

TREE SURVEY

FIG POWER

NEWBURN

NEWCASTLE UPON TYNE

TYNE & WEAR

NE15 8LN



Environmental Consultants
Chartered Landscape Architects
The Studio
20 The Grove
Newcastle upon Tyne
NE3 1NE
Tel: 0191 285 5910
Email: ajtec@ajtec.co.uk



Job Title:

TREE SURVEY, FIG POWER, NEWBURN, NEWCASTLE UPON TYNE. NE15 8LN

Job Number: 965

Document Title: TREE SURVEY

Prepared by: W J Turner, M.Arbor.A

Date: November 2024

Checked: A Jones

Date: November 2024

Approved by: A M Turner

Date: November 2024

Revision Record

Rev. No.	Date	Description	Prepared by	Checked by	Approved by

CONTENTS

1. INTRODUCTION

2. SURVEY AND SITE ASSESSMENT

- 2.1 Landscape Character
- 2.2 Tree Survey
- 2.3 Survey Results
- 2.4 Amenity Value
- 2.5 Wildlife Value, Protected species
- 2.6 Legal Protection of Trees
- 2.7 Newcastle and North Tyneside Biodiversity Action Plan
- 2.8 Survey Timing
- 2.9 Survey Limitations

3. IMPACT ASSESSEMENT OF DEVELOPMENT PROPOSALS

- 3.1 Development Proposals
- 3.2 Selection of Trees for Retention
- 3.3 Assessment of Impact upon Existing Trees
- 3.4 Mitigation of Impact upon Existing Trees
- 3.5 Assessment of Impact upon Amenity Value of Trees
- 3.6 New Planting

4. MANAGEMENT RECOMMENDATIONS

- 4.1 Felling and Management
- 4.2 Trees and Bats
- 4.3 Trees and Birds
- 4.4 Management Strategy

Appendix 1 Tree Survey Schedule

Appendix 2 Safe Useful Life Expectancy (SULE)

Appendix 3 Method Statement for Contractor

Appendix 4 Arboricultural Inspection Proforma

1. INTRODUCTION

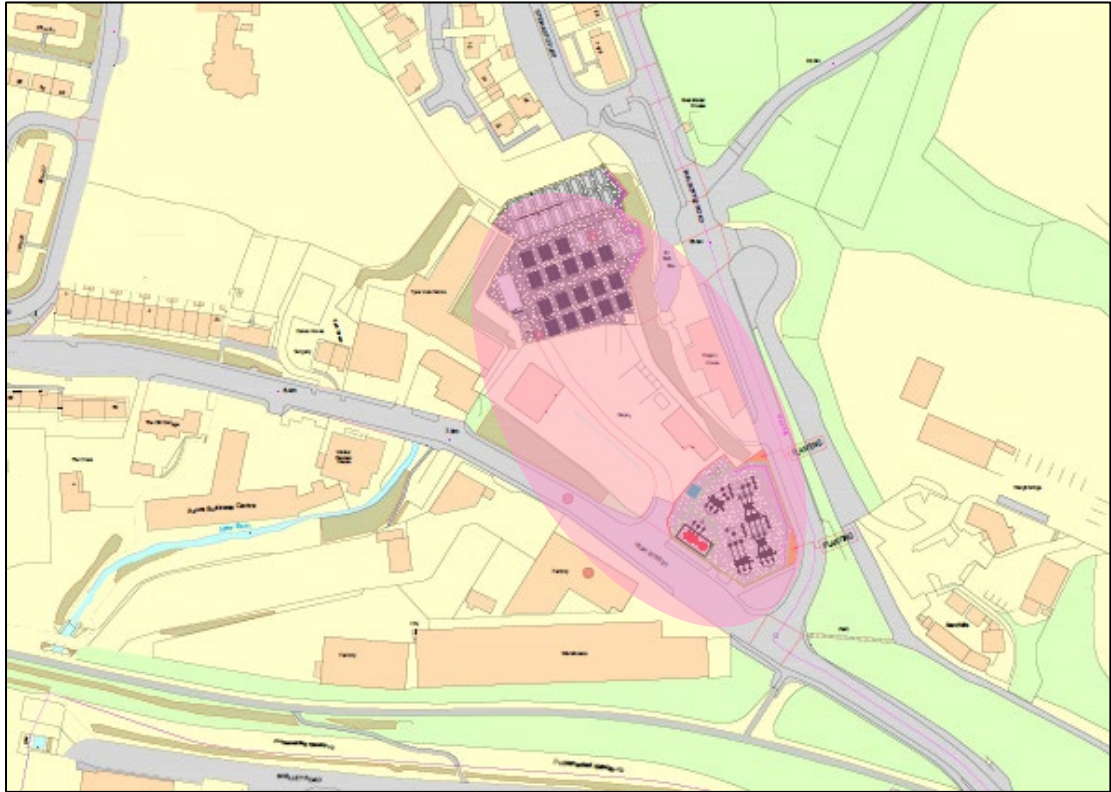
Ajt Environmental Consultants were commissioned to undertake a condition survey and assessment of the existing trees in relation to the proposed development on land at the Newburn, Newcastle upon Tyne with recommendations for a management strategy.

The site covers an area of 0.75 hectares within an industrial and commercial area, on the north side of the A6085 which includes the main entrance to the site occupiers. To the west, the site is bounded by commercial premises, to the north and east by Wallbottle Road with an organic waste processing plant beyond and to the south by industrial units.

The site contains small industrial units to the east and a concrete plant and distribution facility. It is surrounded by 2m high brick and steel palisade security fencing with plantations to the north and south. A number of mature trees are located within and on the boundaries. Trees to the west off site are protected by Tree Preservation Orders.

The development relates to the creation of a national grid power storage and distribution facility together with associated access, landscaping and boundary treatments.

The site location is shown overleaf on **Figure 1**.



This map is reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office. Crown Copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. AJT Environmental Consultants AR 100010228

Figure 1: Location of the site at the Former Gosforth Synagogue, Graham Park Road, Gosforth, Newcastle upon Tyne

2. SURVEY ASSESSMENT

2.1 Landscape Character

The landscape character consists of a distinct and recognisable pattern of elements that occur in a landscape and how people perceive these. It reflects particular combinations of geology, landform, soils, vegetation including trees and woodland, landuse and human settlement and creates a particular sense of place. A description of the landscape character of the site and surroundings, are summarised below.

2.1.1 General Context

The site lies within Newburn, an outer settlement of Newcastle upon Tyne and to the west of the city centre. Newburn is located within the Tyne and Wear Lowlands Character Area, which is centred on the lower valleys of the Tyne and Wear. This includes to the north, the extensive conurbation lying in the broad valley of the Tyne, which merges into the South East Northumberland Coastal Plain. The area comprises gently undulating land, incised by the river valleys and their tributaries. It is densely populated and heavily influenced by urban settlement, by industry and infrastructures. The landscape has been widely influenced by coal mining and heavy industry and in the urban areas, there is still an amount of derelict or redundant land although much has been reclaimed to uses such as country parks and recreational activities. In such a heavily affected landscape, woodland cover overall is low, but small wooded denes such as Jesmond Dene and Holywell Dene are a feature of the Newcastle townscape.

This broad description of the landscape provides the general character and setting for the site.

2.1.2 Site Context

The site is bound to the south by the High Street (A6085) with a plantation on an embankment, west by commercial development, to the north and east by Walbottle Road which rises to the north. A plantation covers the embankment to the east side of the site with Clayton House, a commercial premises, on an elevated plateau to the north east. To the north beyond the site is the Mill Vale an area of 21st century residential development.

The site contains mature trees to the north, east and south boundaries with mature shrubs. The existing mature trees and landform together largely screen the existing concrete plant and other commercial premises.

The immediate environs to the site have many of the features associated with a typical urban environment, with a mixture of land uses, comprising predominantly industrial and commercial, which are interspersed by a network of roads and footpath links.

2.2 Tree Survey

The species and condition of all trees included in the survey were assessed to inform the proposed development and to allow appropriate mitigation to be implemented if necessary. The trees were assessed by competent personnel¹ experienced in arboriculture and in accordance with the methodology and recommendations of BS5837: 2012, 'Trees In Relation to Design, Demolition and Construction - Recommendations'.

2.2.1 In making this assessment, particular consideration was given to:

- a) The health, vigour and condition of each tree
- b) Any structural defects in each tree and its life expectancy
- c) The size and form of each tree, and its suitability within the context of the proposed development
- d) The location of each tree relative to existing site features, e.g. its value as a screen or as a skyline feature.

Based on this assessment, the trees were divided into four categories. All the surveyed trees with their categories, differentiated on plan by colour, are shown on **Figure 2**. The tree reference numbers relate to the individual trees recorded and surveyed on site. In addition, smaller specimens were noted wherever these were considered to be of particular interest or potential value and other arboricultural features such as large masses of shrubs or hedges.

2.2.2 The survey has classified the trees into the following categories:

- a) Trees whose retention is most desirable: Category A ~ High quality and value (*Light green*) with an estimated remaining life expectancy of least 40 years.
 - 1. 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

¹ Includes an arboriculturist, M.Arbor.A, who has through relevant education, training and experience, gained recognised qualifications and expertise in the field of trees in relation to construction

semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue).

2. Trees, groups or woodlands of particular visual importance as arboricultural and or landscape features.
3. Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture).

b) Trees where retention is desirable: Category B ~ Moderate quality and value (*Mid blue*) with an estimated remaining life expectancy of least 20 years.

1. 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.
2. 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.
3. Trees with material conservation or other cultural value.

c) Trees which could be retained: Category C ~ Low quality and value (*Grey*) with an estimated remaining life expectancy of least 10 years, or young trees with a stem diameter below 150mm.

1. Unremarkable trees of very limited merit or such impaired condition that they do not qualify in the higher categories.
2. 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.
3. Trees with no material conservation or other cultural value.

d) Trees for removal: Category U ~ Unsuitable for retention (*Dark red*) 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.

1. 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 the removal of other U trees. (e.g. where, for whatever reason, the loss

of companion shelter cannot be mitigated by pruning).

2. Trees that are dead or are showing signs of significant, immediate and irreversible overall decline.
3. Trees infected with pathogens of significance to the health and/or safety of other trees nearby or very poor quality trees suppressing adjacent trees of better quality.

2.2.3 A schedule of the survey has been prepared which lists all the trees and provides details of species, height and trunk diameter at 1.5m above ground level, the category, age and vigour of the trees, as a basis for the assessment of impact of the proposed development. Branch spread has been assessed, which is shown on **Figure 2**, by defining the actual branch spread rather than illustrative circles. The schedule also includes other relevant details such as trunk lean, significant defects, appropriate remedial work and Safe Useful Life Expectancy (SULE), an arboricultural method of assessing the trees remaining safe life span. The tree survey schedule is included in **Appendix 1**. The method for assessing trees remaining life span is included in **Appendix 2**.

2.2.4 A series of photograph plates are provided overleaf, to illustrate the form, condition and location of the individual and groups of trees in context of the site and surrounding area. The location and survey reference of the trees is shown on **Figure 2**.

2.2.5 View looking south east towards the centre of the site with a self-seeded willow tree reference T1, as shown in Plate 1.



Plate 1

2.2.6 View looking towards the base of T1, the tree is growing into the security fence and conflicts with the operational area, as shown in Plate 2.



Plate 2

2.2.7 View looking north towards the south east corner of the site, with a small sycamore tree reference T2, as shown in Plate 3.



Plate 3

2.2.8 View looking north towards the south east corner of the site, with a small sycamore tree reference T2, as shown in Plate 3.



Plate 4

2.2.9 View looking northwest towards the southern boundary of the site with a plantation growing on the embankment reference G1, as shown in Plate 5.



Plate 5

2.2.10 View looking north along part of the western boundary to an off-site group with 11no TPO mature moribund ash trees within tree group reference G2, suffering from significant ash dieback as shown in Plate 6.



Plate 6

2.2.11 View looking west towards the western boundary, to a mature broadleaved plantation reference G3, as shown in Plate 7.



Plate 7

2.2.12 View looking north towards part of the northern site boundary tree group reference G4 growing on a steep embankment, as shown in Plate 8. Note that the trees are growing at the top of the embankment.



Plate 8

2.2.13 View looking north to the tree group reference G4 self-seeded trees, showing the trees growing at the edge of the upper plateau on top of a steep embankment with buddleia and willow scrub on the embankment below, as shown on Plate 9.



Plate 9

2.2.12 View looking east towards along a substantial retaining wall with a multi-stem sycamore growing close to the embankment top part of the group reference G4 in the centre, as shown in Plate 10.

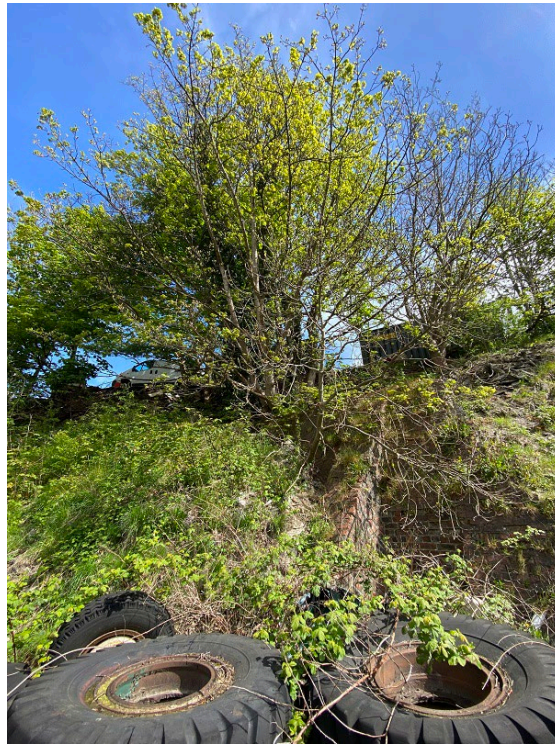


Plate 10

2.2.12 View looking to the base of the multi-stem sycamore in G4 showing that the tree is growing to the east of the wall which has formed a root barrier that separates the root plate from the proposed development, as shown in Plate 10

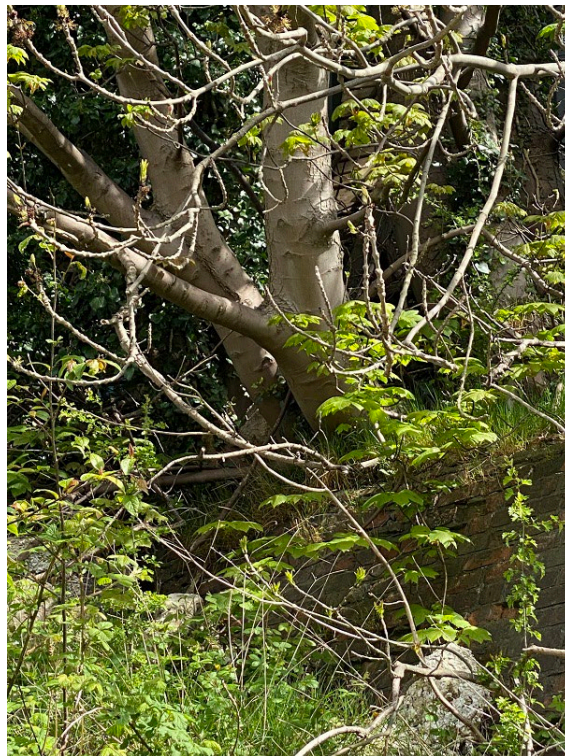


Plate 10

2.2.13 View looking north along Walbottle Road with the plantation group reference G5 on the left, as shown in Plate 11.

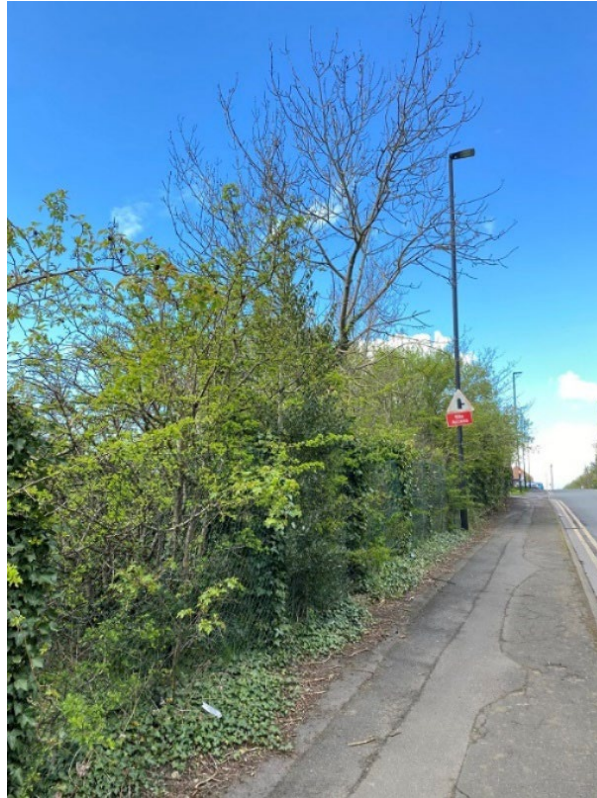


Plate 11

2.3 Survey Results

2.3.1 The trees that fall into each category are shown in **Table 1**.

Table 1:

Category	Colour	Total Groups	Total Trees	Tree reference number
High	Green	0	0	-
Moderate	Blue	4	0	G1, G2, G3, G5
Low	Grey	1	2	T1, T2, G4
Fell	Red	0	0	-
Total		5	2	

2.3.2 The survey followed the recommendations of BS5837: 2012, 'Trees In Relation to Design, Demolition and Construction - Recommendations' and a total of 2 number trees and 5 number tree groups within the site and on the boundaries were surveyed.

2.3.3 The trees range from approximately 10 to 80 years old and reflect the stages of industrial, commercial and residential development that have taken place within the site and their location within an urban environment. The trees are predominantly individually

of poor condition, due to a range of issues relating to the proximity of built-development, damage, management and disease. The majority of the ash trees are showing advanced signs of a fungal disease Ash Die Back (*Hymenoscyphus fraxineus*) and are in poor condition.

2.3.4 The ash trees will need to be removed where there are any safety concerns but can in many cases be allowed to decline and proved standing dead wood habitat. These trees require removal as part of the proposed tree management irrespective of any development. The removal of disease sources and competition would have a beneficial effect upon the remaining health of the trees and those on adjacent land.

2.3.5 The influence the trees have on and adjacent to the site were plotted on the Tree Constraints Plan (TCP) which shows the below ground constraints, represented by the Root Protection Area (RPA) and above ground constraints the trees pose by virtue of their size and position. The RPA was calculated using Table D.1, Annex D of BS5837: 2012, 'Trees In Relation to Design, Demolition and Construction - Recommendations', and is a minimum area in m², which should be left undisturbed around each tree. The RPA for each tree is included in **Appendix 1** within the tree survey schedule. Account of the following factors was taken:

- The likely tolerance of the tree to root disturbance or damage, based on factors such as species, age, and condition and past management.
- The morphology and disposition of the roots, when known to be influenced by past or existing site conditions (e.g. the presence of roads, structures and underground services).
- The soil type and structure.
- Topography and drainage.
- Where any significant part of the tree's crown overhangs the provisional position of tree protection barriers, these parts may sustain damage during construction period. In such cases, it may be necessary to increase the extent of tree protection barriers to contain and thereby protect the spread of the crown. Protection may also be achieved by access facilitation pruning. The need for such measures, including the precise extent of pruning, has been assessed.

The TCP is shown on **Figure 3**.

2.4 Amenity Value

The amenity value of the trees was assessed using the Guidance Notes 'Visual Amenity Valuation of Trees and Woodlands' (The Helliwell System), Arboricultural Association. This provides a method of assessing the contribution made by the trees for amenity purposes of a locality and is of particular relevance in relation to the site and its surroundings. The method for assessing trees is shown in **Table 2**. Six standard factors are identified, plus any special factors such as historical association, special landscape value, obscuring or the screening of unpleasant views and importance in a larger composition. For each of these factors, the tree is given a score, and the scores for all the factors are then multiplied together to give an assessment of the amenity value of the tree. The trees were assessed as follows:

- As a collective whole, the large plantation groups within and along the boundaries of the site were considered overall to be of moderate amenity value, due to their combined effect of size, useful life expectancy and some importance of position in the landscape as viewed from a public vantage point.
- The young and individual poor quality trees within the site were considered overall to be of low amenity value due to their size, condition or with limited importance of position in the landscape as viewed from a public vantage point.

Table 2:

FACTOR	POINTS									
	0	0.5	1	2	3	4	5	6	7	8
	Minimal Value		Low Value	Moderate Value	High Value	Significant Value				
i. Size of tree	Less than 2m ²	2-5m ²	5-10m ²	10-20m ²	20-30m ²	30-50m ²	50-100m ²	100-150m ²	150-200m ²	Over 200m ²
ii. Useful Life expectancy	Less than 2 years	1-2 years	2-5 years	5-40 years	40-100 years	100+ years				
iii. Importance of position in landscape	No importance	Very little importance	Little importance	Some importance	Considerable importance	Great importance				
iv. Presence of other trees		Woodland	Many	Some	Few	None				
v. Relation to setting	Totally unsuitable	Moderately unsuitable	Just suitable	Fairly suitable	Very suitable	Particularly suitable				
vi. Form		Ugly	Average or indifferent	Good						
vii. Special factors			None	One	Two	Three				

Visual Amenity Valuation table showing factors and scores available for individual trees, developed from Helliwell

2.5 Wildlife Value, Protected Species

The trees were inspected for potential or actual bat roost sites in accordance with the guidance set out within 'Bat mitigation Guidelines,' English Nature 2004, and the Bat

Conservation Trust (2016) Bat Surveys Good Practice Guidelines. Potential bat habitat was not found in any trees and no actual bat roosts or evidence of bats were observed within the trees that were surveyed.

For proposed developments such as this, it is essential to ensure that no bat roosts are damaged, destroyed or obstructed, that no harm comes to bats as a result of the works, and that the conservation status of bats in the area is maintained or enhanced. Refer to **Appendix 3** Method Statement for Contractor.

2.6 Legal Protection of Trees

Eleven of the ash trees within the tree group reference G2 are subject to a Tree Preservation Order (TPO), reference TPO 1988/013, which has the effect of preventing the cutting down, topping, lopping, uprooting, wilful damage or wilful destruction of trees except in certain circumstances other than with consent of the local planning authority.

The effect of proposed development on trees protected by a TPO ranks as a 'material consideration' which would be considered by the Local Authority when determining a planning application under Section 70 of the Town and Country Planning Act 1990.

Through careful planning and design, the effects of the proposed development upon the existing trees will be minimised and a sympathetic planting scheme will ensure a harmony between development, the trees and the landscape character and amenity of the site.

2.7 Newcastle and North Tyneside Biodiversity Action Plan

The Newcastle and North Tyneside Biodiversity Action Plan (BAP) is a strategy that is important in considering the proposed development of the site and the effect upon the existing trees.

Proposed development should take the opportunity to prevent loss and create new habitats through the development process. For example, the retention of existing trees that are identified as being of value and the incorporation of new tree planting along with habitat creation. This is considered to be an important element of development which would meet a number of the key aims of the BAP.

2.8 Survey Timing

The survey of the site was undertaken on 25th April 2024 during daylight hours and in weather conditions, which were sunny, dry and bright, breezy with good visibility with an air temperature of 8°C.

2.9 Survey Limitations

Although the report has been produced with the intention of establishing the condition and health status of the trees within the site, it is not to be regarded as a definitive assessment of the trees present.

In particular, it should be noted that the survey methodology undertaken is a visual survey and further investigation, where recommended, should be undertaken of trees to be retained but of poor condition and of particular concern regarding structural stability and public safety.

Further investigation of such trees would involve using the most advanced tools available within current arboriculture to detect and evaluate the internal incipient and advanced decay, ascertain health/vitality and provide information as to the structural integrity of the tree.

Figure 2: Tree Survey Plan

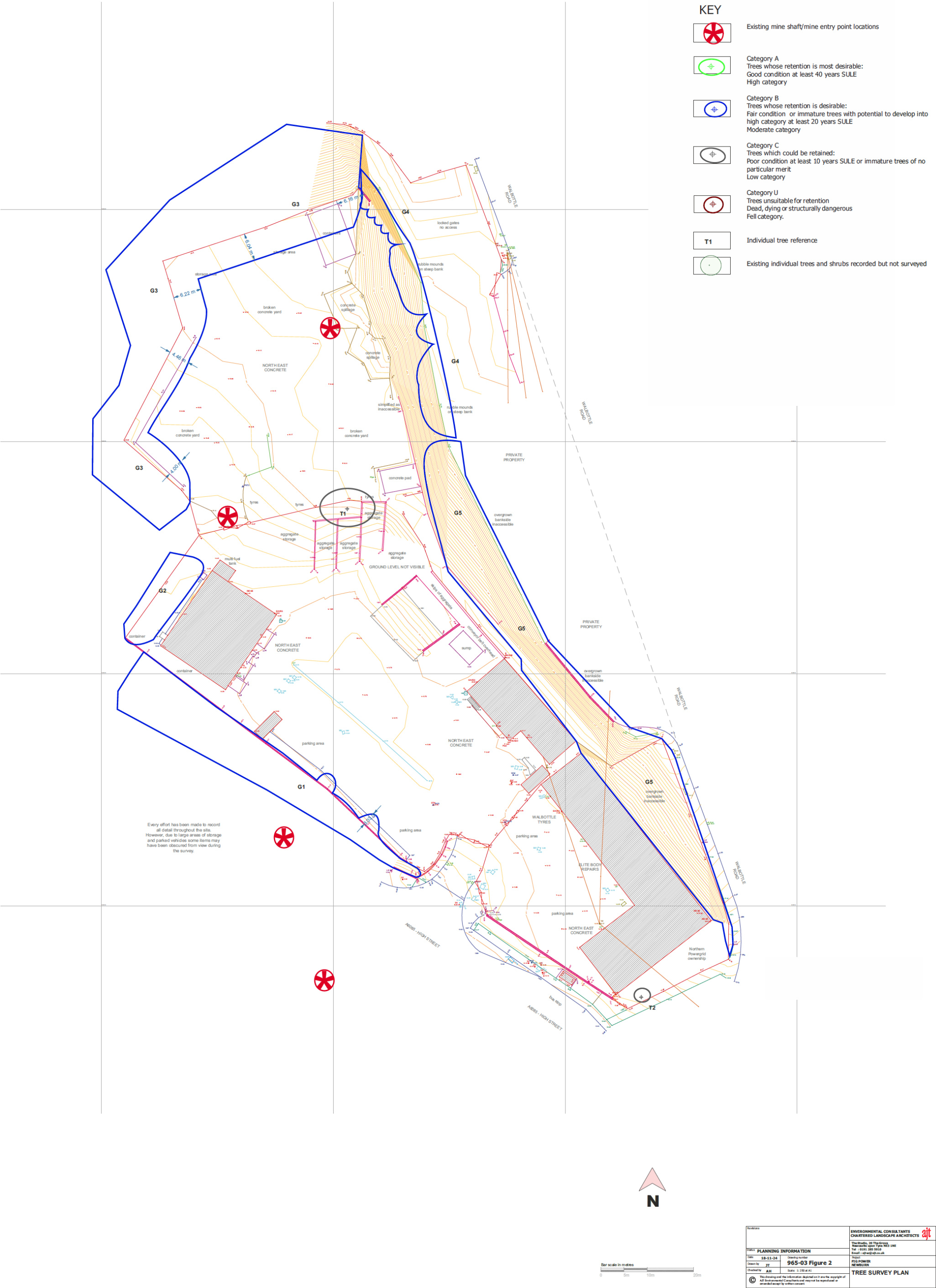
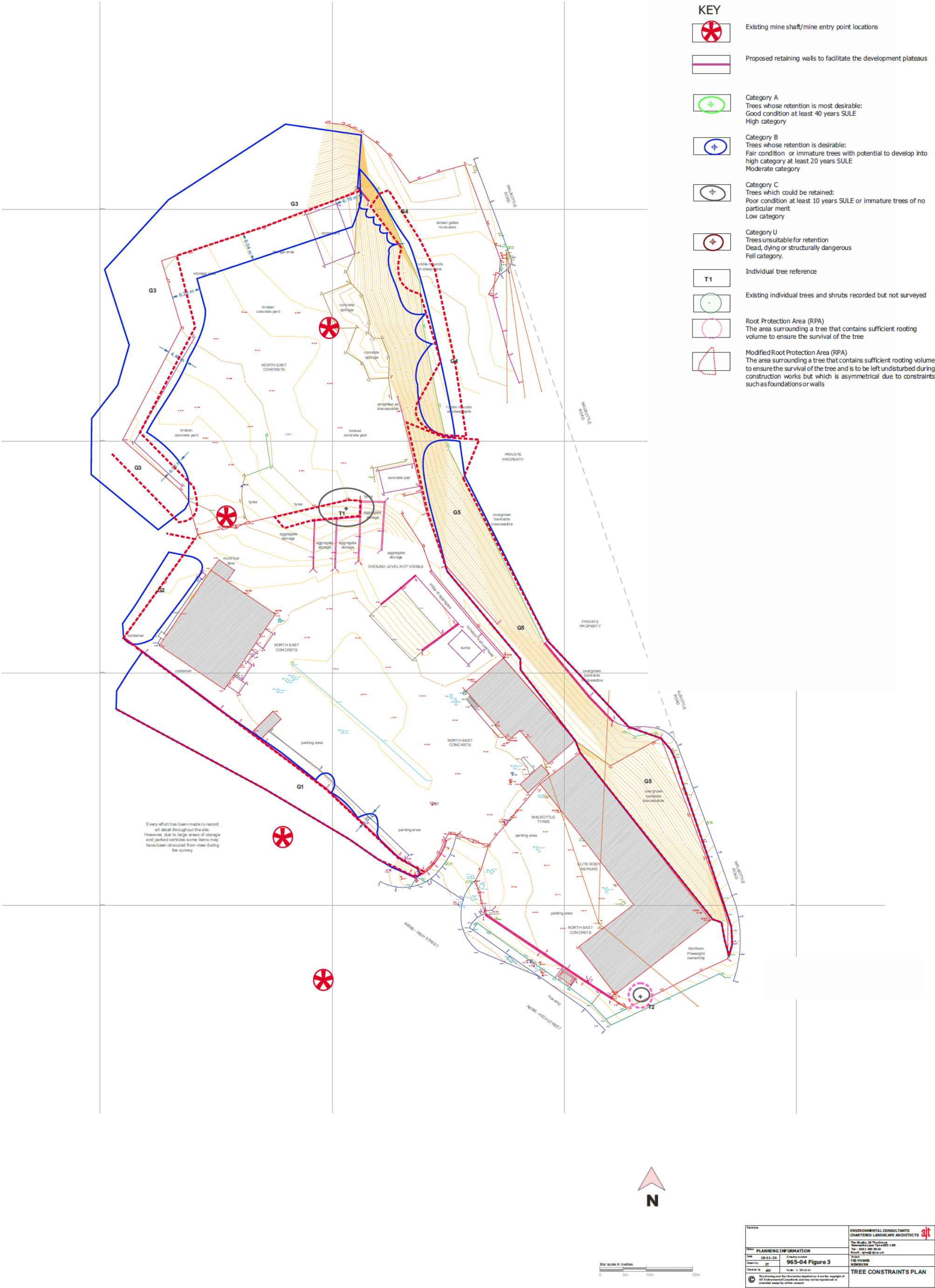


Figure 3: Tree Constraints Plan



3. IMPACT ASSESSMENT OF DEVELOPMENT PROPOSALS

3.1 Development Proposals

The proposal at the application site is to provide a sustainable energy development consisting of battery power storage units, with associated substation, access and cable distribution. This proposal includes the demolition of the eastern offices and commercial units and utilisation of a storage area to the west. The main use on the site of concrete distribution business will remain.

The development proposals are shown on **Figure 4**.

3.2 Selection of Trees for Retention

The tree survey and tree constraints plan provide the basis for deciding which trees might be suitable for retention in relation to the proposed development. Within the limitations imposed by other constraints, preference is given to retaining the high and moderate category trees. Low category trees will usually only be retained where they are not a significant constraint on development.

It is essential when selecting trees, to ensure that it is practical to make provision to protect the trees physically during development, to avoid damage to the trees by construction work. This will involve identifying an area around the tree known as the construction exclusion zone, which should remain undisturbed, and ensuring that it is feasible to maintain barriers and/or ground protection undisturbed around all such areas throughout construction.

3.3 Assessment of Impact upon Existing Trees

- 3.3.1 Planning and subsequent site management during construction aims to minimise disturbance to the existing trees. The part of a tree most susceptible to damage is the root system. Damage or death of the root system will affect the health, growth, life expectancy, and safety of the rest of the tree. Damage to the trunk and branches of a tree rarely kill a tree but very severe disfigurement may occur. In addition, death of branches or their unplanned removal may adversely affect the balance of the tree and hence its safety.
- 3.3.2 The majority of the root system is in the surface 600mm of the soil extending radially. The main structural roots are located close to the base of the trunk. The extent of the

root system will be very irregular and difficult to predict and will not generally show the symmetry as seen in the branch system.

- 3.3.3 The parts of the root system active in water and nutrient uptake are very fine, typically less than 0.5mm diameter. They are short lived, developing in response to the needs of the tree with the majority dying each winter. All parts of the root system, but especially the fine roots are vulnerable to damage. Vigorous young trees will be capable of rapid regeneration but over mature trees will respond slowly, if at all.
- 3.3.4 In order to avoid unacceptable damage to the trees because of severance or asphyxiation of the root system, an assessment of the potential for impact by the proposed development upon the existing trees within the site has been undertaken following guidance given within BS5837: 2012, 'Trees In Relation to Design, Demolition and Construction - Recommendations'. This provides recommendations on the minimum distance around the tree, which should be left undisturbed during construction and protected by the erection of barriers and/or ground protection.
- 3.3.5 The proposed development, in conjunction with the retained trees and their tree protection to protect the Root Protection Area (RPA) during construction and marked as a construction exclusion zone, are shown on **Figure 4**.
- 3.3.6 The assessment finds that part of two tree groups reference G3 and G5, as shown on **Figure 4**, would be adversely affected by the proposed development and require removal.
- 3.3.7 The trees proposed for removal should be agreed with the Local Authority before any works commence and should have work carried out by an approved arboricultural contractor. All felling operations shall be implemented in accordance with both BS 3998: 'Recommendations for Tree Work' and the 'Guide to Good Climbing Practice' 2005 Edition, Arboricultural Association.
- 3.3.8 In addition, 2 groups reference G3 and G4 are in close proximity of development and appropriate pruning works to lift to canopies to 6m where they extend over the site boundary would be required to ensure protection against harm during site clearance and construction. Group reference G4 would not be affected by the proposed development as the works are either outside root plates or the root plates of the trees have been modified by retaining walls which are to be utilised as the limit of construction works.

3.3.9 The trees affected directly (highlighted pink) and indirectly (highlighted blue) by the proposed development are detailed in **Table 3** overleaf.

Table 3:

Tree/Group reference	Tree Category	Condition	Impact Assessment and Mitigation	Visual Amenity Value
Part of G3 150m ² and Part of G5 330m ²	Category B2 Low	Fair	Significant constraint on proposed development. Tree loss to be mitigated by new native and appropriate tree planting within the site and on the boundaries to ensure long-term continuity of tree cover.	As a collective whole, considered overall to be of moderate amenity value, due to their combined effect of size, useful life expectancy and some importance of position in the landscape as viewed from a public vantage point.
G4	Category B2 Moderate	Fair	<p>Trees proposed for retention but in close proximity of proposed development area and to be protected from damage or harm during site clearance and construction works by pruning, appropriate Root Protection Area (RPA) and protected during main construction works in accordance with BS5837: 2012, Trees In Relation To Design, Demolition And Construction – Recommendations.</p> <p>Careful consideration of foundation design may be required to avoid damage to tree roots if found to be present within the location of a proposed structure within the Root Protection Areas. Root damage can be minimised by using a combination of the following:</p> <p>a) Piles or radial strip footings, both of which should be located to avoid major roots;</p> <p>b) Beams, slabs, suspended floors, where all should be laid at or above ground level and cantilevered as necessary to avoid tree roots identified by site investigation.</p> <p>In order to arrive at a suitable solution, site specific and specialist advice would be sought regarding foundation design from the arboriculturist and engineer.</p> <p>On completion of main construction works, where it is necessary to incorporate part of the protected area around the tree within the hard surfacing for footpaths and roads or within adjacent excavations for any re-profiling works, any excavations close to the tree will be undertaken by hand and hard surfaces to be porous paving, leaving the underlying soil intact to prevent damage or disturbance to roots.</p> <p>Arboriculturist to advise on any tree roots exposed by such operations and should be treated in accordance with details in Clause 6, 7 and 8 BS5837: 2012, Trees In Relation To Design, Demolition And Construction - Recommendations and as set out within Section 3.3 of this report.</p>	As a collective whole, considered overall to be of moderate amenity value, due to their combined effect of size, useful life expectancy and some importance of position in the landscape as viewed from a public vantage point.

- 3.3.10 It is considered that the proposed development would not have a detrimental impact upon the trees to be retained or their landscape value, as long as the recommended mitigation works are undertaken to protect the trees from potential damage or harm during demolition and construction and safeguard their future survival. Planning and subsequent site management would aim to minimise disturbance of the existing trees to be retained and it is anticipated that the root protection area (RPA) as shown on **Figure 4**, will protect the root systems to ensure the survival of the trees during the construction phase and for the longer term. The proposed protective barriers would be erected in the locations as required in accordance with BS5837: 2012, 'Trees In Relation to Design, Demolition and Construction - Recommendations'.
- 3.3.11 The long term impact of the proposed development upon the existing retained and proposed new trees has been considered in terms of the effect of shade and likely extent and density of the crown which may lead to pressure to fell in the future. Proposed tree management works, mitigation measures and post-development management works are outlined in this report. It is considered, based on the survey results and professional judgement, that with the implementation of these works and measures, any risk of long term impact in respect of building conflict or obstruction of light would be minimised. The retention of the trees in proximity to the buildings would be maintained, with adequate room for longer term growth and access for maintenance. New tree planting has been located at distances from structures of at least those set out in Table A.1, Annex A of BS5837: 2012, 'Trees In Relation to Design, Demolition and Construction - Recommendations' and consideration given to their ultimate height and spread, form, habit colour, density of foliage and maintenance implications.

3.4 Mitigation of Impact upon Existing Trees

- 3.4.1 Parts of two tree groups, containing ash in poor condition or requiring felling, are potentially affected by the proposed development and require removal. It is considered that with appropriate mitigation measures in place and with proposed planting within the proposed development, it would not affect the long-term continuity of tree cover.
- 3.4.2 Newcastle City Council's Planning Obligations Supplementary Planning Document (POSPD) adopted in September 2021 provides a calculation in order to assess the tree canopy contribution to the City's tree stock. All grades of trees are assessed using the girth dimensions to provide the numbers of replacement trees required for any that are

removed for the development. The tree numbers for replacement of the two parts of the tree groups lost under the POSPD are shown in **Table 4** below.

Table 4:

Tree ref	Tree diameter cm	No of replacement trees to be planted on site or offset by the £X contribution to NCC
G3 43 no trees	35	4 no for trees ranging from 30 to 39.9cm diameter totals 173no trees
T2 10 no trees	16	2 no for trees ranging from 15 to 19.9cm diameter totals 20no trees
		Total trees 193

With scope to plant 193 number trees on the development site and boundaries, there is no requirement to contribute to Newcastle City Council for offsite planting. Details to be shown on the Landscape Strategy.

3.4.3 Whilst it is considered that the development would not have an adverse impact upon the root plates or canopies of the trees shown to be retained and in proximity of development these will require where necessary the following measures to be undertaken:

- Protection against potential damage on site by barrier fencing and/or ground protection before any materials or machinery are brought onto the site, and before any development or stripping of soil commences in accordance with the recommendations for the type of barrier given in BS5837: 2012, 'Trees in Relation to Design, Demolition and Construction - Recommendations' and as shown on **Figure 5**. Appropriate root protection areas (RPA) will be provided where necessary to avoid physical damage to roots during construction activities and from construction traffic.
- Areas of retained structural planting, or designated for new structural planting, should be similarly protected, based on extent of the soft landscaping shown on the approved drawings.
- The protected area should be regarded as sacrosanct, and once installed, barriers and ground protection should not be removed or altered without prior recommendation by the project arboriculturist and, where necessary, approval from the local planning authority.
- Where required, pre-development tree work may be undertaken before the installation of tree protection measures, with the agreement of the project arboriculturist or local planning authority if appropriate.

- Where demolition is proposed on site where trees are to be retained, access facilitation pruning should be undertaken as necessary to prevent injurious contact between demolition plant and the tree(s). In some cases, working space may be provided by temporarily tying back tree branches. Pruning or tying should be undertaken in accordance with a specification prepared by an arboriculturist. The local authority will be able to advise whether the trees are under statutory protection such that consent for tree works might be required.
- When demolishing a structure (including underground structures) within what would otherwise be the RPA, barriers should be erected, and ground protection installed to protect the underlying soil to the edge of the existing structure.
- All plant and vehicles engaged in demolition works should either operate outside the RPA or run on the ground protection. Where such ground protection is required, it should be installed prior to commencement of operations.
- Where trees stand adjacent to structures to be removed, the demolition should be undertaken inwards within the footprint of the existing building (often referred to as "top down, pull back"). Where there is a significant build-up of dust on the foliage, it might be necessary to hose down the tree(s).
- Confirmation is required by the project arboriculturist that the barriers and ground protection have been correctly set out on site prior to the commencement of any other operations.
- The advice of an arboriculturist should be sought where underground structures present within the RPA are, or will become, redundant. In general it is preferable to leave such structures in situ, as their removal could damage adjacent tree roots.
- Where an existing hard surface is scheduled for removal, care should be taken not to disturb tree roots that might be present beneath it. Hand-held tools or appropriate machinery should be used (under arboricultural supervision) to remove the existing surface, working backwards over the area, so that the machine is not moving over the exposed ground. If a new hard surface is to be laid, it might be preferable to leave any existing sub-base in situ, augmenting it where required.
- Where construction working space or temporary construction access is justified within the RPA and approved by the project arboriculturist, this

should be facilitated by a set-back in the alignment of the tree protection barrier. In such areas, suitable hard surfacing that is not proposed for re-use as part of the finished design should be retained to act as a temporary ground protection during construction, rather than being removed during demolition. The suitability of such surfacing for this purpose should be evaluated by the project arboriculturist and an engineer as appropriate. Where the set-back of the tree protection barrier would expose unmade ground to construction damage, new temporary ground protection should be installed as part of the implementation of physical tree protection measures prior to work starting on site. New temporary ground protection should be capable of supporting traffic entering or using the site without being distorted or causing compaction of underlying soil. All works to be undertaken under the direction of the project arboriculturist and an engineer as appropriate in accordance with Clause 6.2.3 of BS5837: 2012, 'Trees in Relation to Design, Demolition and Construction - Recommendations', in order to protect the tree from potential damage or harm during construction and safe guard future survival.

- Planning of site operations should take sufficient account of wide loads, tall loads and plant with booms, jibs and counterweights (including drilling rigs), in order that they can operate without coming into contact with retained trees. Such contact can result in serious damage to the trees and might make their safe retention impossible. Consequently, any transit or traverse of plant in proximity to trees should be conducted under the supervision of a banksman, to ensure that adequate clearance from trees is maintained at all times. Access facilitation pruning should be undertaken where necessary to maintain this clearance and in some instances, local planning authority consent for pruning might be required.
- Fires on sites are not permitted. Local environmental health authorities may also have specific restrictions.
- Any materials whose accidental spillage would cause damage to a tree should be stored and handled well away from the outer edge of its RPA.
- Construction within the RPA should accord to the principle that the tree and soil structure take priority, and the most reliable way to ensure this is to preserve the RPA completely undisturbed. Soil structure should be preserved at a suitable bulk density for root growth and function (of particular importance for soils of a high fines content), existing rootable soil retained and roots themselves protected.

- The ability of a tree to tolerate some disturbance and alteration of its growing conditions depends on specific circumstances, including prevailing site conditions, and in general, the older the tree, the less successfully it will adapt to new conditions.
- Where alternative design solutions are not available such that construction is proposed within the RPA, the potential impact of the proposals on the tree should be assessed, and a tree protection plan and arboricultural method statement produced. Details of design proposals should be developed in conjunction with the project arboriculturist and, where required, input from a suitably qualified engineer. In order to demonstrate that the proposals are technically feasible such details should be included within planning applications. The exception to this is the installation of underground utility apparatus or drainage, where it can be demonstrated that this is achievable by the use of trenchless technology and where entry and retrieval pits can be formed outside the RPA. Where utility operations do not require planning permission, including those performed by statutory undertakers, they should still be undertaken in accordance with these principles. As a minimum standard, such operations should be undertaken in accordance with NJUG Volume 4, issue 2 [N1].
- Careful consideration of foundation design may be required to avoid damage to tree roots if found to be present within the location of a proposed structure within the Root Protection Areas. Root damage can be minimised by using a combination of the following:
 - Piles or radial strip footings, both of which should be located to avoid major roots;
 - Beams, slabs, suspended floors, where all should be laid at or above ground level and cantilevered as necessary to avoid tree roots identified by site investigation.

In order to arrive at a suitable solution, site specific and specialist advice would be sought regarding foundation design from the arboriculturist and engineer.

- To avoid damage to tree roots, existing ground levels should be retained within the RPA. Intrusion into soil (other than for piling) within the RPA is generally not acceptable, and topsoil within it should be retained in situ. However, limited manual excavation within the RPA might be acceptable,

subject to justification and only following consultation with an arboriculturist. Such excavation should be undertaken carefully, using hand-held tools and preferably by compressed air soil displacement.

- Roots, whilst exposed, should immediately be wrapped or covered to prevent desiccation and to protect them from rapid temperature changes. Any wrapping should be removed prior to backfilling, which should take place as soon as possible. Roots smaller than 25 mm diameter may be pruned back, making a clean cut with a suitable sharp tool (e.g. bypass secateurs or handsaw), except where they occur in clumps. Roots occurring in clumps or of 25 mm diameter and over should be severed only following consultation with an arboriculturist, as such roots might be essential to the tree's health and stability. Prior to backfilling, retained roots should be surrounded with topsoil or uncompacted sharp sand (builders' sand should not be used because of its high salt content, which is toxic to tree roots), or other loose inert granular fill, before soil or other suitable material is replaced. This material should be free of contaminants and other foreign objects potentially injurious to tree roots.
- If excavations have to be close to a tree where roots are likely to be encountered, particular care should be taken to avoid damage. Any excavations should be undertaken by hand, avoiding damage to the protective bark covering larger roots. The roots should be surrounded with sharp sand before replacing soil or other material in the vicinity. Roots smaller than 25mm diameter may be pruned back, preferably to a side branch using a proprietary cutting tool. Roots larger than 25mm should only be severed following consultation with an arboriculturist, as they may be essential to the health and stability of the tree.
- Where it is necessary to include hard surfacing close to a tree, consideration should be given to constructing the final surface before the main building works, to provide protection for the roots. No trenching or construction works within the RPA to avoid causing any undue stress to the trees.
- Where it is necessary to incorporate part of the protected area of a tree within proposed hard surfaces, precautions are essential to maintain the condition and health of the root system. New permanent hard surfacing should not exceed 20% of any existing unsurfaced ground within the RPA. It is proposed that new paving will be established above the former ground level, using granular fill leaving the underlying soil intact with a permeable and gas-

porous finished surface. Where a permeable surface is to be used by vehicular traffic, a geotextile should be used at the base of construction to help prevent pollution contamination of the rooting area below. Any excavations close to the trees will be undertaken by hand and specialist arboricultural advice will be sought for any work within this protected area.

- The excavation needed for the placement of kerbs, edgings and their associated foundations and haunchings can damage tree roots. Within the RPA, this should be avoided either by the use of alternative methods of edge support or by not using supports at all.
- Mechanical trenching for the installation of underground apparatus and drainage severs any roots present and can change the local soil hydrology in a way that adversely affects the health of the tree. Particular care should be taken in the routeing and methods of installation of all underground apparatus. Wherever possible, apparatus should be routed outside RPAs. Where this is not possible, it is preferable to keep apparatus together in common ducts. Inspection chambers should be sited outside the RPA. Where underground apparatus is to pass within the RPA, detailed plans showing the proposed routeing should be drawn up in conjunction with the project arboriculturist. In such cases, trenchless insertion methods should be used (see Table 3, BS5837: 2012, 'Trees in Relation to Design, Demolition and Construction - Recommendations'), with entry and retrieval pits being sited outside the RPA. Provided that roots can be retained and protected, excavation using hand-held tools might be acceptable for shallow service runs.
- The extent of the root system to trees is very irregular and therefore difficult to predict and further investigation may be required to establish the extent of the rootplate. Where construction is found to conflict with the actual root system on site, and severance or damage to roots may impair the stability of the tree and make it dangerous, advice will be sought from the project arboriculturist and an engineer as appropriate. Specialist construction or design modification may be required to mitigate any adverse impact.
- Those contractors involved in construction will be informed of the presence of existing trees with a method statement outlining appropriate working practices and procedures to ensure their protection from damage during the works.

- All works will follow an auditable/audited system of arboricultural site monitoring, including a schedule of specific site events requiring input or supervision by the project arboriculturist and an engineer as appropriate. Refer to **Appendix 4** for Arboricultural Inspection Proforma. The site inspection and recommendations by the arboriculturist will be recorded on the inspection proforma and issued by the arboriculturist to the site management.
- 3.4.3 Any branches, which extend beyond the minimum distance for tree protection where they are liable to impact, will be shortened back to a fork in accordance with the recommendations of BS 3998. This will avoid damage and will be undertaken under the supervision of a specialist in arboriculture.
- 3.4.4 The remaining trees within the site are not affected by the proposed development. Whilst it is considered that the development would not have a detrimental impact upon the root plates or canopy, the trees will require protection against potential damage on site by fencing in accordance with the recommendations for types of fencing given in Clause 8 of BS5837: 2012, 'Trees in Relation to Design, Demolition and Construction - Recommendations', and as shown on **Figure 5**. Appropriate root protection areas (RPA) will be provided where necessary, to avoid physical damage to roots during construction activities and from construction traffic.
- 3.4.5 It is considered that with appropriate mitigation, the proposed development would not affect the long-term conservation of tree cover of the site or the surrounding area.

3.5 Assessment of Impact upon Amenity Value of Trees

- 3.5.1 Two groups of trees are potentially affected on site by the proposed development and require removal. This is limited to parts of two number tree groups of Category Grade B2 of moderate amenity value. Those retained as a collective whole are of moderate amenity value due to their combined effect of size and some importance of position in the landscape and as development screening, as viewed from a public vantage point. It is considered that with appropriate mitigation measures in place to provide replacement planting for the trees removed and to protect the existing retained trees from harm or damage during construction and in the longer term, the proposed development would not adversely affect the visual amenity value of the trees or their contribution to the area.

- 3.5.2 The existing trees to be retained will be protected on site by defining an appropriate area around them, known as the Root Protection Area (RPA), excluding all construction operations from this protected area by fencing in accordance with BS5837: 2012, 'Trees in Relation to Design, Demolition and Construction - Recommendations'. This will ensure that the amenity value of the trees is adequately protected during construction.
- 3.5.3 Appropriate mitigation measures are proposed to protect the existing trees to be retained from harm or damage during construction. In the longer term the planting of new trees will have a beneficial impact on the tree cover of this site and as viewed from public vantage points. The proposed development includes tree, hedge and shrub planting that will in the longer term increase the tree quality and cover in this part of Gosforth.

3.6 New Planting

- 3.6.1 The existing trees to be lost and retained within the proposed development are shown on **Figure 4**. It is proposed to supplement and complement the retained trees by planting nine trees as part of a landscape strategy.
- 3.6.2 The new planting proposals will provide new trees and boundary planting, which will help to create a diversity of age and conserve the health of the tree cover. The new planting will fill the spaces where there are no or suitable existing trees within the context of the landscape setting of the site and enhance the amenity value of the retained trees. The planting proposals and new tree planting will form part of the proposed landscape design for the proposed development.
- 3.6.3 The proposals will contribute to and preserve the appearance of the area particularly by ensuring sensitive and appropriate standards of design and development to its landscape setting by implementing environmental improvements to screen the proposed development where appropriate. New planting will also seek to provide spatial division within the site and segregate and screen areas of car parking.
- 3.6.4 With the use of appropriate native species, the planting proposals will benefit wildlife conservation, contribute to local biodiversity, and meet the requirements of the Newcastle and North Tyneside BAP. In accordance with the guidance contained in the national Biodiversity Action Plan (BAP), Natural England and Newcastle and North Tyneside Biodiversity BAP, the detailed design proposals will ensure that the value of created habitats are maximised through new planting and management of the landscape.

3.6.5 It is generally accepted that some crime can be prevented or deterred by good design practice. The proposed development scheme will be laid out to encourage the creation of territory, with careful thought over the number of accesses. Open spaces will be designed to ensure they can be surveyed and easily maintained. All areas would be well lit with sharp bends and restricted views avoided. Similarly, the proposed species for landscaping will be carefully selected for their rates of growth and maintenance requirements to prevent encroachment onto footways or obscuring lighting or windows.

Figure 4: Arboricultural Impact Assessment

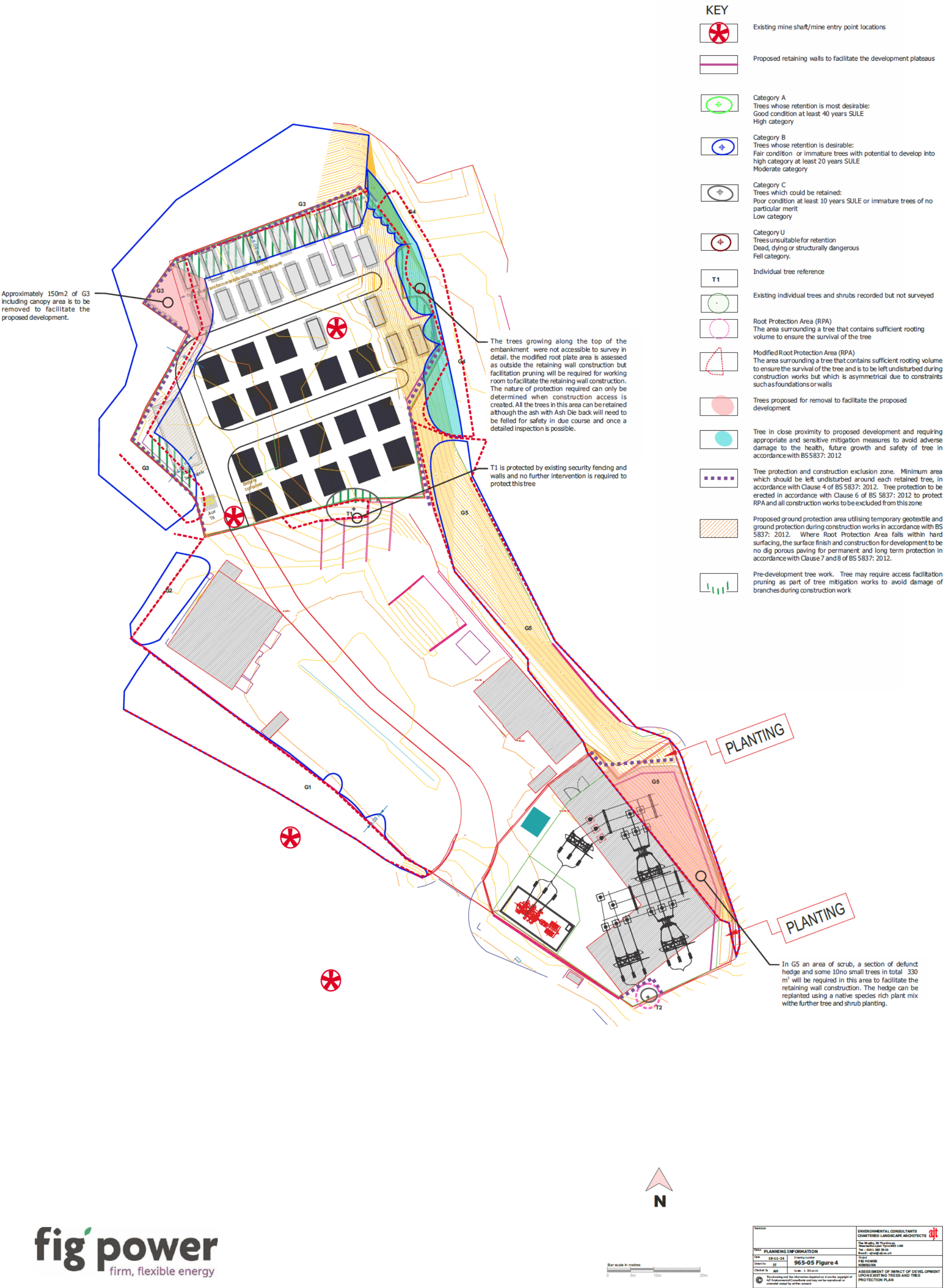
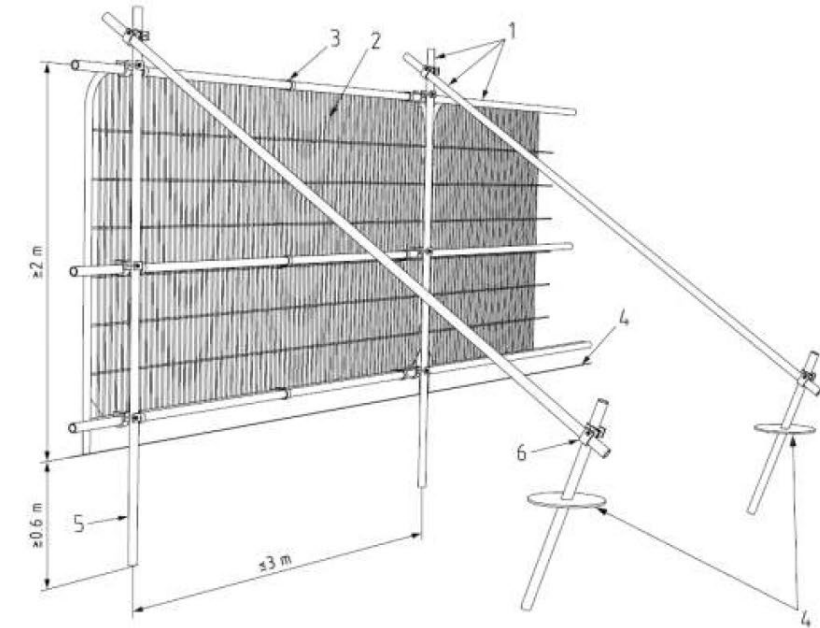


Figure 5: Barriers and Ground Protection

Default specification for protective barrier

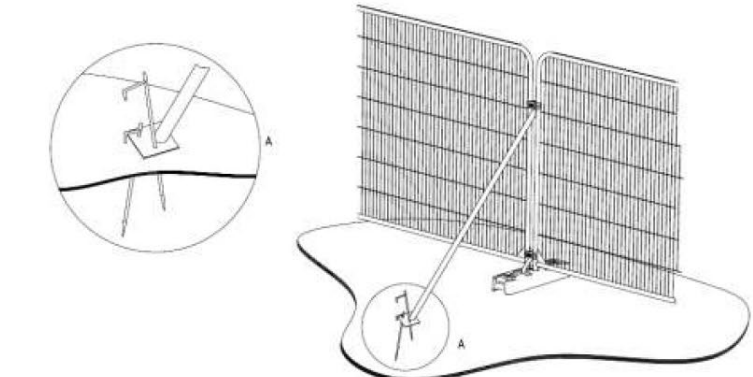


- Key
- 1 Standard scaffold poles
 - 2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
 - 3 Panels secured to uprights and cross-members with wire ties
 - 4 Ground level
 - 5 Uprights driven into the ground until secure (minimum depth 0.6 m)
 - 6 Standard scaffold clamps

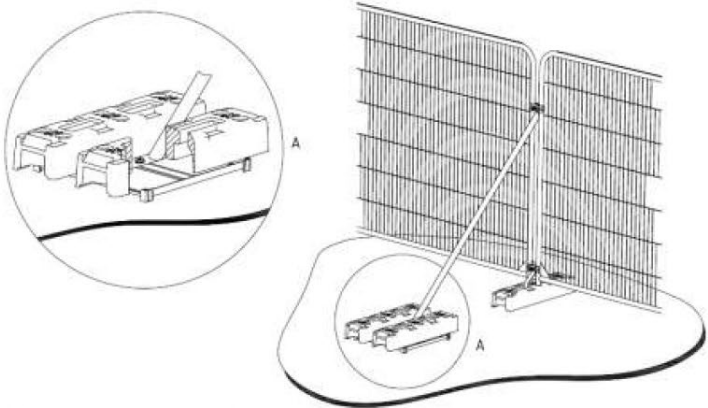
NOTE: All-weather notices should be attached to the barrier with words such as: "CONSTRUCTION EXCLUSION ZONE - NO ACCESS".

Details reproduced with the permission of the British Standards Institute



Alternative protective fencing for trees on development sites



a) Stabilizer strut with base plate secured with ground pins



b) Stabilizer strut mounted on block tray

Revisions		ENVIRONMENTAL CONSULTANTS CHARTERED LANDSCAPE ARCHITECTS		
		The Studio, 20 The Grove Newcastle upon Tyne NE3 1NE Tel : 0191 285 5910 Fax : 0191 213 3517 Email : ajtec@ajt.co.uk		
Status PLANNING INFORMATION				
Date	17-11-24	Drawing number	965-06	
Drawn by	BS			
Checked by	WJT	Scale: NTS	Client & Project Fig Power, Newburn	
 This drawing and the information depicted on it are the copyright of AJT Environmental Consultants and may not be reproduced or amended except by written consent.			Title TREE PROTECTION	

4. MANAGEMENT RECOMMENDATIONS

4.1 Felling and Management

- 4.1.1 The trees proposed for removal and management should be agreed with the Local Authority prior to any works commencing. The agreed trees to be felled or pruned should have work carried out by an approved arboricultural contractor and all felling operations shall be implemented in accordance with both BS 3998: 'Recommendations for Tree Work' and the 'Guide to Good Climbing Practice' 2005 Edition, Arboricultural Association. The pruning and other works to the trees or hedgerows should be undertaken in the dormant season.
- 4.1.2 In total, the survey has identified parts of two tree groups that require removal in order to facilitate the proposed development. There are TPO ash trees and other ash trees that may require removal as part of the proposed tree management for the site irrespective of any development. The removal of disease sources and competition would have a beneficial effect upon the remaining health of the trees and those on adjacent land.
- 4.1.3 The felling and replacement of parts of two tree groups of surveyed trees of Category B2 within the site is required to accommodate the proposed development but would not affect the long-term conservation of tree cover. The trees to be retained range in good, fair to predominantly poor condition and require where indicated tree management works to maintain and conserve the health of the tree cover.
- 4.1.4 It is proposed to plant 192 number new trees to replace those lost due to condition or to facilitate the proposed development and to augment the tree stock. With eleven number trees to be planted on site, the scheme will not require offsite tree planting or a contribution towards this.
- 4.1.5 A number of the trees have a high target potential, for example adjoining a public highway, public footpath and residential area and carry significant risk to life or property should a tree fail. The trees should be checked on a regular basis as part of the management of those trees.

4.2 Trees and Bats

- 4.2.1 No actual bat roosts or evidence of bats were observed in the surveyed trees, and all trees on site are considered to have negligible roost potential lacking suitable bat roosting

features. A remnant standing bole of a former lime tree present on the site was noted to have features with limited roosting potential and assessed as low roost potential.

4.2.2 All bat species and their roosts are specially protected under Schedule 5 of the Wildlife and Countryside Act of 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended). As a result it is illegal to:

- Deliberately take, injure or kill a wild bat.
- Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats.
- Damage or destroy a place used by bats for breeding or resting (roosts) (even if bats are not occupying the roost at the time)
- Possess or advertise/sell/exchange a bat of a species found in the wild in the EU (dead or alive) or any part of a bat.
- Intentionally or recklessly obstruct access to a bat roost.

4.3 Trees and Birds

4.3.1 Implementation of best practice measures during the felling and management of trees and other vegetation should be adopted to minimise disturbance for breeding birds, e.g. avoid felling, pruning works, clearance or disturbance of the existing land and vegetation, during the breeding bird season March to September inclusive.

4.3.2 Under the Wildlife and Countryside Act 1981 (as amended), it is illegal to damage or destroy active bird nesting sites and arboricultural works should be undertaken outside of the breeding bird season.

4.4 Management Strategy

4.4.1 The aim of the management strategy is to maintain the continuity of tree cover and conserve the landscape effect of the trees. The management recommendations are shown in **Appendix 1** as part of the tree survey details.

4.4.2 Within the proposed development, there is scope to provide eleven number new trees. The Tree Strategy Newcastle sets out to achieve more than a one to one replacement for trees lost and the proposals will increase the tree stock, which comprises appropriate mitigation for the trees lost due to condition or to facilitate the development (two number Category C). The new trees will be a variety of suitable species including forest scale trees, of different growth habits, placed in locations where they can reach maturity and

potentially develop in harmony with the proposed development, its landscape setting and surrounding area. New trees, hedgerows and shrubs are proposed to be planted in conjunction with the retained tree cover shown **Figure 4**.

4.4.3 The long-term management proposals for the trees are to be set out within a Woodland Management Plan and are devised to maintain the continuity of tree and shrub cover and conserve the effect of the trees within their landscape setting and surrounding area.

4.4.4 The long-term management objectives to be set out with a Management Plan for the woodland is to be devised to maintain the continuity of the woodland areas, tree cover, conserve the historic effect of the trees and their contribution to the landscape setting and surrounding area and maintain or enhance the biodiversity provided by the tree cover. The Woodland Management Plan proposals to be conditioned as part of any planning consent which are an integral part of the development proposals for the site will follow these objectives:

- Ensure that the existing trees worthy of retention are protected from being harmed or disturbed during intervention or development works.
- Removal of trees/seedling regeneration/vegetation which challenge/interfere with the health of the better quality species and veteran trees.
- Ensure that the continuity of broadleaved tree cover within the site is maintained in the medium to long term.
- Safeguard the contribution made by the trees for amenity purposes in relation to the landscape, setting of the site, and surrounding area.
- Maintain the historic mix of species to provide a link to the original planting design for plantation woodland and other features. Introduce and encourage native woodland ground flora
- Protect and enhance the nature conservation value of the tree cover, understorey and ground flora
- Develop the garden areas for the development close to the buildings and limit access to the woodland area to create areas of refuge and minimal disturbance

4.4.5 The detailed Planting and Woodland Management Plan will incorporate new areas of tree and understorey planting across the site and along the boundaries using a selection of native species locally occurring as part of the measures to protect and enhance the long term tree and woodland cover of the site and within its wider setting. The new planting

will reinforce the existing tree cover to be retained and be of greater visual quality and contribute more positively to the landscape character of the area in the longer term.

- 4.4.6 Regular inspections should be undertaken so that changes in the trees can be monitored and management prescriptions devised and implemented to ensure maintenance of a healthy tree cover and for public safety.
- 4.4.7 The trees proposed for retention will maintain tree cover and ensure that the amenity value of the trees is protected. The development proposals include for further tree planting to supplement and complement the existing retained trees. The new planting proposals will help to provide a diversity of age and fill the spaces where there are no or suitable existing trees to contribute to screening and maintain the visual amenity of the site, its landscape setting, key visual receptors and the surrounding area.
- 4.4.8 It is considered that with appropriate mitigation measures in place, the proposed development would not adversely affect the long term tree cover both within the site and wider area of Newcastle or amenity value of the trees.

APPENDIX 1

TREE SURVEY SCHEDULE

TREE SURVEY DATA RECORDS		Site Location: 965 Newburn Battery Energy Storage System Weather and site conditions: 8°C Thundery showers sunny intervals. Light wind. Timing 25 th April 2024. Legal Protection: The trees in G2 TPO 1 to 11 are subject to a Tree Preservation Order Newcastle upon Tyne TPO 1988/013 unless they are eligible for exemption												
Condition and survey notes Roots, Base, Canopy clearance, Physiological condition, structural condition, Species and reference Key NPBH = No Potential Bat roost Habitat Observed. PBH = Potential Bat roost Habitat observed. Mod = modified root plate morphology		H ↑ ↓	Girth /dia cm ↔	Crown spread metres				Age	Ultimate Height m	Ultimate Spread m	SULE*	BS grade	RPA Radius m	Proposed works and long term management
				N	S	E	W							
T1 Willow – <i>Salix sp</i> Multi stem 10 boles. Canopy clearance 1.8m. Growing adjacent to palisade fencing to the north and 3m high concrete walls of material bays to south and east NPBH with concrete surfaces. Modified root plate. Crown with dead wood and in poor condition due to restricted growing conditions		10	10 X 18	4.5	4.0	6.0	6.0	30	10	15	S	C1	Mod	Fell and replace this tree to facilitate the proposed development.
T2 Sycamore – <i>Acer pseudoplatanus</i> Single bole. Canopy clearance 2.5m. Base growing on palisade fence with footway to the south. Young tree self-seeded in poor condition. Roots deflecting footway paving to the south. NPBH.		10	9	1.5	1.5	1.5	1.5	12	25	20	S	C1	1.5	Fell and replace this tree to facilitate the proposed development.
G1 a mixed broadleaf plantation comprising: Whitebeam - <i>Sorbus aria</i> , Wych Elm – <i>Ulmus glabra</i> , Cherry – <i>Prunus avium</i> , Silver Birch – <i>Betula pendula</i> , Beech - <i>Fagus sylvatica</i> , Oak – <i>Quercus robur</i> , Sycamore – <i>Acer pseudoplatanus</i> Canopy clearance 4.0m. These trees overall are in fair condition growing on a steep embankment with a retaining wall to the north west and raised concrete plinth acting as a root barrier. Some tree canopies extend over the works to the north east a number of trees are light drawn and suppressed. NPBR		10	25								L	B2	Mod	Thin the plantation as part of the site landscape management. This plantation is not affected by the proposed development.
G2 TPO T1 to T11 10 number ash trees and 1 number hawthorn. a mixed deciduous woodland group comprising the following trees: Ash - <i>Fraxinus excelsior</i> the dominant species with self-seeded Sycamore – <i>Acer pseudoplatanus</i> . The hawthorn was not visible. This group of trees grows to the east of a massive retaining wall and to the east the root plates are restricted by insitu concrete paving. The ash is suffering from Ash Die Back <i>Hymenoscyphus Fraxineus</i> ADB an air borne fungal pathogen. The tree canopies extend over the works to the north east a number of trees are light drawn and suppressed. NPBR		20	60								L	B2	Mod	Fell the diseased ash trees over the next five years but retain the landscape effect of the group by replanting suitable trees such as Oak and Cherry to maintain its scale and character. These TPO trees are not affected by the proposed development.
G3 a mixed broadleaf plantation comprising: Whitebeam - <i>Sorbus aria</i> , Wych Elm – <i>Ulmus glabra</i> , Silver Birch – <i>Betula pendula</i> , Sycamore – <i>Acer pseudoplatanus</i> , Willow – <i>Salix sp</i> , Ash - <i>Fraxinus excelsior</i> , Swedish Whitebeam - <i>Sorbus intermedia</i> , Canopy clearance 4.0m. These trees overall are in fair condition growing on a steep embankment with a retaining wall to the north west and raised concrete paving to the south acting as a root barrier. The ash is suffering from ADB an air borne fungal pathogen. Some tree canopies extend over the works to the east and south, a number of trees are light drawn and suppressed. NPBR		15	35								L	B2	Mod	Fell the diseased ash trees over the next five years but retain the landscape effect of the group by replanting suitable trees such as Oak and Cherry to maintain its scale and character. The tree canopies will need lifting to 6m to the east and south of the group to accommodate the proposed development. The development is outside the RPA of the trees and so will not have an adverse impact on this group.

G4 a mixed broadleaf plantation comprising: Sycamore – <i>Acer pseudoplatanus</i> , Ash - <i>Fraxinus excelsior</i> , This group is growing on the upper part of the slope to the north of a brick retaining wall separating it from G5 and the development site. The survey was restricted to viewing from below as access was not possible to the upper plateau and the slope was too steep to access. Debris from works on the depot plateau parking area to the north has spilled down the slope and covers areas of the trees root plates in loose material to a depth in part of more than 500mm. The ash is suffering from ADB an air borne fungal pathogen. NPBR	15	40								M	C2	Mod	This group lies outside the area of the proposed development which cuts into the slope. The trees grow along the edge of the plateau and at the top of the embankment. The surcharging of the root-plates of the trees by the works to the depot site accessed off Walbottle Road, should be examined and restoration work carried out as indicated. This would need a detailed assessment of the effect of the depot works when access is possible. The development works proposed a retaining structure outside the RPA's of these tree so no adverse impact will occur.
G5 a mixed young broadleaf plantation comprising: Sycamore – <i>Acer pseudoplatanus</i> , Ash - <i>Fraxinus excelsior</i> with Rowan – <i>Sorbus aucuparia</i> understorey. This group is growing on the slope to the south of a brick retaining wall separating it from G4. Retaining walls and roads have formed root barriers to the north, south, east and west. The survey was restricted to viewing from below and from Walbottle Road footway as access was not possible due to security fencing and the slope was too steep to access. The ash is suffering from ADB an air borne fungal pathogen. NPBR	15	35								L	B2		Fell the diseased ash trees over the next five years but retain the landscape effect of the group by replanting suitable trees such as Oak and Cherry to maintain its scale and character. The development is outside the Canopy and RPA of the trees and so will not have an impact on this group.

***Safe Useful Life Expectancy refer to Appendix 2 for Arboricultural method of assessing the trees remaining safe life span**

APPENDIX 2

SAFE USEFUL LIFE EXPECTANCY (SULE)

SAFE USEFUL LIFE EXPECTANCY (SULE)

An Arboricultural method of assessing the trees remaining safe life span.

1. **Long** SULE – 40+ years
 - a) Structurally sound trees that are located in suitable positions that can easily accommodate future growth.
 - b) Damaged trees with minor defects that could be made suitable for their retention through remedial tree work.
 - c) Trees with a special value either for historical, commemorative or rarity reasons, thus warranting particular effort to ensure their retention.
2. **Medium** SULE – 15-40 years
 - a) Trees whose life span is estimated at around 15-40 years
 - b) Trees whose estimated life span may exceed 40 years but may be removed to allow for safe development of better specimens.
 - c) Trees whose estimated life span may exceed 40 years but may be removed for normal management or for safety reasons.
 - d) Damaged trees with defects that could be made suitable for retention in the Medium term via remedial tree works.
3. **Short** SULE – 5-15 years
 - a) Trees whose life span is estimated at around 5-15 years.
 - b) Trees whose estimated life span may exceed 15 years but may be removed to allow the safe development of better specimens.
 - c) Trees whose estimated life span may exceed 15 years but may be removed for normal management or for safety reasons.
 - d) Damaged trees with defects that could be made suitable for retention in the Short term via remedial tree works.
4. **Remove** – Within a maximum of 2-3 years.
 - a) Dead trees.
 - b) Dying trees.
 - c) Dangerous or unstable trees.
 - d) Dangerous trees due to structural defects e.g. cavities, serious fungal decay present.
 - e) Unsafe to retain.
 - f) Trees that may become dangerous after the removal of other trees.
5. **Young** or Small trees.
 - a) Trees with a height of less than 5 metres.
 - b) Trees with a greater height than 5 metres but an estimated age of less than 15 years.

APPENDIX 3

METHOD STATEMENT FOR CONTRACTOR

ARBORICULTURAL METHOD STATEMENT FOR CONTRACTOR

This statement should be copied to the site owner, designers and to those contractors whose work may affect trees including those involved in site access, excavation and construction works.

Those contractors involved in site development and construction will be informed of the presence of existing trees, with a method statement outlining appropriate working practices and procedures to ensure their protection from damage during the works.

All works will comply with BS5837: 2012, 'Trees in Relation to Design, Demolition and Construction - Recommendations'.

A precautionary approach towards tree protection should be adopted and any operations, including access, proposed within the RPA (or crown spread where this is greater) should be undertaken under the supervision of the project arboriculturist in order to ensure minimal risk of adverse impact on trees retained.

Legislation

Trees

Eleven of the ash trees within the tree group reference G2 are subject to a Tree Preservation Order (TPO), reference TPO 1988/013, which has the effect of preventing the cutting down, topping, lopping, uprooting, wilful damage or wilful destruction of trees except in certain circumstances other than with consent of the local planning authority.

Trees and Bats

All bat species and their roosts are specially protected under Schedule 5 of the Wildlife and Countryside Act of 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended). As a result it is illegal to:

- Deliberately take, injure or kill a wild bat.
- Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats.
- Damage or destroy a place used by bats for breeding or resting (roosts) (even if bats are not occupying the roost at the time)

- Possess or advertise/sell/exchange a bat of a species found in the wild in the EU (dead or alive) or any part of a bat.
- Intentionally or recklessly obstruct access to a bat roost.

Trees and Birds

Implementation of best practice measures during the felling and management of trees should be adopted to minimise disturbance for breeding birds, e.g. avoid felling, pruning works, clearance or disturbance of the existing land and vegetation, during the breeding bird season.

Under the Wildlife and Countryside Act 1981 (as amended), it is illegal to damage or destroy active bird nesting sites and arboricultural works should be undertaken outside of the breeding bird season.

Working Approach

Trees

Appropriate working methods must be utilised to ensure protection during construction works and the risk of trees being harmed by the works is minimised. These working methods will also minimise the risk of causing reckless damage or disturbance to trees.

Appropriate working methods for the site are as follows:

- Protection against potential damage on site by the existing security steel palisade boundary fencing, by barrier fencing and/or ground protection before any materials or machinery are brought onto the site, and before any development or stripping of soil commences in accordance with the recommendations for the type of barrier given in BS5837: 2012, 'Trees in Relation to Design, Demolition and Construction - Recommendations' and as shown on drawing reference **Figure 5**. Appropriate root protection areas (RPA) will be provided where necessary to avoid physical damage to roots during construction activities and from construction traffic.
- Areas of retained structural planting, or designated for new structural planting, should be similarly protected, based on extent of the soft landscaping shown on the approved drawings.
- The protected area should be regarded as sacrosanct, and once installed, barriers and ground protection should not be removed or altered without prior recommendation by the project arboriculturist and, where necessary, approval from the local planning authority.

- Where required, pre-development tree work may be undertaken before the installation of tree protection measures, with the agreement of the project arboriculturist or local planning authority if appropriate.
- Where demolition is proposed on site where trees are to be retained, access facilitation pruning should be undertaken as necessary to prevent injurious contact between demolition plant and the tree(s). In some cases, working space may be provided by temporarily tying back tree branches. Pruning or tying should be undertaken in accordance with a specification prepared by an arboriculturist. The local authority will be able to advise whether the trees are under statutory protection such that consent for tree works might be required.
- When demolishing a structure (including underground structures) within what would otherwise be the RPA, barriers should be erected, and ground protection installed to protect the underlying soil to the edge of the existing structure.
- All plant and vehicles engaged in demolition works should either operate outside the RPA or run on the ground protection. Where such ground protection is required, it should be installed prior to commencement of operations.
- Where trees stand adjacent to structures to be removed, the demolition should be undertaken inwards within the footprint of the existing building (often referred to as "top down, pull back"). Where there is a significant build-up of dust on the foliage, it might be necessary to hose down the tree(s).
- Confirmation is required by the project arboriculturist that the barriers and ground protection have been correctly set out on site prior to the commencement of any other operations.
- The advice of an arboriculturist should be sought where underground structures present within the RPA are, or will become, redundant. In general it is preferable to leave such structures in situ, as their removal could damage adjacent tree roots.
- Where an existing hard surface is scheduled for removal, care should be taken not to disturb tree roots that might be present beneath it. Hand-held tools or appropriate machinery should be used (under arboricultural supervision) to remove the existing surface, working backwards over the area, so that the machine is not moving over the exposed ground. If a new hard surface is to

be laid, it might be preferable to leave any existing sub-base in situ, augmenting it where required.

- Where construction working space or temporary construction access is justified within the RPA and approved by the project arboriculturist, this should be facilitated by a set-back in the alignment of the tree protection barrier. In such areas, suitable hard surfacing that is not proposed for re-use as part of the finished design should be retained to act as a temporary ground protection during construction, rather than being removed during demolition. The suitability of such surfacing for this purpose should be evaluated by the project arboriculturist and an engineer as appropriate. Where the set-back of the tree protection barrier would expose unmade ground to construction damage, new temporary ground protection should be installed as part of the implementation of physical tree protection measures prior to work starting on site. New temporary ground protection should be capable of supporting traffic entering or using the site without being distorted or causing compaction of underlying soil. All works to be undertaken under the direction of the project arboriculturist and an engineer as appropriate in accordance with Clause 6.2.3 of BS5837: 2012, 'Trees in Relation to Design, Demolition and Construction - Recommendations', in order to protect the tree from potential damage or harm during construction and safe guard future survival.
- Planning of site operations should take sufficient account of wide loads, tall loads and plant with booms, jibs and counterweights (including drilling rigs), in order that they can operate without coming into contact with retained trees. Such contact can result in serious damage to the trees and might make their safe retention impossible. Consequently, any transit or traverse of plant in proximity to trees should be conducted under the supervision of a banksman, to ensure that adequate clearance from trees is maintained at all times. Access facilitation pruning should be undertaken where necessary to maintain this clearance and in some instances, local planning authority consent for pruning might be required.
- Fires on sites are not permitted. Local environmental health authorities may also have specific restrictions.
- Any materials whose accidental spillage would cause damage to a tree should be stored and handled well away from the outer edge of its RPA.
- Construction within the RPA should accord to the principle that the tree and soil structure take priority, and the most reliable way to ensure this

is to preserve the RPA completely undisturbed. Soil structure should be preserved at a suitable bulk density for root growth and function (of particular importance for soils of a high fines content), existing rootable soil retained and roots themselves protected.

- The ability of a tree to tolerate some disturbance and alteration of its growing conditions depends on specific circumstances, including prevailing site conditions, and in general, the older the tree, the less successfully it will adapt to new conditions.
- Where alternative design solutions are not available such that construction is proposed within the RPA, the potential impact of the proposals on the tree should be assessed, and a tree protection plan and arboricultural method statement produced. Details of design proposals should be developed in conjunction with the project arboriculturist and, where required, input from a suitably qualified engineer. In order to demonstrate that the proposals are technically feasible such details should be included within planning applications. The exception to this is the installation of underground utility apparatus, where it can be demonstrated that this is achievable by the use of trenchless technology and where entry and retrieval pits can be formed outside the RPA. Where utility operations do not require planning permission, including those performed by statutory undertakers, they should still be undertaken in accordance with these principles. As a minimum standard, such operations should be undertaken in accordance with NJUG Volume 4, issue 2 [N1].
- Careful consideration of foundation design may be required to avoid damage to tree roots if found to be present within the location of a proposed structure within the Root Protection Areas. Root damage can be minimised by using a combination of the following:
 - a) Piles or radial strip footings, both of which should be located to avoid major roots;
 - b) Beams, slabs, suspended floors, where all should be laid at or above ground level and cantilevered as necessary to avoid tree roots identified by site investigation.

In order to arrive at a suitable solution, site specific and specialist advice would be sought regarding foundation and retaining wall design from the arboriculturist and engineer.

- To avoid damage to tree roots, existing ground levels should be retained within the RPA. Intrusion into soil (other than for piling) within the RPA is generally not acceptable, and topsoil within it should be retained in situ. However, limited manual excavation within the RPA might be acceptable, subject to justification and only following consultation with an arboriculturist. Such excavation should be undertaken carefully, using hand-held tools and preferably by compressed air soil displacement.
- Roots, whilst exposed, should immediately be wrapped or covered to prevent desiccation and to protect them from rapid temperature changes. Any wrapping should be removed prior to backfilling, which should take place as soon as possible. Roots smaller than 25 mm diameter may be pruned back, making a clean cut with a suitable sharp tool (e.g. bypass secateurs or handsaw), except where they occur in clumps. Roots occurring in clumps or of 25 mm diameter and over should be severed only following consultation with an arboriculturist, as such roots might be essential to the tree's health and stability. Prior to backfilling, retained roots should be surrounded with topsoil or uncompacted sharp sand (builders' sand should not be used because of its high salt content, which is toxic to tree roots), or other loose inert granular fill, before soil or other suitable material is replaced. This material should be free of contaminants and other foreign objects potentially injurious to tree roots.

If excavations have to be close to a tree where roots are likely to be encountered, particular care should be taken to avoid damage. Any excavations should be undertaken by hand, avoiding damage to the protective bark covering roots. Clumps of roots less than 25mm in diameter (including fibrous roots) should be retained in situ without damage. Throughout the excavation works great care should be taken to protect the bark around the roots. The tree bole must be protected from abrasion or accidental damage with a Green Grid Systems Trunk Protecta or approved equivalent. Any accumulation of debris or dust on the trees should be removed by spray hosing (Not jetting).

All roots greater than 25mm diameter should be preserved and worked around. These roots must not be severed without first consulting and following on-site agreement with the appointed Arboriculturist, as they may be essential to the tree's health and stability. If after consultation severance is unavoidable, roots must be cleanly cut back using a sharp sterile tool to leave the smallest wound and under the arboricultural supervision of the appointed Arboriculturist.

- The roots should be surrounded with tree soil before replacing tree soil or other approved material in the vicinity. All roots area to be retained and should only be severed following consultation with an arboriculturist, as they may be essential to the health and stability of the tree.
- Where it is necessary to include hard surfacing close to a tree, consideration should be given to constructing the final surface before the main building works, to provide protection for the roots. No trenching or construction works within the RPA to avoid causing any undue stress to the trees.
- Where it is necessary to incorporate part of the protected area of a tree within proposed hard surfaces, precautions are essential to maintain the condition and health of the root system. New permanent hard surfacing should not exceed 20% of any existing unsurfaced ground within the RPA. It is proposed that new paving will be established above the former ground level, using granular fill leaving the underlying soil intact with a permeable and gas-porous finished surface. Where a permeable surface is to be used by vehicular traffic, a geotextile should be used at the base of construction to help prevent pollution contamination of the rooting area below. Any excavations close to the trees will be undertaken by hand and specialist arboricultural advice will be sought for any work within this protected area.
- The excavation needed for the placement of kerbs, edgings and their associated foundations and haunchings can damage tree roots. Within the RPA, this should be avoided either by the use of alternative methods of edge support or by not using supports at all.
- Mechanical trenching for the installation of underground apparatus and drainage severs any roots present and can change the local soil hydrology in a way that adversely affects the health of the tree. Particular care should be taken in the routeing and methods of installation of all underground apparatus. Wherever possible, apparatus should be routed outside RPAs. Where this is not possible, it is preferable to keep apparatus together in common ducts. Inspection chambers should be sited outside the RPA. Where underground apparatus is to pass within the RPA, detailed plans showing the proposed routeing should be drawn up in conjunction with the project arboriculturist. In such cases, trenchless insertion methods should be used (see Table 3, BS5837: 2012, 'Trees in Relation to Design, Demolition and Construction - Recommendations'), with entry and retrieval pits being sited outside the RPA. Provided that roots can be retained and protected,

excavation using hand-held tools might be acceptable for shallow service runs.

- The extent of the root system to trees is very irregular and therefore difficult to predict and further investigation may be required to establish the extent of the rootplate. Where construction is found to conflict with the actual root system on site, and severance or damage to roots may impair the stability of the tree and make it dangerous, advice will be sought from the project arboriculturist and an engineer as appropriate. Specialist construction or design modification may be required to mitigate any adverse impact.
- Those contractors involved in construction will be informed of the presence of existing trees with a method statement outlining appropriate working practices and procedures to ensure their protection from damage during the works.
- All works will follow an auditable/audited system of arboricultural site monitoring, including a schedule of specific site events requiring input or supervision by the project arboriculturist and an engineer as appropriate. Refer to **Appendix 4** for Arboricultural Inspection Proforma. The site inspection and recommendations by the arboriculturist will be recorded on the inspection proforma and issued by the arboriculturist to the site management.
- If issues become evident during work with regard to trees, bats or nesting birds, the arboricultural and ecological consultant will be contacted and consulted immediately (Ajt Environmental Consultants, Tel: **0191 285 5910**).

All contractors shall be made aware of the potential presence of bats, of their legal protection and the requirement to contact Natural England if they are found during works. They shall also be made aware of the legal protection afforded to nesting birds.

If bats are found during the works, work should cease immediately in that area and the advice of the consultant ecologist (AJT Environmental Consultants, Tel 0191 2855910) must be sought and Natural England or the Bat Advice Line should be consulted for further advice. These contact numbers should be left with the contractors on site.

Bats

Bats use trees as resting places throughout the year. Trees may serve as maternity roosts, mating roosts, hibernation roosts and/or temporary/transitory roosts. Mature trees, particularly

oak, ash, beech, sycamore and Scots pine, are most frequently used as roosts, but bats will use any tree with suitable cavities or crevices.

Temperature and light are key factors when bats select roosts. Roost preferences depend on bat species, the time of year and the breeding status of the bat but include selecting:

- Naturally warm sites, such as sheltered trees receiving some sunshine during the day.
- Highly insulated sites such as a tree hole with a small space and thick wood surrounding it.

It is rare for bats to restrict themselves to a single tree roost. An individual tree may be used by varied species of bats, sometimes at the same time. Most bats change roost sites throughout the year in response to their individual needs. Once a tree is used for roosting, there is a high likelihood of it being used again as bats are very long lived. This is one reason why in mixed age stands, older trees have a higher chance of containing roosts than younger trees.

The most effective time to look for potential bat roosts is during winter when the trunk and crown are visible without leaves being present. Use binoculars during good daylight to look for:

- Trees that have been damaged irrespective of age, such as significant windblow or damage from falling mature trees;
- Obvious holes, cavities, splits and loose bark (old woodpecker holes are particularly favoured);
- Dark staining and streaks on the tree below the hole (although this can be due to water seepage);
- Staining around the hole from oils in bat's fur particularly in autumn;
- A maze of tiny scratch marks from the bat's claws around the hole, often around top edge. These are often only visible close up.

During the summer it may be possible to notice:

- Droppings below the hole – these have the appearance of rodent's droppings but crumble to a powder of insect fragments;
- Noise of squeaking/chittering coming from hole, especially on a hot day in high summer or just before dusk as bats are getting ready to emerge;
- Strong smell of ammonia or flies close to a hole.

Standard working methods, to minimise the risk to bats, and avoid causing reckless damage or disturbance, will include the following:

- Undertake a tool box talk by the project ecologist for the contractor prior to any works being conducted on site to inform him of the correct methods for felling and risks of bats being present and the correct action to take if any are found;
- Keep tree work to a minimum retaining all potential roosts where possible;
- A precautionary inspection of the tree(s) by the tree work contractor looking for signs of bats should be conducted before starting work. This should include an inspection of all holes and niches using a torch and preferably an endoscope. If bats or signs of bats are found, no work should start and Natural England and the Project Ecologist should be contacted for further advice;
- Where possible, avoid cross cutting in proximity to cavities or hollows;
- Limbs with internal fissures should be pruned carefully to maintain integrity of features as potential roost sites;
- Any sections felled containing cavities should be lowered carefully and left on the ground (preferably for 24 hours) with the openings clear, allowing anything inside an opportunity to escape;
- Split limbs that are under tension may need to be wedged open to prevent their closure when pressure is released, potentially trapping bats;
- If ivy covers areas of a tree's trunk or branches, there is roosting potential behind it. Dealing with ivy-covered trees depends on the amount of growth. If there is a thick mass of ivy growth, it may be practical to consider felling the tree on the basis that the thickness of the foliage will soften the fall and reduce the shock. This tree can then be inspected on the ground and if possible left for 24 hours, before section cutting. If the tree is only partially covered, pruning or sectioning may be more appropriate. If the works are not urgent, cutting the ivy at its base and completing the work when the ivy is dead will reduce the bat roosting potential. Where stems of ivy create a dense mass against the trunk, there will always be roosting potential;
- Be aware that most bird nests are also protected if working in the spring.

If bats are discovered when branches are removed or trees felled (particularly in winter), work must stop immediately and Natural England and/or the project ecologist (0191 285 5910) contacted. Advice will be given on how to proceed.

APPENDIX 4

ARBORICULTURAL INSPECTION PROFORMA

ARBORICULTURAL INSPECTION PROFORMA			ajt
ARBORICULTURIST REPORT			
Site Name		Date	
Arboriculturist		Time	
Client Name		Weather Conditions	
Activities			
Recommendations			
Further Work Required			
Signed			
DELIVERY OF RECOMMENDATIONS/FURTHER WORK			
Works must be complete by			
Works undertaken by			
Date / Time Works undertaken			
Works Supervised / Overseen by			
Works Supervised / Overseen by			
Signed			
<p><i>Upon completion of the arboricultural work this form should be signed by site staff and returned to -</i></p> <p>AJT Environmental Consultants Environmental Consultants • Chartered Landscape Architects The Studio, 20 The Grove, Newcastle Upon Tyne, NE3 1NE Tel: 0191 285 5910 • Fax: 0191 213 5517 • Email: ajtec@ajt.co.uk</p>			