The ACoW must:
- Be present on Site whenever work is being done carried out within the RPA, or within an exclusion zone as specified in this AMS.
 - Be responsible for ensuring that all site operatives are aware of their responsibilities toward retained trees and the consequences of any failure to comply.
 - Have the authority to stop any work that is causing, or has the potential to cause, harm to any retained tree.
 - In the event of any tree-related problems, whether actual or potential, make immediate contact with the local authority and/or the project arboriculturist.
- 7.5.4 The ACoW will also be the first point of contact for arboricultural advice on any issues that arise that are not covered in this AMS, such as additional tree work, work required within the RPA of the trees on-site, damage to any of the retained/unmanaged trees, or a breach of the tree protection measures on-site.

Pre-commencement site meeting

- 7.5.5 It is recommended that a pre-commencement site meeting be undertaken. The Principal Contractor, the acting local authority Tree Officer, and the appointed ACoW will meet prior to the start of the project. The goal of this meeting is to ensure that all aspects of the tree protection measures are clear and understood, as well as to agree on any future sequencing and supervisory arrangements. The minutes of this meeting will be recorded and distributed in writing to all parties concerned.
- 7.5.6 Following the Site meeting, the ACoW will conduct regular Site visits to ensure that protective measures remain in place; file notes on the progress of the works will be prepared and filed. The ACoW can "sign off" on the progress sheet once the tree protection measures have been confirmed as acceptable. It is recommended that the Site be visited monthly throughout the course of development for the purposes of the proposed development.



Toolbox Talks

- 7.5.7 Following the pre-commencement meeting, the Site Manager will be responsible for providing a toolbox talk to any on-site operatives. The goal of this toolbox talk is to educate operatives on how to protect all retained trees.
- 7.5.8 When new external trades / Contractors begin work on site, the Site Manager will review the toolbox talk.
- 7.5.9 The toolbox talk shall focus on informing Contractors on the following topics:
- How trees can be harmed on development sites.
 - How the trees on this site will be protected by tree protection fencing and ground protection.
 - Discussion on methods of working near the trees as outlined in this AMS.
 - How to report an issue before it becomes a problem.
- 7.5.10 The protection of trees is a requirement of planning approval and failure to comply could result in stop notices being applied or fines.

Key Stages of the Arboricultural Clerk of Works' Appointment, Supervision, and Monitoring

- 7.5.11 The ACoW shall be required at the following stages:
- Pre-commencement Site Meeting with the Principal Contractor. To ensure all required tree protection is in place, and to discuss any required amendments with the Local Planning Authority Tree Officer.
 - Measure out Tree Protective Fencing locations and set out any additional tree protective measures to establish a Construction Exclusion Zone (CEZ). This will be inspected prior to the commencement of works by the ACoW.
 - Provide supervision for installation of Ground Guards.
 - Supervision of installation of services within RPAs of trees T9, T11, T14 and G10
 - Monthly auditing Site visits (ongoing until project completion).

Wharton Project Arboricultural Consultant Contact Details

Name: Elva Preston

Role: Senior Arboricultural Consultant

Email: elva@wnic.co.uk

Contact number: 07951 097 154

Reporting process

- 7.5.12 If any damage is sustained to either the retained trees or the RPAs during construction, it should be reported to the Site Manager as soon as possible. The Site Manager should notify the ACoW as soon as possible, and the ACoW will conduct a site visit to assess the impact on the trees and make recommendations for any necessary work.
- 7.5.13 Damage to the trees or RPAs could occur because of site vehicle collision damage to the crowns of retained trees; excavation within the root protection area; dumping of soil / materials within the root protection area; chemical / cement spillage into the root protection area; or fire damage to



the crown / stem of the tree.

Progress sheet

- 7.5.14 During the various stages of the development a record of the completion of the various tree protection works will be kept by the ACoW. This will provide the Council with sufficient evidence that all practicable steps have been taken to prevent damage to the trees, thereby ensuring compliance to any Planning Conditions.
- 7.5.15 A separate progress sheet will be filled in for each completed operation. The original will be kept with the copy of this document that will be retained by the Site Manager in the Site Office. Once completed a copy will be sent to the ACoW and the Councils Tree Officer.

7.6 Facilitation tree pruning

- 7.6.1 The lower canopy of trees T14 and G10 may cause some minor ongoing conflict with installing and excavating the proposed service trenches. This may result in the requirement for some minor pruning works to maintain the raised canopies. If managed sympathetically, this will not affect the overall quality of the trees.
- 7.6.2 It is recommended that the canopy of T14 is raised to c.4m from ground level over the proposed service trench alignment.
- 7.6.3 The need for any further pruning work will become apparent during on-site supervision by the ACoW and should be identified prior to the start of any construction work and discussed at a pre-commencement meeting.
- 7.6.4 Outside of the bird-breeding season, all vegetation, particularly woody vegetation, proposed for removal must be removed (March - September inclusive). While on the nest, birds are protected under the Wildlife and Countryside Act of 1981 (as amended). If this is not possible, an ecologist should inspect the vegetation to be removed or pruned for the presence of nesting birds.

7.7 Construction Exclusion Zone

Overview

- 7.7.1 The principal protection for the retained trees (above and below ground) and associated soils within the Site is through the maintenance of the CEZ. The CEZ will be sacrosanct throughout development, no access will be allowed to the area other than for operations specified in this AMS document or those agreed with the LPA later.
- 7.7.2 The positioning of the CEZ will be in line with the Tree Protection Plan at Appendix 4.
- 7.7.3 Prior to any on-site earthworks or construction, tree protective measures and the CEZ must be in place. These will be inspected prior to the commencement of works by the ACoW and Tree Officer. The installation of tree protection will be undertaken before work commences.

Ensuring the integrity of the construction exclusion zone

- 7.7.4 To guarantee the protection that the CEZ provides to retained trees and soils, the following must be carefully adhered to when planning site operations:
- The protective tree fencing shall be maintained throughout the development phase.
 - No materials, machinery, temporary structures, chemicals, or fuel shall be stored within the CEZ.
 - No excavations or increases in soil level within the CEZ are permitted without prior written approval from the LPA.



- Care should be taken to ensure that wide or tall loads or plant with booms, jibs and counterweights do not come into contact with retained trees. Any transit or traverse of plant near trees should be conducted under the supervision of a banks person to ensure that adequate clearance from trees is maintained at all times.
- Material which will contaminate the soil such as concrete mixing, diesel oil and vehicle washing must not be discharged within 10m of the tree stems. In the event of an accident or spillage the ACoW must be notified.
- Fires must not be lit in a position where their flames can extend to within 5m of foliage, branches, or trunk. This will depend on the size of the fire and the wind direction.
- Any landscaping within the CEZ must avoid soil disturbance. Therefore, re-grading and rotavators are not permitted. Any agreed soil re-profiling to facilitate final agreed levels must be carried out by hand with topsoil.

7.8 Tree Protection Fencing Specification

- 7.8.1 Prior to any construction or vehicular movement, tree protective measures must be in place. These will be checked prior to the commencement of works by the ACoW.
- 7.8.2 These protective measures ensure suitable protection of trees and associated soils. The key method of tree protection is using fencing/barriers.
- 7.8.3 The tree protection fence/barrier once erected will not be moved or relocated without written approval from the local authority. The tree protection area behind the fence/barrier (the Construction Exclusion Zone) will be sacrosanct throughout development and no access will be allowed to this area including for example the storage of or moving of materials or machinery. In the Construction Exclusion Zone there will be no excavations or increases in soil level without prior written approval from the local authority. The location of protective fencing is illustrated on the Tree Protection Plan.
- 7.8.4 The barriers will be made from scaffold in a vertical and horizontal framework, as shown as Figure 3 in BS5837:2012 (see Appendix 7). This is not the default specification as in this instance it is more appropriate to place the fencing on rubber feet with a supporting rear strut.
- 7.8.5 There will be clear and visible signs attached to the protective fencing with the following "Construction Exclusion Zone - No Access" and the area will be regarded as sacrosanct by everyone. This will be checked prior to the commencement of work by the ACoW and Tree Officer initially, and by the ACoW throughout the course of development.
- 7.8.6 A detailed A1 laminated Tree Protection Plan will be located within the site office throughout the course of development. This will include details of the fencing specification and location for which the fence will be erected.

7.9 Construction Works

Installation of Ground Guards

- 7.9.1 As detailed within Section 6, to implement the service trenches, there will be a requirement to position a working zone within the RPAs of T9, T11 and T14.



- 7.9.2 As a result, there will be a requirement for ground protection. To reduce the likelihood of ground compaction through development there will be a requirement to install temporary Ground-Guards. Ground-Guards to be installed as illustrated with a red hatch on the Tree Protection Plan at Appendix 4.
- 7.9.3 The Ground Guards will comprise of either suspended wooden walkway beneath the scaffolding or 100mm of woodchip laid onto geotextile base overlaid with wooden boards. This will significantly reduce the likelihood of ground compaction as detailed within BS5837:2012 Clause 6.2.3.3 Note a.
- 7.9.4 Woodchip and ground boarding should not be piled up around the base of trees and clearance should be given to ensure that no damage is caused.
- 7.9.5 Vehicular access is strictly prohibited within any area protected by Ground Guard and where possible should be limited by a pedestrian gated access.
- 7.9.6 **Installation Methodology:**
- i. Edge rails of sawn timber should be installed where the track way will pass over exposed retained tree RPA's. These should be installed on either side of the track way using 50x50x500mm timber stakes at 1.5m spacings.
 - i. A layer of geotextile membrane should then be laid over the area of ground to have the track way installed upon it.
 - ii. A base layer of Ground Guards should be laid over the top of the geotextile membrane.
 - iii. A minimum layer of at least 150mm deep coarse, preferably green wood chippings should be laid as a compressible layer over the top of the Ground Guards.
 - iv. The surface Ground Guard track way can then be laid over the top of the wood chippings

Installation of services

- 7.9.7 The installation of proposed service trenches is located within the RPA of T19, T11, T14 and G10.
- 7.9.8 To excavate the trenches without causing significant damage to the trees, a combination of hand digging, and an Air Spade will be utilised. Using compressed air, the roots and trench can be exposed without causing any additional damage.
- 7.9.9 Once the soil has been loosened with the Air Spade, the soil will be removed using a Soil Vacuum. Excavation by vacuum is fast becoming accepted as best practice in the field of remediation works.
- 7.9.10 Following completion of the excavations and infrastructure installation, the excavated trenches will be back filled with nutrient enriched topsoil as per clause 7.2.4 of BS5837:2012.
- 7.9.11 Using this non-destructive technology, the area can be excavated without the use of digging equipment such as mini diggers. It allows positive visual identification of roots and services without making physical contact with them, avoiding strikes, and vastly improving service installation from an arboricultural perspective.
- 7.9.12 It is critical that all works within the RPAs are completed under the direct supervision/guidance of the ACoW. This will ensure that foreseeable damage does not occur to the trees during this phase of works.
- 7.9.13 Exposed roots should immediately be wrapped/covered in hessian to prevent desiccation as per section 7.2.2 of BS5837:2012. Wrapping should be removed prior to backfilling.
- 7.9.14 Roots with a diameter of less than 25mm will be cut back to appropriate growth points. As



detailed in clause 7.2.3 of BS5837:2012, this is considered acceptable and unlikely to cause detrimental impact. It is anticipated that rooting with a diameter greater than 25mm may be discovered.

7.10 Post-Construction Works

Post development inspection

7.10.1 Following the completion of the development an inspection of the condition of retained trees will be made. Where appropriate tree works will be undertaken following notification to the local authority. These works will be to remove ivy, deadwood and undertake works on the grounds of safety and to remediate where necessary.

7.10.2 Where the soil around any tree is found to be compacted appropriate remediation will be undertaken. This will be prescribed by the ACoW and could include soil aeration or manual digging/forking to loosen the soil increasing drainage and aeration.

Annual inspection

7.10.3 An annual inspection of trees will be undertaken post construction for the duration of two years following construction completion. It is not anticipated that the condition of trees will significantly change following the development's completion, but a continued monitoring of the trees' condition will be made by the ACoW. Where appropriate remedial works will be undertaken to rectify any issues.



8. Conclusions

- 8.1.1 A walkover survey and arboricultural assessment was undertaken on the 15th of September 2022 by James Butler-White, Senior Arboricultural Consultant.
- 8.1.2 A total of 33no. individual trees and 11no. groups of trees have been surveyed. These include 5no. category A, 30no. category B, 8no. category C & 1no category U.
- 8.1.3 To facilitate the Proposed Development, the removal of, 2no. category C tree groups (G6, G7) and the removal of 3no. category B trees (T12, T13 and T15) will be necessary.
- 8.1.4 To offset the loss of trees, a significant commitment to new tree planting should be proposed throughout the Proposed Development.
- 8.1.5 To install the proposed utility route from the substation to the north to the south, there will be new incursions within the RPA of a number of retained trees and groups. Given these trees currently have no existing incursions, the proposed RPA incursions falls within the tolerance limits as detailed within Section 7.4.2 of BS5837:2012.
- 8.1.6 To facilitate a working zone when excavating the proposed service trenches there will be a requirement to install ground guards within the RPAs of trees T9, T11 and T14.
- 8.1.7 An Arboricultural Method Statement and Tree Protection Plan has been prepared which outlines appropriate mitigation and protection measures appropriate to the judged impacts.



9. Recommendations

- 9.1.1 There will be a requirement for ground protection. To reduce the likelihood of ground compaction through development there will be a requirement to install temporary Ground-Guards. The Ground Guards will comprise of either suspended wooden walkway beneath the scaffolding or 100mm of woodchip laid onto geotextile base overlaid with wooden boards. This will significantly reduce the likelihood of ground compaction as detailed within BS5837:2012 Clause 6.2.3.3 Note a.
- 9.1.2 To excavate the trenches without causing significant damage to the trees, a combination of hand digging, and an Air Spade will be utilised. Using compressed air, the roots and trench can be exposed without causing any additional damage. Exposed roots should immediately be wrapped/covered in hessian to prevent desiccation as per section 7.2.2 of BS5837:2012. Wrapping should be removed prior to backfilling.
- 9.1.3 Roots with a diameter of less than 25mm will be cut back to appropriate growth points. As detailed in clause 7.2.3 of BS5837:2012, this is considered acceptable and unlikely to cause detrimental impact.
- 9.1.4 It is critical that all works within the RPAs are completed under the direct supervision/guidance of the ACoW. This will ensure that foreseeable damage does not occur to the trees during this phase of works.
- 9.1.5 It is critical that all Tree Protective Fencing is installed and erected, and the Construction Exclusion Zone (CEZ) enforced prior to the commencement of any works on-site. Following installation of tree protection, a site meeting will be undertaken with the Tree Officer to ensure satisfaction of all parties prior to any on-site works commencing.
- 9.1.6 For tree and root protection measures to work effectively all personnel associated with the construction process must be familiar with the Tree Protection Plan.



10. References

British Standard 5837:2012 'Trees in Relation to Design, Demolition and Construction - Recommendation'

British Standard 3998:2010 – Tree Work Recommendations

British Standard 8545:2014 Trees: from nursery to independence in the landscape – Recommendations

Wyre Forest Local Plan (2016-2036)

Arboricultural Impact & Method Statement

VERSION: V1 DATE: July 2023
REF NO: 220927 1561 AIMS V1 FINAL



Appendix 1

Site Location Plan

Arboricultural Impact & Method Statement

VERSION: V1 DATE: July 2023

REF NO: 220927 1561 AIMS V1 FINAL



Red line area denoted indicative only.





Appendix 2

BS5837:2012 Survey and Assessment Methodology

- v. The trees on the Site were originally surveyed without reference to site layout as detailed in paragraph 4.4.1.1 of BS5837:2012. However, for the purposes of the Arboricultural Impact Assessment the Proposed Development for the Site has been considered.
- vi. The position of each tree was plotted with reference to the supplied ordinance survey plan. Small trees with a stem diameter less than 75mm were generally not surveyed as they would either be easily replaced or relocated.
- vii. Each individual tree has been given a tree identification number, the groups and hedges clearly defined for the purpose of this report. Metal tags have not been used for this survey as identification on-site does not require this. The tree numbers associated with each tree are cross referenced within the schedule and plans at Appendix 3 and 4 respectively.
- viii. The tree species have been recorded with both common and botanical names.
- ix. All tree heights have been assessed using a clinometer and were indicated in groups the height of the tallest tree was measured unless otherwise stated. Tree heights are given in metres.
- x. All stem diameters were measured at 1.5 metres above ground level and are given in millimetre units (unless otherwise stated where "gl" is an abbreviation for ground level where diameter was measured just above root flare, "est" is an estimate and "av" is an average).
- xi. The canopy spread is recorded in either the four cardinal points or is given as an average diameter for the crown, especially in groups or where the crown is evenly weighted. Canopy spreads are measured in metres.
- xii. The height of the ground clearance is given in metres and is an estimate of the height of the first branch above ground level.
- xiii. In absence of detailed information on the age the following classification has been used:

Young	Young trees aged less than 1/3 life expectancy.
Semi-Mature	Established specimen approaching 1/3 life expectancy.
Early-Mature	Middle age trees 1/3 – 2/3 life expectancy.
Mature	Mature trees over 2/3 life expectancy.
Over-Mature	Over-mature – declining or moribund trees of low vigour; and
Veteran	Veteran trees – specimens exhibiting features of biological, cultural, or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned.

N.B. Age class is indicative and will vary between species.

- xiv. The structural condition of the trees has been assessed and is summarised as:

Good	Few minor defects of little overall significance.
Fair	A significant defect or several small defects.
Poor	Major defect present or many small defects.

Arboricultural Impact & Method Statement

VERSION: V1 DATE: July 2023
REF NO: 220927 1561 AIMS V1 FINAL



xv. The physiological condition has been recorded to provide an indication of the tree's general health and vitality. The trees have been described thus:

Good	Generally in good health typical of the species.
Fair	Reasonable health with few defects.
Poor	Trees that exhibit significant risk features which are irremediable or moribund tree.
Dead	Tree has died.

xvi. Each tree was individually assessed and comments, where appropriate, were recorded for the condition of each tree's roots, main stem, and crown.

xvii. General comments have also been made where appropriate, with recommendations when relatively immediate works are given.

xviii. Estimated remaining contribution has been categorised as: less than 10 years, 10-20 years, 20-40 years or over 40 years, based upon an assessment of the tree's potential safe useful life expectancy. The remaining contribution in years has not always been directly followed in relation to the retention categories of the trees as trees may have a long remaining life however be of little significance in terms of development.

Ancient Woodland, Ancient, Veteran and Notable trees

xix. For this BS5837:2012 survey, the methodology set out by the Recognition of Ancient, Veteran & Notable Trees – RAVEN (Julian Forbes-Laird, 2018) has been adopted to survey and assess potential Ancient, Veteran or Notable trees.

xx. The Forestry Commission (FC) and Natural England (NE) have published guidance and recommendations to safeguard Ancient Woodland, Ancient, and Veteran trees against development. In summary this guidance advises on the use of semi-natural buffer zones as a means of protection with minimum distances identified as:

- Fifteen metres between any development and ancient woodland.
- Fifteen times the diameter of its stem or 5m from the edge of its canopy, if that's greater, around any ancient or veteran tree.

Arboricultural Impact & Method Statement

VERSION: V1 DATE: July 2023
REF NO: 220927 1561 AIMS V1 FINAL



Appendix 3

BS5837:2012 Tree Schedule

BS5837:2012 Tree Schedule

Client Name: COGEO
Site: West Midlands Safari Park, Bewdley
Ref No: 220921 1561 TS V1

Consultant: J. Butler-White
Survey Date: September 2022



Measurements		Age Class		Physiological Condition		Structural Condition	
Height	All tree heights have been assessed using a clinometer. Tree heights are given in metres.	Young	Establishing, good vigour, fast growth rates and strong apical dominance; < 1/3rd estimated life expectancy.	Good	Generally in good health typical of the species.	Good	Few minor risk features of little overall significance.
Stem Dia.	Diameter in millimetres (mm) in accordance with BS5837:2012 paragraph 4.6.1, Annex C.	Semi-Mature	Established specimen approaching 1/3 life expectancy.	Fair	Reasonable health with few risk features.	Fair	A significant risk feature or several small risk features.
Crown spread	Given as an average diameter or measured using a distometer. North (N), east (E), south (S) and west (W) provided.	Early-Mature	1/3 - 2/3 life expectancy, vigorous growth rate and increasing in height.	Poor	Trees that exhibit significant risk features which are irremediable or moribund tree.	Poor	Major risk feature present or many small risk features.
Crown Height	Height of ground clearance is given in metres. Estimate of the height of the first branch above ground level.	Mature	Over 2/3 life expectancy. Generally good vigour and achieving full height potential with crown still spreading.	Dead	Tree has died.	Collapsing	Feature has uprooted or the whole tree, or part of the tree has collapsed.
Species name	The tree species have been recorded with both common and scientific names.	Over-Mature	Declining or moribund trees of low vigour.	Abbreviations and Notes est - Estimated stem diameter av - Average stem diameter for multiple stems upto - Maximum stem diameter of a group erc - Estimated remaining contribution			
Tag no.	Where present, any metal tags attached to trees have been recorded.	Veteran	Exhibiting features of biological, cultural, or aesthetic value characteristic of species surviving beyond the typical age range.				

Root Protection Areas (RPA)

The below ground constraints are generally summarised as the root protection areas (RPA). The RPA is an area equivalent to a circle with a radius 12 times the diameter of the trees measured at 1.5 metres for single stemmed trees. For trees with more than one stem, one of two calculation methods should be used. In all cases, the stem diameter(s) should be measured in accordance with Annex C, and the RPA should be guided from Annex D of BS5837:2012. Both RPA radius in metres from the main stem and total area for the RPA as square metres.

An average stem diameter is provided for tree groups, wooded areas and hedges. Where veteran trees have been identified the RPA has been calculated in accordance with Natural England guidance i.e. 15x the stem diameter or 5m beyond the crown whichever is greater.

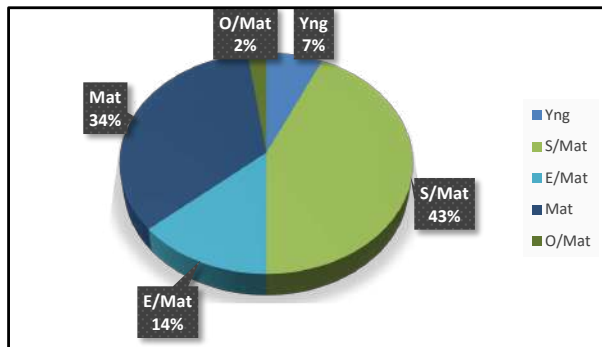
General Notes

Each tree was individually assessed and comments, where appropriate, were recorded for the condition of each tree's roots, main stem, and crown. The physiological condition has been recorded to provide an indication of the tree's general health and vitality. General comments have also been made where appropriate, with recommendations for tree work given, where applicable.

Each individual tree has been given an identification number. Metal tags have not been used for this survey as identification on-site does not require this. The tree numbers associated with each tree are cross referenced within the schedule and Tree Constraints Plan/s. Small trees with a stem diameter less than 75mm were not surveyed as they would either be easily replaced or relocated.

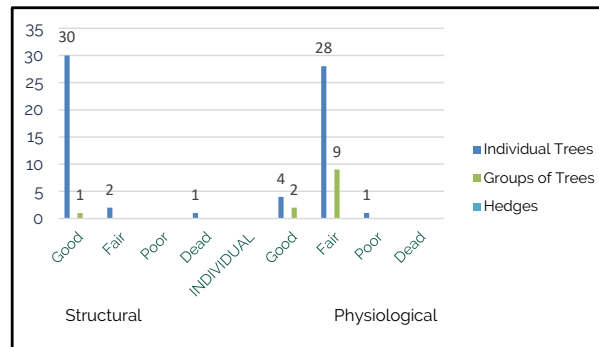


Age Distribution of the Tree Population



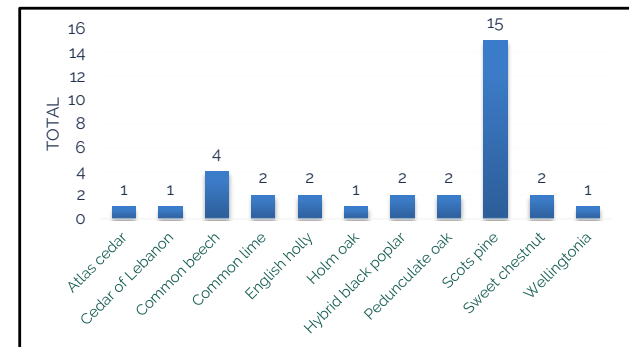
The distribution of age category across the tree population is useful for understanding expected longevity and can be used for determining mitigation, management and replacement.

Distribution of Physiological and Structural Conditions across the Tree Population



Physiological condition provides an indication of the vitality of the tree. Structural condition is related to the presence of defects that can lead to failures.

Species Composition of the Individual Tree Population



The proportions of any given family, genus, species, and cultivar which make up the total individually recorded tree population across the Site.

Ancient Woodland and Ancient, Veteran and Notable Trees

Ancient Tree - A tree that has passed beyond maturity and is old, or aged, in comparison with trees of the same species. Characterised by biological, cultural, or aesthetic features of interest.

Ancient Woodland - Any wooded area that has been continuously wooded since 1600 AD

Veteran Tree - Exhibiting features of biological, cultural, or aesthetic value characteristic of species surviving beyond the typical age range.

Notable Tree - mature trees which may stand out in the local environment because they are large in comparison with other trees around them.

Forestry Commission and Natural England Guidance for the protection of ancient woodland, ancient trees and veteran trees from development and the use of semi-natural buffer zones:

- Fifteen metres between any development and ancient woodland.
- Fifteen times the diameter of its stem or 5m from the edge of its canopy, if that's greater, around any ancient or veteran tree.

Ancient Woodlands

0

Ancient Trees

0

Veteran Trees

0

Notable Trees

0

BS5837:2012 Tree Schedule



CATEGORY A		CATEGORY B		CATEGORY C		CATEGORY U	
Trees with an estimated remaining contribution of at least 40 years. Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features.		Trees with an estimated remaining life expectancy of at least 20 years. Trees that might be included in category A, but are downgraded because of impaired condition or trees lacking the special quality necessary to merit the category A designation.		Trees with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm. Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.		Trees 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.	
Sub-categories		Mainly arboricultural value	1	Mainly landscape value	2	Mainly cultural or conservation value	3
Summary of Individual trees, Groups, Woodlands and Hedges							
T20, T21, T23, T24, G9		T1, T2, T4-T17, T19, T22, T25-T31, G1, G4, G8, G10, G11		T3, T32, T33, G2, G3, G5, G6, G7		T18	
5		30		8		1	
Estimated Remaining Contribution (ERC)							
> 40 years		> 20 years		< 20 years		< 10 years	
Breakdown of Arboricultural Features for each BS5837:2012 Category							
Trees	4	Trees	25	Trees	3	Trees	1
Groups	1	Groups	5	Groups	5	Groups	0
Woodlands	0	Woodlands	0	Woodlands	0	Woodlands	0
Hedgerows	0	Hedgerows	0	Hedgerows	0	Hedgerows	0
Percentage of tree population	11.4%	Percentage of tree population	68.2%	Percentage of tree population	18.2%	Percentage of tree population	2.3%

In assigning the BS5837:2012 Category, particular consideration has been given to the the presence of any structural defects for each feature, the size and form of each feature, its suitability within the context of a proposed development, and the location of each feature relative to existing site features e.g. its screening value or landscape amenity value.

BS5837:2012 Tree Schedule



Tree No.	Tag No.	Species (Common Name)	Species (Scientific Name)	Height (m)	Stem Dia (mm)	Crown Spread (m)				Height of Crown Clearance (m)	Age Class	Phys Con	Struc Con	Additional notes	Statutory and Non-statutory Considerations	Estimated remaining contribution (erc)	Ret Cat	RPA (m ²)	RPA Radius (m)
INDIVIDUAL TREES																			
T1	No Tag.	Hybrid black poplar	<i>Populus nigra</i>	18	650	4	4	4	4	1	Mat	Good	Fair	Edge of boundary group bordering yard. Compaction and hard surfacing associated with rooting environment to the south and west. Main stem bifurcates at c.7m. Previously pollarded at c.15m with dense regrowth. No access to tree all measurements estimated	W8	20 to 40 years	B1, 2	191	7.8
T2	No Tag.	Hybrid black poplar	<i>Populus nigra</i>	18	680	4	3	4	3	10	Mat	Good	Fair	Edge of boundary group bordering yard. Compaction and hard surfacing associated with rooting environment to the south. Main stem bifurcates at c.9m. Previously pollarded at c.15m with dense regrowth. No access to tree all measurements estimated	W8	20 to 40 years	B1, 2	206	8.1
T3	No Tag.	Pedunculate oak	<i>Quercus robur</i>	5	330	4	4.5	3.5	4.5	0	E/Mat	Good	Good	Set back within site. Low canopy. Main stem bifurcates at c.0.5m. Low value specimen potentially self sown within location.	Gg	20 to 40 years	C1	48	3.9
T4	No Tag.	Scots pine	<i>Pinus sylvestris</i>	9	400	1.5	0.5	3.5	4.5	6	S/Mat	Good	Fair	Situated along boundary. Dense bramble around base restricting further assessment, all measurements estimated. Previously failure of upper canopy with remaining primary stem to the west. Large diameter dead stubs and tear out wounds. Moderate value specimen	Gg	20 to 40 years	B1	72	4.8
T5	No Tag.	Scots pine	<i>Pinus sylvestris</i>	16	800	4.5	6.5	7	2.5	12	Mat	Good	Fair	Situated along boundary. Dense bramble around base restricting further assessment, all measurements estimated. Previously failures of primary limbs to the west and east at 1.5m Large diameter dead stubs and tear out wounds. Moderate value specimen	Gg	20 to 40 years	B1	290	9.6
T6	No Tag.	Scots pine	<i>Pinus sylvestris</i>	10	700	0.5	0.5	4.5	7.5	1.5	S/Mat	Good	Fair	Situated along boundary. Previously failures of central apical leader. Large diameter dead stubs and tear out wounds. Moderate value specimen	Gg	20 to 40 years	B1	222	8.4
T7	No Tag.	Scots pine	<i>Pinus sylvestris</i>	12	580	2.5	4.5	5.5	2	10	S/Mat	Good	Fair	Situated along boundary. Main stem bifurcates at c.10m. Shares collective canopy with adjacent trees. Moderate value specimen	Gg	20 to 40 years	B1	150	6.9
T8	No Tag.	Scots pine	<i>Pinus sylvestris</i>	12	620	2.5	0.5	5.5	3.5	10	S/Mat	Good	Fair	Situated along boundary. Single straight stem for majority of height. Shares collective canopy with adjacent trees. Moderate value specimen	Gg	20 to 40 years	B1	177	7.5
T9	No Tag.	Scots pine	<i>Pinus sylvestris</i>	15	650	2.5	0.5	5.5	8.5	10	S/Mat	Good	Fair	Situated along boundary. Single straight stem for majority of height which exhibits leaning tendency to the west. Shares collective canopy with adjacent trees. Moderate value specimen	Gg	20 to 40 years	B1	191	7.8
T10	No Tag.	Scots pine	<i>Pinus sylvestris</i>	15	550	1.5	6	2	2	10	S/Mat	Good	Fair	Situated along boundary. Single straight stem for majority of height. Shares collective canopy with adjacent trees. Moderate value specimen	Gg	20 to 40 years	B1	137	6.6
T11	No Tag.	Sweet chestnut	<i>Castanea sativa</i>	8	820	6	5.5	4.5	3.5	0.5	S/Mat	Good	Fair	Situated on edge of boundary. Dense epicormic growth and low canopy. Main stem exhibits leaning tendency from ground level to the west. Shares collective canopy with adjacent trees. Squat specimen	Gg	20 to 40 years	B1	308	9.9
T12	No Tag.	Scots pine	<i>Pinus sylvestris</i>	16	500	2.5	3.5	5.5	3.5	8	S/Mat	Good	Fair	Situated along boundary. Single straight stem for majority of height. Longitudinal occluding wound associated with main stem. Shares collective canopy with adjacent trees. Moderate value specimen	Gg	20 to 40 years	B1	113	6.0
T13	No Tag.	Scots pine	<i>Pinus sylvestris</i>	16	580	2.5	3.5	2.5	4.5	10	S/Mat	Good	Fair	Situated along boundary. Single straight stem for majority of height. Shares collective canopy with adjacent trees. Moderate value specimen	Gg	20 to 40 years	B1	150	6.9
T14	1133	Sweet chestnut	<i>Castanea sativa</i>	8	700	5	5.5	6.5	4.5	0.5	S/Mat	Good	Fair	Situated on edge of boundary. Dense epicormic growth and low canopy. Main stem exhibits leaning tendency from ground level to the north. Large bark wound associated with lower main stem. Shares collective canopy with adjacent trees. Squat specimen	Gg	20 to 40 years	B1	222	8.4
T15	No Tag.	Scots pine	<i>Pinus sylvestris</i>	15	860	5.5	1	7	8	0.5	Mat	Good	Fair	Situated along boundary. Single straight stem for majority of height. Canopy biased to the west. Compaction associated with rooting environment to the south-west. Moderate value specimen	Gg	20 to 40 years	B1	327	10.2

BS5837:2012 Tree Schedule



Tree No.	Tag No.	Species (Common Name)	Species (Scientific Name)	Height (m)	Stem Dia (mm)	Crown Spread (m)				Height of Crown Clearance (m)	Age Class	Phys Con	Struc Con	Additional notes	Statutory and Non-statutory Considerations	Estimated remaining contribution (erc)	Ret Cat	RPA (m ²)	RPA Radius (m)
						N	E	S	W										
T16	No Tag.	Scots pine	<i>Pinus sylvestris</i>	15	660	1.5	2.5	7.5	6.5	0.5	Mat	Good	Fair	Situated along boundary. Single straight stem for majority of height. Canopy biased to the west. Compaction associated with rooting environment to the south-east. Moderate value specimen	N/A	20 to 40 years	B1	191	7.8
T17	No Tag.	Scots pine	<i>Pinus sylvestris</i>	15	640	1.5	3.5	7.5	3	3.5	Mat	Good	Fair	Situated along boundary. Single straight stem for majority of height. Canopy biased to the west. Suppressed crown form. Longitudinal bark wound associated with main stem. Moderate value specimen	N/A	20 to 40 years	B1	191	7.8
T18	1134	Common beech	<i>Fagus sylvatica</i>	8	600	1	1	1	1	5	S/Mat	Dead	Poor	Dead standing snag. High habitat value with evidence of fungal fruiting bodies and woodpecker activity.	N/A	<10 years	U	163	7.2
T19	No Tag.	Common beech	<i>Fagus sylvatica</i>	8	300	2.5	2.5	2.5	2.5	0.5	E/Mat	Good	Good	Fastigate beech. Good form. Moderate value specimen	N/A	20 to 40 years	B1	41	3.6
T20	No Tag.	Atlas cedar	<i>Cedrus atlantica</i>	22	1080	7	9.2	9.5	6.5	2.5	Mat	Good	Fair	Edge of woodland group. Compaction associated with rooting environment to the east from car parking area. Single straight stem for majority of height. Historical limb failures. High value specimen	W7	>40 years	A1	523	12.9
T21	No Tag.	Holm oak	<i>Quercus ilex</i>	14	1110	4.5	5.5	7.5	5.5	2.5	Mat	Good	Fair	Edge of woodland group bordering formal gardens. Open cavity at base with decay and dysfunction. Main stem bifurcates at c.1.5m. Asymmetrical crown form. High value specimen	W7	>40 years	A1	547	13.2
T22	No Tag.	Common beech	<i>Fagus sylvatica</i>	19	990	8.5	9.3	9.4	10	2	Mat	Fair	Fair	Edge of formal lawn and tree group. Large tear out wound and necrotic bark associated with main stem. Canopy exhibits low vigour and vitality. Downgraded due to current structural and physiological condition. Moderate value	W2	20 to 40 years	B1	452	12.0
T23	No Tag.	Cedar of Lebanon	<i>Cedrus libani</i>	22	1240	8.2	8	7.5	9	2.5	Mat	Good	Fair	Edge of lawn within tree group. Single straight stem for majority of height. Historical limb failures. High value specimen	W2	>40 years	A1	707	15.0
T24	No Tag.	Wellingtonia	<i>Sequoiadendron giganteum</i>	24	1600	6	4.5	7	7	1.5	O/Mat	Fair	Good	Edge of formal lawn within tree group. Single straight stem for majority of height. Brown foliage internal to canopy potentially due to drought stress. High value specimen	W2	>40 years	A1	1158	19.2
T25	No Tag.	Common beech	<i>Fagus sylvatica</i>	18	990	9.2	8.5	9.5	9.9	2	Mat	Good	Fair	Edge of formal lawn and tree group. Large tear out wound and necrotic bark associated with main stem. Canopy exhibits fair vigour and vitality. Downgraded due to current structural condition. Moderate value	W2	20 to 40 years	B1	452	12.0
T26	No Tag.	Scots pine	<i>Pinus sylvestris</i>	22	900	1.5	2.5	7.5	6.5	15	Mat	Good	Fair	Situated in dense tree belt. Single straight stem for majority of height. Canopy biased to the west. Recent limb failures and large diameter pruning wounds associated with main stem. Moderate value specimen	W2	20 to 40 years	B1	366	10.8
T27	252	Scots pine	<i>Pinus sylvestris</i>	12	540	1.5	2.5	0.5	0.5	8	S/Mat	Good	Fair	Situated in dense tree belt. Single straight stem for majority of height. Canopy biased to the east Recent failure of central apical leader. Moderate value specimen	W2	20 to 40 years	B1	137	6.6
T28	No Tag.	Scots pine	<i>Pinus sylvestris</i>	20	830	8	6.1	7	5	7	Mat	Good	Fair	Situated in dense tree belt. Single straight stem for majority of height. Canopy biased to the north. Recent limb failures and large diameter pruning wounds associated with main stem. Moderate value specimen	W2	20 to 40 years	B1	308	9.9
T29	No Tag.	English holly	<i>Ilex aquifolium</i>	10	730	4	5.5	6	4	4	Mat	Good	Fair	Situated in dense tree belt. Twin stemmed from ground level. Dense ivy restricting assessment. Moderate value specimen	W2	20 to 40 years	B1, 2	238	8.7
T30	No Tag.	Common lime	<i>Tilia x europaea</i>	15	580	6	2.5	6	6	3.5	S/Mat	Good	Fair	Situated in dense tree belt on embankment. Dense vegetation and epicormic growth associated with main stem and base restricting further assessment. Shares collective canopy with adjacent trees. Moderate value specimen	W2	20 to 40 years	B1, 2	150	6.9
T31	No Tag.	Common lime	<i>Tilia x europaea</i>	15	580	2.5	3.5	6	2.5	3.5	S/Mat	Good	Fair	Situated in dense tree belt on embankment. Dense vegetation and epicormic growth associated with main stem and base restricting further assessment. Shares collective canopy with adjacent trees. Moderate value specimen	W2	20 to 40 years	B1, 2	150	6.9
T32	No Tag.	English holly	<i>Ilex aquifolium</i>	10	730	2.5	4	4.5	2.5	0.5	S/Mat	Good	Fair	Situated in dense tree belt. Twin stemmed from ground level. Dense vegetation restricting assessment. Low value specimen	W2	20 to 40 years	C1, 2	238	8.7

BS5837:2012 Tree Schedule



Tree No.	Tag No.	Species (Common Name)	Species (Scientific Name)	Height (m)	Stem Dia (mm)	Crown Spread (m)				Height of Crown Clearance (m)	Age Class	Phys Con	Struc Con	Additional notes	Statutory and Non- statutory Considerations	Estimated remaining contribution (erc)	Ret Cat	RPA (m ²)	RPA Radius (m)
						N	E	S	W										
T33	No Tag.	Pedunculate oak	<i>Quercus robur</i>	8	420	0.5	6	7	5.5	3	E/Mat	Good	Good	Situated on edge of raised embankment. Multi-stemmed from ground level. Sycamore of early maturity growing from base. Suppressed specimen which shares collective canopy with adjacent trees. Low value	W2	20 to 40 years	C1	82	5.1

BS5837:2012 Tree Schedule



Tree No.	Tag No.	Species (Common Name)	Species (Scientific Name)	Height (m)	Stem Dia (mm)	Crown Spread (m)				Height of Crown Clearance (m)	Age Class	Phys Con	Struc Con	Additional notes	Statutory and Non-statutory Considerations	Estimated remaining contribution	Ret Cat	RPA (m ²)	RPA Radius (m)
						N	E	S	W										
TREE GROUPS																			
G1	No Tag.	Sycamore, Italian alder, Common alder, Silver birch, Common hawthorn, Common beech, Hybrid black poplar, Elder, English elm	<i>Acer pseudoplatanus</i> , <i>Alnus cordata</i> , <i>Alnus glutinosa</i> , <i>Betula pendula</i> , <i>Crataegus monogyna</i> , <i>Fagus sylvatica</i> , <i>Populus nigra</i> , <i>Sambucus nigra</i> , <i>Ulmus minor</i> var. <i>vularis</i>	2 - 18	100 - 600	4	4	4	4	2	S/Mat	Mixed	Fair	Dense boundary group bordering Kidderminster Road. Mixed broadleaf species which form dense collective group. Large majority of trees of low value individually but collectively as part of a group are moderate value. Hard surfacing associated with rooting environment of trees to the south bordering yard. No access to trees all measurements estimated	W8	>40 years	B2	163	7.2
G2	No Tag.	Leyland cypress, Western red cedar	<i>X Cupressocyparis leylandii</i> , <i>Thuja plicata</i>	3 - 4	80 - 100	2	2	2	2	0	E/Mat	Good	Good	Group of western red cedar and leylandii framing some of boundary line. Provides some screening value to site from adjacent road. Low value.	N/A	20 to 40 years	C2	5	1.2
G3	No Tag.	Silver birch, Common hawthorn, Copper beech, London plane, Pedunculate oak	<i>Betula pendula</i> , <i>Crataegus monogyna</i> , <i>Fagus sylvatica</i> 'Purpurea', <i>Platanus x hispanica</i> , <i>Quercus robur</i>	1.5 - 3	50 - 80	2	2	2	2	1	Yng	Mixed	Good	Group of new planted mixed broadleaf species. Trees still staked with ties occluding into stems. Low value group	N/A	20 to 40 years	C2	3	0.9
G4	No Tag.	Sycamore, Silver birch, Sweet chestnut, Common hawthorn, Common beech, European larch, Scots pine, Pedunculate oak, Rowan, Gorse	<i>Acer pseudoplatanus</i> , <i>Betula pendula</i> , <i>Castanea sativa</i> , <i>Crataegus monogyna</i> , <i>Fagus sylvatica</i> , <i>Larix decidua</i> , <i>Pinus sylvestris</i> , <i>Quercus robur</i> , <i>Sorbus aucuparia</i> , <i>Ulex europaeus</i>	2 - 19	100 - 600	4	4	4	4	2	S/Mat	Mixed	Fair	Dense boundary group bordering Kidderminster Road. Mixed broadleaf and pine and larch species which form dense collective group. Large majority of trees of low value individually but collectively as part of a group are moderate value. Dense gorse and hawthorn understorey. No access to trees all measurements estimated	W9	>40 years	B2	163	7.2
G5	No Tag.	Scots pine, Wild cherry, Crack willow, Elder	<i>Pinus sylvestris</i> , <i>Prunus avium</i> , <i>Salix fragilis</i> , <i>Sambucus nigra</i>	2 - 5	100 - 200	2	2	2	2	1	Yng	Mixed	Fair	Dense group of pine and mixed broadleaf species, with dense bramble. All measurements estimated due to no access to trees. Clump of dead elder to the north. Several newly planted Scots pine with dense bramble around base. Willows previously pollarded. Low value group	N/A	20 to 40 years	C2	18	2.4
G6	No Tag.	Crack willow	<i>Salix fragilis</i>	1.5 - 2	100 - 180	2	2	2	2	0.5	E/Mat	Mixed	Fair	Linear group of pollarded willow within site. Low value group	N/A	10 to 20 years	C2	14	2.1
G7	No Tag.	Silver birch, Crack willow	<i>Betula pendula</i> , <i>Salix fragilis</i>	1.5 - 2.5	100 - 150	1	1	1	1	0	Yng	Mixed	Fair	Linear row of willow and birch. Previously reduced to a stump with dense regrowth. Low value group	N/A	10 to 20 years	C2	10	1.8
G8	No Tag.	Sycamore, Silver birch, Sweet chestnut, Common hawthorn, Common beech, Pedunculate oak, Elder, Rowan	<i>Acer pseudoplatanus</i> , <i>Betula pendula</i> , <i>Castanea sativa</i> , <i>Crataegus monogyna</i> , <i>Fagus sylvatica</i> , <i>Quercus robur</i> , <i>Sambucus nigra</i> , <i>Sorbus aucuparia</i>	2 - 19	100 - 600	4	4	4	4	2	S/Mat	Mixed	Fair	Dense boundary group bordering yard and car park. Mixed broadleaf species which form dense collective group. Large majority of trees of low value individually but collectively as part of a group are moderate value. Hard surfacing associated with rooting environment of trees to the north bordering yard. No access to trees all measurements estimated	N/A	>40 years	B2	163	7.2
G9	No Tag.	Sycamore, Silver birch, Sweet chestnut, Cedar of Lebanon, Common hawthorn, Common beech, Common ash, English holly, Corsican pine, Pedunculate oak, Elder, Wellingtonia, Rowan	<i>Acer pseudoplatanus</i> , <i>Betula pendula</i> , <i>Castanea sativa</i> , <i>Cedrus libani</i> , <i>Crataegus monogyna</i> , <i>Fagus sylvatica</i> , <i>Fraxinus excelsior</i> , <i>Ilex aquifolium</i> , <i>Pinus nigra</i> var. <i>maritima</i> , <i>Quercus robur</i> , <i>Sambucus nigra</i> , <i>Sequoiadendron giganteum</i> , <i>Sorbus aucuparia</i>	2 - 22	100 - 1050	4	4	4	4	2	Mat	Mixed	Fair	Dense boundary group bordering manor house and car park. Mixed broadleaf and conifer species which form dense collective group. Large majority of trees of low value individually but collectively as part of a group are high landscape value. Hard surfacing associated with rooting environment of trees to the north bordering road to the north.	W7	>40 years	A2	499	12.6
G10	No Tag.	Sycamore, Copper beech, English holly, Wild cherry, Cherry laurel, Portugal laurel, Rhododendron species, False acacia species, Yew, Irish yew, Western red cedar, Common lime	<i>Acer pseudoplatanus</i> , <i>Fagus sylvatica</i> 'Purpurea', <i>Ilex aquifolium</i> , <i>Prunus avium</i> , <i>Prunus laurocerasus</i> , <i>Prunus lusitanica</i> , <i>Rhododendron</i> sp., <i>Robinia</i> sp., <i>Taxus baccata</i> , <i>Taxus baccata</i> 'Fastigiata', <i>Thuja plicata</i> , <i>Tilia x europaea</i>	2 - 18	100 - 600	4	4	4	4	1.5	E/Mat	Mixed	Fair	Dense boundary group bordering edge of theme park and formal lawn. Trees exhibit varied form and condition. Trees individually of low value but collectively of moderate value based on their collective landscape value.	W2	20 to 40 years	B2	163	7.2

BS5837:2012 Tree Schedule



Tree No.	Tag No.	Species (Common Name)	Species (Scientific Name)	Height (m)	Stem Dia (mm)	Crown Spread (m)				Height of Crown Clearance (m)	Age Class	Phys Con	Struc Con	Additional notes	Statutory and Non-statutory Considerations	Estimated remaining contribution	Ret Cat	RPA (m ²)	RPA Radius (m)
						N	E	S	W										
G11	No Tag.	Sycamore, Copper beech, English holly, Wild cherry, Cherry laurel, Pedunculate oak, Rhododendron species, Wellingtonia	<i>Acer pseudoplatanus</i> , <i>Fagus sylvatica</i> 'Purpurea', <i>Ilex aquifolium</i> , <i>Prunus avium</i> , <i>Prunus laurocerasus</i> , <i>Quercus robur</i> , <i>Rhododendron</i> sp., <i>Sequoiadendron giganteum</i>	2 - 22	100 - 800	4	4	4	4	15	S/Mat	Mixed	Fair	Dense boundary group bordering edge of car parking area and formal lawn. Trees exhibit varied form and condition. Trees individually of low value but collectively of moderate value based on their collective landscape value.	W2	20 to 40 years	B2	290	9.6

Arboricultural Impact & Method Statement

VERSION: V1 DATE: July 2023
REF NO: 220927 1561 AIMS V1 FINAL



Appendix 4

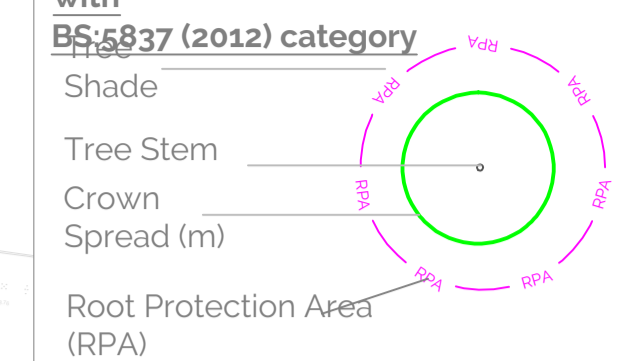
Tree Constraints Plan

Tree Retention and Removal Plan

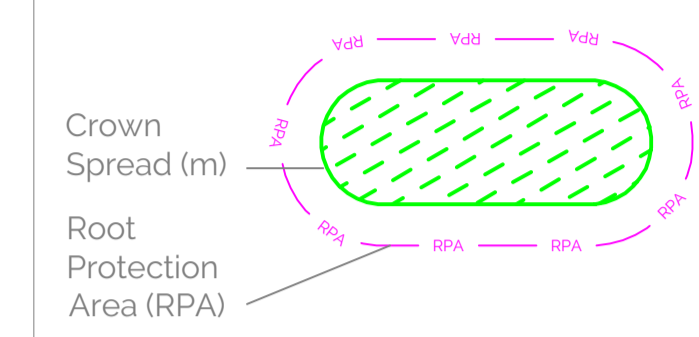
Tree Protection Plan



Individual Trees - Crown colour in accordance with BS:5837 (2012) category



Groups and Hedgerows - Crown colour in accordance with BS:5837 (2012) category

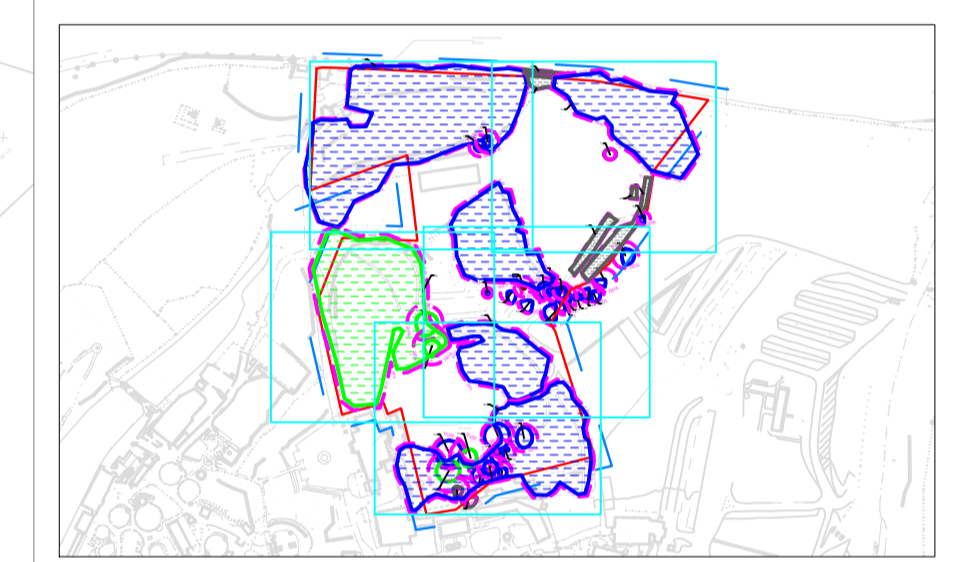


BS:5837 (2012) Category Colours

- Category A —
- Category B —
- Category C —
- Category U —

Additional Attributes

- Redline Boundary —
- Arboricultural Study Area - - -



This TCP is created as a design tool and does not make an assessment of the impacts or subsequent effects of the Proposed Development to trees. Therefore, the TCP must not be submitted solely to inform the planning application. An Arboricultural Impact Assessment or similar report will be required to inform the planning application which the TCP may form part of.

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Drawing Status:

S2 - Information / Reference

Date: September 2022 Drawn: JBW Checked: CT

Client: COGEO

Project: West Midlands Safari Park, Bewdley

Title: Tree Constraints Plan

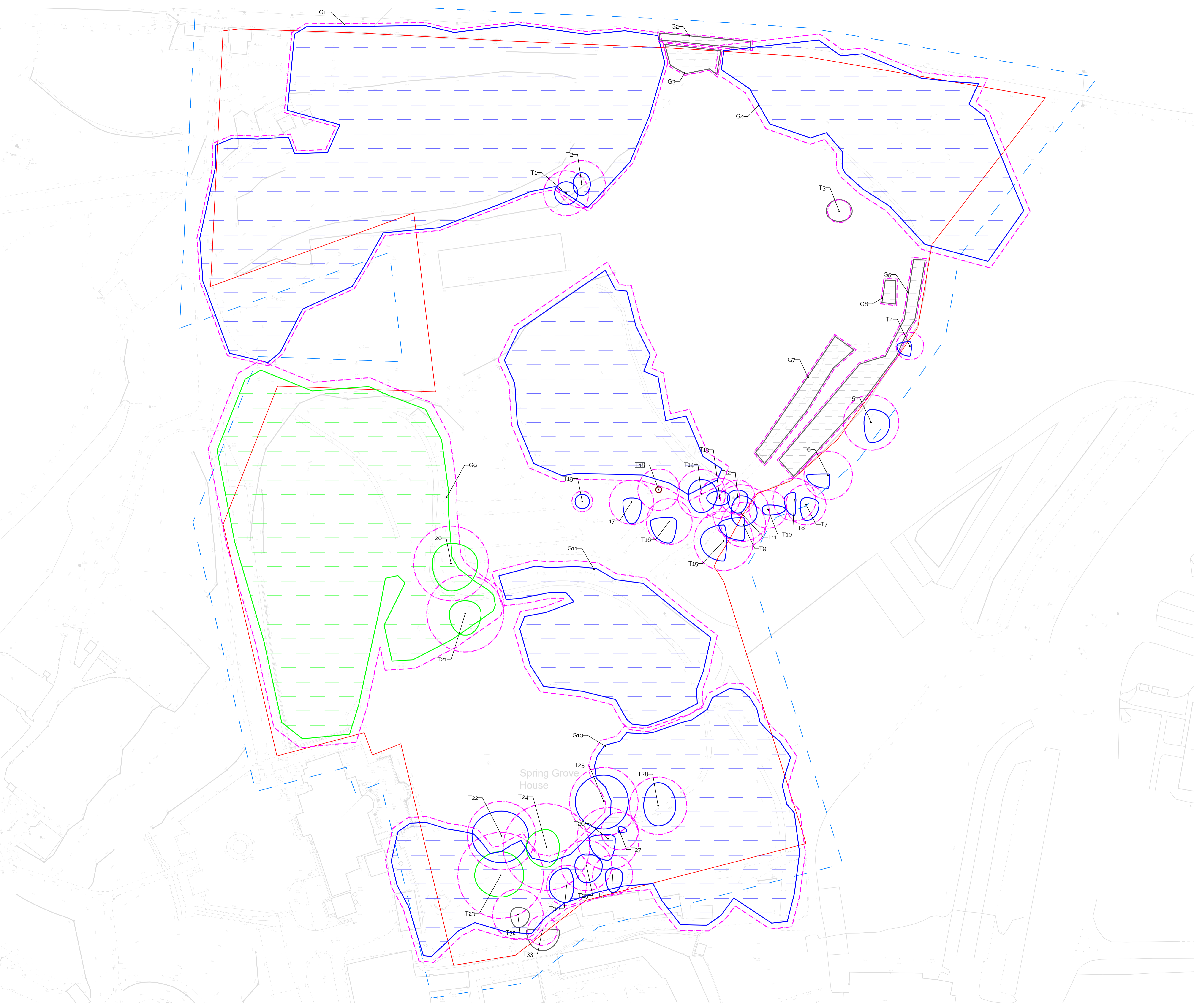
Drawing file reference	DWG No
220921 1561 TCP V1	1 of 6

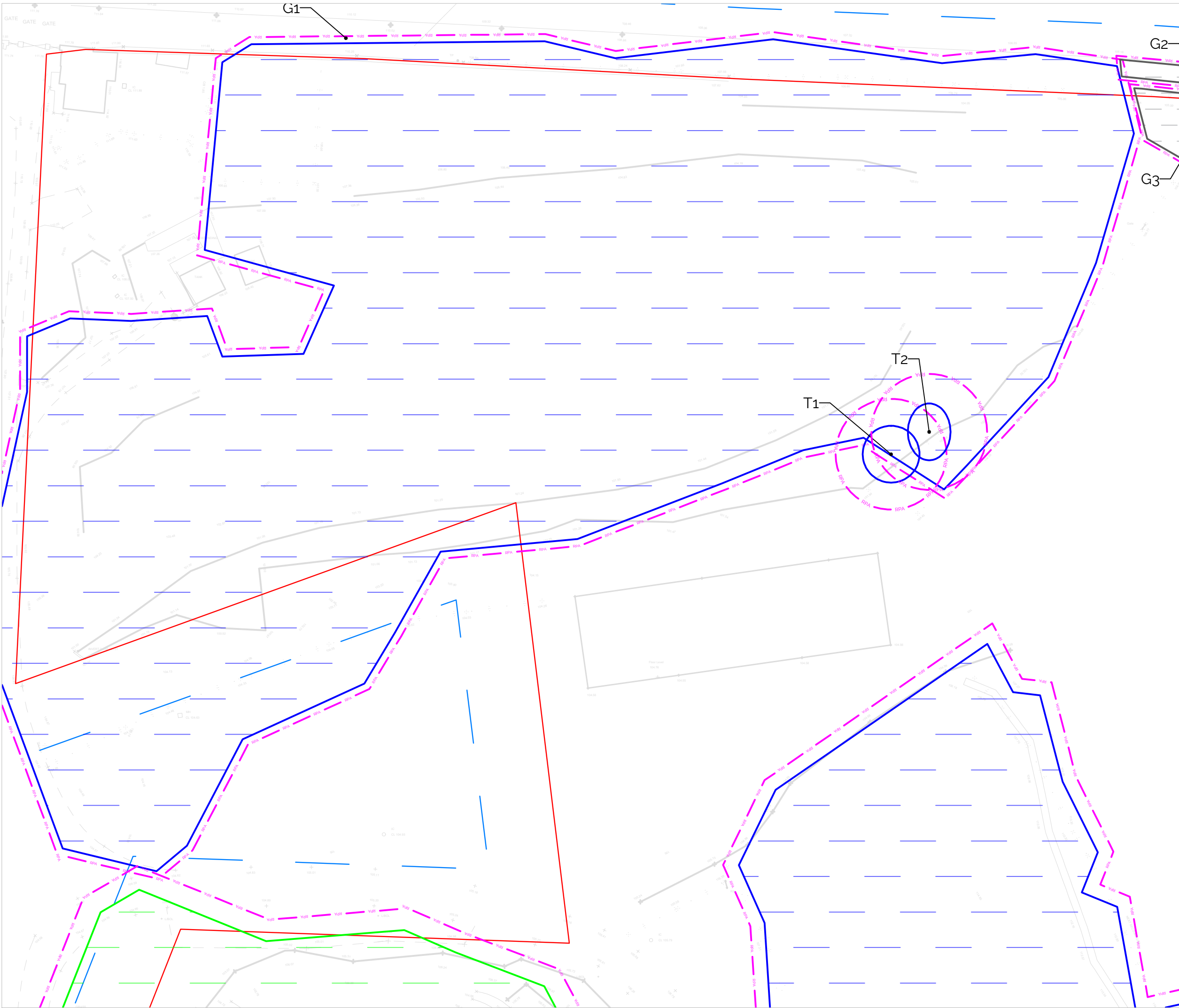


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Scale: 1:500 @ A3

Individual Trees - Crown colour in accordance with BS:5837 (2012) category

Tree Shade
Tree Stem
Crown Spread (m)
Root Protection Area (RPA)

Groups and Hedgerows - Crown colour in accordance with BS:5837 (2012) category

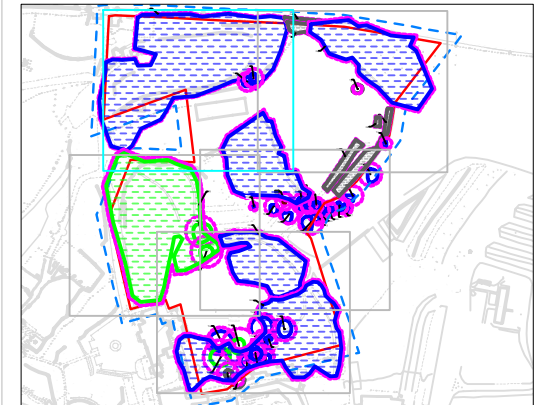
Tree Shade
Crown Spread (m)
Root Protection Area (RPA)

BS:5837 (2012) Category Colours

Category A
Category B
Category C

Additional Attributes

Redline Boundary
Arboricultural Study Area



Drawing Status:

S2 - Information / Reference

Date: September 2022 Drawn: JBW Checked: CT

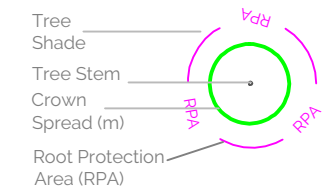
Client: COGEO

Project: West Midlands Safari Park, Bewdley

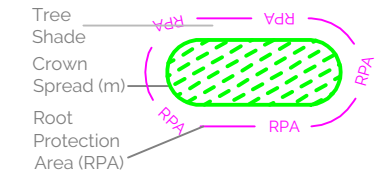
Title: Tree Constraints Plan

Drawing file reference	DWG No
220021 1561 TCP V1	2 of 6

Individual Trees - Crown colour in accordance with BS:5837 (2012) category



Groups and Hedgerows - Crown colour in accordance with BS:5837 (2012) category

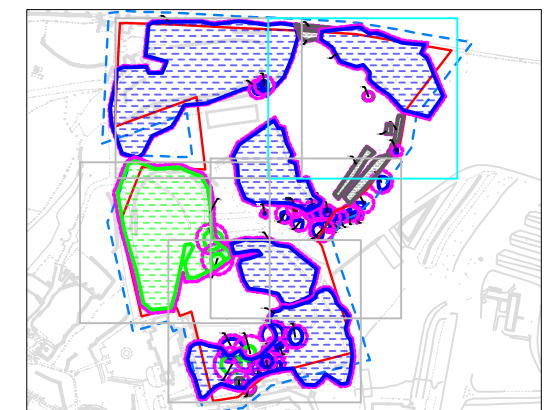


BS:5837 (2012) Category Colours

- Category A —
- Category B —
- Category C —

Additional Attributes

- Redline Boundary —
- Arboricultural Study Area - - -



Drawing Status:

S2 - Information / Reference

Date: September 2022 Drawn: JBW Checked: CT

Client: COGEO

Project: West Midlands Safari Park, Bewdley

Title: Tree Constraints Plan

Drawing file reference

220921 1561 TCP V1

DWG No

3 of 6

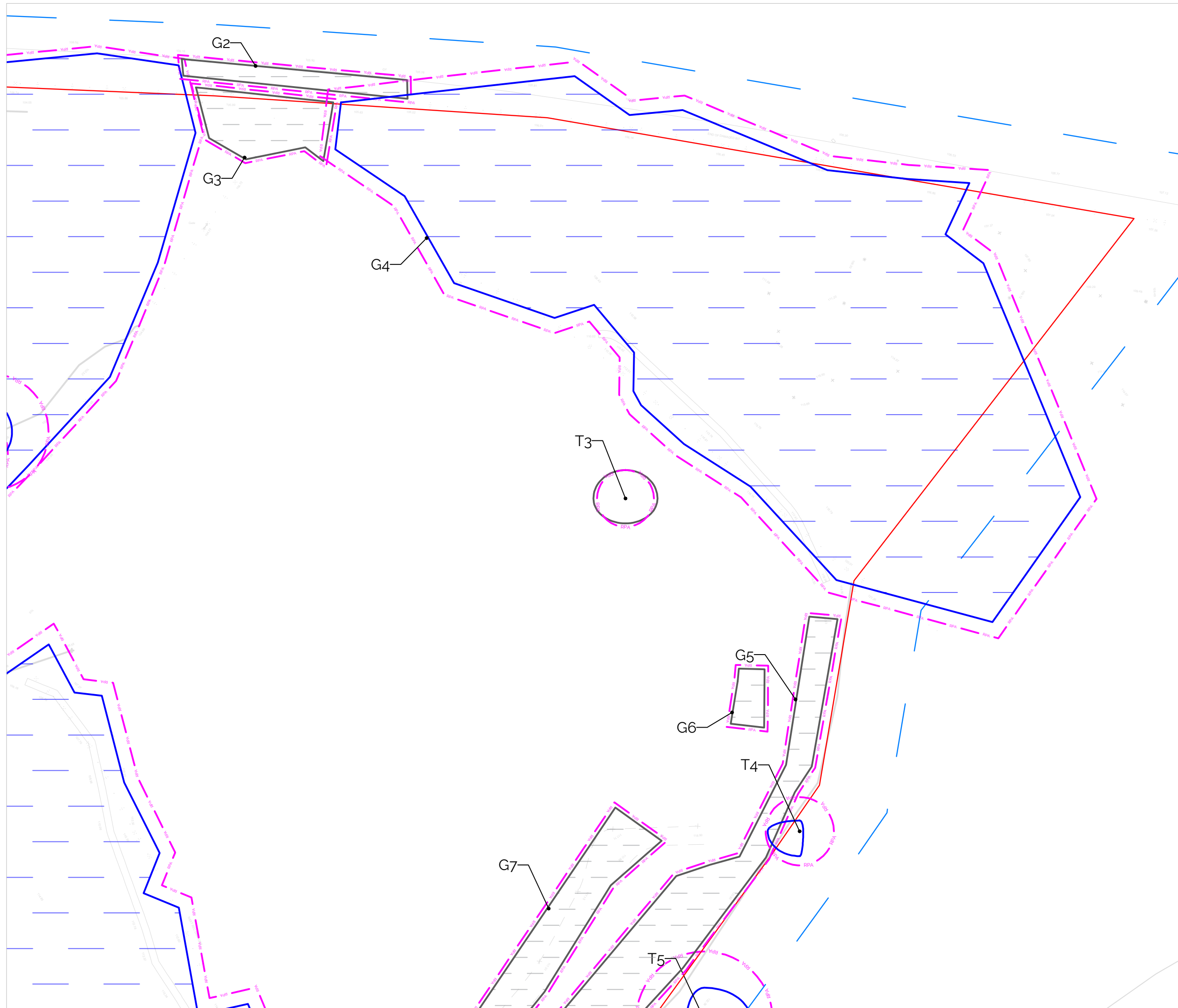


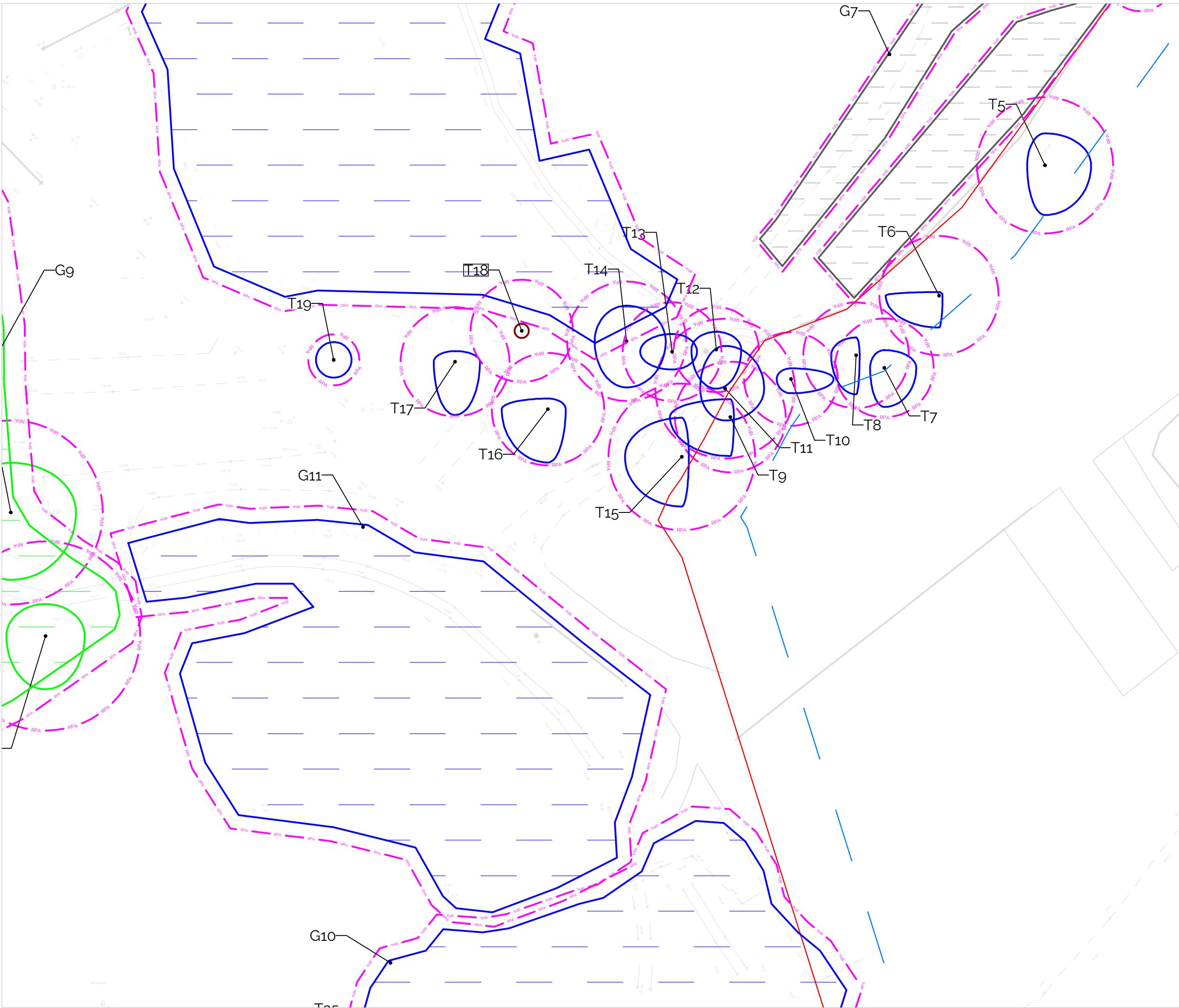
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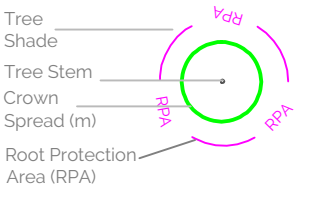
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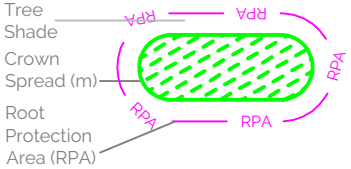


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Individual Trees - Crown colour in accordance with BS:5837 (2012) category



Groups and Hedgerows - Crown colour in accordance with BS:5837 (2012) category

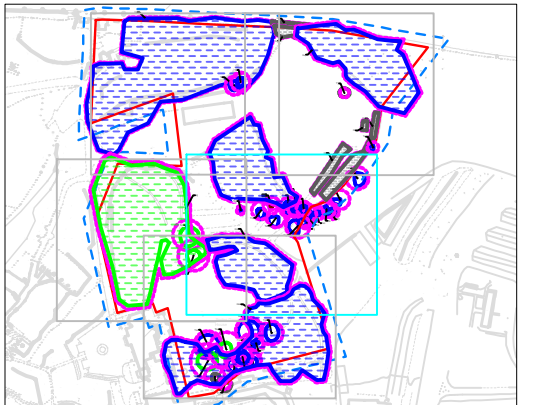


BS:5837 (2012) Category Colours

- Category A —
- Category B —
- Category C —

Additional Attributes

- Redline Boundary —
- Arboricultural Study Area —



Drawing Status:

S2 - Information / Reference

Date: September 2022 Drawn: JBW Checked: CT

Client: COGEO

Project: West Midlands Safari Park, Bewdley

Title: Tree Constraints Plan

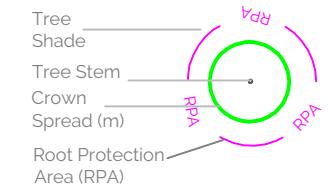
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220921 1561 TCP V1	4 of 6



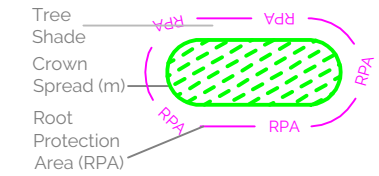
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Individual Trees - Crown colour in accordance with BS:5837 (2012) category



Groups and Hedgerows - Crown colour in accordance with BS:5837 (2012) category

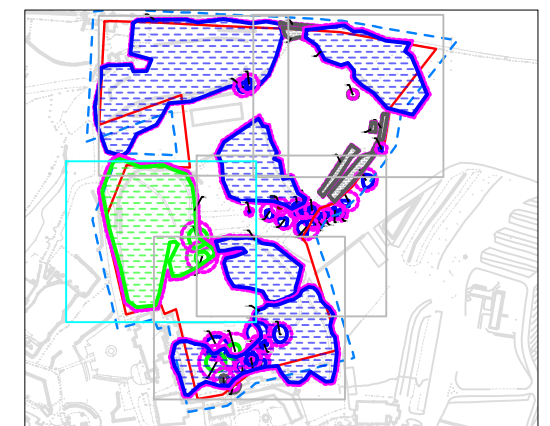


BS:5837 (2012) Category Colours

- Category A —
- Category B —
- Category C —

Additional Attributes

- Redline Boundary —
- Arboricultural Study Area - - -



Drawing Status:

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Date: September 2022 Drawn: JBW Checked: CT

Client: COGEO

Project: West Midlands Safari Park, Bewdley

Title: Tree Constraints Plan

Drawing file reference

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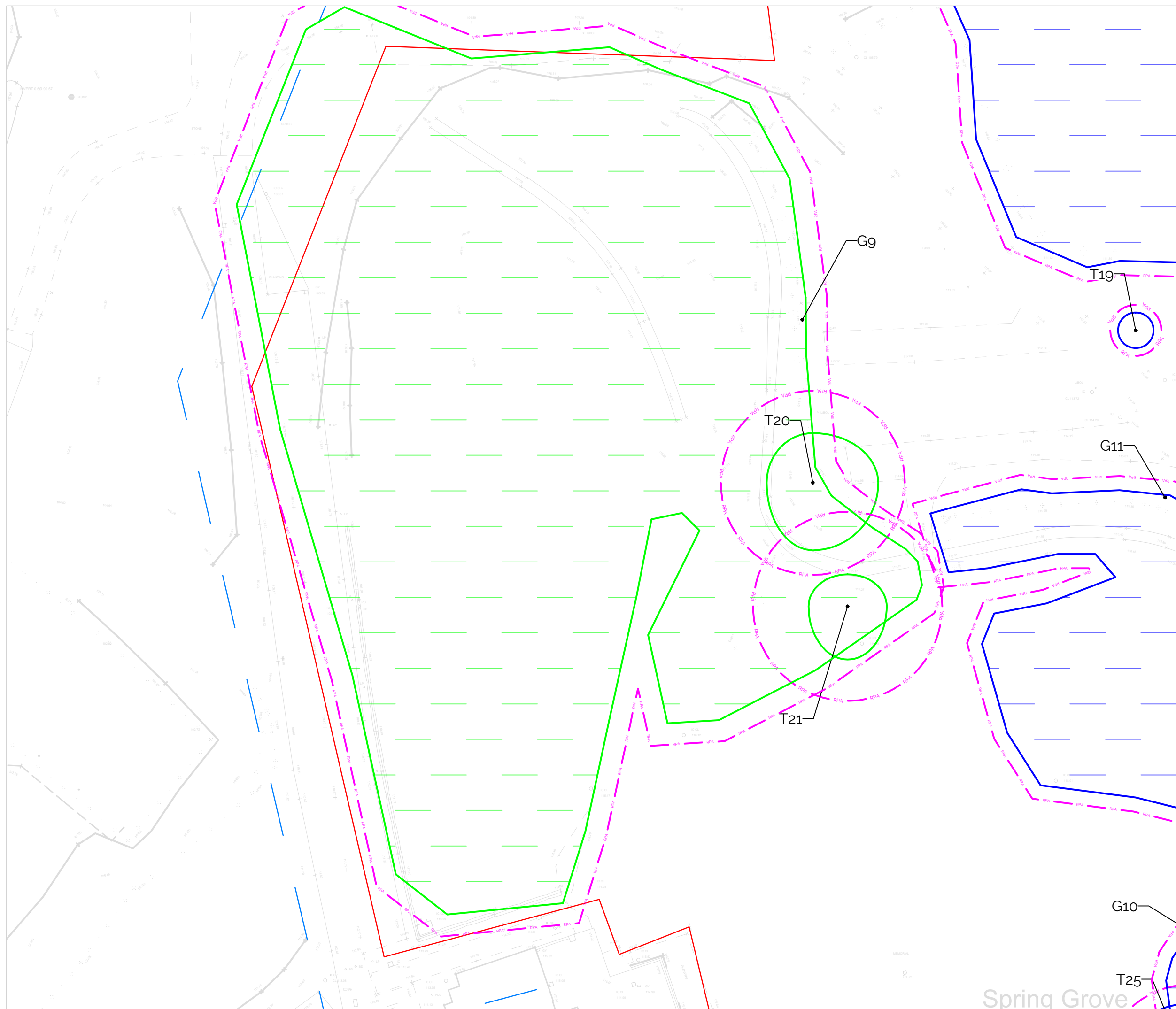
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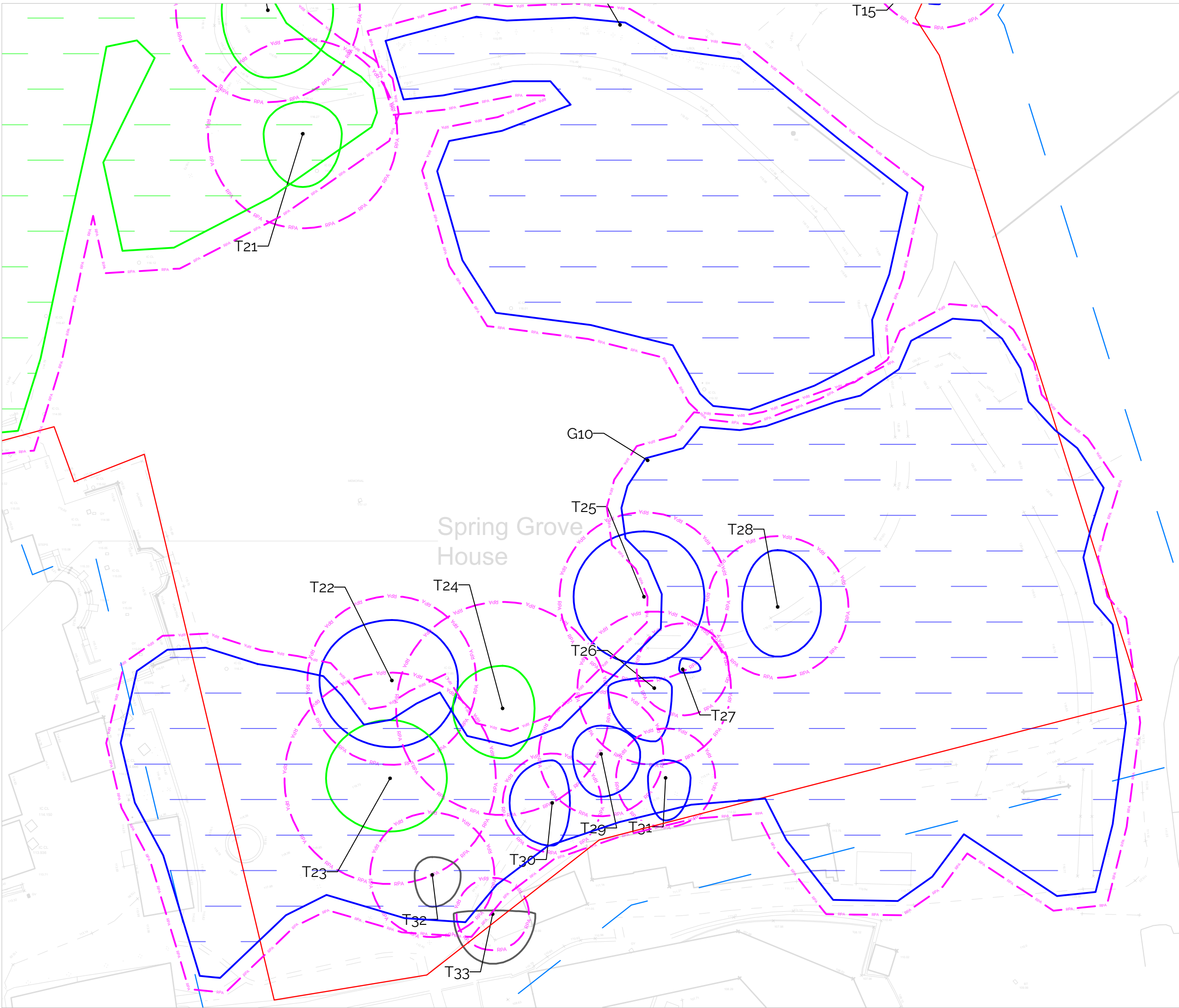


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Spring Grove



Scale: 1:500 @ A3

Individual Trees - Crown colour in accordance with BS:5837 (2012) category

Tree Shade
Tree Stem
Crown Spread (m)
Root Protection Area (RPA)

Groups and Hedgerows - Crown colour in accordance with BS:5837 (2012) category

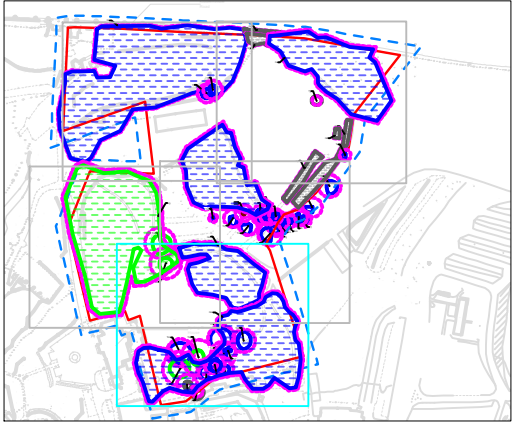
Tree Shade
Crown Spread (m)
Root Protection Area (RPA)

BS:5837 (2012) Category Colours

Category A
Category B
Category C

Additional Attributes

Redline Boundary
Arboricultural Study Area



Drawing Status:

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Date: September 2022 Drawn: JBW Checked: CT

Client: COGEO

Project: West Midlands Safari Park, Bewdley

Title: Tree Constraints Plan

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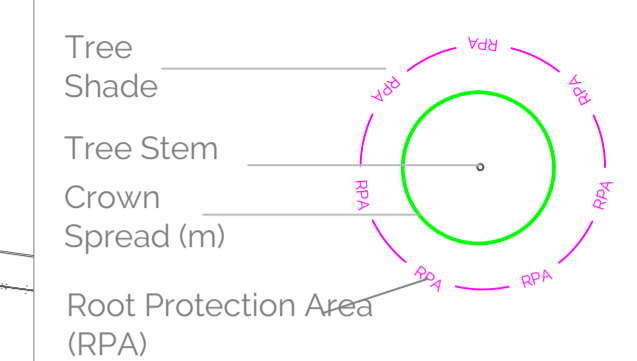


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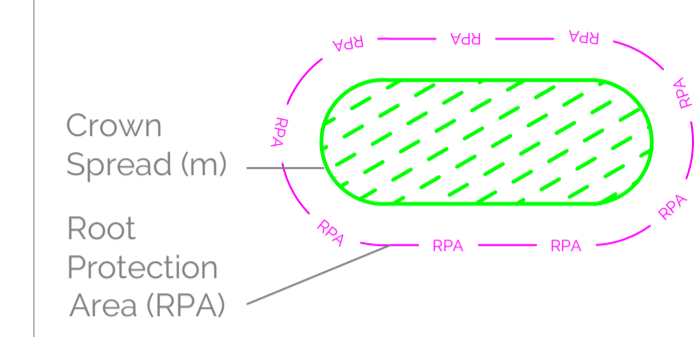
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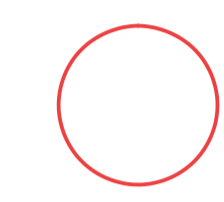
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Groups and Hedgerows - Crown colour in accordance with BS:5837 (2012) category



Arboricultural feature to be removed to facilitate the development



BS:5837 (2012) Category Colours

- Category A
- Category B
- Category C
- Category U

Additional Attributes

- Redline Boundary
- Arboricultural Study Area



This TCP is created as a design tool and does not make an assessment of the impacts or subsequent effects of the Proposed Development to trees. Therefore, the TCP must not be submitted solely to inform the planning application. An Arboricultural Impact Assessment or similar report will be required to inform the planning application which the TCP may form part of.

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Date: July 2023 Drawn: EP Checked: CT

Client: COGEO

Project: West Midlands Safari Park, Bewdley

Title: Tree Removal and Retention Plan

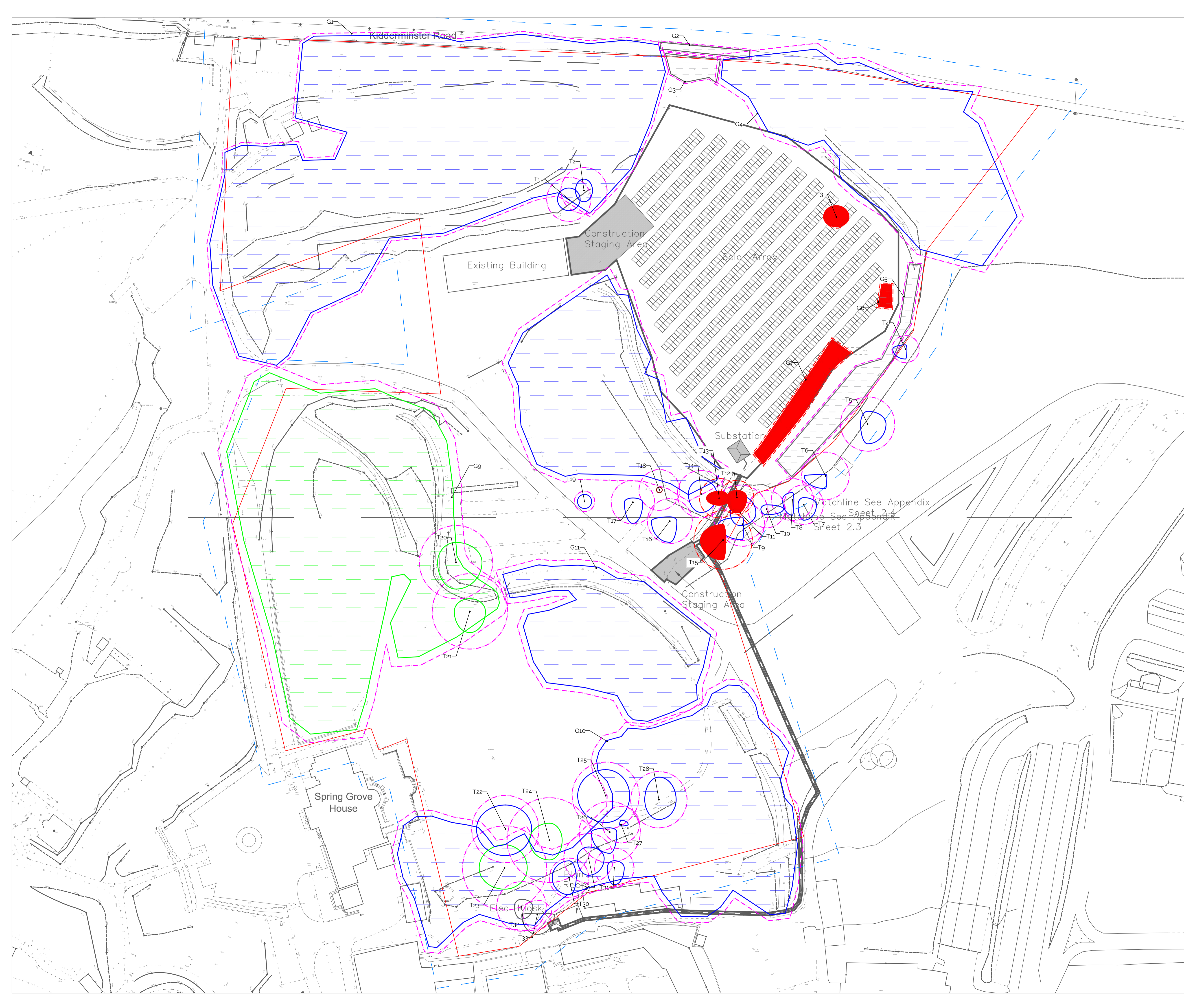
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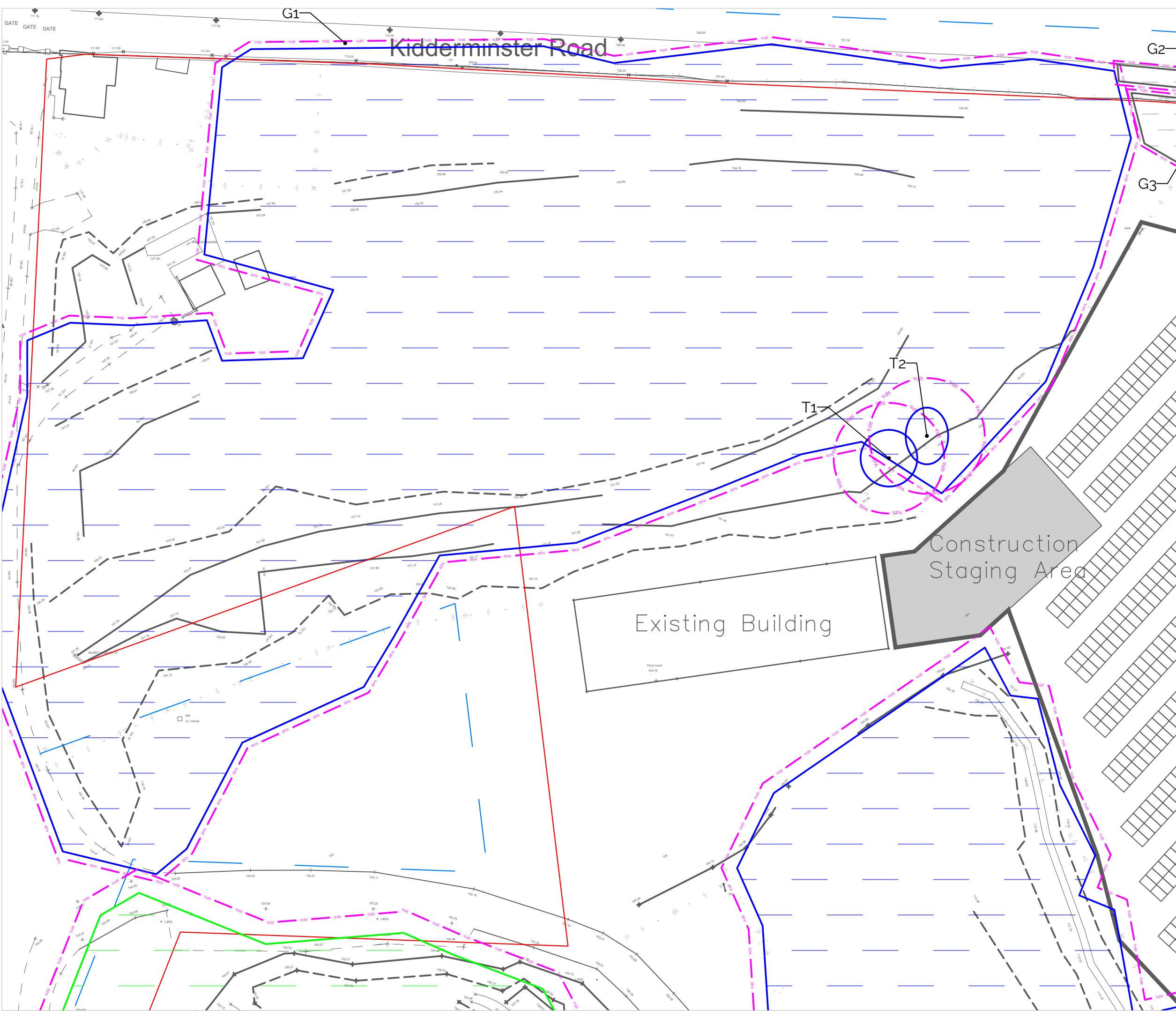


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Scale: 1:500 @ A3

Individual Trees - Crown colour in accordance with BS:5837 (2012) category

Tree Shade
Tree Stem
Crown Spread (m)
Root Protection Area (RPA)

Groups and Hedgerows - Crown colour in accordance with BS:5837 (2012) category

Crown Spread (m)
Root Protection Area (RPA)

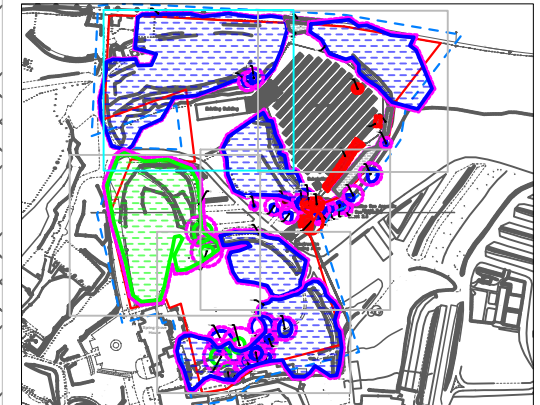
Arboricultural feature to be removed to facilitate the development

BS:5837 (2012) Category Colours

Category A
Category B
Category C

Additional Attributes

Redline Boundary
Arboricultural Study Area



Drawing Status:

S2 - Information / Reference

Date: July 2023 Drawn: EP Checked: CT

Client: COGEO

Project: West Midlands Safari Park, Bewdley

Title: Tree Removal and Retention Plan

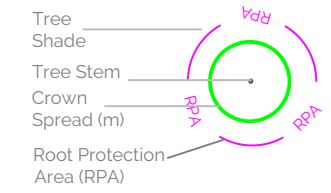
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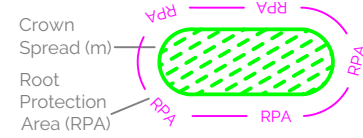
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Individual Trees - Crown colour in accordance with BS:5837 (2012) category



Groups and Hedgerows - Crown colour in accordance with BS:5837 (2012) category



Arboricultural feature to be removed to facilitate the development



BS:5837 (2012) Category Colours

Category A —

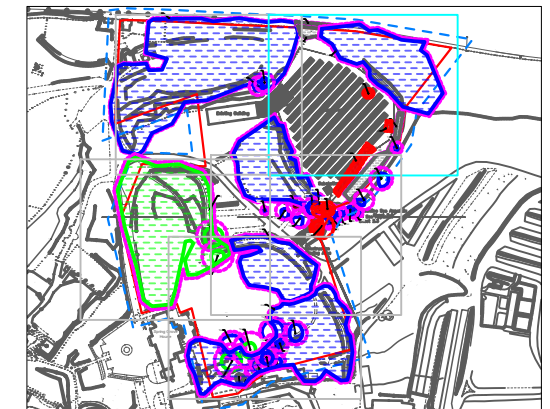
Category B —

Category C —

Additional Attributes

Redline Boundary —

Arboricultural Study Area - - -



Drawing Status:

S2 - Information / Reference

Date: July 2023

Drawn: EP

Checked: CT

Client: COGEO

Project: West Midlands Safari Park, Bewdley

Title: Tree Removal and Retention Plan

Drawing file reference

220921 1561 TRRP V2

DWG No

3 of 6

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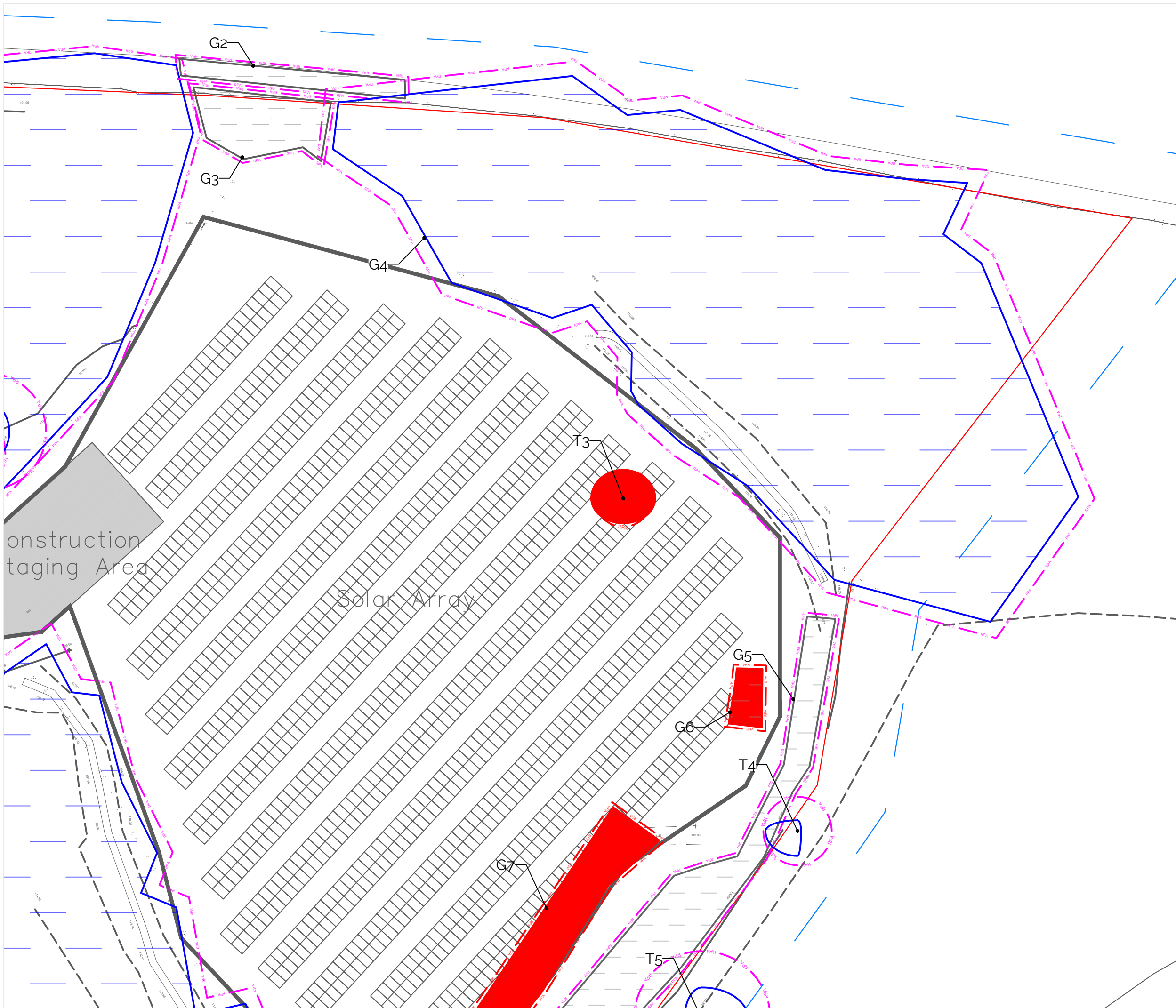
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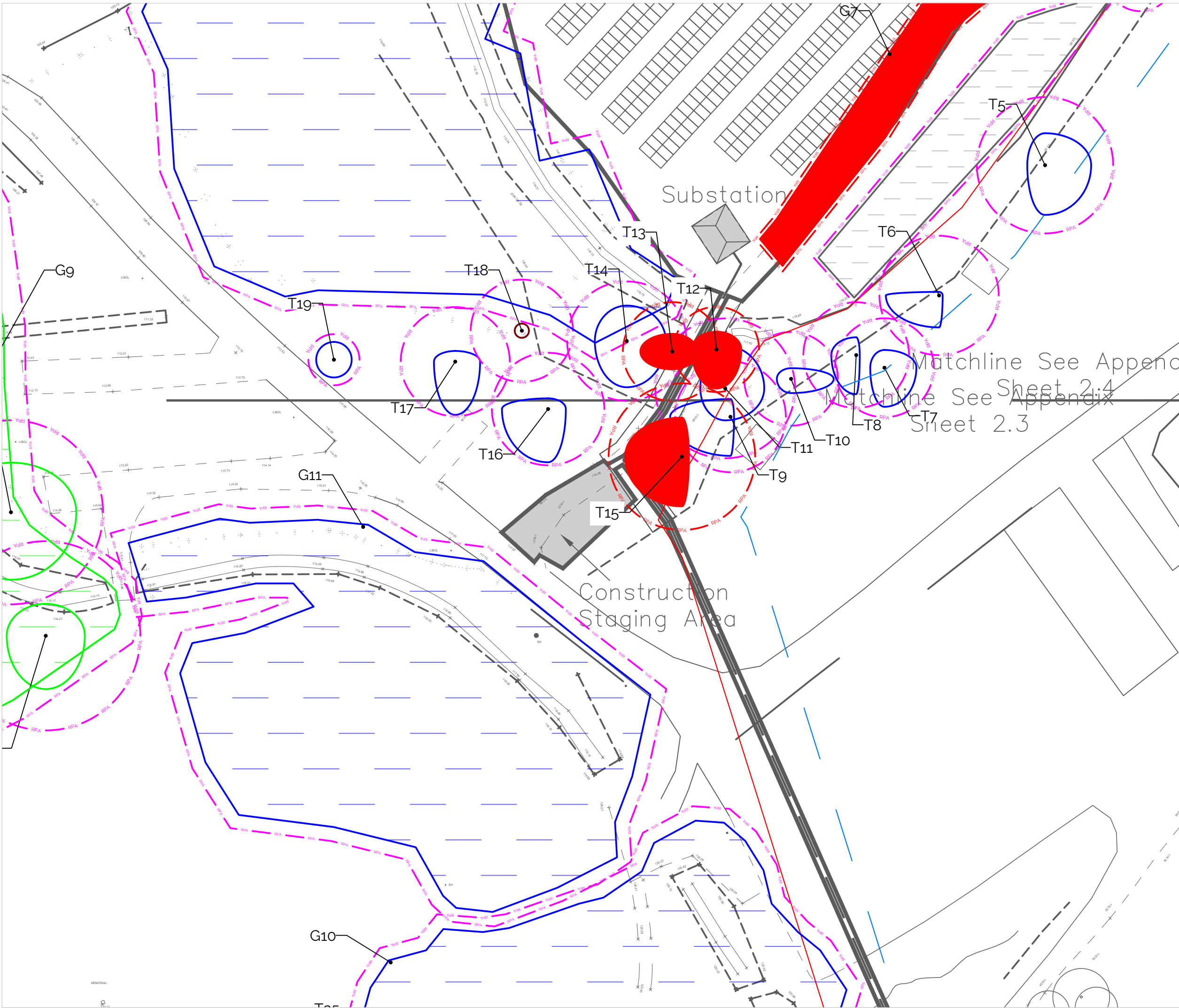
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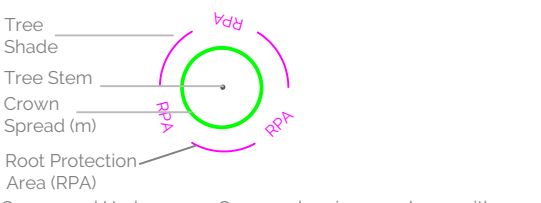
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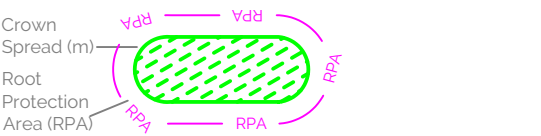


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Groups and Hedgerows - Crown colour in accordance with BS:5837 (2012) category

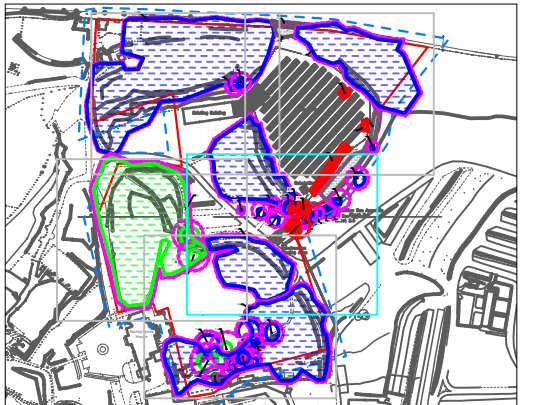


Arboricultural feature to be removed to facilitate the development

BS:5837 (2012) Category Colours

- Category A —
 - Category B —
 - Category C —
- Additional Attributes

- Redline Boundary —
- Arboricultural Study Area —



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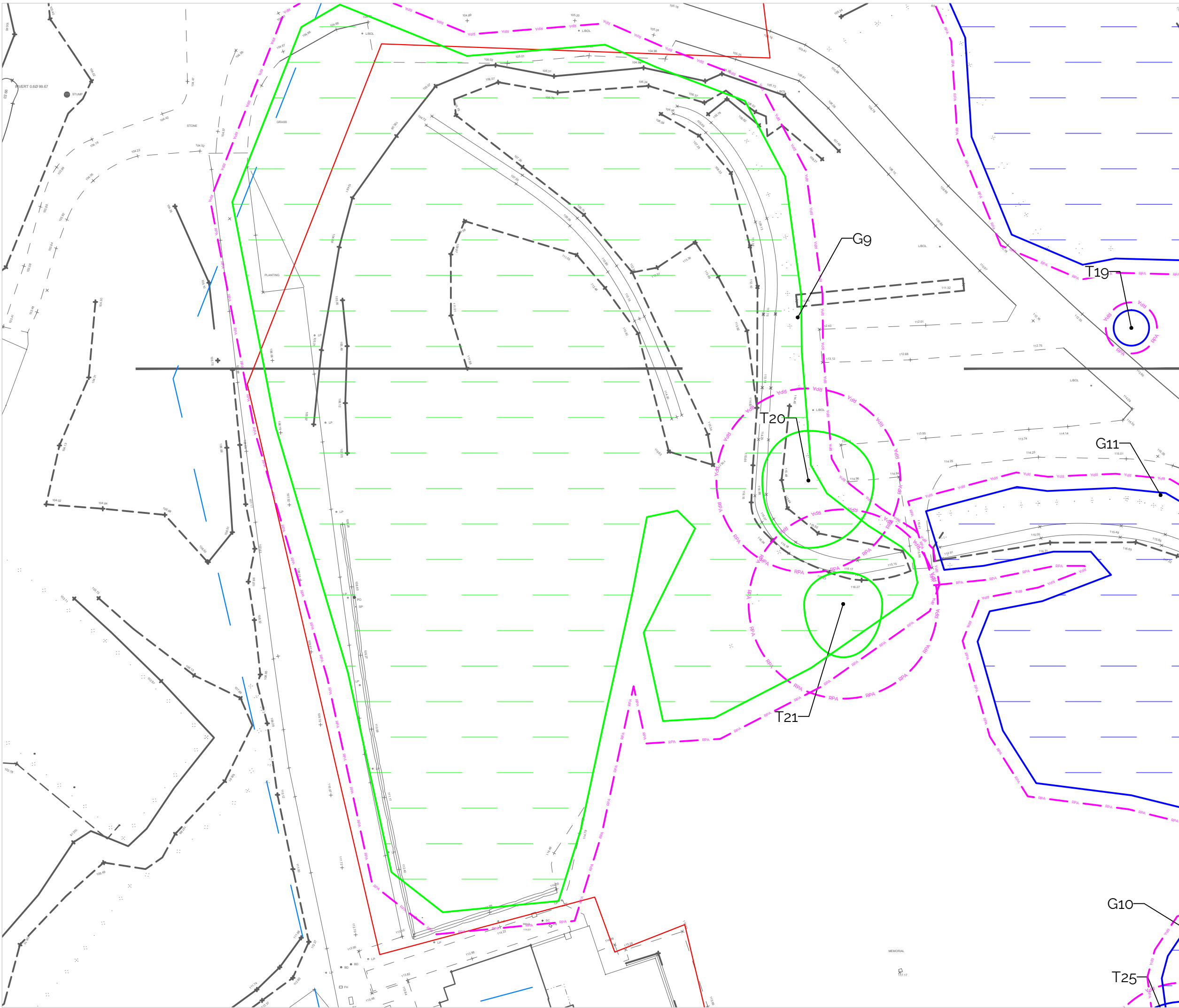
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Project: West Midlands Safari Park, Bewdley
Title: Tree Removal and Retention Plan

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Scale: 1:500 @ A3

Individual Trees - Crown colour in accordance with BS:5837 (2012) category

Tree Shade
Tree Stem
Crown Spread (m)
Root Protection Area (RPA)

Groups and Hedgerows - Crown colour in accordance with BS:5837 (2012) category

Crown Spread (m)
Root Protection Area (RPA)

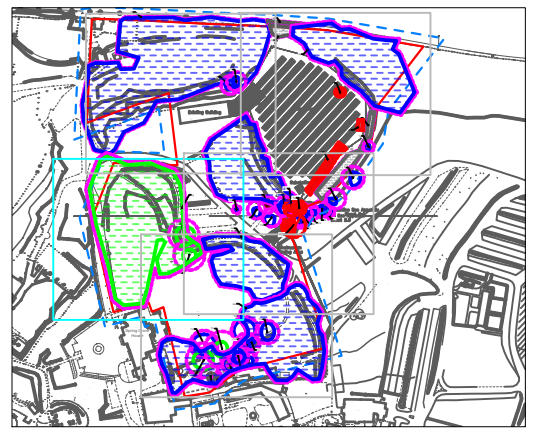
Arboricultural feature to be removed to facilitate the development

BS:5837 (2012) Category Colours

Category A
Category B
Category C

Additional Attributes

Redline Boundary
Arboricultural Study Area



Drawing Status:

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Date: July 2023 Drawn: EP Checked: CT

Client: COGEO

Project: West Midlands Safari Park, Bewdley

Title: Tree Removal and Retention Plan

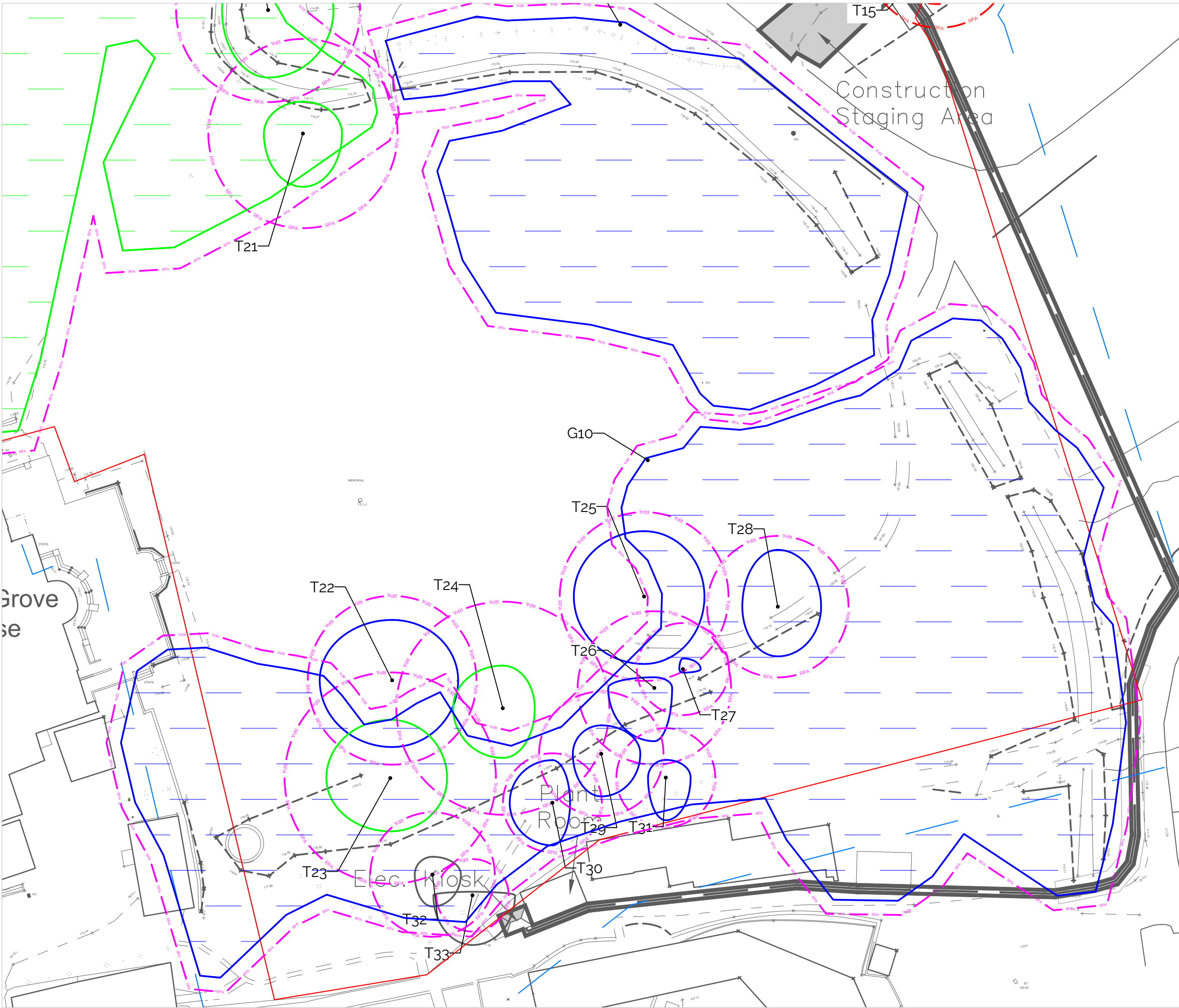
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Scale: 1:500 @ A3

Individual Trees - Crown colour in accordance with BS:5837 (2012) category

Tree Shade
Tree Stem
Crown Spread (m)
Root Protection Area (RPA)

Groups and Hedgerows - Crown colour in accordance with BS:5837 (2012) category

Crown Spread (m)
Root Protection Area (RPA)

Arboricultural feature to be removed to facilitate the development

BS:5837 (2012) Category Colours

Category A
Category B
Category C

Additional Attributes

Redline Boundary
Arboricultural Study Area



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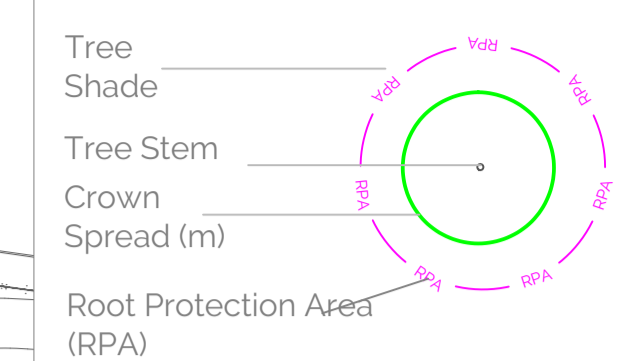
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Project: West Midlands Safari Park, Bewdley		
Title: Tree Removal and Retention Plan		
Drawing file reference	DWG No	
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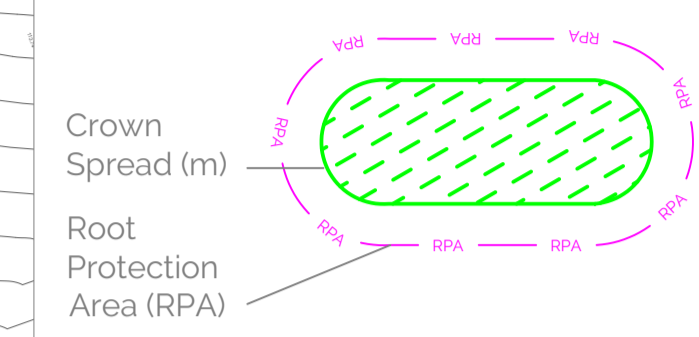
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Individual Trees - Crown colour in accordance with BS:5837 (2012) category



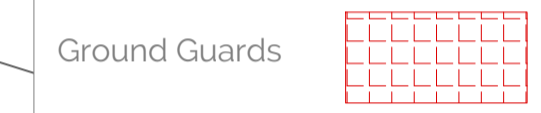
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BS:5837 (2012) Category Colours

- Category A —
- Category B —
- Category C —
- Category U —

- Additional Attributes
- Redline Boundary —
 - Arboricultural Study Area - - -
 - Tree Protection Measures - - -
 - Tree Protection Fencing - - -



This TCP is created as a design tool and does not make an assessment of the impacts or subsequent effects of the Proposed Development to trees. Therefore, the TCP must not be submitted solely to inform the planning application. An Arboricultural Impact Assessment or similar report will be required to inform the planning application which the TCP may form part of.

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Project: West Midlands Safari Park, Bewdley

Title: Tree Protection Plan

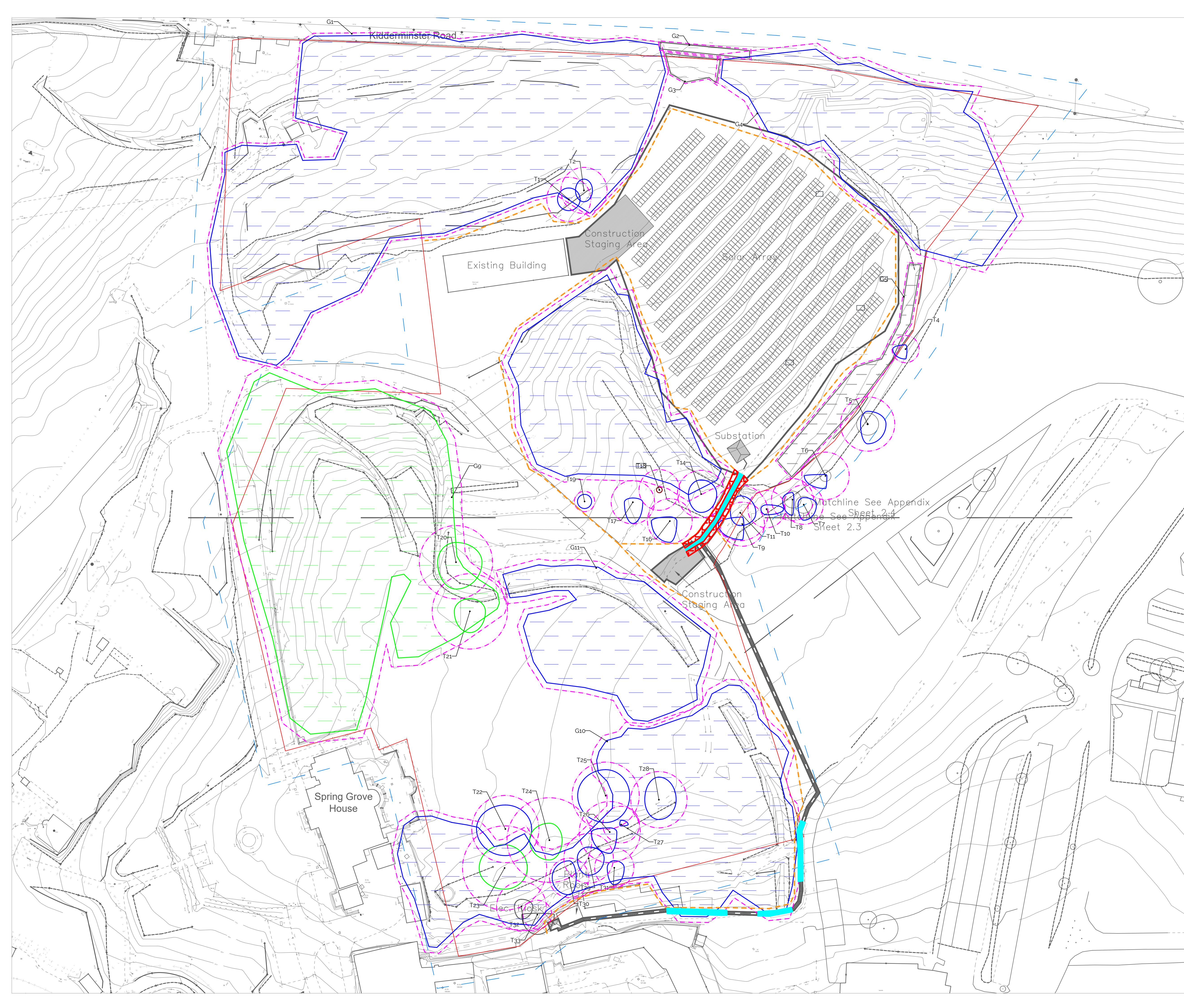
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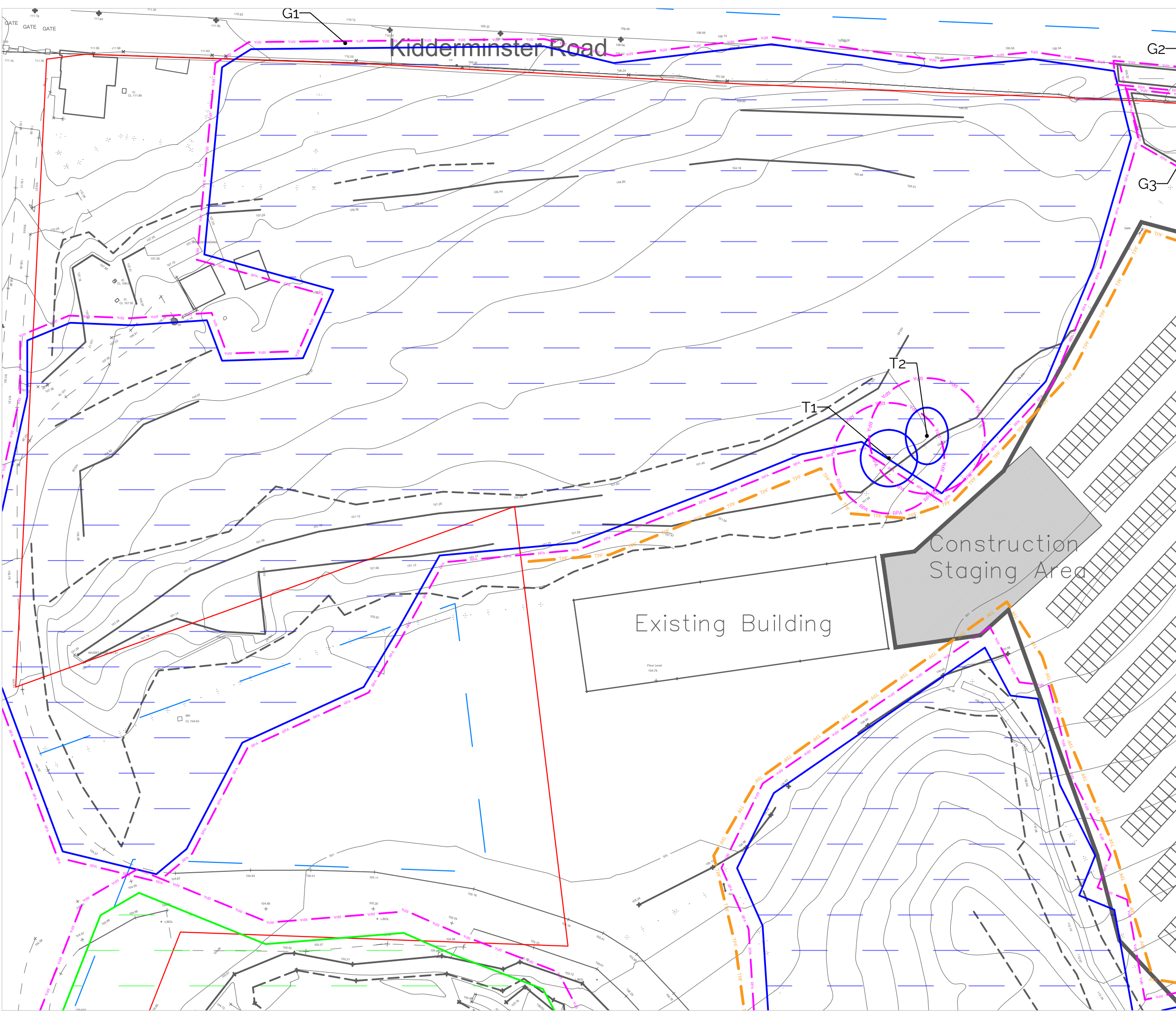
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Matchline See Appendix
 Sheet 2.4
 Sheet 2.3



Scale: 1:500 @ A3

Individual Trees - Crown colour in accordance with BS:5837 (2012) category

Tree Shade
Tree Stem
Crown Spread (m)
Root Protection Area (RPA)

Groups and Hedgerows - Crown colour in accordance with BS:5837 (2012) category

Crown Spread (m)
Root Protection Area (RPA)

BS:5837 (2012) Category Colours

Category A
Category B
Category C

Additional Attributes

Redline Boundary
Arboricultural Study Area
Tree Protection Measures
Tree Protection Fencing
Ground Guards
Hand and Airspade Excavation



Drawing Status:

S2 - Information / Reference

Date: July 2023 Drawn: EP Checked: CT

Client: COGEO

Project: West Midlands Safari Park, Bewdley

Title: Tree Protection Plan

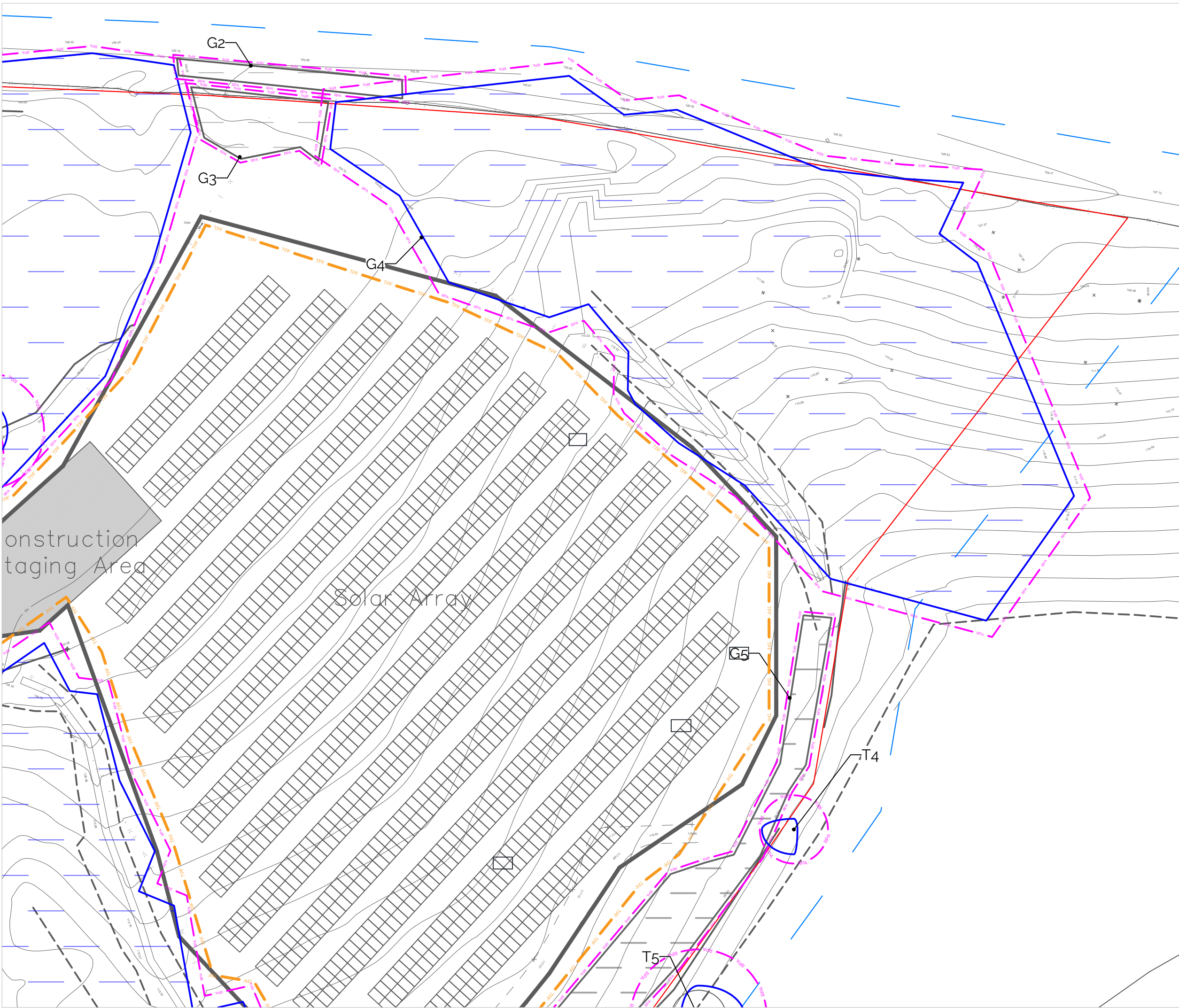
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Scale: 1:500 @ A3

Individual Trees - Crown colour in accordance with BS:5837 (2012) category

Tree Shade
Tree Stem
Crown Spread (m)
Root Protection Area (RPA)

Groups and Hedgerows - Crown colour in accordance with BS:5837 (2012) category

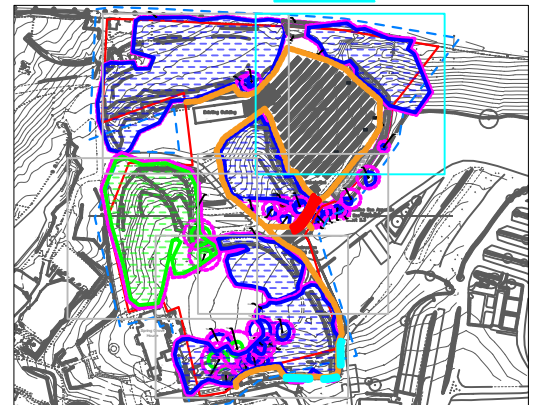
Crown Spread (m)
Root Protection Area (RPA)

BS:5837 (2012) Category Colours

- Category A
- Category B
- Category C

Additional Attributes

- Redline Boundary
- Arboricultural Study Area
- Tree Protection Measures
- Tree Protection Fencing (TPF)
- Ground Guards
- Hand and Airspade Excavation



Drawing Status:

S2 - Information / Reference

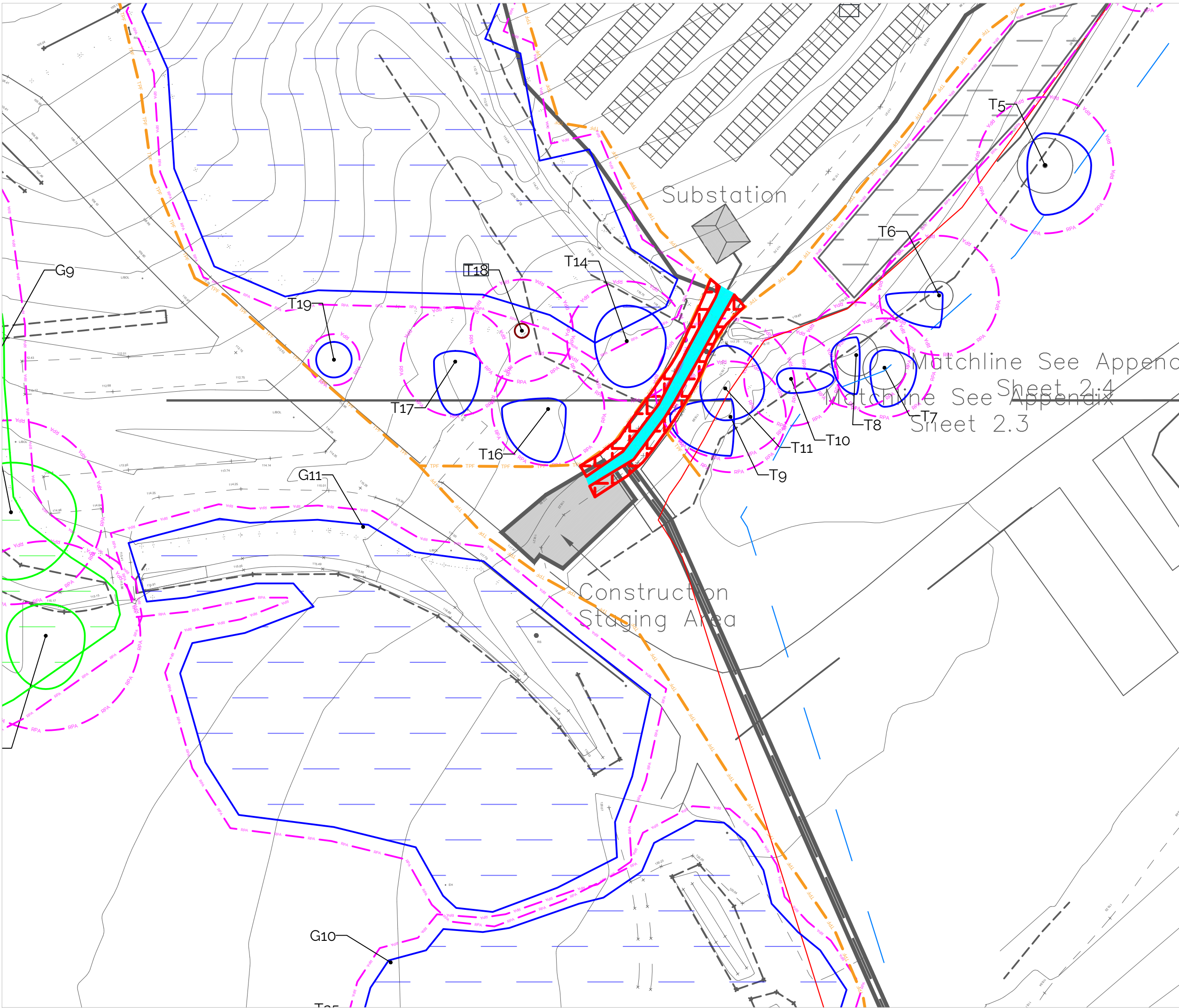
Date: July 2023	Drawn: EP	Checked: CT
Client: COGEO		
Project: West Midlands Safari Park, Bewdley		
Title: Tree Protection Plan		
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Scale: 1:500 @ A3

Individual Trees - Crown colour in accordance with BS:5837 (2012) category

Tree Shade
Tree Stem
Crown Spread (m)
Root Protection Area (RPA)

Groups and Hedgerows - Crown colour in accordance with BS:5837 (2012) category

Crown Spread (m)
Root Protection Area (RPA)
BS:5837 (2012) Category Colours

Category A
Category B
Category C

Additional Attributes

Redline Boundary
Arboricultural Study Area
Tree Protection Measures
Tree Protection Fencing
Ground Guards
Hand and Airspade Excavation

Matchline See Appendix Sheet 2.4
Matchline See Appendix Sheet 2.3



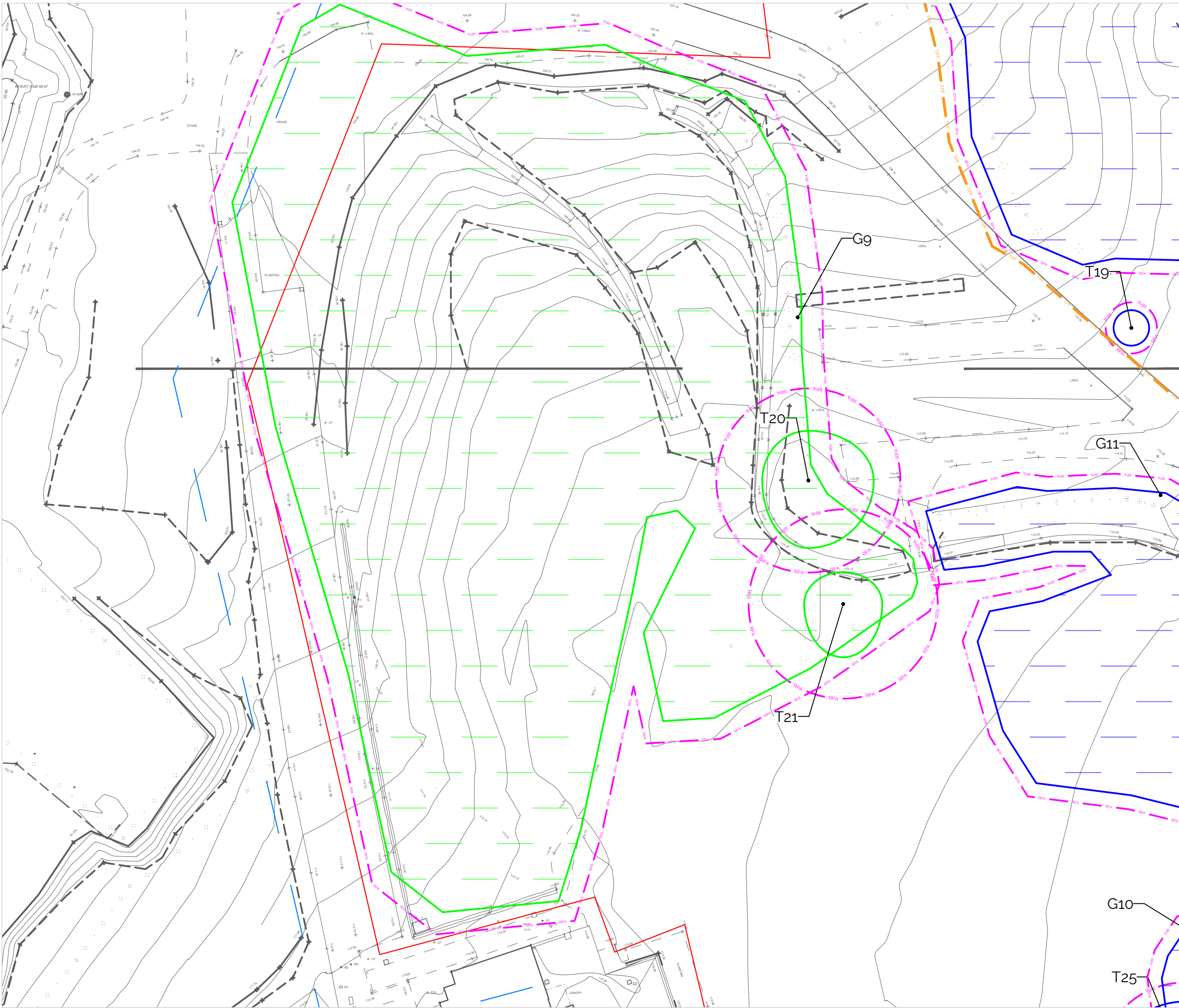
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Title: Tree Protection Plan		
Drawing file reference	DWG No	
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Scale: 1:500 @ A3

Individual Trees - Crown colour in accordance with BS:5837 (2012) category

Tree Shade
Tree Stem
Crown Spread (m)
Root Protection Area (RPA)

Groups and Hedgerows - Crown colour in accordance with BS:5837 (2012) category

Crown Spread (m)
Root Protection Area (RPA)
BS:5837 (2012) Category Colours

Category A
Category B
Category C

Additional Attributes

Redline Boundary
Arboricultural Study Area
Tree Protection Measures

Tree Protection Fencing
Ground Guards

Hand and Airspade Excavation



Drawing Status:

S2 - Information / Reference

Date: July 2023 Drawn: EP Checked: CT

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Title: Tree Protection Plan

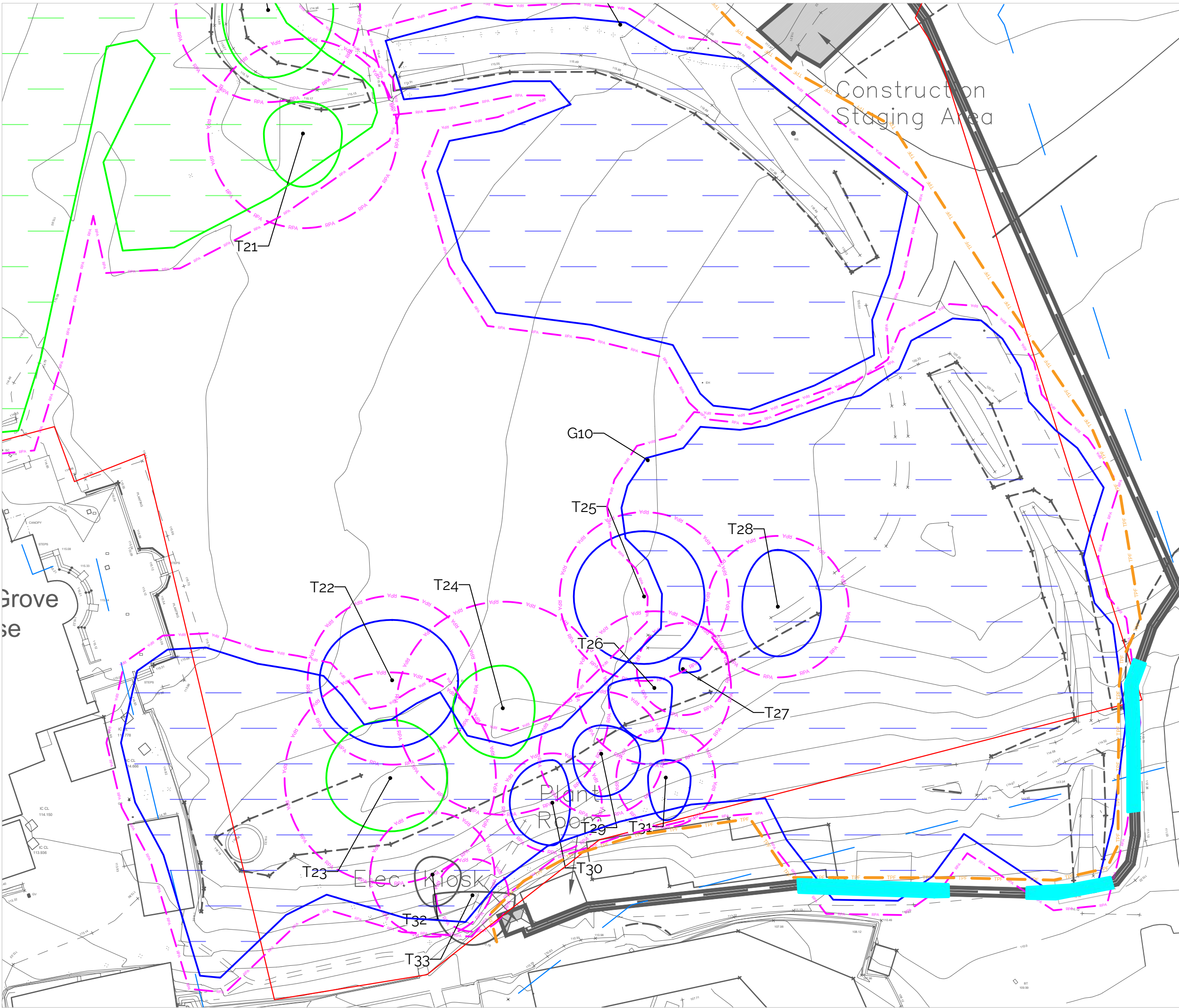
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Scale: 1:500 @ A3

Individual Trees - Crown colour in accordance with BS:5837 (2012) category

Tree Shade

Tree Stem

Crown Spread (m)

Root Protection Area (RPA)

Groups and Hedgerows - Crown colour in accordance with BS:5837 (2012) category

Crown Spread (m)

Root Protection Area (RPA)

BS:5837 (2012) Category Colours

Category A

Category B

Category C

Additional Attributes

Redline Boundary

Arboricultural Study Area

Tree Protection Measures

Tree Protection Fencing

Ground Guards

Hand and Airspade Excavation



Drawing Status:

S2 - Information / Reference

Date: July 2023 Drawn: EP Checked: CT

Client: COGEO

Project: West Midlands Safari Park, Bewdley

Title: Tree Protection Plan

Drawing file reference	DWG No
220921 1561 TPP V2	6 of 6

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Appendix 5

Glossary of Terms

Term	Acronym	Definition
Ancient Tree	-	A tree that has passed beyond maturity and is old, or "aged", in comparison with trees of the same species. Characterised by biological, cultural, or aesthetic features of interest.
Arboricultural Clerk of Works	ACoW	The ACoW is a competent arboriculturist that is employed to oversee all construction matters relating to trees. Typical site monitoring tasks include but not limited to: checking tree protection fencing is installed and positioned correctly, oversee excavation works that are within the RPA of trees and deliver toolbox talks.
Arboricultural Impact Assessment	AIA	An element of the British Standard 5837:2012 ' <i>Trees in Relation to Design, Demolition and Construction - Recommendation</i> '. An AIA is a report intended to inform the Local Planning Authority of the impacts of a proposed development to the surrounding trees. The report acknowledges the direct and indirect impacts that the development will (or may, in relation to outline applications) have on the trees and conversely, the trees on the development. The aim is to establish if the trees can co-exist in harmony with the development and continue to contribute to the site for many years.
Arboricultural Method Statement	AMS	Part of British Standard 5837:2012 ' <i>Trees in Relation to Design, Demolition and Construction - Recommendation</i> ' the AMS specifies what works are required in relation to tree protection and retention and details any alternative construction methods necessary to protect and avoid foreseeable damage to retained trees.
Arboriculturist	-	A person who has, through relevant education, training, and experience, gained professional expertise in the field and study of trees.
British Standard 5837:2012	BS5837:2012	The nationally recognised British Standard for the integration of trees and development, providing guidance and recommendations on the relationship between trees and design, demolition, and construction processes. It sets out principles and procedures to be applied to achieve a

Arboricultural Impact & Method Statement

VERSION: V1 DATE: July 2023
REF NO: 220927 1561 AIMS V1 FINAL



Term	Acronym	Definition
		harmonious and sustainable relationship between trees and structures and is to be interpreted by an arboriculturist.
Construction Exclusion Zone	CEZ	The CEZ is a designated area decided by the project arboriculturist. It is where pedestrians, storage of materials and vehicular movement is prohibited during the construction period. This is identified on a tree protection plan, where lines are annotated onto the site plan, indicating where fencing must be installed onsite to form an exclusion zone.
Root Protection Area	RPA	The RPA provides the minimum amount of space deemed sufficient to sustain a trees viability. This area is typically calculated by measuring the diameter of a trees stem at 1.5m from ground level in millimetres and multiplied by 12. This equals the radius in metres and is used to create a circular radius centred off the stem. There are external factors that means there are sometimes variations to this method.
Tree Constraints Plan	TCP	The initial stage of a BS5837:2012 tree survey. A site assessment of all trees on or within influencing distance of the site, trees are denoted on a plan overlaid with the existing context of the site, often in the form of a topographical survey or OS map. Trees are superimposed onto the plan to show their reference number (e.g., T1), canopy spread, retention categorisation and RPA.
Tree Retention and Removals Plan	TRRP	A plan denoting which trees will be lost because of the development and the trees that can viably be retained within the proposed setting. Trees are often denoted in green and red, for retention and removal.
Tree Protection Plan	TPP	A plan showing the retained trees will be protected through construction of the proposed development. Various annotations are added to demonstrate what mitigation and protection is required; pre, during and post development.

Arboricultural Impact & Method Statement

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Term	Acronym	Definition
Veteran Tree	-	Trees exhibiting features of biological, cultural, or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned.



Appendix 6

Legislation and Policies

Legislation

Town and Country
Planning Act 1990

Section 197 places a duty on the local planning authority to ensure that, where appropriate, planning conditions are imposed which require the preservation or planting of trees.

Section 198 provides local planning authorities with the powers to impose Tree Preservation Orders where it is expedient in the interests of amenity.

The role of a TPO is to protect specific trees, groups of trees and woodlands for the purpose of amenity. In the Secretary of State's view *'Orders should be used to protect trees and woodlands if their removal would have a significant negative impact on the local environment and its enjoyment by the public'*.

Town and Country
Planning (Tree
Preservation) (England)
Regulations 2012

These Regulations govern the administration of Tree Preservation Orders. They make it a statutory offence to undertake specified activities without the formal consent of the local planning authority.

Prohibited activities include:

- cutting down;
- topping;
- lopping;
- uprooting;
- wilfully damaging; and,
- wilfully destroying.

Exemptions for the need to obtain formal consent include, but are not limited to:

- Dead trees.
- The removal of dead branches.
- Works necessary to remove a risk of serious harm.
- Works necessary to implement a planning permission (excluding outline planning permission) or where permission is granted under the *Town and Country Planning (General permitted Development Order 1995)(as amended)*.



Legislation

Forestry Act 1967

Tree felling is also restricted under the Forestry Act 1967. Under this act, there is an exemption from the need for a felling licence for "Felling trees immediately required for the purpose of carrying out development authorised by planning permission (granted under the Town and Country Planning Act 1990) ..."

If full planning permission is granted, then any trees which require felling to implement the approved plans are exempt from this statutory protection. Outline planning permission does not provide an exemption to the regulations that control tree felling in the Forestry Act 1967.

If permission is granted on the reserved matters application, then any trees which require felling to implement the approved plans are exempt from this statutory protection. Outline planning permission does not provide an exemption to the regulations that control tree felling in the Forestry Act 1967.

The Wildlife and Countryside Act 1981 (as amended) and the Conservation of Species and Habitat Regulations 2017 (as amended)

Provides statutory protection of birds, bats and other species that can inhabit trees. The Natural Environment and Rural Communities Act 2006 (Section 41 England and Section 42 Wales) also places a duty on Local Planning Authorities to consider biodiversity when carrying out their duties. The Conservation of Habitats and Species Regulations 2017 specifically provides safeguards for European Protected Sites and Species (as listed in the Habitats Directive). This has recently been amended by the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019 which continue the same provision for European protected species, licensing requirements, and protected areas now that the UK has left the European Union.

Great care is required to avoid an offence under the above legislation, and consideration should be given to the potential presence of protected species within a tree subject to future works. Where the presence of protected species is suspected, the project ecologist or Natural England should be contacted for advice before works proceed.



National Planning Policy

National Planning
Policy Framework
(NPPF) (July 2021)

When determining planning applications, Local Planning Authority's (LPA) should apply the following principles from the NPPF:

Paragraph 131

"Trees make an important contribution to the character and quality of urban environments and can also help mitigate and adapt to climate change. Planning policies and decisions should ensure that new streets are tree-lined, that opportunities are taken to incorporate trees elsewhere in developments (such as parks and community orchards), that appropriate measures are in place to secure the long-term maintenance of newly planted trees, and that existing trees are retained wherever possible."

Paragraph 174 (B & D)

"Planning policies and decisions should contribute to and enhance the natural and local environment by:

b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;

d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures."

Paragraph 180 (A, C & D)

"When determining planning applications, local planning authorities should apply the following principles:

a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;

c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons⁶³ and a suitable compensation strategy exists; and

d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate."



Local Planning Policy

Wyre Forest Local Plan (2016-2036)

The Local Plan sets out how the district will accommodate its housing and employment needs up to 2036. This Local Plan replaces the previously adopted local plans for the district.

It sets out the long-term vision and strategic context for managing and accommodating growth within the district until 2036 in order to contribute to the achievement of sustainable development. The aim of the Local Plan is to set out:

- the areas where development will take place;
 - the areas that will be protected;
 - and policies that will be used to determine planning applications.
-

Guidance

Forestry Commission and Natural England, Ancient woodland, ancient trees, and veteran trees: protecting them from development (2018)

The Forestry Commission and Natural England published guidance giving information for the protection of ancient woodland, ancient trees, and veteran trees from development. In summary this guidance advises on the use of semi-natural buffer zones as a means of protection with minimum distances identified as:

- Fifteen metres between any development and ancient woodland.
- Fifteen times the diameter of its stem or 5m from the edge of its canopy, if that's greater, around any ancient or veteran tree.

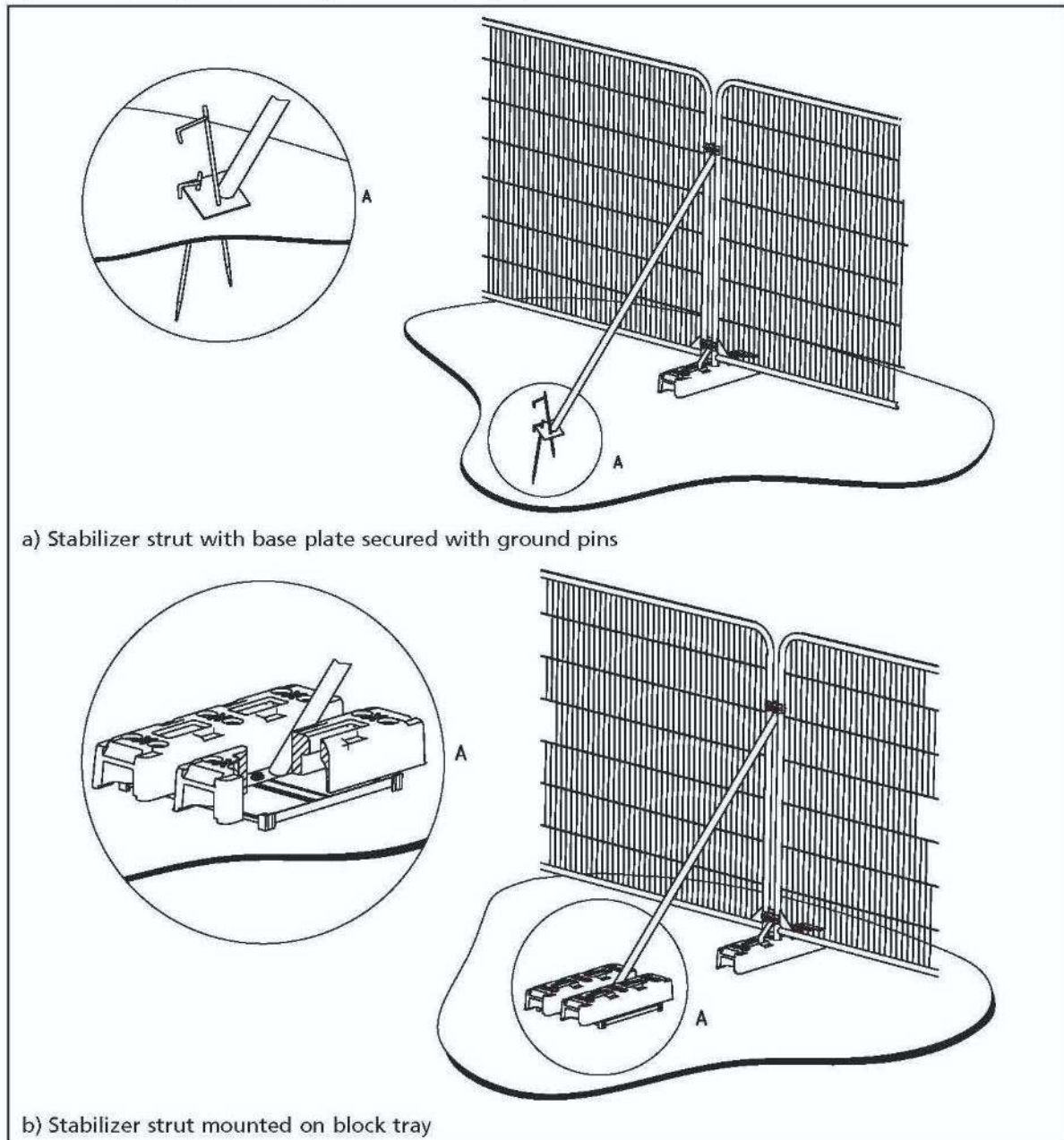
Further guidance is provided on the compensation measures which may be applied should adverse impacts arise.



Appendix 7

Tree Protective Fencing Specification

Figure 3 Examples of above-ground stabilizing systems



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Land
Trees
Ecology

