Dendra Consulting Ltd
41a Front Street
Sacriston
Durham
DH7 6JS

Tel: 0191 371 9636
Email: info@dendra.co.uk
Website: www.dendra.co.uk

Registered in England & Wales: 06680374
9 Bishops Way, Pity Me, Durham, DH1 5DB

Arboricultural Impact Assessment:
AESC UK - Plant 3

Prepared for:
Lichfields
The St Nicholas Building
St Nicholas Street
Newcastle upon Tyne
NE1 1RF

On behalf of:
AESC UK

Report ref: Lichfields_AESC_Plant3_AIA1.1

Report prepared by	**Position**	**Date**
Liam Robson MArborA	Arboriculturist	30/11/2023
Report verified by	**Position**	**Date**
Barry Anderson MCIEEM MArborA	Director	30/11/2023

CONTENTS

1.0 EXECUTIVE SUMMARY

1.0.1 Dendra Consulting Ltd was commissioned to undertake this impact assessment by Lichfields, on behalf of AESC UK. The proposals are for the erection of a battery plant (known as Plant 3) and a pack/warehouse with car parking and associated infrastructure including a HV sub-station and landscaping.

1.0.2 Site visits were undertaken during June 2022.

1.0.3 Three groups of trees and several hedgerows were surveyed.

1.0.4 Impacts are predicted from the following activities:

- Tree and hedgerow removal.
- Site clearance and construction works in proximity to trees to be retained.

1.0.5 Mitigation has been recommended as follows:

- Landscaping scheme.
- The erection of protective fencing.

1.0.6 Overall the proposals are likely to have a neutral impact. A detailed summary table of the impacts before and after mitigation is provided in section 6.0.

2.0 INTRODUCTION

2.1 Background & Scope

2.1.1 Dendra Consulting Ltd was commissioned to undertake this survey and report by Lichfields, on behalf of AESC UK. The proposals are for the erection of a battery plant (known as Plant 3) and a pack/warehouse with car parking and associated infrastructure including a HV sub-station and landscaping. The survey was carried out in line with BS 5837 – Trees in Relation to Design, Demolition and Construction- Recommendations, 2012 (BSI 2012).

2.1.2 The proposals are for the erection of a battery plant (known as Plant 3) and a pack/warehouse with car parking and associated infrastructure including a HV sub-station and landscaping.

2.2 Personnel, Timing & Weather Conditions

2.2.1 Site visits were undertaken during June 2022 by Liam Robson. The weather conditions were fine and dry, with no significant visibility constraints.

2.3 Survey Methodology

2.3.1 All observations were from ground level. Height was measured, where possible, using a clinometer and is expressed in metres. Crown spread is also expressed in metres. In dense tree cover height and crown spread may have been estimated. Stem Diameter at 1.5 metres was measured using calibrated DBH tape and is expressed in millimetres.

2.3.2 A tree quality assessment is made for each tree or group of trees as recommended in BS 5837. A cascade chart based on the standard is provided as figure 1.

Figure 1 – Chart for tree quality assessment. Adapted from BS 5837.

Category	Criteria		
Category U **Trees unsuitable for retention.** Trees in such a condition that they cannot be realistically retained for longer than 10 years	• Dead, dying or dangerous trees • Trees with serious structural defects • Trees with serious physiological defects		
	1. Mainly arboricultural values	**2. Mainly landscape values**	**3. Mainly cultural & conservation values**
Category A **Tree of high quality** with an estimated remaining life expectancy of at least 40 years.	Trees that are particularly good examples of their species. Particularly of rare or unusual species. Trees forming essential parts of a group	Trees, groups or woodlands of particular visual importance.	Trees, groups or woodlands of significant conservation, historical, commemorative or other value.
Category B **Trees of moderate quality** with an estimated remaining life expectancy of at least 20 years.	Trees that might be categorised in the higher category but are downgraded because of impaired condition.	Trees present in numbers such that they attract a higher collective rating than they would as individuals.	Trees with material conservation or other cultural value.
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 15cms.	Trees not qualifying in higher categories	Trees present in groups or woodlands that do not possess significant landscape values.	Trees with no material conservation or cultural value

2.4 Root Protection Area

2.4.1 The Root Protection Area (RPA) is represented by an area in m^2 around a tree which acts as a protective zone. In our schedule of trees it is expressed both as the RPA and as the Root Protection Radius (RPR). The RPR is a figure given in metres used to identify the radius of a circle around a tree which serves to act as the RPA. In certain circumstances the shape of the RPA may be altered to suit site specific factors such as the presence of buildings, roads, other trees etc.

3.0 REPORT FINDINGS

3.1 Survey Summary

3.1.1 Three groups of trees and several hedgerows (H1) were surveyed. The full results of the survey are provided in section 8.0. The trees were examined for physiological and structural defects. Remedial works for such defects have been provided where appropriate, and this has been recommended regardless of development. **Please note that some of this work may be superseded by recommendations required for development purposes.** The results of the tree quality assessment are summarised in figure 2 below.

Figure 2 – Summary of tree quality assessment

Category	Tree/Group numbers
High	None
Moderate	G1, G2, G3
Low	H1
Unsuitable for retention	None

3.2 Limitations

3.2.1 The details specified within this report are valid for a period of two years.

4.0 IMPACT ASSESSMENT

4.1 Assessment Process

4.1.1 This section of the report identifies and evaluates impacts in the absence of any mitigation. Mitigation is then detailed in section 5.0 of the report. Impacts are categorised into pre development, development stage and post-development phases.

4.2 Pre-development Tree Work

4.2.1 The proposals require the removal of areas of G3 and H1, comprising moderate and low values respectively.

4.3 Site Clearance and Ground Preparation

4.3.1 Prior to construction it will be necessary to prepare the ground for the new development. Ground works, in proximity to trees, can cause serious damage including:

- Direct collision damage to the stems and branches.
- Root damage due to changes in soil level.
- Compaction damage to the rooting environment via pedestrian and vehicular movement over the root protection area.

This has the potential to affect all the trees present around the existing property.

4.4 Development Stage

4.4.1 Generic development works on the site, such as operation of machinery, storage of materials, etc, could result in damage to the crown, stem and root system of the trees to be retained on site.

4.5 Post Development Conflicts

4.5.1 Potential post development tree/resident conflicts such as encroachment, shading, leaf fall, honeydew, etc usually arise from the erection of buildings close to large trees. Such problems are subjective and depend entirely on

different attitudes to trees. Consequently, the impacts are difficult to predict with any degree of accuracy. Given the nature of the buildings and proximity to trees to be retained, no significant post development impacts are predicted.

5.0 MITIGATION

5.1 Replacement Tree Planting

5.1.1 Areas of moderate and low value groups and hedgerows are to be removed to facilitate the development. The proposed landscaping scheme includes the planting of 70no. native trees, in addition to both native and ornamental hedgerows. Furthermore, the existing hedgerows will be restocked where necessary. The scheme will provide screening and amenity benefit to the north, west and south boundaries of the site. This will help to mitigate for the required losses on site.

5.2 Site Clearance and Ground Preparation

5.2.1 To prevent damage to the existing trees and hedgerows during ground works, protective fencing of the type specified in figures 3 or 4 below should be installed as shown on the tree protection plan. The fencing should be erected prior to the start of the works and should remain in place for the entire project, including the construction phase. Signs will be attached to the fencing to state that it is a protected area and that it should not be moved during both phases.

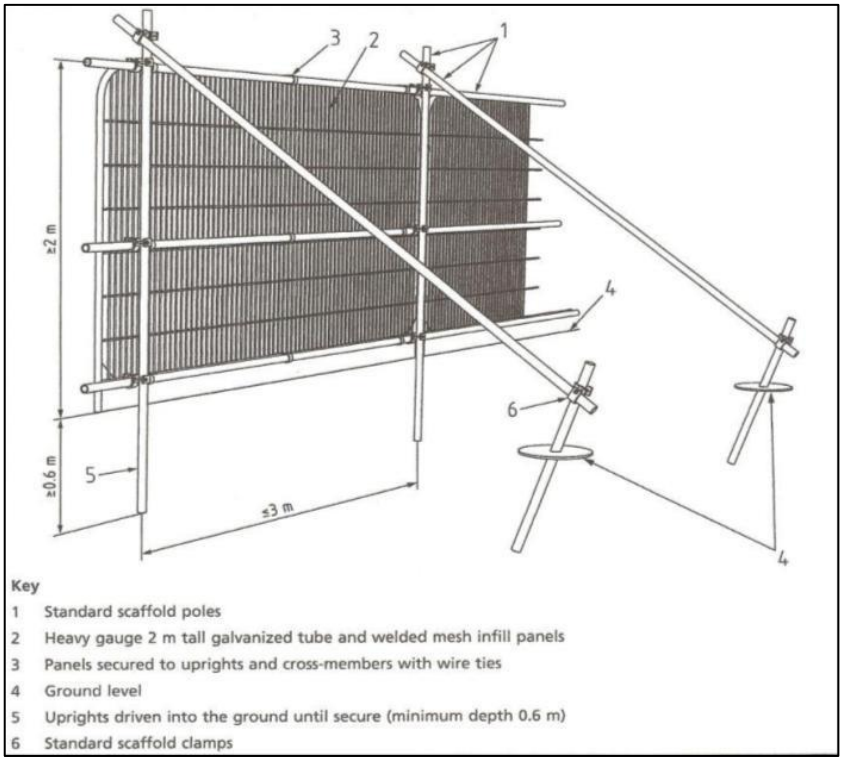
5.3 Development Stage

5.3.1 The protective fencing recommended in section 5.2.1 will remain in place for the entire project, including the construction phase. Signs will be attached to the fencing to state that it is a protected area and that it should not be moved during the construction phase.

5.4 Post Development Tree Management

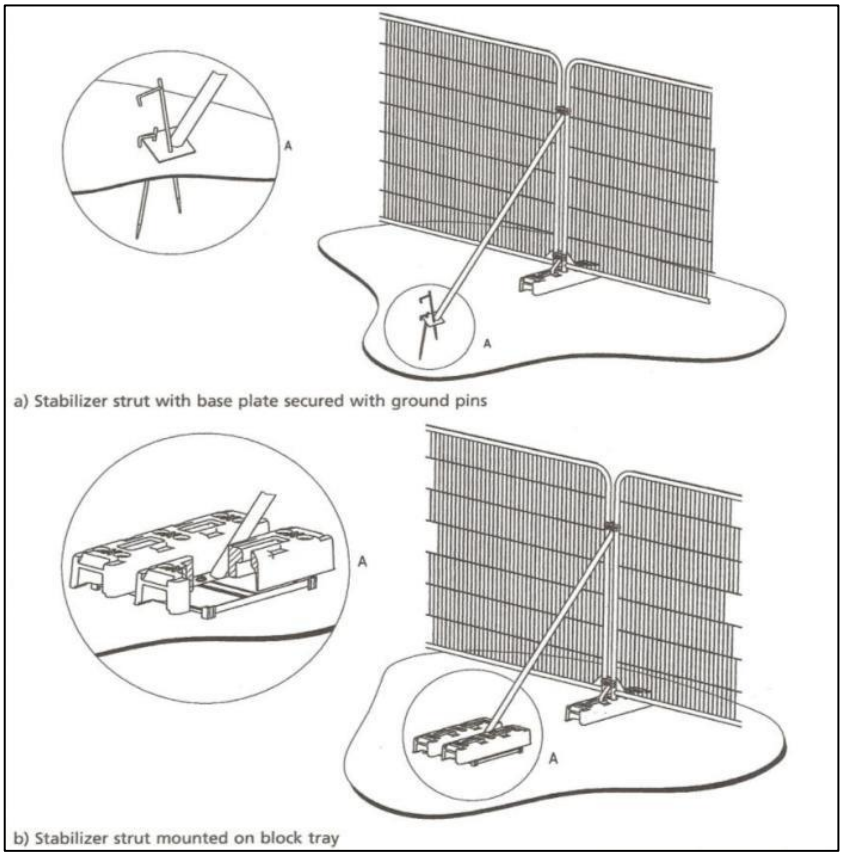
5.4.1 No special considerations required.

Figure 3 – Default protective fencing for trees on demolition/development sites.



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

Figure 4 – Alternative protective fencing for trees on demolition/development sites.



[Figures 3 & 4 reproduced with the permission of the British Standards Institute].

6.0 SUMMARY OF IMPACTS AND MITIGATION

6.1 The impacts and mitigation criteria shown in figure 5 below have been used to assess the impacts of the proposed development, which is summarised in figure 6.

Figure 5 – Impact assessment parameters and predictions

Assessment parameters	Measure of impacts
Nature and Magnitude of impact	Major negative Negative Minor negative Neutral / Negligible Minor positive Positive Major Positive
Extent of impact	Site level Street level Local level District level County level National level
Probability that impact will occur	Certain / Highly likely Likely Possible Extremely unlikely

Figure 6 – Site impacts before and after mitigation.

Proposed activity	Predicted impact without mitigation	Assessment of impact without mitigation	Proposed Mitigation	Assessment of impact with mitigation
Tree and hedgerow removal	Loss of low and moderate value features	Negative Site level Certain	Landscape scheme	Neutral Highly likely
Site clearance and ground preparation	Damage to stems, branches and roots of trees and hedgerows to be retained. Possible decline of trees and hedgerows	Negative Street level Likely	Protective fencing to be erected	Neutral Highly likely
General construction works in proximity to trees to be retained				

7.0 REFERENCES

BSI (2012) *BS5837:2012 Trees in relation to design, demolition and construction – Recommendations.* British Standards Institution. London.

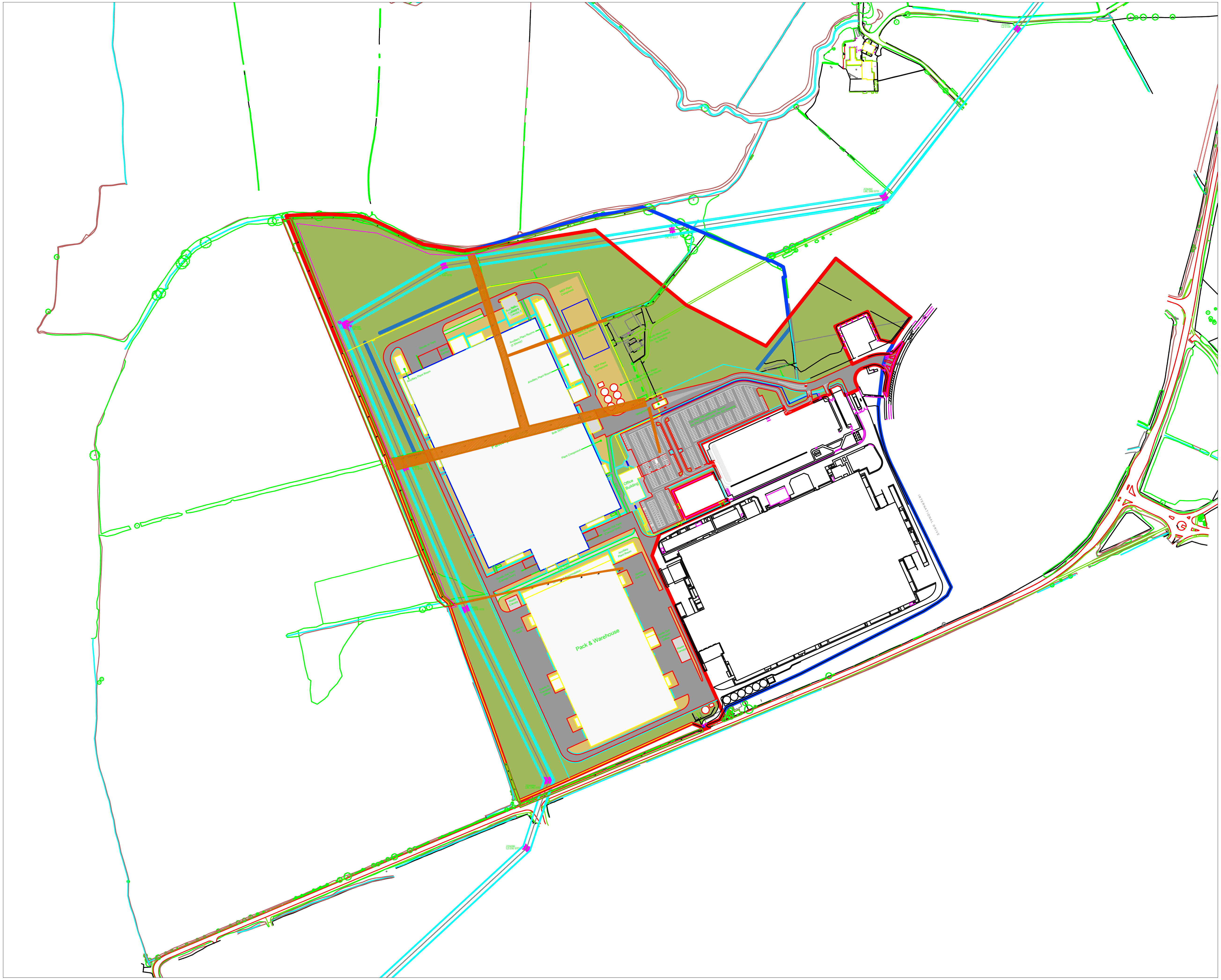
8.0 SCHEDULE OF TREES

KEY

NR: Not recorded
Age: Y = Young, SM = Semi mature, EM = Early mature, M = Mature, OM = Over mature
Estimated Remaining Contribution: Expressed in years
Recommendations for health and safety reasons are not highlighted. Recommendations for development purposes are highlighted in RED

No.	Species	Height (m)	Stem diam. (mm)	Crown Spread (m) N	Crown Spread (m) E	Crown Spread (m) S	Crown Spread (m) W	Height of main canopy (m)	Height of first significant branch (m)	Direction of first significant branch	Age class	Estimated remaining contribution	Comments	Recommendations	Tree quality Assessment	RPA (m^2)	RPR (m)
H1	Mixed	8.0	400	NR	NR	NR	NR	0.1	NR	NR	M	40+	Defunct hedgerow. Many with over mature, remnant specimens. Dominated by hawthorn. Occasional trees. Species include Rosa spp., sycamore, ash, blackthorn, elder, oak. Ash dieback evident	Restock hedgerow where necessary Remove areas to facilitate development	C2	72	4.8
G1	Mixed	14.0	450	NR	NR	NR	NR	0.1	NR	NR	M	40+	Located outside of boundary fencing. Species includes sycamore, silver birch and aspen. Excavation and change of ground levels has occurred in immediate area of trees	Monitor annually	B2	92	5.4

No.	Species	Height (m)	Stem diam. (mm)	Crown Spread (m) N	E	S	W	Height of main canopy (m)	Height of first significant branch (m)	Direction of first significant branch	Age class	Estimated remaining contribution	Comments	Recommendations	Tree quality Assessment	RPA (m^2)	RPR (m)
G2	Sycamore	14.0	500	NR	NR	NR	NR	0.1	NR	NR	M	20+	Roadside trees with sparse hawthorn hedgerow	Monitor annually. Remove deadwood	B2	113	6.0
G3	Mixed	8.0	350	NR	NR	NR	NR	0.1	NR	NR	EM	40+	Boundary dominated by trees with defunct areas of hawthorn hedgerow. Species includes ash, oak, elm and sycamore. Ash dieback present	Monitor biennially Remove areas to facilitate development	B2	55	4.2



Appendix 1

Tree Protection Plan

KEY

Tree retention category

Category A
Category B
Category C
Category U

Tree Constraints

Crown Spread

Root Protection Area

Tree Removal

Tree to be removed

Tree protection

Protective fencing

Scale: 1:500 @ A3

The original of this plan was produced in colour - a monochrome copy should not be relied upon

Project Details
AESC UK - Plant 3

Prepared for:
Lichfields
The St Nicholas Building
St Nicholas Street
Newcastle upon Tyne
NE1 1RF

On behalf of:
AESC UK

Date: 30th November 2023

Report ref:
Lichfields_AESC_Plant3_AIA1.1

Dendra Consulting Ltd
41A Front Street
Sacriston
Durham
DH7 6JS
Tel: 0191 3719636
Email: info@dendra.co.uk
www.dendra.co.uk