

Arboricultural Report



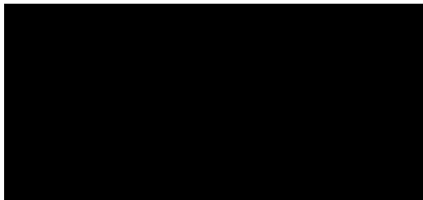
Arboricultural Impact Assessment A9 Braco Services, Balhaldie

Date: October 2023

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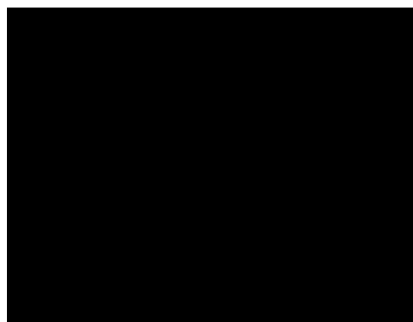
Submitted to:

Fastned UK Limited



Prepared by:

RSK ADAS Limited



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Quality Assurance

Author	Checked	Approved
Edmund Lusk HND Arb, M.Arbor.A Principal Arboricultural Consultant	Ellen Boardman MSc, BSc (Hons) Senior Arboricultural Consultant	Iain Waddell L6 Dip Arb (ABC), M.Arbor.A Associate Director

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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK ADAS Limited.

Version History

Version	Date	Amendment
-	October 2023	INITIAL REPORT

1 Executive Summary

ADAS was instructed on the 16th of June 2023 by Fastned UK Limited to provide arboricultural advice in respect of the proposed development of land at Braco Services, A9 Northbound, Balhaldie.

Fastned UK Limited are proposing the construction of 10 parking / charging bays with modular photovoltaic canopies and installation of 5 fast (400kWH) chargers. ADAS have been commissioned to undertake an arboricultural survey, in line with BS5387:2012, and prepare an Arboricultural Impact Assessment in respect of the proposed development.

An initial tree survey of the site undertaken by an ADAS Principal Arboricultural Consultant was completed on the 10th July 2023. The survey identified the presence of 18 arboricultural features, comprising 17 individual trees and one hedge, within influencing distance of the proposed development.

In accordance with section 4.5 and Table 1 of BS5837:2012 the existing trees on the site were classified according to their quality and value as either category U, A, B, or C.

Of the 18 features surveyed, none were of a high quality (category A), nine were of a moderate quality (category B) and seven were of a low quality (category C). Two trees were assessed as being unsuitable for retention (category U).

A check of Perth and Kinross Council's interactive mapping has established that none of the trees surveyed are protected by a Tree Preservation Order (TPO) and that the site is not situated within a Conservation Area (CA).

The proposed development will not require the removal of any of the surveyed trees to facilitate its implementation. However, the removal of the two category U trees (T6 and T14) is recommended for reasons of sound arboricultural management.

The proposed development has been designed to sit within the previously developed envelope of the site with the new infrastructure being provided in areas where tree root development is likely to have been impaired by existing hard surfaces. Whilst works within the initial RPAs of retained trees will be required it is considered that the potential for significant harm to occur to the trees from these operations is likely to be within tolerable limits subject to the adoption of some precautions in detailed design and adherence to appropriate working methodologies at construction stage. It is also noted that the design would permit removal of areas of existing hard standing, within the RPAs of retained trees, present beyond the line of the proposed charging bays and the removal of this and resurfacing as a soft landscaped area would provide future benefits for tree root growth and development improving overall growing conditions for the retained trees.

2 Introduction

2.1 The Author

This document has been prepared by Edmund Lusk, an ADAS Principal Arboricultural Consultant. Edmund is a Professional Member of the Arboricultural Association, a Professional Member of the Consulting Arborist Society and holds the Higher National Diploma in Arboriculture. Edmund has 22 years of experience within the arboricultural industry, both in the Public Sector as a Tree Officer and in the Private Sector as an Arboricultural Consultant.

2.2 Client Instruction

This report was commissioned by Fastned UK Limited on 16th June 2023 and is pertinent to the site known as Braco Services, A9 Northbound, Balhaldie.

For the purposes of this report, reference to ‘the site’ means land encompassed by the red line shown on the Site Plan contained in Appendix 1.

2.3 Purpose of Report

The purpose of this report is to:

Record the current condition of the trees found on the site and categorise them using criteria outlined in BS5837:2012 “Trees in relation to design, demolition and construction - Recommendations”.

Provide a Tree Constraints Plan (TCP) that identifies any constraints to development presented by the trees, to include root protection areas (RPA's) for the retained trees as described in BS5837:2012.

Provide guidance detailing arboricultural constraints to development and factors to be considered during the detailed design of the development.

Detail the impact that the proposed development shown on the Concept Plan will have upon the site's existing tree stock and set out recommendations for the subsequent mitigation or avoidance of impact during detailed design of the development layout.

In line with the sequence of events set out in Figure 1 of BS5837:2012, which is contained in Appendix 2, this report is intended as a reference to be used to inform and contribute to the design process, and does not, in itself, provide sufficient information to be used as an Arboricultural Method Statement during the development works.

2.4 Site Description

The site under consideration is located off the northbound A9 at Balhaldie approximately 5.7 km north-east of Dunblane at Grid Reference NN 8139 0541.

The site is a former roadside restaurant, with the former restaurant building in the southern section of the site, with an associated car parking area. Access to the site is provided from the A9 which runs along the southern boundary in a north-easterly direction. An access track leading to a neighbouring farm runs along the north-eastern boundary of the site and agricultural land is present to the north and west.

A linear shelter-belt of trees is present along the northern boundary of the site with a hedgerow adjacent the access track, serving the neighbouring farm, on the north-eastern boundary.

2.5 Description of Proposed Development

The proposed development of the site comprises installation of 10 parking / charging bays with modular photovoltaic canopies, of c. 6m total height. Five no. fast (400kVH) chargers are to be installed with each being able to charge two cars simultaneously.

Existing hard surfaces within the site will be resurfaced to facilitate the development, with some sections of hard standing present within the RPAs of retained trees being available for reinstatement as soft landscaped areas, and it is intended to utilise the existing access from the A9 for traffic circulation.

2.6 Assumptions and Limitations

This assessment is based upon the information provided by the client in addition to information collected by ADAS during a survey of the site undertaken in July 2023. The documents and drawings considered are detailed within Table 1.

Table 1: Documentation Considered

Author	Document Title	Drawing / Document Number	Date
Fastned	Braco A9 - Concept	44.081_C_001001	August 2023
Sigma Surveys	Topographical Survey	232/230/01	June 2023

The Tree Constraints Plan (TCP) contained in Appendix 3 has been developed from the tree survey information and the Topographical Survey referenced in Table 1.

This report assumes that the “Concept” plan demonstrated on the Arboricultural Impact Assessment Plan (AIAP) contained in Appendix 4 is the final layout for the proposed development.

This report is only intended for use by the person(s) or company named on the front cover.

This report is not a full hazard or risk assessment of trees and should not be used as such.

Trees are living organisms and are constantly adapting to their ever-changing environment. No tree is completely safe and there is no guarantee that problems or deficiencies may not arise in the future, which have not been identified in this report. Therefore, this report is only valid for a period of 1 year from the date of the initial site inspection.

3 Methodology

3.1 Tree Survey Methodology

The tree survey was carried out by Edmund Lusk of ADAS on 10th July 2023. The tree survey was carried out in accordance with the recommendations contained within BS5837:2012.

All trees were visually inspected from ground level unless otherwise stated, with no climbing or boring tests being undertaken. The comments made on their condition are based on observable factors present at the time of inspection.

The following information, shown in Table 2 below, was recorded as part of the tree survey:

Table 2: Tree Survey Schedule heading descriptions

Column Heading	Description
Tree Ref No.	All individual trees have been given a unique reference number. Each number is prefixed by a letter. T = Individual tree G = Groups of trees
Species	The English common name has been used.
Single or Multiple stem (S or M)	'S' represents a tree which has a single clear stem to at least 1.5m above ground level. 'M(a)' represents a tree where the main stem divides into two to five stems below 1.5m above ground level, and 'M(b)' represents a tree where the main stem divides into 6 or more stems below a height of 1.5m.
Height (m)	Where possible tree heights are measured using a laser. In some instances, such as in close groups of trees, one height may be measured and other nearby trees estimated from this height. Measurements are provided in metres.
Stem Diameter (mm)	S _n represents the stem number. Measurements are provided in millimetres at 1.5m above ground level for single stemmed trees.
Very Large Girth (y/n)	Girth is very large for species in accordance with Fig 1.3 of publication 'Ancient and other veteran trees: further guidance on management' Ancient Tree Forum 2013. RAVEN - Step 1
Ancient (A), Veteran (V) or Notable (N)	Result of the RAVEN assessment © Julian Forbes-Laird 2018 www.flac.uk.com; (RAVEN = Recognition of Ancient, Veteran & Notable Trees)
Branch Spread (m)	Measured in metres to the four cardinal compass points (N, E, S, W).

Column Heading	Description
Crown Clearance	(1) Height in metres of the first significant branch, and the direction of growth. (2) Height in metres of lowest part of crown.
Life Stage	The stage at which the tree is within its lifecycle (Y = young, SM = semi-mature, EM = early-mature, M = mature, OM = over mature)
General Observations	Any relevant observations are recorded, with particular reference to structural and/or physiological condition.
Preliminary Management Recommendations	Recommendations are made where management work is required for reasons of health and safety or sound arboricultural management.
Estimated Remaining Contribution (years)	An estimation of how long the feature will contribute to its surroundings. This is recorded in bands of either <10 years, 10+ years, 20+ years and 40+ years.
Tree Quality Grading	The trees are graded to the categories prescribed within BS5837:2012 (U, A, B & C). Details of this grading system can be found in Appendix 5.
Root Protection Area	Calculated as prescribed in section 4.6 of BS5837:2012, provided as an area (m ²) and a radius from the tree's stem (m).
Note: Those measurements shown in italics have been estimated, usually where access has restricted it being taken.	

4 Legislation

4.1 Planning Policy

Guidance within Policy 6 of the National Planning Framework 4 (NPF 4) states:

“b) Development proposals will not be supported where they will result in:

- i. Any loss of ancient woodlands, ancient and veteran trees, or adverse impact on their ecological condition;
- ii. Adverse impacts on native woodlands, hedgerows and individual trees of high biodiversity value, or identified for protection in the Forestry and Woodland Strategy;
- iii. Fragmenting or severing woodland habitats, unless appropriate mitigation measures are identified and implemented in line with the mitigation hierarchy;
- iv. Conflict with Restocking Direction, Remedial Notice or Registered Notice to Comply issued by Scottish Forestry.”

None of the trees surveyed were considered to be of veteran status.

BS5837:2012, provides guidance to the consideration of trees in relation to proposed development. This document is recognised as best practice when assessing trees on a site that is being considered for development.

In respect of this it can be noted that Category A, B or C trees or tree groups are those that should be a material consideration in the planning process whilst Category U trees are those which would be lost in the short term for reasons connected to their physiological or structural condition and hence they should not be a consideration in the planning process.

4.2 Tree Preservation Orders and Conservation Areas

Planning Authorities (PAs) in Scotland have the power to preserve selected trees and woodlands through the making of Tree Preservation Orders (TPOs). Similarly, special provision is provided to trees located within Conservation Areas (CAs) which are not the subject of a TPO. The PA’s powers to do this are provided by the following Acts and regulations:

The Town and Country Planning (Scotland) Act 1997 as amended by the 2006 Act

The Planning etc. (Scotland) Act 2006

The Town and Country Planning (Tree Preservation Order and Trees in Conservation Areas) (Scotland) Regulations 2010 (SSI 2010/434)

The principal effect of a TPO is to prohibit the cutting down, uprooting, topping, lopping, wilful damage or wilful destruction of trees without first obtaining the consent of the relevant Local Authority.

Where works to trees within a CA are proposed, six weeks notification must first be given to the relevant Local Authority.

Unauthorised works to trees either protected by a TPO or those that are located within a CA, could result in an unlimited fine for each tree.

A search of interactive mapping provided by Perth and Kinross Council, on the 23rd October 2023, has established that no trees within the site are protected by a Tree Preservation Order (TPO) and that the site is not situated within a Conservation Area (CA). A copy of the search plan for this enquiry is contained in Appendix 6.

5 Tree Survey Results

5.1 Tree Stock Summary

The site's tree stock is composed predominately of early-mature to mature Sitka Spruce which have been planted to form a linear shelter-belt along the northern boundary. The trees are a prominent feature of the local landscape and, being highly visible from the A9, are considered to have a high visual amenity value.

Full details of the trees surveyed are provided in the Tree Survey Schedule at Appendix 7.

5.2 Tree Categorisation and Quality Assessment

The tree survey undertaken recorded the presence of 18 arboricultural features, comprising 17 individual trees and one hedge, within influencing distance of the proposed development.

In accordance with section 4.5 and Table 1 of BS5837:2012 the existing trees on the site were categorised according to their quality and value as either category U, A, B, or C.

All category A, B and C trees should be a material consideration in any development proposal, and it is recommended that all category A and B trees are retained and that all development activities remain outside their Root Protection Areas (RPAs).

Whilst category C trees should be a material consideration in the design process, ADAS believes that their loss would be acceptable should there be a significant constraint on any proposed development. Where category C trees are retained, the proposed development should also stay outside their RPAs.

Category U trees are those which have been assessed as being unsuitable for retention in the context of the current land use. The removal of these trees as part of ongoing arboricultural / silvicultural management is advised.

Of the 18 features surveyed, none were of a high quality (category A), nine were of a moderate quality (category B) and seven were of a low quality (category C). Two of the trees surveyed were assessed as being unsuitable for retention (category U).

The tree survey results are summarised in Table 3 below.

Table 3: Tree survey results summarising the Tree Quality Assessment Grading

Tree Quality Assessment Category Grading					
	A	B	C	U	Totals
Category Description	Those of high quality with an estimated remaining life expectancy of at least 40 years.	Those of moderate quality with an estimated remaining life expectancy of at least 20 years.	Those of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.	Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.	
Individual Trees	None	T1, T3, T5, T8, T10, T12, T13, T16, T17	T4, T7, T9, T11, T15, T18.	T6, T14	17
Hedges	None	None	H2	None	1
Total of each category	0	9	7	2	18

6 Arboricultural Impact Assessment

6.1 Overview

This section of the report summarises the direct and indirect impacts that the proposed development may have upon the site's tree stock. An Arboricultural Impact Assessment plan, identifying impacts associated with the "Braco A9 - Concept" plan, has been provided in Appendix 4.

6.2 Tree Removal

The proposed development shown on the "Braco A9 – Concept" plan would not require the removal of any trees within the site. However, it is recommended that consideration is given to the removal of the two category U trees (T6 & T14), both of which appeared to be dead, for safety reasons as both trees are within falling distance of the proposed development.

6.3 Tree Pruning

Based upon the "Braco A9 - Concept" plan, it is not considered that any access facilitation tree pruning work will be required to implement the proposed development.

6.4 Works within RPAs

The proposed development as shown on the "Braco A9 - Concept" plan would require various works to be completed within the RPAs of retained trees within the site.

The potential works to be undertaken within the RPAs of retained trees are summarised in Table 4, along with details of recommended mitigation measures.

Table 4: Summary of potential damage to retained trees

Tree Number	Species	Potential Cause of Damage	Mitigation
T3	Sitka Spruce	Demolition of existing hard standing and replacement with soft landscaping. Existing surfacing covers c. 16% of overall RPA.	Precautionary approach to hard surface demolition within RPA. Improved growing conditions post development.
T4	Sitka Spruce	Demolition of existing hard standing and replacement with soft landscaping. Existing surfacing covers c. 19% of overall RPA.	Precautionary approach to hard surface demolition within RPA. Improved growing conditions post development.

Tree Number	Species	Potential Cause of Damage	Mitigation
T5	Sitka Spruce	<p>Demolition of existing hard standing and replacement with soft landscaping. Existing surfacing covers c. 30% of overall RPA.</p> <p>Installation of new transformer – affects <1% of overall RPA in currently hard surfaced area.</p> <p>Installation of new solar canopy – affects approximately 6.5% of overall RPA in existing hard surfaced area.</p>	<p>Precautionary approach to hard surface demolition within RPA.</p> <p>Improved growing conditions post development.</p> <p>Precautionary approach to excavation for foundations associated with transformer and solar canopy.</p>
T7	Sitka Spruce	<p>Demolition of existing hard standing and replacement with soft landscaping. Existing surfacing covers c. 17% of overall RPA.</p>	<p>Precautionary approach to hard surface demolition within RPA.</p> <p>Improved growing conditions post development.</p>
T8	Sitka Spruce	<p>Demolition of existing hard standing and replacement with soft landscaping. Existing surfacing covers c. 36% of overall RPA.</p> <p>Installation of new solar canopy – affects approximately 12% of overall RPA in existing hard surfaced area.</p>	<p>Precautionary approach to hard surface demolition within RPA.</p> <p>Improved growing conditions post development.</p> <p>Precautionary approach to excavation for foundations associated with solar canopy.</p>
T9	Sitka Spruce	<p>Demolition of existing hard standing and replacement with soft landscaping. Existing surfacing covers c. 13% of overall RPA.</p>	<p>Precautionary approach to hard surface demolition within RPA.</p> <p>Improved growing conditions post development.</p>

Tree Number	Species	Potential Cause of Damage	Mitigation
T10	Sitka Spruce	<p>Demolition of existing hard standing and replacement with soft landscaping. Existing surfacing covers c. 26% of overall RPA.</p> <p>Installation of Feeder Pillar affects approximately 1.5% of overall RPA in current hard surfaced area.</p>	<p>Precautionary approach to hard surface demolition within RPA.</p> <p>Improved growing conditions post development.</p>
T11	Sitka Spruce	<p>Demolition of existing hard standing and replacement with soft landscaping. Existing surfacing covers c. 24% of overall RPA.</p> <p>Installation of Feeder Pillar affects approximately 0.5% of overall RPA in current hard surfaced area.</p>	<p>Precautionary approach to hard surface demolition within RPA.</p> <p>Improved growing conditions post development.</p>
T12	Sitka Spruce	<p>Demolition of existing hard standing and replacement with soft landscaping. Existing surfacing covers c. 31% of overall RPA.</p> <p>Installation of new solar canopy – affects approximately 9% of overall RPA in existing hard surfaced area.</p>	<p>Precautionary approach to hard surface demolition within RPA.</p> <p>Improved growing conditions post development.</p> <p>Precautionary approach to excavation for foundations associated with solar canopy.</p>
T13	Sitka Spruce	<p>Demolition of existing hard standing and replacement with soft landscaping. Existing surfacing covers c. 16% of overall RPA.</p>	<p>Precautionary approach to hard surface demolition within RPA.</p> <p>Improved growing conditions post development.</p>
T15	Sitka Spruce	<p>Demolition of existing hard standing and replacement with soft landscaping. Existing surfacing covers c. 4% of overall RPA.</p>	<p>Precautionary approach to hard surface demolition within RPA.</p> <p>Improved growing conditions post development.</p>

Overall, it is considered that subject to precautions in detailed design, the proposed development will have minimal potential to cause significant harm to the root systems of retained trees.

Where works are proposed within the RPAs of retained trees, they are only to occur within areas which are currently hard surfaced where root development from the trees has likely been impaired. The new canopies and parking / charging bays are located further away from the trees than the existing hard surfaces and the removal of areas of hard standing beyond the line of the charging bays and their return to soft landscaped areas has the potential to improve growing conditions for the retained trees.

It is considered that the potential harm to the trees identified at risk from construction operations in Table 4, can be adequately controlled by the adoption of precautionary working practices during implementation of the development.

6.5 Impacts from construction related operations.

6.5.1 Site Access

During the development, it is anticipated that construction access will be provided via the existing vehicular access point off the A9. There are no trees present near the access point.

6.5.2 Delivery and Storage of Materials

Material deliveries to the site will utilise the access point described in section 6.5.1 above.

There are various areas within the site where materials could be stored without impacting retained trees. In all cases, materials must only be stored in areas outside of the Root Protection Areas of retained trees.

6.5.3 Site Compound and Welfare Facilities

The proposed location for a site compound and associated welfare facilities has not been determined at this stage. There are various locations within the site where these elements could be accommodated outside of the RPAs of retained trees.

6.5.4 Contractors Parking

It is considered that contractor's parking could be accommodated upon existing hard surfaced areas within the site; this approach would avoid any potential impacts on retained trees.

7 Mitigation of Harm

7.1 Working Practices for Tree Protection

7.1.1 Hard Surface Removal

The removal of existing hard surfaces within the RPAs of T3, T4, T5, T7, T8, T9, T10, T11, T12, T13 and T15 is proposed as part of the development.

To minimise the potential for harm to occur to retained trees the following guidance will be adhered to for the removal of any hard surfaces within their RPAs and such works should be supervised by the appointed Arboricultural Consultant:

1. The initial 'breaking up' of the hard surface will be done with handheld pneumatic tools (not breakers attached to diggers or JCBs) or, if possible, by using manual hand-held tools.
2. Removal of the surface will occur in 1.0m bands working from the undisturbed surface. Any exposed roots will be covered with good quality topsoil or high-grade compost to avoid desiccation and make the levels good.
3. The debris resulting from breaking up the hard surface and the exposed sub-base will be excavated and removed by hand. Should mechanical means be required due to the size of the debris then a small (<1.5 tonne) digger may be used providing the bucket does not cause any damage to the underlying soil surface. No reduction in levels of the underlying soil will occur.
4. If any roots are damaged during the removal of hard surfaces, then they will be cut using a sharp knife or secateurs to leave a clean wound with as small a surface area as possible.
5. Work will not be carried out if the ambient air temperature is below + 4°C

Upon removal of the existing hard surfaces those areas that are to be finished as soft landscaping are to be covered with good quality topsoil and the tree protection barriers are to be realigned to prevent encroachment into the areas. The areas where new hard surfaces are proposed within RPAs will be temporarily protected by realignment of the tree protection barriers until such time as new surface construction is to commence.

7.1.2 Construction of New Hard Surfaces within RPAs

The proposed development will require the construction of replacement hard surfacing, for parking beneath the solar canopies, within the RPAs of T5, T8 and T12. The areas within the RPAs of these trees affected by the works are already hard surfaced and it is likely that root development within the affected areas has been significantly impaired. Nonetheless, it is possible that some limited root development may have occurred at lower levels beneath the subbase for the existing surfaces.

To minimise the risk of harm to root systems of these trees it is recommended that the new surfaces are built up from the existing sub-base exposed following demolition of the existing surfacing. This will avoid the need for deeper excavations within areas where limited root development may have occurred.

7.1.3 Foundation Installation

The proposed development will require the installation foundations for a new transformer within the RPA of T5, foundations for the solar canopies and associated charging stations within the RPAs of T5, T8 and T12, and foundations for a new feeder pillar within the RPAs of T10 and T11.

The areas where these new structures are to be installed are currently hard surfaced and it is likely that significant root development from the trees will have been impaired in those areas. Consequently, it is not considered that the works involved with the localised construction of foundations for the proposed structures will be likely to result in significant root harm.

Nonetheless, to minimise the extent of root pruning required the following guidance will be followed and works will be supervised by the appointed Arboricultural Consultant:

1. The exact location of the proposed excavations will be agreed and marked out on site in conjunction with the appointed arboricultural consultant prior to commencing the works.
2. The existing hard surfaces present within the affected areas will be removed following the guidance detailed in Section 7.1.1 of this report.
3. Following removal of the existing surfacing excavation for the foundations will commence. Excavation may proceed by mechanical means with it being completed in 50mm scrapes monitoring for root presence.
4. Any exposed roots smaller than 25mm in diameter will be pruned back to the edge of the excavated area using a proprietary cutting tool such as bypass secateurs.
5. Any exposed roots over 25mm in diameter will only be pruned after consultation with the appointed arboricultural consultant.
6. No spoil will be dumped within the RPA, it will be removed from the RPA by wheelbarrow only.
7. Following completion of the necessary excavation works to form the foundations for the structures to be installed the holes will be lined with an impermeable membrane prior to backfilling.

7.1.4 Cable Installation

The proposed works will require the installation of new LV cables to supply the proposed fast chargers. The route of the new cabling has not been confirmed though it is probable that it will run along the northern edge of the proposed canopies from the transformer to the feeder pillar and then to the chargers.

The installation of cabling will require excavation within the RPAs of retained trees though only in areas where existing hard surfacing is likely to have impaired root development. Consequently, it is not considered that the works involved with the localised cable installation will be likely to result in significant root harm. Nonetheless, to minimise the extent of root pruning required the excavations should follow the precautionary guidance detailed in Section 7.1.3.

The final route of any proposed cabling works within the site should be confirmed and reviewed by the appointed arboricultural consultant prior to commencement of the works.

7.2 Factors for Further Consideration

7.2.1 Site Setup and Logistics

Prior to commencement of development a plan should be prepared detailing the locations in which activities related to the establishment of a site compound, contractors car parking areas, material storage areas and associated works are to occur. All such areas should be located outside of the RPAs of retained trees.

7.2.2 Underground Services

Details of the proposed underground services for the development were not available at this stage. Where possible all new underground services shall be located outside of the RPAs of retained trees. Where works to install new services within the RPAs of retained trees cannot be avoided, they shall be completed in such a way that harm to the root systems of the trees can be minimised. Such methods which shall be specified within an Arboricultural Method Statement for the proposed development.

7.3 Construction Exclusion Zone (CEZ)

The CEZ is defined around the retained trees by the tree protection barriers shown by a brown line on the AIAP contained in Appendix 4. Where possible the CEZ is positioned to protect both the crowns and the RPAs of the retained trees. Guidance on RPAs is contained in Appendix 9.

7.4 Tree Protection Barriers

The proposed location of the tree protection barriers for the development based upon the “Braco A9 - Concept” plan provided on the AIAP contained in Appendix 4.

In line with Section 6.2.2 of BS 5837:2012, which requires that the tree protection barriers be fit for the purpose of excluding construction activity and that they provide adequate protection to the trees, it is proposed that they will consist of 2m tall, welded mesh panels supported on scaffold poles driven into the ground. An example of this type of barrier is contained in Appendix 10.

To enable site operatives to appreciate the purpose of the protective fencing and reduce the risk of operatives attempting to move them, all-weather notices should be erected on the barriers similar to the example in Appendix 11.

The precise location and form of construction of the tree protection barriers will be agreed on site between the appointed arboricultural consultant and Perth and Kinross Council before any site works commence.

7.5 Tree Work Schedule

A schedule of tree work required to facilitate the proposed development shown on the “Braco A9 - Concept” plan has been provided within Appendix 8. All tree work should be carried out prior to commencement of construction activities and prior to the erection of the tree protection measures.

7.6 Standard of Tree Work

All tree work and felling operations should be carried out in accordance with BS3998:2010 Tree Work - Recommendations; current arboricultural industry guidelines and best practice; and all relevant Health & Safety standards. Tree work is a specialist task that requires operatives to be appropriately qualified, skilled, and adequately insured. Guidance on selecting an appropriate contractor can be obtained from the Arboricultural Association, who also maintains a directory of Approved Contractors. The Arboricultural Association can be contacted on 01242 522152 or via their website <http://www.trees.org.uk>.

7.7 Wildlife Constraints

All tree work operations must comply with The Wildlife and Countryside Act 1981 as amended by the Countryside and Rights of Way Act 2000, which provide statutory protection to birds, bats and other species, all of which could inhabit trees. Where works may constitute an offence, advice will be acquired from a suitably qualified person before works are able to proceed. For example, it may be necessary to programme tree work outside of the main bird nesting period, typically March through to August inclusive.

7.8 Modification to Tree Work Schedule

Should the recommended work schedule require modification, for whatever reason, this will be agreed with the appointed Arboricultural Consultant (when applicable), and also approved in writing by Perth and Kinross Council. Under no circumstances will the appointed contractor deviate from the Tree Work Schedule contained in Appendix 8, unless approved in writing by Perth and Kinross Council.

8 Conclusions

The tree survey undertaken by Edmund Lusk of ADAS on 10th July 2023, identified 18 arboricultural features, comprising 17 individual trees and one hedge within influencing distance of the proposed development of land at Braco Services, A9 Northbound, Balhaldie.

The proposed development of the site comprises construction of 10 parking / charging bays with modular photovoltaic canopies, of c. 6m total height. Five no. fast (400kVH) chargers are to be installed with each being able to charge two cars simultaneously.

Existing hard surfaces within the site will be resurfaced to facilitate the development, with some sections of hard standing present within the RPAs of retained trees being available for reinstatement as soft landscaped areas, and it is intended to utilise the existing access from the A9 for traffic circulation.

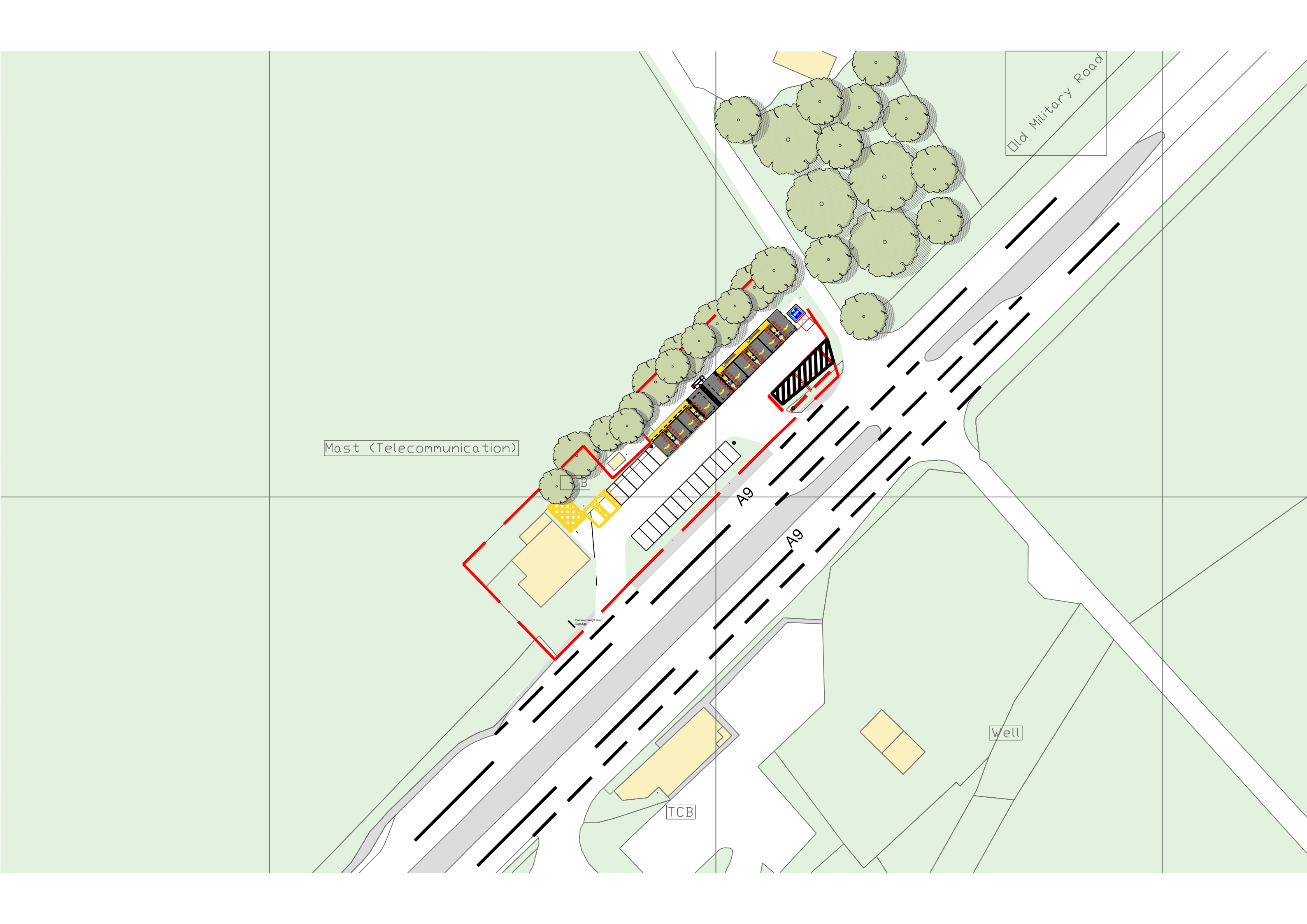
The proposed development will not require the removal of any trees within the site to facilitate its implementation, however it is recommended that the two dead category U trees (T6 & T14) are removed for safety reasons as they are within falling distance of the proposed development.

The proposed development will require localised excavations within the RPAs of five retained trees (T5, T8, T10, T11 and T12) to facilitate construction of the new canopies, transformer station, feeder pillars and associated cable runs. These works all occur within sections of the RPAs that are currently hard surfaced in areas where root development is likely to have been impaired by suboptimal growing conditions. It is considered that the potential for significant harm to occur to the retained trees from these operations is likely to be within tolerable limits subject to the adoption of some precautions in detailed design and adherence to appropriate working methodologies, under arboricultural supervision, at construction stage.

Overall, ADAS is satisfied that, providing the recommendations contained within this report are followed, the proposed development can be successfully achieved without significantly impacting the overall tree stock of the site and causing undue long-term harm to those trees identified for retention.

Appendix 1: Site Location Plan

See following page.



Old Military Road

Mast (Telecommunication)

A9

A9

well

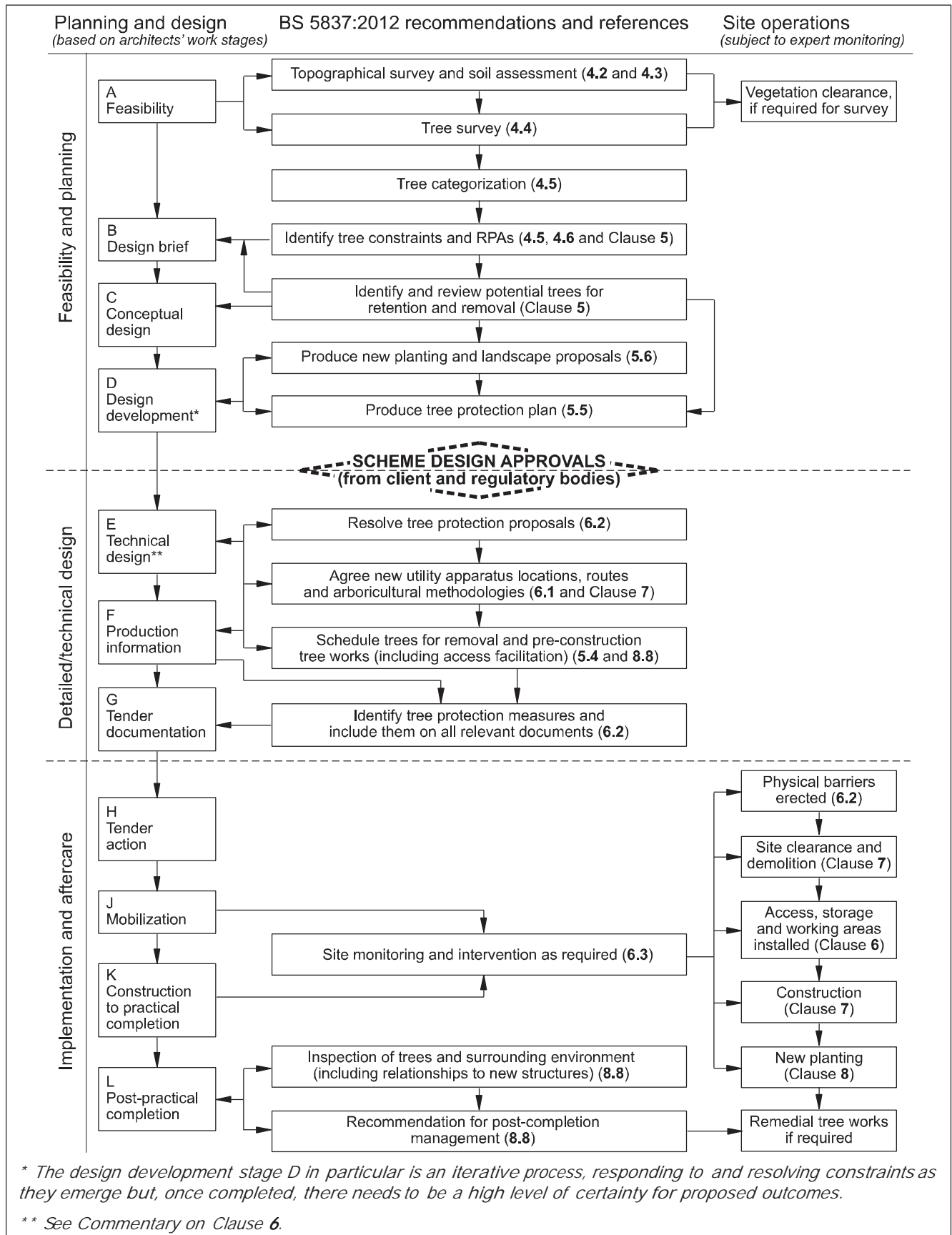
TCB

Fenced and Road Signs

Appendix 2: BS5837 Sequence of Events

See following page.

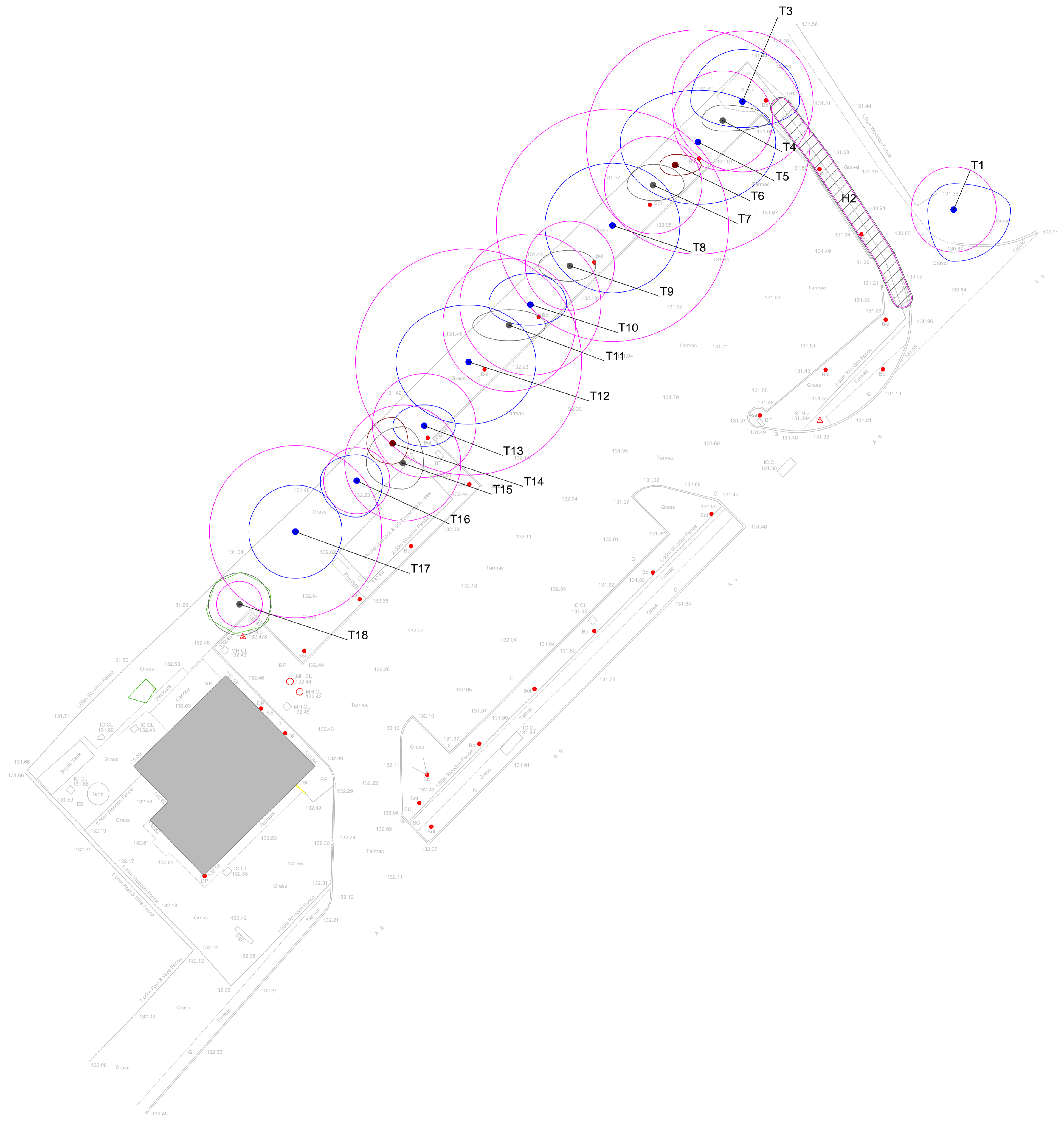
Figure 1 The design and construction process and tree care



Bought by Mrs Nicola Deighan, ADAS UK Ltd, on 18/04/2012 12:10 Latest version: Not to be distributed/networked. For multi-user access www.bsigroup.com/license © BSI






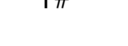
Appendix 3: Tree Constraints Plan

See following page.



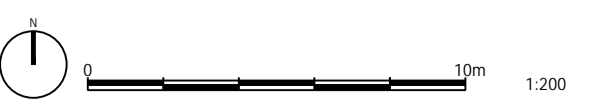
LEGEND

TREE CATEGORIES - NOTE: Quality class description derived from BS5837:2012

- 
 Category A
 Trees / Groups of high quality: with an estimated remaining life expectancy of at least 40 years.
- 
 Category B
 Trees / Groups of moderate quality: with an estimated remaining life expectancy of at least 20 years.
- 
 Category C
 Trees / Groups 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 / Groups: in such a condition that they cannot realistically be retained as living trees in the context of current land use for longer than 10 years.
- 
 Root Protection Area (RPA)
- 
 T#*
 Trees not included in original site survey and therefore positions are indicative only.

Based on Sigma Surveys drawing 'Topographical Survey' number '23/230/01'. (23-230-01 Braco Services A9_Topo_2D.dwg). Please see original for details.

This drawing was produced in colour: a monochrome copy should not be relied upon.

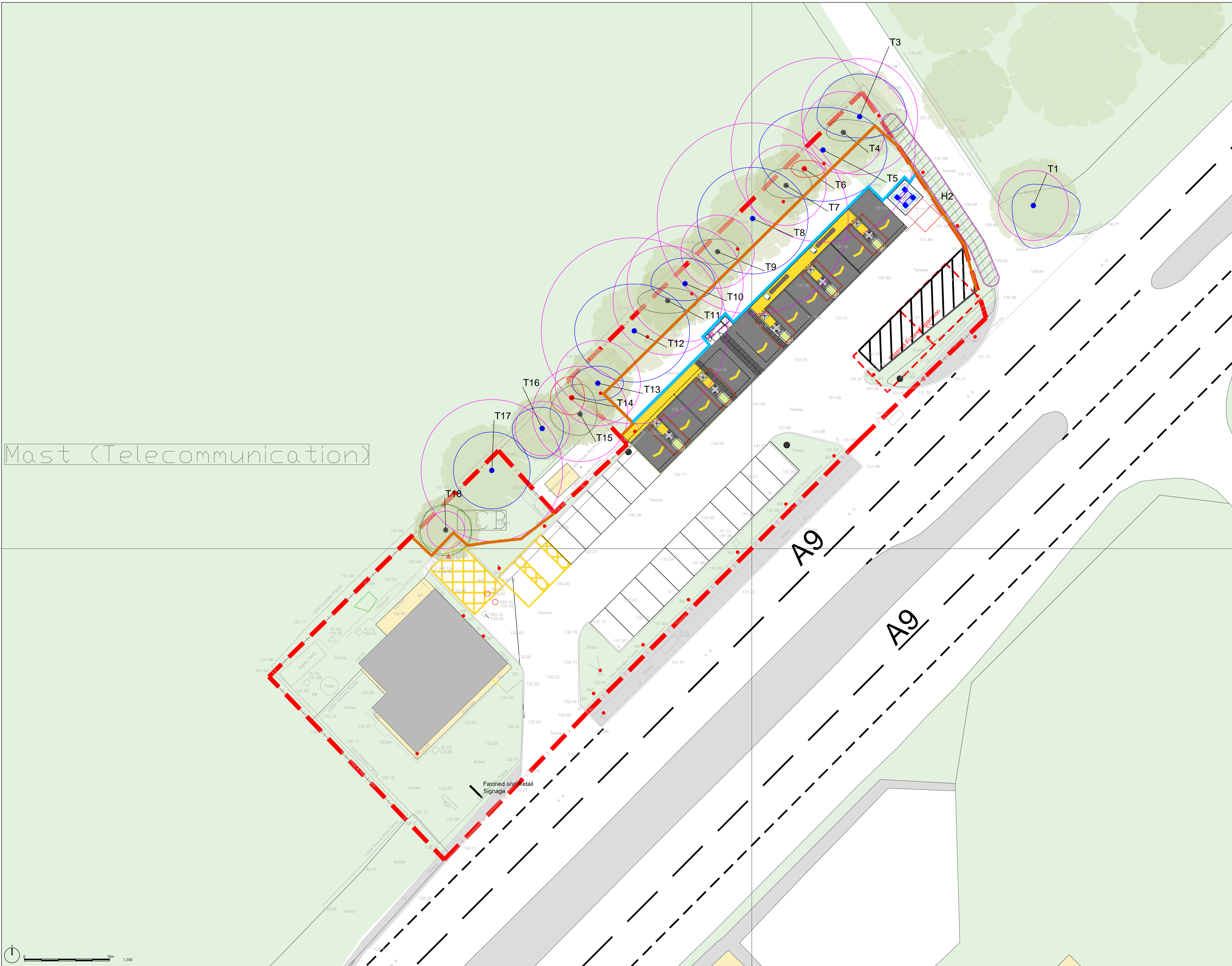


Rev.	Issue Details.	Date.
First Issue		July 2023

Client:
Fastned
 Project:
Balhaldie Northbound A9
 Drawing Title:
Tree Constraints Plan
 Drawing No: ADAS_1052216_Fastned_Balhaldie_TCP
 Scale: 1:200
 Drawn by: EL Date: 12.07.23
 Checked by: IW Date: 12.07.23

Appendix 4: Arboricultural Impact Assessment Plan

See following page.



Mast (Telecommunication)

LEGEND

TREE CATEGORIES - NOTE: Quality class description derived from BS5837:2012

- Category A: Trees / Groups of high quality, with an estimated remaining life expectancy of at least 40 years.
- Category B: Trees / Groups of moderate quality, with an estimated remaining life expectancy of at least 20 years.
- Category C: Trees / Groups 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 / Groups in such a condition that they cannot realistically be retained as living trees in the context of current land use for longer than 10 years.
- Root Protection Area (RPA)
- T#*: Trees not included in original site survey and therefore positions are indicative only.
- Trees To Be Removed: Trees / Groups which are to be removed.
- Tree Protection Fencing - To be installed prior to development.
- Tree Protection Fencing - Alternative alignment to be implemented following hard surface demolition works.

Based on Fastned drawing 'Braco A9 - Concept' number '44.081_C_001001' (44.081 Balhaldie A9_FOR OTHERS.dwg). Please see original for details.
 This drawing was produced in colour - a monochrome copy should not be relied upon.

Rev.	Issue Details.	Date.
First Issue		October 2023

Client:
Fastned

Project:
Balhaldie Northbound A9

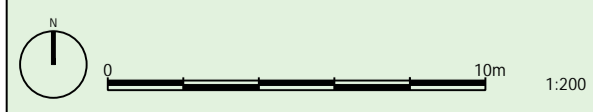
Drawing Title:
Arboricultural Impact Assessment Plan

Drawing No: ADAS_1052216_Fastned_Balhaldie_AIAP

Scale: 1:200

Drawn by: EL Date: 25.10.23

Checked by: IB Date: 26.10.23



Appendix 5: Cascade Chart for Tree Quality Assessment

See following page.



Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (Including subcategories where appropriate)	Identification on plan
Trees unsuitable for retention (see Note)		
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality <i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i>	See Table 2
1 Mainly arboricultural qualities		
Trees to be considered for retention		
Category A Trees of high quality with an estimated remaining life expectancy 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 (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features
Category B Trees of moderate quality 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 (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality
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 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees with material conservation or other cultural value
2 Mainly landscape qualities		
3 Mainly cultural values, including conservation		
Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits		
Trees with no material conservation or other cultural value		
See Table 2		

Appendix 6: TPO and Conservation Area Check

Interactive heritage map



Appendix 7: Tree Survey Schedule

See following page.



Tree Ref No.	Species	Single or Multiple Stem (S or M)	Height (m)	Stem Diameter (mm)						Very Large Girth (Y/N)	Ancient, Veteran or Notable (A, V or N)	Branch Spread (m)				Crown Clearance (m)		Life Stage	General Observations (structural / physiological condition)	Preliminary Management Recommendations	Estimated Remaining Contribution (years)	Tree Quality Grading	Root Protection Area		
				S1	S2	S3	S4	S5	S6			N	E	S	W	(1)	(2)						(m ²)	(radius in m)	
T1	Sycamore	S	14	340							N		2.5	5.5	5	2.5	2.0-E	2.5	EM	Crown shape distorted due to group pressure. Located off-site in roadside verge.	None	20+	B1	52.3	4.1
H2	Beech, Hawthorn, Privet	S	2.5	75							N		1	1	1	1	0-S	0	Y	Young recently planted hedgerow on site boundary.	None	10+	C1	2.5	0.9
T3	Sitka Spruce	S	17	570							N		5	5.5	2.5	5	2.5-W	2.5	EM	Minor deadwood and branch dieback in crown. Crown shape distorted due to group pressure. Restricted inspection of stem base due to dense vegetation.	None	20+	B2	147.0	6.8
T4	Sitka Spruce	S	17	400							N		1.5	4.5	1	2	2.0-W	2.5	EM	Suppressed specimen with deadwood and branch dieback within crown interior. Declining condition.	None	10+	C2	72.4	4.8
T5	Sitka Spruce	S	18	900							N		5	7.5	6	7.5	1.5-S	1	M	Minor deadwood in crown. Broken branches in crown.	None	20+	B2	366.5	10.8
T6	Sitka Spruce	S	16	270							N		1	2.5	1	1.5	4.0-W	4	SM	Heavily suppressed tree with no live growth evident.	Fell and remove	<10	U	33.0	3.2
T7	Sitka Spruce	S	17	390							N		2	3	1.5	2.5	3.0-W	3	EM	Suppressed specimen with reduced crown density and deadwood and branch dieback within crown interior.	None	10+	C1	68.8	4.7
T8	Sitka Spruce	S	19	930							N		6	6.5	6.5	6.5	2.5-S	2	M	Minor deadwood in crown. Broken branches in crown.	None	20+	B2	391.3	11.2
T9	Sitka Spruce	S	16	360							N		1.5	2.5	1.5	3	2.5-W	2	EM	Suppressed form. Minor deadwood and branch dieback in crown.	None	10+	C2	58.6	4.3
T10	Sitka Spruce	S	17	570							N		3	3.5	2	4	2.5-W	2	EM	Minor deadwood in crown.	None	20+	B2	147.0	6.8
T11	Sitka Spruce	S	17	530							N		1.5	3.5	1.5	3.5	2.5-W	2.5	EM	Suppressed specimen of reduced vigour with deadwood and dieback in crown interior.	None	10+	C2	127.1	6.4
T12	Sitka Spruce	S	18	910							N		5.5	6.5	6	7	2.5-W	2	M	Epicormic growth on stem. Small quantity of minor deadwood in crown.	None	20+	B2	374.7	10.9
T13	Sitka Spruce	S	16	420							N		2	3	2	3	2.0-W	1.5	M	Lateral crown dieback and associated deadwood evident in lower crown.	None	20+	B2	79.8	5.0
T14	Dead	S	8	250							N		2.5	1.5	2	2.5	2.5-W	2	SM	Dead standing tree.	Fell and remove	<10	U	28.3	3.0
T15	Sitka Spruce	S	16	470							N		3.5	2	2.5	3.5	3.0-W	3	M	Apical dieback and associated deadwood evident in crown. Telephone mast with associated concrete base has been constructed in RPA.	None	10+	C2	99.9	5.6
T16	Scots Pine	S	9	270							N		2.5	2.5	3.5	3.5	2.0-W	2	SM	Restricted inspection due to dense vegetation. Minor deadwood and branch dieback in crown.	None	20+	B2	33.0	3.2
T17	Sitka Spruce	S	14	690							N		4.5	4.5	4.5	4.5	2.0-W	0.5	M	Minor deadwood in crown.	None	20+	B2	215.4	8.3
T18	Goat Willow	M(b)	3	75	75	75	75	75	75		N		3	3	3	3	0-E	0	Y	Multi-stemmed scrub vegetation of limited value.	None	10+	C1	15.3	2.2

Appendix 8: Tree Work Schedule

Tree No:	Species	Recommended Management Work
T6	Sitka Spruce	Fell and remove.
T14	Dead	Fell and remove.

Accompanying Notes:

All tree work and felling to be carried out in accordance with BS 3998 (2010) 'Recommendations for Tree Work', current industry guidelines and best practice, and all relevant Health & Safety standards.

All operatives to be appropriately qualified, skilled, and adequately insured, for the task they are undertaking.

All tree work and felling must comply with The Wildlife and Countryside Act 1981 as amended by the Countryside and Rights of Way Act 2000.

Modification to, or deviation from, the above schedule must first gain approval from Perth and Kinross Council.

Appendix 9: RPA Guidance

The Root Protection Area (RPA) is calculated from the stem diameter of the tree, in accordance with the guidance contained in section 4.6 of BS 5837:2012.

These areas are normally sacrosanct, and should not be entered, by traffic or foot, during construction, or used to store materials, fuel or chemicals.

Protective fencing should be erected along the edge of the RPA, before construction begins, and should not be moved until after all construction has finished and vacated the site. The type of fencing used should be fit for purpose, and ordinarily conform to the recommendations given in section 6.2.2 of BS 5837:2012 and be erected similar to the example shown in Figure 2 of the same standard.

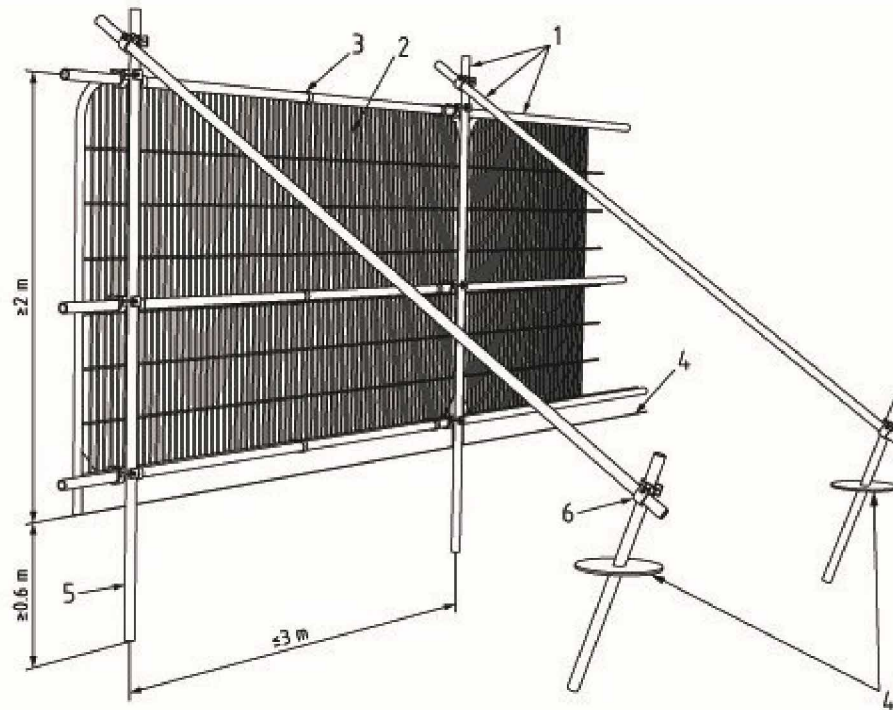
Where underground services cannot be routed outside the RPA, these should be installed by trenchless technology, such as a directional drill. Where this technology is used the underground channel created should be no less than 600mm below normal ground level, or the base of the tree. Also, the starting and receiving excavations should not be within the RPA. Drill channel lubricant should be avoided, other than water, unless precautions are taken to prevent contamination of soil and possibly water. Hand digging may be an alternative to trenchless excavation, but this is less desirable, and not always practical.

When determining the workable space around the RPA of a tree or trees, it is also important to maintain a working zone of one metre (which is usually sufficient) between the edge of construction and the protective fencing.

Appendix 10: Example Tree Protection Barrier

See following page.





Key

- 1 Standard scaffold poles
- 2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
- 3 Panels secured to uprights and cross-members with wire ties
- 4 Ground level
- 5 Uprights driven into the ground until secure (minimum depth 0.6 m)
- 6 Standard scaffold clamps

Appendix 11: Example Tree Protection Barrier Sign

