

Abercynon Feeder Pipe Bridge Replacement Arboricultural Impact Assessment V6 Report for Baker Hicks

Job Number	7028		
Author	Matthew Wilcox MArborA		
Version	Checked by	Approved by	Date
V6.0	Henry Bates	Jacqueline Waring (Principal)	06/03/2024

Temple Group Ltd, The Clove Building, 4 Maguire Street, London SE1 2NQ
T. 020 7394 3700 E. enquiries@templegroup.co.uk W. www.templegroup.co.uk

Contents

Executive Summary	3
1 Introduction	4
2 Methodology	6
3 Results	10
4 Conclusions	17
References	22
Appendix 1: Schedule of Trees	23
Appendix 2: Tree Constraints Plan	34
Appendix 3: Tree Protection Plan	37
Appendix 4: Glossary of Terms	40
Appendix 5: Photographs	43
Appendix 6: TP Fencing Specification and Examples of Warning Signage	48

LIABILITY

Temple has prepared this report for the sole use of the commissioning party in accordance with the agreement under which our services were performed. No warranty, express or implied, is made as to the advice in this report or any other service provided by us. This report may not be relied upon by any other party without the prior written permission of Temple. The content of this report is, at least in part, based upon information provided by others and on the assumption that all relevant information has been provided by those parties from whom it has been requested. Information obtained from any third party has not been independently verified by Temple, unless otherwise stated in the report.

COPYRIGHT

© This report is the copyright of Temple. Any unauthorised reproduction or usage by any person is prohibited. Temple is part of the Temple Group Management group of companies.

Executive Summary

Temple Ltd was commissioned by Baker Hicks to undertake a ground level survey of trees at the Feeder Pipe Bridge, crossing the River Taff, Abercynon, CF45 4SA and to produce an Arboricultural Impact Assessment (AIA) for the access works and renovation of the bridge. A qualitative assessment of each tree was carried out according to British Standard BS 5837:2012, Trees in Relation to Design, Demolition and Construction–Recommendations, focusing on arboricultural values (categories A1, B1, C1)¹, landscape values (categories A2, B2, C2) and cultural values (A3, B3, C3)².

The main findings of the survey are as follows:

- **The intention is that works will be undertaken on both the south side and the north side of the river, with the larger part of the works being accomplished from the south side.**
- The maximum number of trees requiring removal to facilitate works on the north side would be 16 individuals, one group, partial removal of two further groups and partial removal of one wooded area. **This tree impact could be reduced to the removal of T57, T59 and T89 only, where the majority of the proposed works can be undertaken from the south bank.**
- The number of trees requiring removal to facilitate works on the south side will be 17 individuals and one group.
- Overall arboricultural impact is considered moderate and must be fully compensated for with landscaping and replanting proposals.
- As sections of the site lie under the jurisdiction of both Rhondda Cynon Taf County Borough Council and Merthyr Tydfil County Borough Council, tree constraints checks were carried out with both local authorities. It was confirmed

¹ Categorisation grading in accordance with BS 5837 2012. Trees suitable for retention: - Category A. Trees of high quality with an estimated remaining life expectancy of at least 40 years.
Category B. Trees of moderate quality with an estimated life expectancy of at least 20 years.
Category C. Trees of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm.

Category U. Trees of very low quality normally with a life expectancy of less than 10 years or requiring immediate removal due to health and safety concerns.

² British Standard BS 5837 2012 recommends that these categories may be further broken down into sub categories A1 A2 A3 pertaining to Arboricultural, Landscape or Cultural values respectively.

that there are no tree Preservation Orders or Conservation Areas on or adjacent to the site.

- Datamap Wales (Ancient Woodland Inventory 2021) confirms that the location of the existing bridge and its abutments on the north bank of the river is situated at the fringe of Ancient Woodland (please see TPP at Appendix 3). As such this is subject to National Planning Policy Framework (NPPF) (2019) restrictions.
- A detailed Arboricultural Method Statement (AMS) will be required covering special engineering measures in relation to retained trees, the installation of no-dig, cellweb-based, temporary surfacing, protection of the adjacent (north bank) Ancient Woodland and all operations requiring arboricultural supervision.

1 Introduction

BACKGROUND

- 1.1 Temple Ltd was commissioned by Baker Hicks in July 2023 and November 2023 to carry out arboricultural surveys of trees at the Site and along proposed access routes, and to provide a report to inform future design proposals and tree protection. The tree surveys were required to assess the condition of trees that could be affected by construction works associated with replacement of the existing feeder pipe bridge, and to provide sufficient information for the development of site layouts and construction exclusion zones to enable the protection of existing trees.

SCOPE OF REPORT

- 1.2 This report has been produced in accordance with British Standard BS 5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations (hereafter referred to as BS 5837:2012). It provides information on the current condition of trees at the site, their suitability for retention, and the above and below ground constraints to development. It also evaluates the overall likely impact on the existing tree presence at the site, as well as detailing any special engineering methods required to mitigate such impact.

- 1.3 Any clear structural flaws or hazards have been identified in the Schedule of Trees provided in Appendix 1. Preliminary recommendations for the management of retained trees are provided, but a full hazard risk assessment comprising a more comprehensive analysis of tree condition and potential risk to target areas is beyond the scope of this report. Any recommendations relating to the management of potentially hazardous trees should be carried out as soon as possible³.

SITE CONTEXT AND STATUS

- 1.4 The proposed development Site potentially comprises areas on both the north and south banks of the River Taff. The south Site is centred on Ordnance Survey National Grid Reference ST 09209 95484 and the north Site is centred on ST 09131 95586. The Site is bordered for the most part by agricultural land as well as commercial and domestic dwellings. The River Taff separates the northern and southern sites running adjacent to both boundaries.

DESCRIPTION OF THE PROPOSALS (GENERAL)

- 1.5 The description of the construction proposals, as provided by the Project's Design Manager, include:
- Remedial work to existing piers and abutments;
 - Removal of central pipe from bridge;
 - Scour protection at abutments;
 - Installation of scaffold access and enclosure;
 - Treatment and painting of remaining 2no. pipes;
 - Construction of new bridge abutments and pier supports;

³ All tree works should be undertaken by a suitably qualified Arboricultural Contractor. No arboricultural works to trees subject to planning constraints shall be carried out without the written consent of the relevant Local Planning Authority (LPA). Any proposed tree works should be undertaken in accordance with British Standard BS 3998:2010 Tree work - Recommendations. Works to trees that are the subject of a Tree Preservation Order or within a Conservation Area which are deemed to be dangerous under Regulation 14 of the Town and Country Planning (England) (Regulations) 2012 may under certain circumstances be undertaken without needing to seek the prior written consent of the LPA.

- Installation of new bridge.

DESCRIPTION OF THE PROPOSALS (NORTH BANK)

- 1.6 The full development proposals for the north bank involve the creation of a compound at the top of the slope above the river, and the creation of a track down to the river side allowing building materials to be transported to the location of the bridge replacement. A number of trees will need to be cleared at the point where the access comes off the A470 to develop an appropriate visibility splay (please see TPP Appendix 3).

DESCRIPTION OF THE PROPOSALS (SOUTH BANK)

- 1.7 The development proposals related to the south bank involve the creation of a compound and platform to allow for building materials to be craned across for construction of the new bridge.

REDUCTION OF NORTH BANK IMPACT

- 1.8 **The intention is that works will be undertaken on both the south side and the north side of the river, with the larger part of the works being accomplished from the south side. Where this is the case, limited works required on the north side to accommodate the new abutment and rock anchors are most likely to be effected using an existing access and very limited small plant and machinery. This approach could reduce tree removals on the north bank to T57, T59 and T89.**

2 Methodology

TREE SURVEY

- 2.1 The tree survey was conducted in accordance with BS 5837:2012. Results are presented in the Schedule of Trees (Appendix 1) and include a sequential numbering of each tree, species listed by common name, tree dimensions including overall height, canopy spreads measured against the cardinal compass points, crown

height, age class, physiological condition, structural condition, life expectancy, root protection areas and preliminary management advice.

- 2.2 Each tree has been assigned a category grade in accordance with BS 5837:2012 categories A, B, C and U ranging from high to low quality. Definitions of tree quality are provided in Table 2 Appendix 1.
- 2.3 For the purposes of this report, arboricultural as well as landscape sub-categories have been used in the Schedule of Trees. BS 5837:2012 points out that each sub-category should be given equal weighting when grading trees against these criteria.
- 2.4 A tree constraints plan, based on the original tree survey data and productions, is presented in Appendix 2 showing the RPAs (root protection areas) for all surveyed trees. Each grading category has been highlighted using the colour key system as described in BS 5837:2012.
- 2.5 The site was visited in July and then again in November of 2023.
- 2.6 Trees affected by the works as shown in the plans outlined in Appendix 3 were visually assessed using the Visual Tree Assessment Method (VTA) (Mattheck and Breloer, 1994).
- 2.7 Stem diameters were measured using diameter tape. Canopy spreads were estimated by pacing and where possible, verified using a laser range finder. Height measurements were taken using a laser clinometer.
- 2.8 Formal assessments of topography, drainage, service conduits and soil conditions including specific laboratory investigations of soil properties (i.e. plasticity index, moisture content, suction pressure) were not undertaken by Temple and are beyond the scope of this report. It is understood however that these have been assessed by others on behalf of the client.

DESK STUDY

- 2.9 A tree constraints check was undertaken with both Rhondda Cynon Taf County Borough Council and Merthyr Tydfil County Borough Council by email and online mapping service respectively to check for Tree Preservation Order and Conservation Area restrictions to tree works in and adjacent to the site. Datamap Wales was consulted to establish the extents of the Ancient Woodland situated in proximity to works proposed for the north bank of the river.

SUPPORTING DOCUMENTS

- 2.10 Drawing Reference: *Topographical Survey Abercynon Feeder Bridge* (Alpine Land Surveyors 21/04/2023) *Topographical Survey Abercynon Feeder Bridge* (Alpine Land Surveyors 20/11/2023), *Access Track alignment Design* (Baker Hicks 19/07/2023) and 30003237-BHK-TM-DC-0112 Platform Extents (Baker Hicks 02/2024) were provided for the purposes of compiling this report. They included the layout of existing site features and the proposed general arrangements for the site.

PERSONNEL

- 2.11 This report was produced by Matthew Wilcox BSc (Hons) Dip Arb L4 (ABC) MArborA, who holds the Professional Tree Inspector (LANTRA) qualification. Matthew is an Arboricultural Consultant with over 11 years' experience within various sectors of arboriculture, working as a contractor, consultant and for local authorities.

LIMITATIONS

- 2.12 Only preliminary recommendations for tree management are provided. A full hazard risk assessment comprising a more comprehensive analysis of the condition and potential risk to target areas is beyond the scope of this report.
- 2.13 CDM Designer Responsibilities: Our reports may include outline strategies or 'design advice' to support development proposals but, unless explicitly stated above, these are not to be construed as detailed designs under CDM regs. We do not assess the health and safety aspects of design advice which is the duty of designated designers under CDM. Designers' duties under CDM 2015 apply as soon as designs which may

be included in construction work are started; hence this may include design concepts, options and outline designs. Our responsibility is to ensure relevant information about our input is made available to other duty holders (under CDM 2015) who will be undertaking the design, including any health & safety assessments, or implementing the design.

- 2.14 Of the trees surveyed, a total of five trees (T15, T16, T20, T21 and T22) were ivy clad, inhibiting standard VTA inspection methods and stem measurements. As such, assumptions have been made relating to the condition and size of ivy clad trees. Management recommendations for ivy clad trees have been made in this report and should be followed to remove any risk that may be posed by them.
- 2.15 The trees were inspected at ground level and no decay detection equipment was used. There is therefore a risk that any internal decay that may be present has gone undetected.
- 2.16 Of the trees surveyed, a total of 31 trees (T2, T3, T4, T42, T48, T51, T53, T54, T55, T56, T57, T58, T59, T60, T64, T65, T70, T71, T72, T73, T74, T76, T77, T78, T82, T83, T84, T85, T86, T87, T88) were situated in areas where access to the main stem was not possible. As such, assumptions have been made relating to dimensions of the main stem, and the overall condition is based upon the visible parts of the tree only.
- 2.17 Trees are living organisms and their health and condition change over time. Therefore, this assessment remains valid for 12 months from the date of inspection, or until a severe storm is experienced, after which time a new inspection is required. For the purpose of this report, a severe storm is defined as a period of violent weather, involving rain, hail, wind, snow, lightning or any combination of these, likely to cause damage to trees.
- 2.18 There are some trees in the vicinity which are located where there is known Japanese knotweed. However, these trees are a sufficient distance from construction and the access route that they are not thought to be impacted by the proposed works.

- 2.19 Reference should be made to Invasive non-native species Report - 'Feeder Pipe Bridge Replacement, Abercynon Invasive Species Survey' dated 10th March 2023. Updated 12th December 2023' for further details.

3 Results

TREE SURVEY

- 3.1 The results of the tree survey are provided in the Schedule of Trees in Appendix 1. A Tree Constraints Plan illustrating the BS 5837:2012 categories of each tree, their crown spread, and RPA is presented in Appendix 2 and photographs of the site are provided in Appendix 5.
- 3.2 The survey recorded 89 individual trees, nine groups and three woodlands across both the north and south banks of the river, which could potentially be affected by the development proposals. As described within this report it is considered likely that the works will be effected from both banks, with the majority of the works being carried out from the south.
- 3.3 Species recorded included: common alder *Alnus glutinosa*, common beech *Fagus sylvatica*, silver birch *Betula pendula*, common holly *Ilex aquifolium*, common elder *Sambucus nigra*, goat willow *Salix caprea*, hazel *Corylus avellana*, hawthorn *Crataegus mongyna*, rowan *Sorbus aucuparia*, pedunculate oak *Quercus robur*, sycamore *Acer Pseudoplatanus*, willow *Salix spp.*, and wild cherry *Prunus avium*.
- 3.4 Physiological and structural condition⁴ of the majority of surveyed trees was consistent with Category C status (56 individuals, and 2 groups), with 28 individuals, 6 groups, 3 woodlands assigned Category B status, three individuals assigned Category A status and two individuals were assigned Category U status.

⁴ Physiological and structural condition are terms used to differentiate between a trees physiological condition i.e. annual growth, vigour, presence of disease etc. as opposed to structural condition relating to branch formation, mechanical strength and integrity.

3.5 Of the trees surveyed, 17 individuals were classified to be at a mature life stage⁵, 20 individual and one group was classified as young, 24 individuals, six group and three woodlands were classified as semi mature, and 30 individuals and two groups were classified as early mature. No trees were found to be in the over mature classification.

3.6 A summary of the number of trees surveyed corresponding to BS 5837:2012 tree quality assessment definitions is provided in Table 1.

Table 1.1: Grade Classifications of tree on North side

BS 5837:2012 Grades A to U	Trees attributed to each grade	Frequency		
		T	G	W
A	T62, T76, T79	3	-	-
B	T46, T49, T50, T55, T56, T57, T58, T61, T63, T65, T67, T69, T71, T87, T86, G6, G7, G8, G9, W2, W3.	14	4	2
C	T45, T47, T48, T51, T52, T53, T54, T59, T60, T64, T66, T68, T70, T72, T73, T74, T75, T78, T80, T81, T82, T83, T84, T85, T88, T89, T77	27	-	-
U	-	-	-	-

Table 1.2: Grade Classifications of trees on South side

BS 5837:2012 Grades A to U	Trees attributed to each grade	Frequency		
		T	G	W
A	-	-	-	-
B	T3, T4, T5, T6, T7, T10, T11, T18, T19, T32, T33, T40, T42, G3, G5, W1	13	2	1
C	T2, T8, T9, T12, T13, T14, T16, T17, T20, T21, T22, T23, T24, T25, T26, T27, T28, T29, T30, T31, T34,	29	3	-

⁵ Young. Establishing; usually with good vigour, but as of limited significance within the landscape.
Semi-Mature. Established; normally vigorous and increasing in height. Of increasing landscape significance.
Early Mature. Fully established trees around the middle half of their life span retaining good vigour. Not yet achieved full height and retaining apical dominance.
Mature. Fully established trees retaining moderate vigour. Apical dominance lost but crown still spreading.
Over Mature. Fully mature trees in the last quarter of their usual life expectancy; vigour declining.

Table 1.2: Grade Classifications of trees on South side

BS 5837:2012 Grades A to U	Trees attributed to each grade	Frequency		
		T	G	W
	T35, T36, T37, T38, T39, T41, T43, T44, G1, G2, G4			
U	T1, T15	2	-	-

DESK STUDY

- 3.7 It was confirmed that there are no Tree Preservation Orders or Conservation Areas on the site.
- 3.8 Datamap Wales (Ancient Woodland Inventory 2021) confirms that the location of the existing bridge and its abutments is situated at the fringe of Ancient Woodland (please see TPP at Appendix 3). As such this is subject to National Planning Policy Framework (NPPF) (2019) restrictions.
- 3.9 The NPPF recommends that any proposals resulting in the loss or deterioration of Ancient Woodland, or ancient or veteran trees be rejected unless under wholly exceptional reasons or if a suitable compensation strategy is in place (Ministry of Housing, Communities & Local Government, 2018). It is further recommended that buffer zones are incorporated into any proposals to provide adequate protection and separation from any proposed works.
- 3.10 Assuming impacts can be controlled as set out in the attached TPP, it is considered that impact to the Ancient Woodland is likely to be small and that it can be compensated for by woodland edge replanting and reinstatement. Details on measures required to minimise any impacts on the fringe of the Ancient Woodland must form part of the AMS for the project.

ARBORICULTURAL IMPACT ASSESSMENT

- 3.11 Based on Drawing Reference: *30003237-BHK-TM-DC-0112 Platform Extents* (Baker Hicks, 2024), alongside discussions with the Project Management team, the impact

of the construction on the existing trees has been assessed and all trees that could potentially be affected by the works are listed in Tables 2.1 and 2.2. Tree numbers in the table correspond to the Schedule of Trees in Appendix 1 and to the Tree Constraints Plan described in Appendix 2. The tree numbers in the schedule are sequential and the location of the trees (north bank or south bank) is clearly demarcated.

- 3.12 It has been assumed that the height of all construction traffic or goods vehicles accessing the site will be within the standard minimum carriageway clearance of 5m (HSE, 2017).

Table 2.1: Summary of trees potentially affected by the development on **North side** – (impact likely to be significantly reduced if works are undertaken primarily from the south bank).

Impact	Reason	BS Cat A	BS Cat B	BS Cat C	BS Cat U
Trees to be removed	To facilitate construction	T62	T49, T57, T58, T61, T63, T69, T71, G5, G8 (partial), G9 (partial), W2 (partial)	T59, T60, T66, T70, T74, T77, T78, T89.	-
Trees which could sustain damage to RPA	New access road	T76, T79	T65, T67, T86, G7	T48, T51, T52, T68, T75 T80, T81, T82, T83, T84, T88	-
	Soil compaction through construction traffic access	T76, T79	T46, T55, T50, T56, T65, T67, T86, T87, G3, G6, G7, W1	T45, T47, T48, T51, T52, T53, T54, T64, T68, T72, T73, T75 T80, T81, T82, T83, T84, T85, T88.	-

Table 2.1: Summary of trees potentially affected by the development on **North side** – (impact likely to be significantly reduced if works are undertaken primarily from the south bank).

Impact	Reason	BS Cat A	BS Cat B	BS Cat C	BS Cat U
Trees which could sustain damage to stem or canopy	Impact by construction traffic	T76, T79	T3, T4, T18, T19, G6, G7, W1	T45, T47, T48, T51, T52, T53, T54, T64, T68, T72, T73, T75 T80, T81, T82, T83, T84, T85, T88.	-

Table 2.2: Summary of trees potentially affected by the development on **South side**

Impact	Reason	BS Cat A	BS Cat B	BS Cat C	BS Cat U
Trees to be removed	To facilitate construction	-	T5, T6, T7, T10, T11, G5.	T2, T8, T9, T12, T35, T36, T37, T38, T39, T43, T44	T1
Trees which could sustain damage to RPA	New access road	-	-	-	-
	Soil compaction through construction traffic access	-	T3, T4, T18, T19, T32, T33, T41, T42, G3, W1	T13, T14, T16, T17, T20, T21, T22, T23, T24, T25, T26, T27, T28, T29, T30, T31, T34, T40, G1, G2, G4	-

Table 2.2: Summary of trees potentially affected by the development on South side

Impact	Reason	BS Cat A	BS Cat B	BS Cat C	BS Cat U
Trees which could sustain damage to stem or canopy	Impact by construction traffic	-	T3, T4, T18, T19, T32, T33, T41, T42, G3, W1	T13, T14, T16, T17, T20, T21, T22, T23, T24, T25, T26, T27, T28, T29, T30, T31, T34, T40, G1, G2, G4	-

TREE REMOVAL AND PRUNING

3.13 Where access is required from the North side, one individual tree, Category A (although A category due to overall form, condition and potential future lifespan, this tree is a common Alder which will be replaced quite naturally over time, Alder being a vigorous riparian species which will self-set readily), 7 individuals, three groups and a section of one woodland group, Category B, 8 individuals and one group, Category C will require removal.

3.14 Where access is required from the South side, seven individuals, three groups, Category B, 13 individuals and one group, Category C, and a single tree, Category U will require removal.

TREES WHICH COULD POTENTIALLY SUSTAIN DAMAGE

3.15 Across both banks, the construction process has the potential to indirectly impact the stem, canopy or RPAs of 57 trees, seven groups and one woodland scheduled for retention as displayed in Table 2.1 and Table 2.2. To ensure that these features are successfully retained during the proposed works; a Tree Protection Plan covering both the north and south banks has been prepared in line with the recommendations of BS5837:2012. This is attached as Appendix 3 of this document.

- 3.16 On the north bank, an access road has been proposed throughout woodland group W2 and within the RPAs of trees T48, T51, T52, T65, T67, T68, T75 T76, T79, T80, T81, T82, T83, T84, T86, T88 and G7. The existing ground surface at these locations is soft, providing good growing conditions and the trees can be expected to have developed extensive root systems. Any excavations inside RPAs or compaction to the soil will have the potential to cause significant damage to the structural and physiological condition of the trees. An Arboricultural Method Statement will therefore be required to demonstrate that proposals can be properly carried out using specialised no dig methods only. Such works will require close arboricultural supervision in order to help mitigate against damage.

IMPACT ON VISUAL AMENITY AND LOCAL CHARACTER (NORTH BANK)

- 3.17 A single specimen on the north bank, T62 (Alder) has Category A status. Whilst the loss of an A category tree is regrettable, in the context of the location, and given what has to be accomplished in construction terms within the space, it is considered that this loss can be adequately compensated for with appropriate replanting.
- 3.18 The remainder of the proposed north bank removals are category B and C trees and therefore considered of moderate value. Whilst they are not of outstanding arboricultural quality, their loss in landscaping terms has significance and must be compensated for with replacement planting.
- 3.19 **Importantly, the intention exists to limit tree impact on the north bank by undertaking the majority of the works from the south bank. Should this approach be implemented, impact on visual amenity will be significantly reduced.**

IMPACT ON VISUAL AMENITY AND LOCAL CHARACTER (SOUTH BANK)

- 3.20 No category A trees will require removal from the south bank, however a significant overall amount of tree cover will be removed to facilitate construction. This must be compensated for with reinstatement and replacement planting.

4 Conclusions

TREE RETENTION AND PROTECTION

- 4.1 The Tree Protection Plan (TPP), based on the erection of robust tree protection fencing prior to commencement of any works on site (including enabling works, soil stripping or other site preparation operations) will ensure the roots of retained trees are protected from damage.
- 4.2 A full Arboricultural Method Statement (AMS) will be produced to cover in detail measures required to protect retained trees across both banks (and specifying protection measures in relation to the adjacent Ancient Woodland). Production of the AMS will require liaison with project designers and civil engineers and will deliver clarity on proposed construction access, construction methods, ground protection and methods of reinstatement to be utilised.
- 4.3 It is recommended that any access road proposed for the north bank is comprised of a no-dig system (Cellweb TRP, tree root bridge or similar), suitable for heavy vehicular construction traffic and topped with a permeable hardstanding in order to protect the existing soil strata from overloading while maintaining gaseous and aqueous exchange capacity. If installed correctly, under direct arboricultural supervision and in accordance with an AMS, impact on the structural or physiological condition of the adjacent trees, and of the soil, will be significantly mitigated.

TREE PROTECTION FENCING

- 4.4 The Tree Protection Plan shows the location of tree protection fencing to be erected around the RPAs prior to the commencement of any works, including site preparation and enabling works, reprofiling and/or soil stripping. The erection of robust fencing, fixed into position and braced prior to any groundworks on site, will ensure construction impact is avoided in relation to trees, grouped trees, hedges and woodland to be safely retained on the site.

- 4.5 Protective barriers must remain in place through the entire course of the construction phase of the development and can only be moved in consultation with the appointed arboricultural consultant. The barrier will be a 2m high fence robust enough to withstand impact from plant/machinery supported by a system of vertical and horizontal scaffold tubes and supporting back stays as specified in Figure 2 of BS 5837:2012 (see Appendix 6).
- 4.6 Weatherproof signage will be attached to the fencing in locations clearly visible to contractors and other site operatives. Examples of warning notices are provided in Appendix 6.
- 4.7 Once the tree protection fencing has been placed and fixed into position, it cannot be removed or altered in any way. Tree protection fencing must remain in place until the conclusion of all site construction works and may not be moved, reconfigured or taken down without the consent of the arboricultural supervisor.
- 4.8 Prompt action must be taken to replace tree protection fencing that becomes damaged or dysfunctional in any way. Such incidents should be reported to the project's arboricultural supervisor.

FINAL REMOVAL OF PROTECTIVE FENCING AND GROUND PROTECTION MEASURES

- 4.9 Prior to the final removal of any protective fencing or ground protection, the arboricultural consultant to the project will be consulted. This ensures that tree protection is not removed prematurely, at a time when there may still be risk to trees and tree roots from construction or other activities.

GENERAL PRECAUTIONS TO BE TAKEN ON SITE

- 4.10 The following precautions will be maintained at all times:
- 4.11 All retained trees will be protected by the erection of protective barriers and or ground protection prior to the commencement of any works and such barriers will remain in place during the entire course of the development.

- 4.12 No fires can be lit within 10m of the canopies of trees to be retained.
- 4.13 No excavations or soil stripping or general disturbance and compaction of the existing soil strata is permitted within the RPA of any tree to be retained.
- 4.14 All scheduled tree works must be carried out prior to the commencement of any site works and before the erection of tree protection measures.
- 4.15 A copy of the Tree Protection Plan and any accompanying Arboricultural Method Statement will be made available and retained on site at all times.

REPLANTING

- 4.16 A scheme of landscape restoration is in preparation and will be submitted, including tree planting details to address the potential loss of visual public amenity where tree removal is unavoidable. Tree and plant selection will be appropriate to the site and chosen from a species palette in accordance with local tree planting policies and in accordance with any recommendations provided in the PEA and any subsequent ecology reports.
- 4.17 The design of any new planting and landscaping proposals will be based upon a soil analysis which considers PH and any nutrient deficiencies or imbalances.
- 4.18 Issues of ground compaction resulting from construction works (inc. plant and vehicle movement) must be assessed following completion of the development. If indicated, soil decompaction works must be undertaken prior to re-landscaping.
- 4.19 It is recommended that specifications on aftercare and maintenance, including irrigation, as well as protection and formative pruning during establishment, are included as part of the finalised tree planting strategy. Recommendations should be appropriate to the proposed planting and should be in compliance with BS 8545:2014 Trees from nursery to establishment in the landscape - Recommendations.

OVERALL ARBORICULTURAL IMPACT

- 4.20 **Although a full assessment of potential tree impacts has been provided for both the north and south banks, it is intended that the majority of the works will be undertaken from the south bank. Where this is the case, limited works required on the north side to accommodate the new abutment and rock anchors are most likely to be affected using an existing access and very limited small plant and machinery. This approach could reduce tree removals on the north bank to T57, T59 and T89.**
- 4.21 The number of trees requiring removal to facilitate works on the south side will be 17 individuals and one group.
- 4.22 Tables 2.1 and 2.2 of the report provide a breakdown of trees to be removed on each bank of the river on the basis of a 'worst case scenario'. As described in 4.20 above, there is an intention to significantly reduce tree impact on the north bank by undertaking the majority of the works from the south bank.
- 4.23 Assuming access and construction works for both banks are supported with detailed arboricultural method statements then overall arboricultural impact is considered likely to be moderate and will be compensated for with landscaping and replanting proposals.

CONTACT DETAILS

- 4.24 This AIA is accompanied by a list of known contact details for all relevant parties and is included in Table 4.

Table 4: List of contact details for all relevant parties

Contact	Name	Company or Local Authority name	Contact Number	Report Issued Yes/No
Client	Nick Wood	Baker Hicks	-	Yes
Arboricultural Consultant	Jacqueline Waring	Temple Ltd	-	Yes

References

Alpine Land Surveyors (2023). *Topographical Survey Abercynon Feeder Bridge*.

Baker Hicks (2023). *Access Track alignment Design*.

British Standard Institute (BSI) (2012). *BS 5837:2012 Trees in Relation to Design Demolition and Construction-Recommendations*. BSI, London.

British Standard Institute (BSI) (2010). *BS 3998:2010 Recommendation for Tree Works*. BSI, London.

British Standard Institute (BSI) (2014). *BS 8545:2014 Trees: from nursery to independence in the landscape - Recommendations*. BSI, London.

Department for Communities and Local Government (2014). *Planning Practice Guidance on Tree Preservation Orders and trees in conservation areas*.

Drawing Reference: 30003237-BHK-TM-DC-0112 *Platform Extents* (Baker Hicks, 2024)

Lonsdale, D. (1999). *Research for Amenity Trees No.7: Principles of Tree Hazard Assessment and Management*. HMSO

Mattheck and Breloer (1994). HMSO London. *Research for Amenity Trees No 4; The Body Language of Trees*.

Town and Country Planning Act 1990 (as amended).

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

Appendix 1: Schedule of Trees

7028 Feeder Bridge Replacement – South Bank - Date of survey 12/23

Table 1: Schedule of Trees and Tree Quality Assessment*

No	Species	Ht.	S	St. 1.5m	Canopy Spread				Cr.Cl	Ls	SC	PC	Comments /Observation	Preliminary Management Advice	LE	Cat **	RPA m ²	RPA r
					N	S	E	W										
T1	Hazel	4	4	400	1	3	1	1	0	EM	Fair	Fair	Not on TOPO. Growing from edge of bank, leaning heavily towards river.	-	<10 years	U	72.4	4.8
T2	Alder	11	1	200	2	4	3	2	0	EM	Fair	Fair	Not on TOPO. Unable to access, grown from cliff, lean heavily towards river, suppressed by adjacent trees.	-	20+ years	C2	18.1	2.4
T3	Oak	16	1	600	5	5	4	5	4	EM	Fair	Fair	Not on TOPO. Bank edge, Riverside, unable to access.	-	20+ years	B2	162.9	7.2
T4	Beech	17	1	600	8	8	7	8	2	M	Fair	Fair	Not on TOPO. Bankside, edge of river, unable to access. leans towards river.	-	20+ years	B2	162.9	7.2
T5	Hawthorn	5	1	150	1	1	1	1	0	Y	Fair	Fair	Adjacent to passing area.	-	20+ years	C2	10.2	1.8
T6	Alder	10	3	270;230;200	4	4	4	4	3	SM	Fair	Fair	Roadside tree overhanging road.	-	20+ years	B2	75	4.9
T7	Alder	10	4	230;230;200;200	5	4	4	4	3	SM	Fair	Fair	Roadside tree overhanging road.	-	20+ years	B2	241	5.2
T8	Alder	10	1	200	1	1	1	1	3	SM	Fair	Fair	Not on TOPO, suppressed by adjacent trees.	-	10+ years	C2	18.1	2.4
T9	Birch	10	1	250	2	2	2	2	0	SM	Fair	Fair	Branch lost at 1m west, reaction wood present.	-	10+ years	C1	28.3	3.0
T10	Alder	10	2	350;360	5	5	5	5	1	M	Fair	Fair	Large alder on bank.	-	20+ years	B2	114	6
T11	Willow	8	2	180;150	3	3	3	3	1	EM	Fair	Fair	Roadside tree.	-	20+ years	B2	24.8	2.8
T12	Alder	6	1	100	1	1	1	1	0	Y	Fair	Fair	Not on TOPO.	-	10+ years	C1	4.5	1.2
T13	alder	9	2	230;120	4	3	3	3	3	SM	Fair	Fair	Roadside tree, smaller stem is dead.	-	10+ years	C2	30.4	3.1

7028 Feeder Bridge Replacement – South Bank - Date of survey 12/23

Table 1: Schedule of Trees and Tree Quality Assessment*

No	Species	Ht.	S	St. 1.5m	Canopy Spread				Cr.Cl	Ls	SC	PC	Comments /Observation	Preliminary Management Advice	LE	Cat **	RPAm ²	RPA r
					N	S	E	W										
T14	Goat willow	8	1	170	2	2	2	3	0	SM	Fair	Fair	Appears to have been topped, with regrowth present.	-	10+ years	C1	13.1	2
T15	Alder	8	1	250	2	2	2	2	3	M	Fair	Poor	Ivy clad stem.	-	<10 years	U	28.3	3
T16	Birch	9	1	290	2	2	2	2	3	SM	Fair	Fair	Ivy clad stem.	-	10+ years	C1	38	3.5
T17	Alder	9	1	200	2	2	2	2	3	SM	Fair	Fair	Inside canopy of larger tree.	-	10+ years	C2	18.1	2.4
T18	Goat willow	9	2	320;250	5	4	4	5		SM	Fair	Fair	Roadside tree overhanging road.	-	20+ years	B2	74.6	4.9
T19	Alder	10	2	420;450	5	5	5	5	3	M	Fair	Good	Not on TOPO, overhanging road, opposite side of road from site.	-	20+ years	B2	171.4	7.4
T20	Alder	9	2	240;210	2	3	2	2	3	SM	Fair	Fair	Roadside tree, ivy clad.	-	10+ years	C2	46	3.8
T21	Alder	9	1	350	2	3	3	2	3	SM	Fair	Fair	Roadside tree, ivy clad.	-	10+ years	C2	55.4	4.2
T22	Alder	9	1	360	2	2	2	2	3	SM	Fair	Fair	Ivy clad stem.	-	10+ years	C2	58.6	4.3
T23	Alder	9	1	360	2	2	2	2	3	SM	Fair	Fair	Not on TOPO.	-	10+ years	C2	58.6	4.3
T24	Elde	3	1	150	1	1	1	1	0	M	Fair	Fair	Not on TOPO.	-	10+ years	C2	10.2	1.8
T25	Alder	8	1	130	1	1	1	1	3	EM	Fair	Fair	Not on TOPO, red tape around stem.	-	10+ years	C2	7.6	1.6
T26	Ash	9	1	340	5	4	5	5	3	SM	Fair	Fair	One stem at 1m on north had been removed.	-	20+ years	C2	52.3	4.1
T27	Alder	8	1	180	1.5	1.5	1.5	1.5	2	EM	Fair	Fair	Over hanging recently cut track.	-	10+ years	C2	14.7	2.2
T28	Bich	8	2	100;140	1	2	1	2	3	Y	Fair	Fair	Two stems from ground level.	-	10+ years	C2	13.4	2.1
T29	Alder	9	1	230	2	2	2	2	4	EM	Fair	Good	Ivy clad stem.	-	10+ years	C2	23.9	2.8

7028 Feeder Bridge Replacement – South Bank - Date of survey 12/23

Table 1: Schedule of Trees and Tree Quality Assessment*

No	Species	Ht.	S	St. 1.5m	Canopy Spread				Cr.Cl	Ls	SC	PC	Comments /Observation	Preliminary Management Advice	LE	Cat **	RPAm ²	RPA r
					N	S	E	W										
T30	Oak	8	4	300	3	3	3	3	0	EM	Fair	Fair	Not on TOPO, on bank.	-	10+ years	C2	40.7	3.6
T31	Oak	8	1	120	1	1	1	1	0	EM	Fair	Fair	Not on TOPO, on bank.	-	10+ years	C2	6.5	1.4
T32	Alder	8	1	320	4	4	4	4	2	EM	Fair	Fair	On bank.	-	20+ years	B2	46.3	3.8
T33	Oak	8	2	210;130	4	3.5	3.5	3.5	1	Y	Fair	Good	Growing at top of bank adjacent to concrete pad.	-	20+ years	B2	27.6	3
T34	Ash	7	1	130	2	2	2	2	2	Y	Fair	Fair	Growing at edge of concrete pad.	-	10+ years	C2	7.6	1.6
T35	Birch	9	1	160	1	1	1	1	4	Y	Fair	Fair	Adjacent to log pile which is over RPA.	-	10+ years	C2	11.6	1.9
T36	Alder	9	1	160	1	3	2	2	4	EM	Fair	Fair	Crown unbalanced.	-	10+ years	C2	11.6	1.9
T37	Alder	9	1	230	3	3	3	2	4	EM	Fair	Fair	Unable to access, behind log pile.	-	10+ years	C2	23.9	2.8
T38	Alder	8	1	250	3	3	3	3	4	M	Fair	Fair	One stem on east section has been removed.	-	10+ years	C2	28.3	3
T39	Alder	8	1	200	1	1	2.5	0.5	4	EM	Fair	Fair	Unbalanced crown.	-	10+ years	C2	18.1	2.4
T40	Holly	4.5	6	300	3	3	3	3	0	EM	Fair	Good	Not on TOPO, estimated combined stem diameter given.	-	20+ years	B2	40.7	3.6
T41	Hawthorn	5	3	230	2.5	2.5	2.5	2.5	0	EM	Fair	Fair	Not on TOPO. stem diameter taken below folks. Wire included in stem.	-	10+ years	C2	23.9	2.8
T42	Oak	9	1	290	3	3	3	3	3	Y	Fair	Fair	Not on TOPO, edge of river, unable to access.	-	20+ years	B2	38	3.5
T43	Alder	8	1	280	2	2	1	2	3	EM	Fair	Fair	Roadside tree.	-	10+ years	C2	35.5	3.4
T44	Alder	8	1	120	1	1	1	1	3	Y	Fair	Fair	Roadside tree.	-	10+ years	C2	6.5	1.4

7028 Feeder Bridge Replacement – South Bank - Date of survey 12/23

Table 1: Schedule of Trees and Tree Quality Assessment*

No	Species	Ht.	S	St. 1.5m	Canopy Spread				Cr.Cl	Ls	SC	PC	Comments /Observation	Preliminary Management Advice	LE	Cat **	RPA ^{m2}	RPA <i>r</i>
					N	S	E	W										
G1	Alder	8	2	180	1	1	1	1	3	EM	Fair	Fair	2 alders not on TOPO.	-	10+ years	C2	14.7	2.2
G2	Alder	7	1	100	0.5	0.5	0.5	0.5	0	Y	Fair	Fair	Not on TOPO, 2 small alders.	-	10+ years	C2	4.5	1.2
G3	Alder and Birch	8	1	300	3	3	3	3	3	EM	Fair	Fair	Roadside trees overhanging road.	-	20+ years	B2	40.7	3.6
G4	Alder and willow	13	1	330	4	4	4	4	0	SM	Fair	Fair	Estimated average Stem diameter given. Trees along riverbank.	-	10+ years	C2	49.3	4
G5	Oak and Hawthorn	8	1	300	3	3	3	3	0	SM	Fair	Fair	Edge of path, stem diameter (estimated) average.	-	20+ years	B2	40.7	3.6
W1	Mixed woodland	13	1	300	3	3	3	3	0	SM	Fair	Fair	Mixed closed canopy woodland including birch, alder and oak.	-	20+ years	B2	40.7	3.6

7028 Feeder Bridge Replacement – North Bank - Tree Survey
Date of survey 07/23

No	Species	Ht.	S	St. 1.5m	Canopy Spread				Cr.Cl	Ls	SC	PC	Comments /Observation	Preliminary Management Advice	LE	Cat **	RPA ^{m2}	RPA <i>r</i>
					N	S	E	W										
T45	Hazel	13	10+	400	1	1	1	1	0	M	Fair	Fair	Hazel coppice, approximately 15 stems. Combined stem diameters given.	-	10+ years	C1	72.4	4.8
T46	Beech	14	2	500	4	5	5	4	2	M	Fair	Fair	Grown of bank edge unable to access.	-	20+ years	B2	113.1	6.0
T47	Alder	10	3	200	4	1	3	4	3	M	Fair	Fair	On bank edge, unable to access.	-	10+ years	C2	18.1	2.4
T48	Wild cherry	6	1	200	2	2	2	2	0	SM	Fair	Fair	Bottom side of path, unable to access.	-	20+ years	C2	18.1	2.4
T49	Oak	9	1	300	3	3	3	3	0	Y	Fair	Fair	Top side of path, unable to access.	-	20+ years	B2	40.7	3.6

7028 Feeder Bridge Replacement – North Bank - Tree Survey

Date of survey 07/23

No	Species	Ht.	S	St. 1.5m	Canopy Spread				Cr.Cl	Ls	SC	PC	Comments /Observation	Preliminary Management Advice	LE	Cat **	RPA ^{m2}	RPA <i>r</i>
					N	S	E	W										
T50	Oak	9	1	300	3	3	3	3	0	Y	Fair	Fair	At junction in paths.	-	20+ years	B2	40.7	3.6
T51	Oak	8	1	300	3	3	3	3	1	Y	Fair	Fair	Assessment limited by brambles. Large wound South, reaction wood present, dead lower branch.	-	10+ years	C2	40.7	3.6
T52	Hawthorn	5	1	200	2	2	2	2	0	SM	Fair	Fair	Unable to access stem.	-	20+ years	C2	18.1	2.4
T53	Hawthorn	3	1	150	1	1	1	1	0	SM	Fair	Fair	Not on TOPO. Unable to access due to bramble.	-	10+ years	C2	10.2	1.8
T54	Hawthorn	5	1	200	2	3	2	2	0	SM	Fair	Fair	Unable to access stem due to brambles.	-	20+ years	C2	18.1	2.4
T55	Oak	9	1	400	4	4	4	4	1	Y	Fair	Fair	Unable to access due to brambles; stem diameter estimated.	-	20+ years	B2	72.4	4.8
T56	Birch	13	1	370	3	3	3	3	3	SM	Fair	Good	Unable to assess as base covered by brambles.	-	20+ years	B1	61.9	4.4
T57	Alder	12	2	320;200	3.5	3.5	3.5	3.5	3	EM	Fair	Good	Unable to assess as base covered in bramble. Stem diameters estimated. Grown from beach side of bridge footing.	-	20+ years	B1	64.4	4.5
T58	Birch	10	2	320;160	1	1	1	1	0	Y	Fair	Fair	Unable to access.	-	20+ years	B2	57.9	4.3
T59	Alder	12	2	205;250	2	2	2	2	2	SM	Fair	Fair	Unable to assess due to bramble at base.	-	10+ years	C1	46.4	3.8
T60	Birch	12	1	280	2	2	2	2	4	EM	Fair	Fair	Unable to access due to bramble, stem diameter estimated.	-	10+ years	C2	35.5	3.4
T61	Alder	12	4	220;210;170;120	2	2	2	2	3	EM	Fair	Good	Multi stemmed tree.	-	20+ years	B2	74.9	4.9

7028 Feeder Bridge Replacement – North Bank - Tree Survey

Date of survey 07/23

No	Species	Ht.	S	St. 1.5m	Canopy Spread				Cr.Cl	Ls	SC	PC	Comments /Observation	Preliminary Management Advice	LE	Cat **	RPA ^{m²}	RPA <i>r</i>
					N	S	E	W										
T62	Alder	13	1	570	4	4	4	4	2	M	Fair	Good	Folk at 2m, no bark inclusion present. Slight lean towards river.	-	10+ years	A1	147.0	6.8
T63	Birch	10	1	180	1	1	1	1	0	Y	Fair	Fair	Stem diameter estimated.	-	20+ years	B2	14.7	2.2
T64	Alder	12	1	310	3	2	3	1	3	EM	Fair	Good	mechanical damage to stem south, unable to fully assess due to Himalayan bosom.	-	10+ years	C2	43.5	3.7
T65	Alder	13	1	430	3.5	4.5	4	3	0	null	Fair	null	Unable to assess fully due to Himalayan blossom, larger of 7 trees in row.	-	20+ years	B2	83.6	5.2
T66	Hawthorn	3	1	130	1	1	0	1	0	SM	Fair	Fair	Suppressed by adjacent trees, not recorded on TOPO. Located below large alder, 1m from base.	-	10+ years	C2	7.6	1.6
T67	Oak	5	1	210	1	4	3	2	2	Y	Good	Good	Not on TOPO, suppressed by adjacent trees, crown biased towards river.	-	20+ years	B2	20.0	2.5
T68	Hazel	5	10+	210	3.5	3.5	3.5	3.5	1	M	Fair	Fair	Historic coppice stool.	-	10+ years	C2	20.0	2.5
T69	Alder	12	2	270;270	2.5	2.5	2.5	2.5	2	EM	Fair	Fair	Edge of pedestrian trodden path.	-	20+ years	B2	66.0	4.6
T70	Birch	12	1	300	2.5	1	3	3	0	M	Fair	Fair	Unable to access, not on TOPO.	-	10+ years	C2	40.7	3.6
T71	Alder	13	2	210	3	4	3	3	1	SM	Fair	Good	Unable to assess fully due to vegetation.	-	20+ years	B2	20.0	2.5
T72	Birch	12	1	220	1	1	1	1	3	EM	Fair	Fair	Not on TOPO, on bank behind steps, unable to access, stem diameter estimated.	-	10+ years	C2	21.9	2.6

7028 Feeder Bridge Replacement – North Bank - Tree Survey
Date of survey 07/23

No	Species	Ht.	S	St. 1.5m	Canopy Spread				Cr.Cl	Ls	SC	PC	Comments /Observation	Preliminary Management Advice	LE	Cat **	RPA m ²	RPA r
					N	S	E	W										
T73	Oak	9	1	150	1	2	1	4	0	Y	Fair	Fair	Not on TOPO, unable to access, stem diameter estimated. Suppressed by adjacent trees.	-	10+ years	C2	10.2	1.8
T74	Alder	9	1	210	1	1.5	1.5	1.5	1	Y	Good	Good	Stem diameter estimated, base surrounded by bramble and wild rose.	-	10+ years	C2	20.0	2.5
T75	Alder	9	1	180	1.5	1.5	1.5	1.5	2	Y	Fair	Fair	Fair condition.	-	10+ years	C2	14.7	2.2
T76	Oak	13	1	400	5	5	5	5	0	EM	Good	Good	Tree not accessed; stem diameter estimated.	-	40+ years	A1	72.4	4.8
T77	Willow	5	1	200	1.5	1.5	1.5	1.5	0	Y	Fair	Fair	Unable to access due to vegetation.	-	10+ years	C2	18.1	2.4
T78	Willow	5	1	200	1.5	1.5	1.5	1.5	0	Y	Fair	Fair	Unable to access due to vegetation.	-	10+ years	C2	18.1	2.4
T79	Oak	11	1	320	3	3	3	3	0	EM	Good	Good	Full crown, good form.	-	40+ years	A1	46.3	3.8
T80	Hazel	7	9	300	2.5	2.5	2.5	2.5	0	M	Fair	Good	Mature coppice.	-	10+ years	C2	40.7	3.6
T81	Hazel	7	9	270	2.5	2.5	2.5	2.5	0	M	Fair	Good	Mature coppice.	-	10+ years	C2	33.0	3.2
T82	Alder	14	1	290	2	2	2	2	0	EM	Fair	Fair	Unable to access stem due to vegetation, stem diameter estimated.	-	10+ years	C2	38.0	3.5
T83	Willow	14	1	290	2	2	2	2	0	EM	Fair	Fair	Unable to access stem due to vegetation, stem diameter estimated.	-	10+ years	C2	38.0	3.5
T84	Willow	13	1	290	2.5	2.5	2.5	2.5	0	EM	Fair	Fair	Unable to access Stem diameter estimated.	--	10+ years	C2	38.0	3.5
T85	Hazel	7	10+	280	2	2	2	2	0	M	Fair	Good	Stem diameter estimated, river edge.	-	10+ years	C2	35.5	3.4

7028 Feeder Bridge Replacement – North Bank - Tree Survey

Date of survey 07/23

No	Species	Ht.	S	St. 1.5m	Canopy Spread				Cr.Cl	Ls	SC	PC	Comments /Observation	Preliminary Management Advice	LE	Cat **	RPA ^{m²}	RPA <i>r</i>
					N	S	E	W										
T86	Alder	13	1	430	3.5	4.5	4	3	0	SM	Fair	Fair	Unable to assess fully due to Himalayan Balsam, large tree in row.	-	20+ years	B2	83.6	5.2
T87	Alder	13	4	430	3.5	4.5	4	3	0	SM	Fair	Fair	Unable to assess fully due to Himalayan Balsam, 4 stems stem diameter estimated.	-	20+ years	B2	83.6	5.2
T88	Sycamore	10	2	200;300	4	2	4	2	0	EM	Fair	Fair	Growing out of wall, unable to access; stem diameter estimated.	-	20+ years	C2	58.8	4.3
T89	Alder	12	3	350	6	3	3	3	2	EM	Fair	Fair	Growing from beach, against bridge footing.	-	10+ years	C2	55.4	4.2
G6	Birch	8	1	300	3	3	3	3	0	SM	Fair	Fair	Small group of birch adjacent to woodland. .	-	20+ years	B2	40.7	3.6
G7	Mixed group	9	1	280	3	3	3	3	0	Y	Fair	Fair	Group of trees adjacent to road including ash, cherry and willow.	-	20+ years	B2	35.5	3.4
G8	Mixed group	12	1	300	4	4	4	4	0	M	Fair	Fair	Group of tree on highway land including Willow and ash.	-	20+ years	B2	40.7	3.6
G9	Mixed group	9	1	230	2	2	2	2	0	Y	Fair	Fair	Mixed group on highway land including Ash and hawthorn.	-	20+ years	B2	23.9	2.8
W2	Mixed woodland	12	1	290	3	3	3	3	0	SM	Fair	Fair	Mixed closed canopy woodland including birch and oak.	-	20+ years	B2	38.0	3.5
W3	Mixed woodland		121	290	3	3	3	3	0	SM	Fair	Fair	Mixed closed canopy woodland including birch and oak.	-	20+ years	B2	38.0	3.5

Table 2: BS: 5837 2012 Tree Quality Assessment Definitions

TREES FOR REMOVAL				
Category & Definition		Criteria		Identification on Plan
Category U Those in such a condition that they cannot realistically be retained as a living tree in the context of the current land use for longer than 10 years.		- Trees that have a serious, irremediable structural defect such that their early loss is expected due to collapse, including those that will become unviable after removal of other U category trees (i.e. Where for whatever reason the loss of companion shelter cannot be mitigated by pruning) - Trees that are dead or are showing signs of significant immediate or irreversible overall decline. - Trees infected with pathogens of significance to the health and or safety of other trees nearby by or very low quality trees suppressing adjacent trees of better quality.		RED

TREES TO BE CONSIDERED FOR RETENTION				
Category & Identification	1 Mainly arboricultural values	2 Mainly landscape values	3 Mainly cultural values including conservation	Identification on plan
Category A Trees of High Quality with an estimated remaining life expectancy of at least 40 years	Trees that are a particularly good example of their species, especially if rare or unusual, or essential components of groups or of formal or semi-formal arboricultural features e.g. the dominant and/or principal trees in an avenue)	Tree groups or woodlands of particular visual importance as arboricultural and/or landscape features.	Tree groups or woodlands of significant conservation historical, commemorative or other value (e.g. veteran trees or wood pasture)	GREEN
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.	Trees that might be included in the high category but are downgraded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage).	Trees present in numbers, usually as groups or woodlands such that they attract a higher collective rating than they might as individuals: or trees occurring as collectives but situated so as to make little visual contribution to the wider locality.	Trees with material conservation or other cultural benefits.	BLUE
Category C Trees of a low quality 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 present in groups or woodlands but without this conferring on them significantly greater landscape value and/or trees offering low or only temporary/transient landscape benefits.	Trees with no material conservation or other cultural benefits.	GREY

Table 3: Key Schedule of Trees

Column Heading	Explanation
Tree No	Sequential number corresponding to number on plan.
Species	English names.
Ht.	Height in metres.
S	Number of main stems.
St. 1.5 (Stem Diameter)	Stem diameter when measured in accordance with Annex C of BS 5837:2012.
NSEW	Crown radius in metres to cardinal points of the compass.
Cr. Cl. (Crown Clearance)	Height in metres between the ground and underside of canopy.
Ls.	Life stage definitions. Y= Young. SM = Semi-mature. EM = Early mature. M = Mature. OM = Over mature.
SC	Brief description of structural condition.
PC	Brief description of physiological condition.
Preliminary Advice	Preliminary tree works advice and recommendations.
LE	Estimated remaining useful life contribution in years. <10, 10+, 20+ and 40+ yr.
Cat. (Category)	Categorisation grading in accordance with BS 5837 2012. Trees suitable for retention: - Category A trees of high quality and amenity value. Category B trees of moderate quality and amenity value. Category C trees of low quality or amenity value. British Standards BS 5837:2012 recommends that these categories may be further broken down into sub-categories A1 A2 A3 pertaining to Arboricultural, Landscape or Cultural values respectively.
RPA m²	Root Protection Area (RPA). Indicative area around a tree measured in m ² and calculated in accordance with Annex C of BS 5837:2012 deemed to contain sufficient rooting volume to maintain the viability of a tree and where the protection of roots and soil structure is treated as a priority.
RPA r	Root Protection Area (RPA) radius calculation centred on the base of the tree and calculated in accordance with Annex C of BS 5837:2012

Appendix 2: Tree Constraints Plan

Job title
Feeder Pipe Bridge
Job no. 7028

Client
Baker Hicks

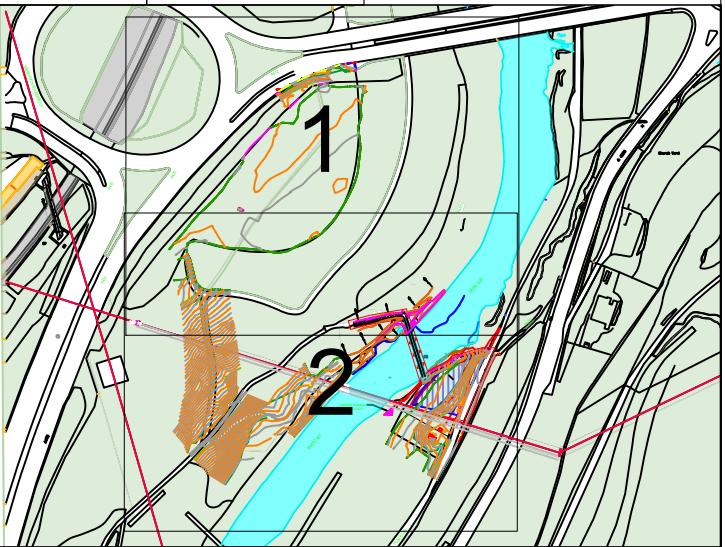
Map title
Tree Constraints Plan

Section
1 of 2
Scale
(at A2)
1:500

Date of survey
30/11/2023

Surveyor
Matthew Wilcox

Drawn
MW
Approved
JW
Date
03/01/2024



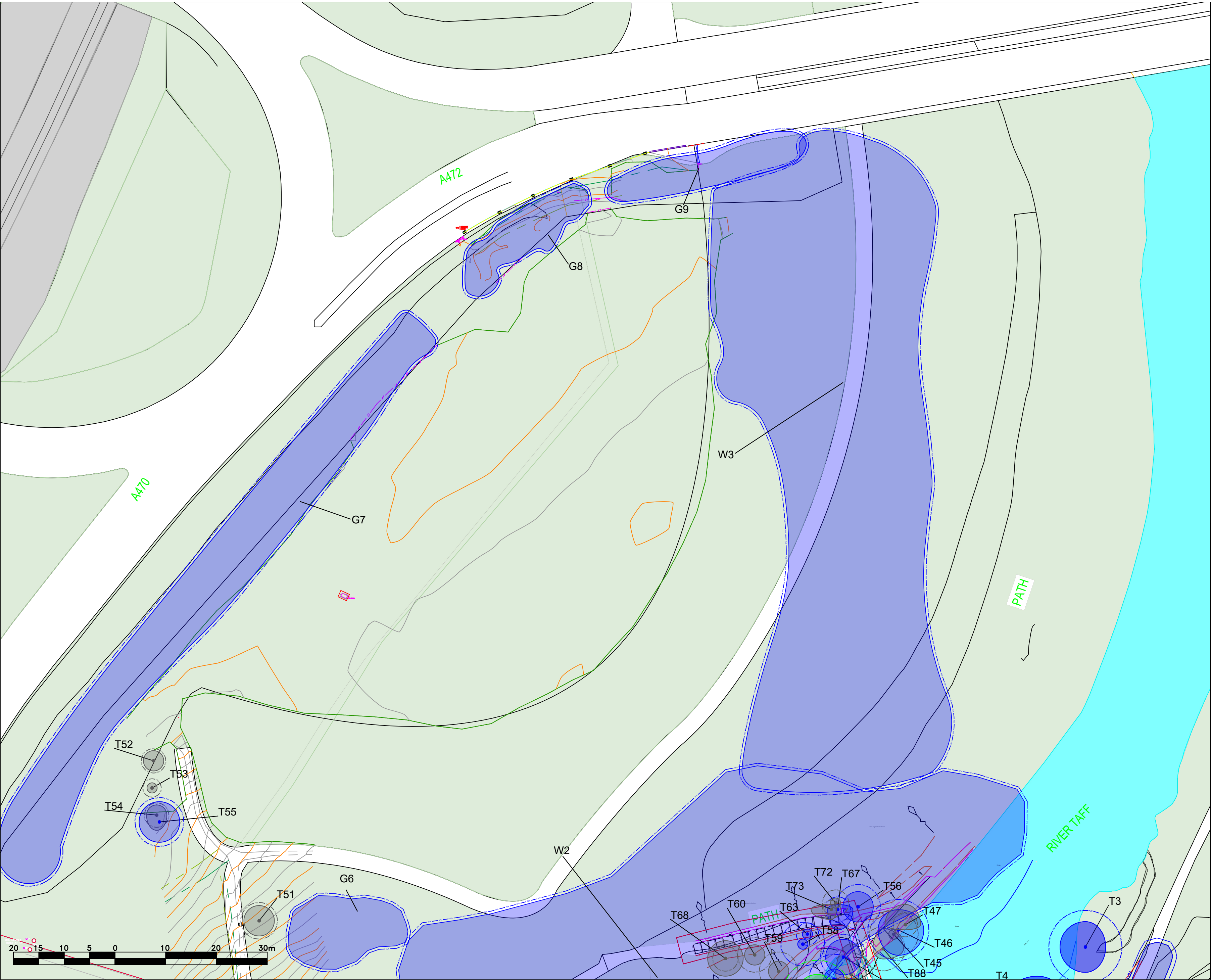
Legend

- Crown spread of category A - Trees with high quality and value
- Crown spread of category B - Trees with moderate quality and value
- Crown spread of category C - Trees with low quality and value
- Crown spread of category U - Trees of poor quality

- RPA Root Protection Area (RPA) of Category A Trees
- RPA Root Protection Area (RPA) of Category B Trees
- RPA Root Protection Area (RPA) of Category C Trees
- RPA Root Protection Area (RPA) of Category U Trees



This plan is provided solely for the purpose of supporting the description of the arboricultural features of the site as contained in the accompanying report



Job title
Feeder Pipe Bridge
Job no. 7028

Client
Baker Hicks

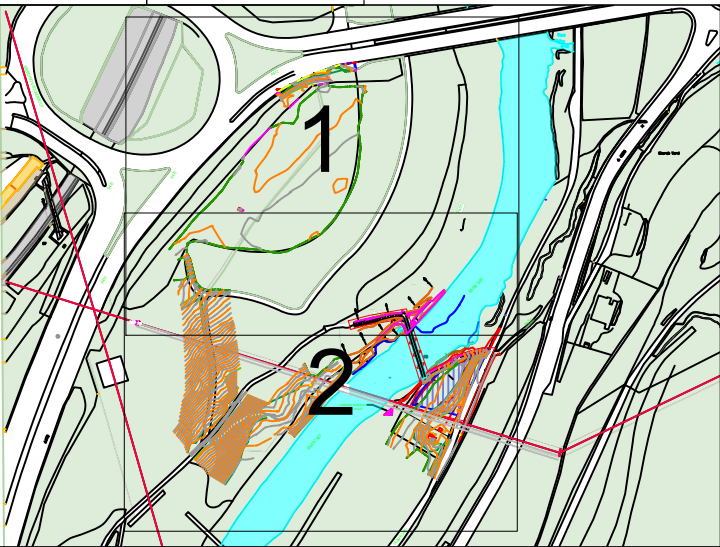
Map title
Tree Constraints Plan

Section
1 of 2
Scale
(at A2)
1:500

Date of survey
30/11/2023

Surveyor
Matthew Wilcox

Drawn
MW
Approved
JW
Date
03/01/2024

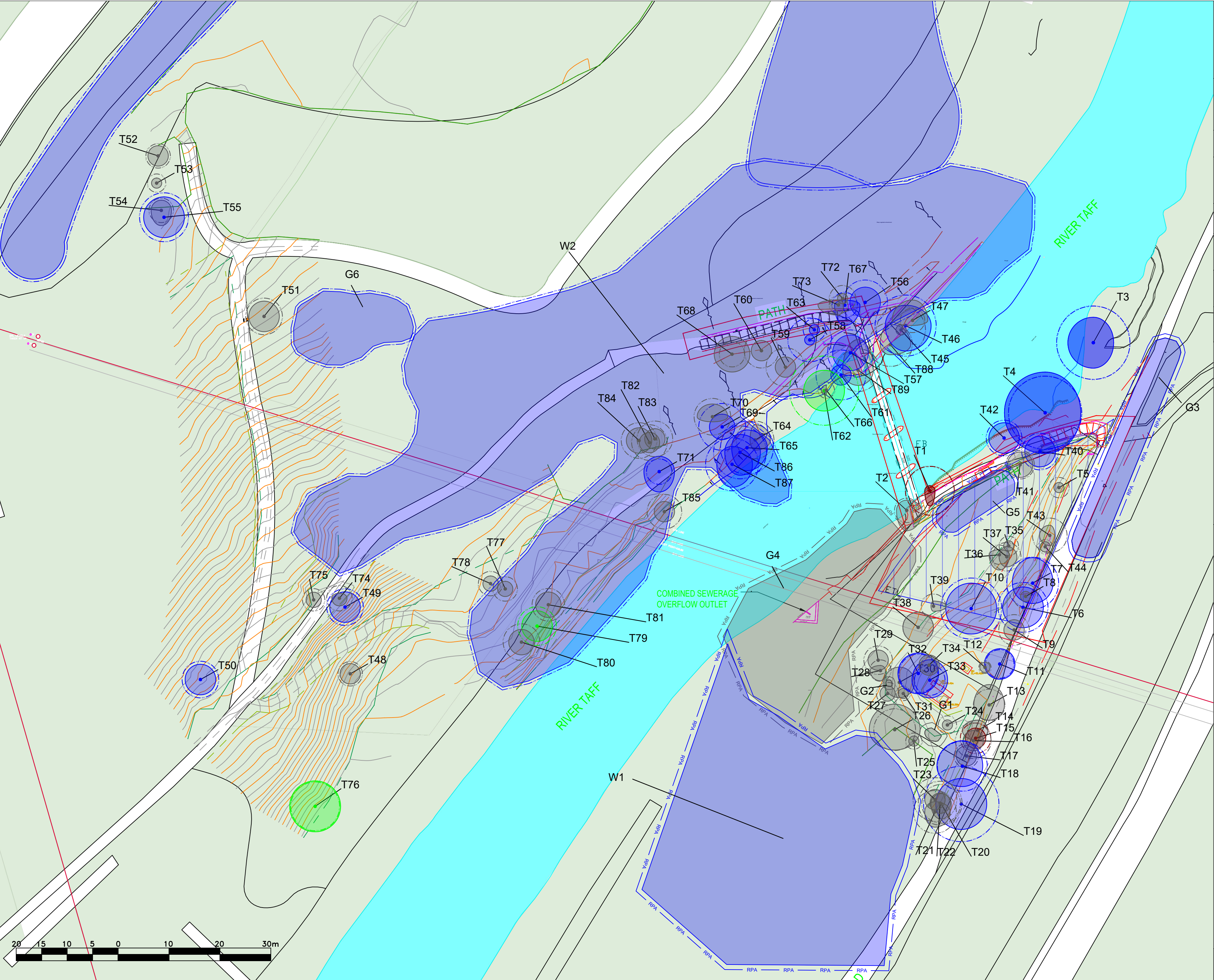


Legend

- Crown spread of category A - Trees with high quality and value
- Crown spread of category B - Trees with moderate quality and value
- Crown spread of category C - Trees with low quality and value
- Crown spread of category U - Trees of poor quality
- RPA Root Protection Area (RPA) of Category A Trees
- RPA Root Protection Area (RPA) of Category B Trees
- RPA Root Protection Area (RPA) of Category C Trees
- RPA Root Protection Area (RPA) of Category U Trees



This plan is provided solely for the purpose of supporting the description of the arboricultural features of the site as contained in the accompanying report



Appendix 3: Tree Protection Plan

Job title
Feeder Pipe Bridge
Job no. 7028

Client
Baker Hicks

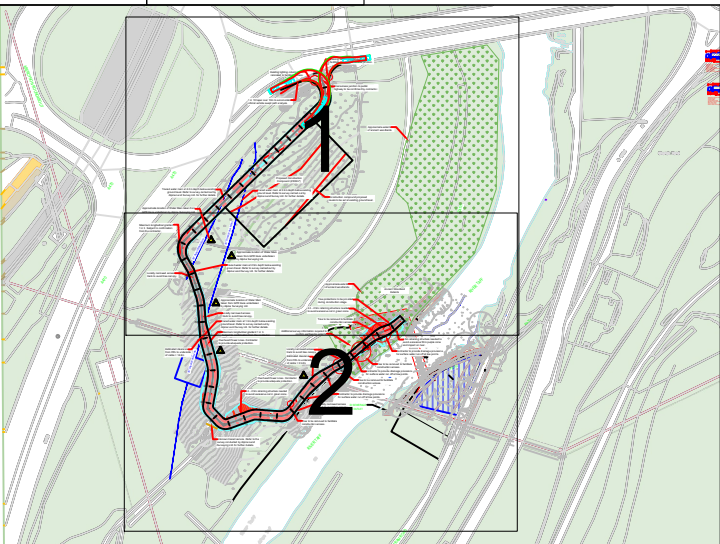
Map title
Tree Protection Plan

Section
1 of 2
Scale
(at A2)
1:500

Date of survey
30/11/2023

Surveyor
Matthew Wilcox

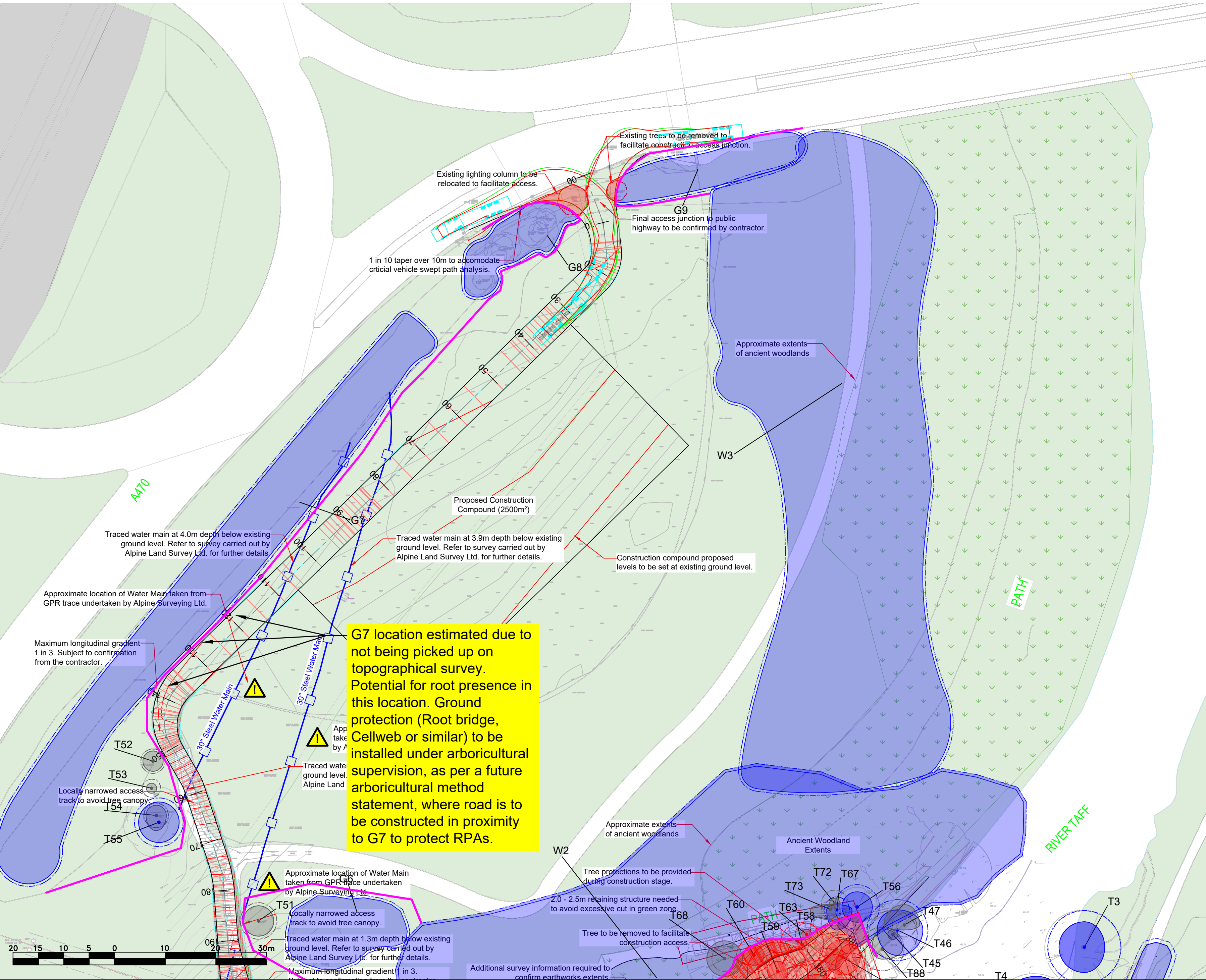
Drawn
HB
Approved
JW
Date
06/03/2024



Legend

- Crown spread of category A - Trees with high quality and value
- Crown spread of category B - Trees with moderate quality and value
- Crown spread of category C - Trees with low quality and value
- Crown spread of category U - Trees of poor quality
- RPA Root Protection Area (RPA) of Category A Trees
- RPA Root Protection Area (RPA) of Category B Trees
- RPA Root Protection Area (RPA) of Category C Trees
- RPA Root Protection Area (RPA) of Category U Trees
- Trees to be removed
- BS5837:2012 Tree Protection Fencing

This plan is provided solely for the purpose of supporting the description of the arboricultural features of the site as contained in the accompanying report



Job title
Feeder Pipe Bridge
Job no. 7028

Client
Baker Hicks

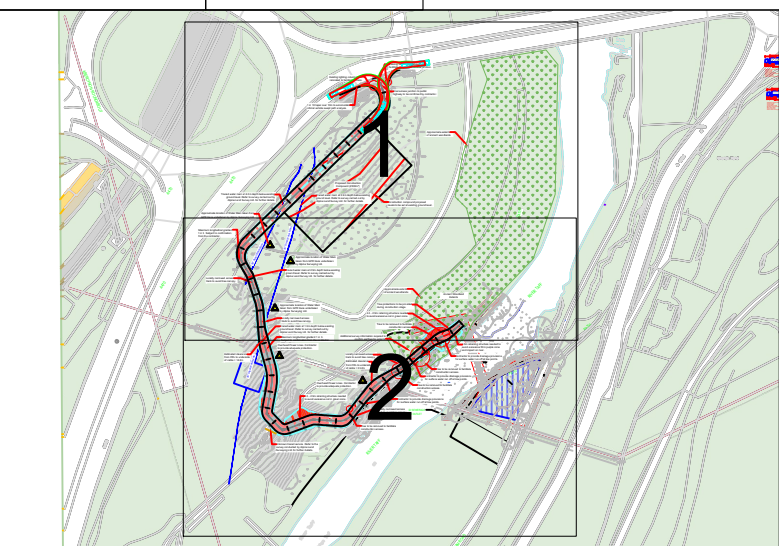
Map title
Tree Protection Plan

Section
1 of 2
Scale
(at A2)
1:500

Date of survey
30/11/2023

Surveyor
Matthew Wilcox

Drawn
HB
Approved
JW
Date
06/03/2024



Legend

- Crown spread of category A - Trees with high quality and value
- Crown spread of category B - Trees with moderate quality and value
- Crown spread of category C - Trees with low quality and value
- Crown spread of category U - Trees of poor quality
- RPA Root Protection Area (RPA) of Category A Trees
- RPA Root Protection Area (RPA) of Category B Trees
- RPA Root Protection Area (RPA) of Category C Trees
- RPA Root Protection Area (RPA) of Category U Trees
- Trees to be removed
- BS5837:2012 Tree Protection Fencing



This plan is provided solely for the purpose of supporting the description of the arboricultural features of the site as contained in the accompanying report

Maximum longitudinal gradient 1 in 3. Subject to confirmation from the contractor.

Approximate location of Water Main taken from GPR trace undertaken by Alpine Surveying Ltd.

Traced water main at 2.5m depth below existing ground level. Refer to survey carried out by Alpine Land Survey Ltd. for further details.

Approximate location of Water Main taken from GPR trace undertaken by Alpine Surveying Ltd.

Traced water main at 1.3m depth below existing ground level. Refer to survey carried out by Alpine Land Survey Ltd. for further details.

Maximum longitudinal gradient 1 in 3. Subject to confirmation from the contractor.

Overhead Power Lines. Contractor to provide adequate protection.

Estimated clearance from FRL to underside of cable = 14.6m

Ground protection (Root bridge, Cellweb or similar) to be installed under direct arboricultural supervision, in compliance with an arboricultural method statement, throughout W2 to protect RPAs of retained trees.

20 15 10 5 0 10 20 30m

Appendix 4: Glossary of Terms

Glossary of Terms

Term	Explanation
Arboricultural impact assessment and method statement (AIA)	Evaluation of direct and indirect effects of a proposed design and/or construction.
Arboricultural Method Statement (AMS)	Methodology for the implementation of any aspect of development that is in the root protection area or has the potential to result in the loss of or damage to a tree to be retained.
Branch structure	Qualitative description of formation of main framework of limbs and branches.
Canopy face	Orientation of canopy relative to cardinal points of the compass
Canopy radius	A measurement taken from the centre of a tree to the furthest radial extension of tree canopy relative to the cardinal points of the compass.
Competent Person	Person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached.
Conservation Area	Local Planning Authority special designation generally prohibiting tree works without 6 weeks prior written notification.
Construction Exclusion Zone (CEZ)	Area based upon the calculated root protection area prohibiting access.
Cavity	Open and exposed aperture where wood tissue has internally degraded.
Constraints check	Formal search of local authority records to determine legal and statutory constraints on tree works.
Crown lifting	Removal of lower branches to achieve a stated vertical clearance above ground level or other surface.
Crown reduction	Pruning of a trees canopy in both height and width.
Decay	Deterioration and breakdown of tree wood fibres resulting in structural and/or physiological dysfunction of a tree.
Dieback	Continual decline and death of wood tissue including twigs and branches.
Epicormic growth	Growth that emerges from dormant buds along the trunk and branches of a tree.
Failure	Description of structural failure or wood fibres including fracture of branches, limbs and main stems.
Fork	Area or point of union between one or more limbs or branches.

Glossary of Terms

Term	Explanation
Hazard Risk Assessment	Qualitative and quantitative appraisal of the potential for tree failure and the possible risk of harm or damage to persons or property.
Local Planning Authority	Body responsible for the administration of Statutory duties relating to Development Management.
Multi-stem	A single tree formed from 2 or more codominant main stems
Occlusion	Wood development enclosing an extant wound or pruning cut.
Pruning	The targeted removal of branches or limbs using saws or other tools.
Physiological Condition	Observation relating to a trees physiology for example vigour, leaf area, growth rate, the presence of pests or disease.
Root Protection Area	Root Protection Area (RPA). Indicative area around a tree deemed to contain sufficient rooting volume to maintain the viability of a tree.
Shelter belt	A wind break normally made up of one or more trees planted in such a way to provide cover from the wind.
Structural Condition	Observation relating to a trees structural integrity and the presence of any physical defects.
Suppressed	Where a trees development has been influenced or effected by the presence of competing vegetation.
Tree Constraints Plan	A scaled plan indicating above and below ground constraints relating to the protection of trees
Tree Preservation Order	A legal order made by the local planning authority protecting specific trees in the interests of amenity.
Visual Tree Assessment (VTA)	A method of assessment based upon the research developed to recognise dynamic responses of a tree to its surroundings.
'V' Shaped Branch Union	The union point between two branches that have grown at a tight angle, forming the 'V' shape. This structure is inherently weaker than the 'U' shaped union.
'U' Shaped Branch Union	The union point between two branches that have grown at a wider angle, forming the 'U' shape. This structure is considered to be the strongest and most optimised shape that a union can form.

Appendix 5: Photographs

Photograph 1

View looking towards G4, with
T35, T36, T37



Photograph 2

View along road with T19 in
the left of picture.



Photograph 3

View looking towards T62



Photograph 4

View looking towards T89



Photograph 5

View looking towards G8.



Photograph 6

View looking down proposed access rout, T49 left T48 right.



Photograph 7

View looking upstream towards
bridge on north side of river.



Appendix 6: Tree Protection Fencing Specification and Examples of Warning Signage

Figure 2 Default specification for protective barrier

