



EASTLANDS PRIMARY SUBSTATION EXTENSION
MANCHESTER
ARBORICULTURAL IMPACT ASSESSMENT
AUGUST 2022

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Document Control

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Prepared for	Electricity North West
Prepared by	The Environment Partnership (TEP) Ltd
Document Ref.	9560.002
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Arboricultural Impact Assessment

1.0 Scope

- 1.1.

TEP has been commissioned by Electricity North West to conduct an arboricultural survey of land at Eastlands Primary Substation in Manchester and to make an assessment in accordance with BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations.
- 1.2.

This report has been produced to support a planning application. It describes the findings of field and desktop surveys; the effects that granting planning permission would have on arboriculture; and measures that are and/or should be incorporated in the proposed development.
- 1.3.

A judgement has been made in consideration of the survey findings, desktop search results and the nature of the proposed development that a full report style Arboricultural Impact Assessment (AIA) would not be proportionate. This document presents the content of an AIA in a condensed format, which is considered appropriate for relatively simple sites and/or development in relation to trees.

Survey
- 1.4.

The survey was undertaken in August 2022 in accordance with BS 5837 by a qualified arboriculturist. The survey method is included at Appendix B.
- 1.5.

A topographical survey was provided to use as part of this assessment (drawing reference: SSL:19629:200:1:1), however it did not show the location of any trees or vegetation and therefore all tree locations are estimated using a combination of on-site observations and aerial photography.
- 1.6.

Trees on private land outside the application boundary, and at inaccessible locations were surveyed insofar as was practicable. Whilst reasonable effort has been made to ensure the accuracy and comprehensiveness of such records, it cannot be guaranteed.

Limitation
- 1.7.

This report relates to a specific development proposal and should not be interpreted as advice in any other circumstance.
- 1.8.

This report constitutes a valid basis for the evaluation of impacts on trees resulting from the proposed development for a period not exceeding 2 years. After this, it would be necessary to review baseline data and conclusions to ensure reliability.
- 1.9.

Where the recommendations of this report have been followed, any future deterioration in tree condition shall not be attributable to the development.

2.0 Baseline

- ### Application Site

- ## Survey results

- 2.4. Tree T1 comprises a middle aged goat willow growing on the adjacent railway embankment immediately next to the existing compound fence and gate. It appears to be in good condition, although the inspection was restricted. The eastern canopy is currently encroaching on the existing electric access gate into the compound.

- 2.7. An area of buddleia was recorded within the site during the survey and is located between the existing substation compound and the retaining wall to its immediate south. An area of dense brambles and undergrowth located along the boundary fence on the adjacent railway embankment was also recorded.

- 2.8. Trees have been categorised in accordance with BS 5837 to describe their arboricultural, landscape or cultural qualities: A (high quality), B (moderate quality) C (low quality) and U (unsuitable for retention). The categorisation of tree quality allows a weighting to be given to each tree within the context of proposed development but is not prescriptive. Hedgerows are not categorised.

- 2.9. A Root Protection Area (RPA) has been calculated in accordance with BS 5837. This is based on each tree's stem diameter at 1.5 metres and has been adjusted where necessary to most accurately represent the likely spread of roots in consideration of prevailing conditions. The RPA represents the minimum area around each tree that must be left undisturbed to ensure its survival.

- 2.10. Feature locations, their quality categories, canopy spreads and root protection areas are shown opposite. All arboricultural information recorded during the survey is presented at Appendix A.

Desktop Searches

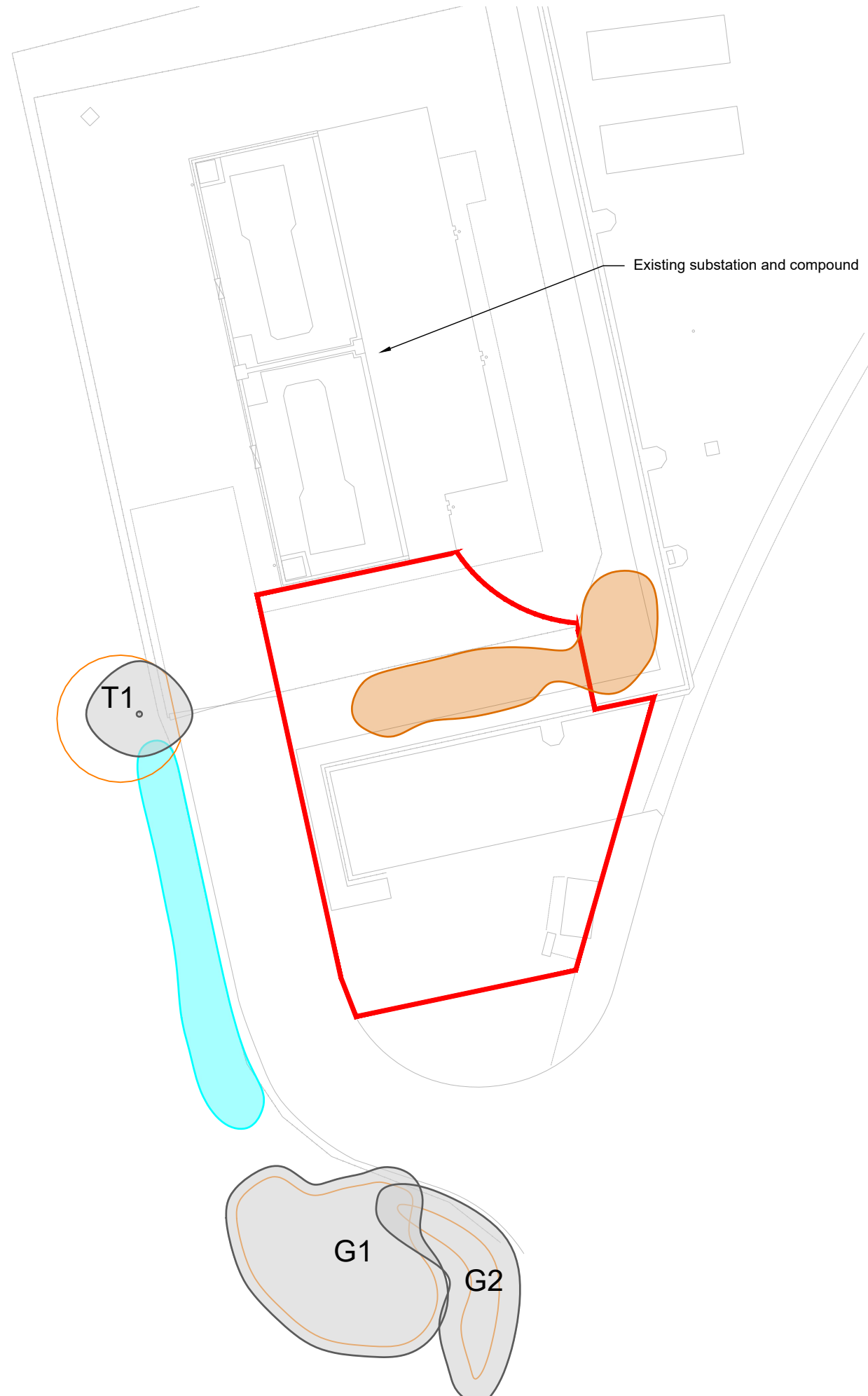
- 2.12. Natural England's Ancient Woodland Inventory (Provisional) for England contains no records for the site.

- 2.14. The site is located within the Manchester City of Trees Community Forest.

- 2.15. There are no mapped Habitats of Principal Importance (Hedgerow, Deciduous Woodland, Wood Pasture and Parkland, and Traditional Orchard) on the site.

- 2.16. No assessment of the presence of protected species has been made during the production of this report. Features of possible interest that were observed incidentally during the tree survey are recorded in Appendix A.

- 2.17. Works to and around trees have the capacity to affect protected species, particularly including birds, bats, great crested newts, badgers, dormice, otters and water voles. Contractors should be familiar with the locations and sensitivities of any protected species that are present and take reasonable avoidance measures or comply with the requirements of any licence agreement in accordance with the advice of an ecologist.



KEY

[This drawing must be reproduced in colour]

-  Root Protection Area (RPA)

- Approximate Site Boundary

- 
- Buddleia**
(Approximate location and extents)

-  **Brambles and Undergrowth**
(Approximate location and extents)

Tree Quality Categorisation

(Based on BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations)

-   **Category A**
(High quality)

-  **Category B**
(Moderate quality)

-   **Category C**
(Low quality)

-   **Category U**
(Unsuitable for retention)

NOTES:

This drawing should be read in conjunction with the respective Arboricultural Survey Data (Appendix A).

All tree locations are estimated using a combination of aerial photography and site observations.



Rev	Description	Drawn	Approved	Date
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Project

Eastlands Primary Substation Extension, Manchester

Title

Arboricultural Impact Assessment [BASELINE]

Drawing Number

D9560.001

Drawn HEE	Checked AAB	Approved JGS	Scale 1:250 @ A3	Date 10/08/2022
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3.0 Effects

- 3.2. This drawing presents the results of an assessment in accordance with BS 5837, including a definitive account of which trees would be removed or pruned.

3.3. The proposed development comprises the extension of the existing electricity substation compound and construction of a new switch house and transformer building. The proposed layout is shown opposite and is based on the Proposed Site Plan (drawing ref: 100138-00351, Rev 001).

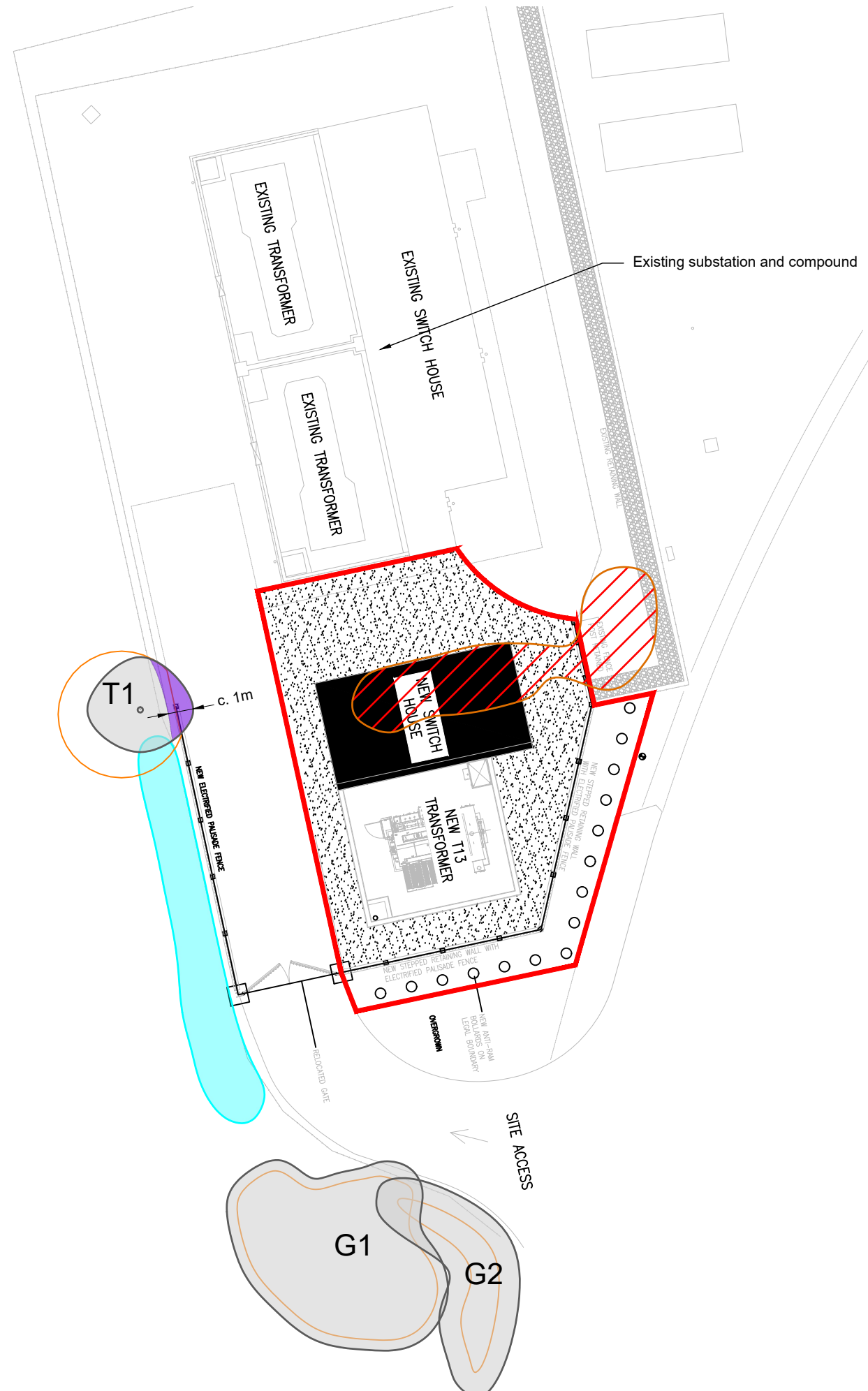
3.4. A reasonable worst case assessment of the requirement to prune or remove trees has been made on the basis of BS 5837, the proposed construction methods, and professional judgement. The works listed below and illustrated opposite form part of the proposed development, and would be permitted by the grant of planning consent:

- 3.4.1. No trees would be removed to accommodate the proposed development.
- 3.4.2. Tree T1 would need to be crown reduced by c. 1m where it overhangs site to allow for the installation of proposed electric boundary fencing. This is a middle aged, vigorous willow tree and this amount of pruning would not cause any long term harm.
- 3.4.3. The group of buddleia to the south-east of the existing compound would need to be removed to accommodate the proposed development. This is below the threshold of what is included under BS5837:2012 and its removal is not material from an arboricultural perspective.

3.5. Trees are a material consideration and the quality of trees, planning policies, and the presence of any special status or designation is likely to be considered by consenting authorities when determining a planning application.

- 3.7. In consideration of the desktop search results described previously, there are no adverse effects that cannot be mitigated or offset and which therefore lead to potential grounds for a refusal of planning permission.

- 3.8. It will be for the consenting authority to evaluate the proposed development, including mitigation measures, in consideration of all relevant local and national planning policies and guidance.



[This drawing must be reproduced in colour]

- T1/G1 Trees and Groups
- Root Protection Area (RPA)
- Approximate Site Boundary
- Buddleia
(Approximate location and extents)
- Brambles and Undergrowth
(Approximate location and extents)

 Category C
(Low quality)

 Buddleia to be removed

- Trees to be pruned as annotated
(Canopy outline denotes tree quality category)

This drawing should be read in conjunction with the respective Arboricultural Survey Data (Appendix A).

All tree locations are estimated using a combination of aerial photography and site observations.



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Project

Eastlands Primary Substation Extension, Manchester

Title

Arboricultural Impact Assessment [EFFECTS]

Drawing Number

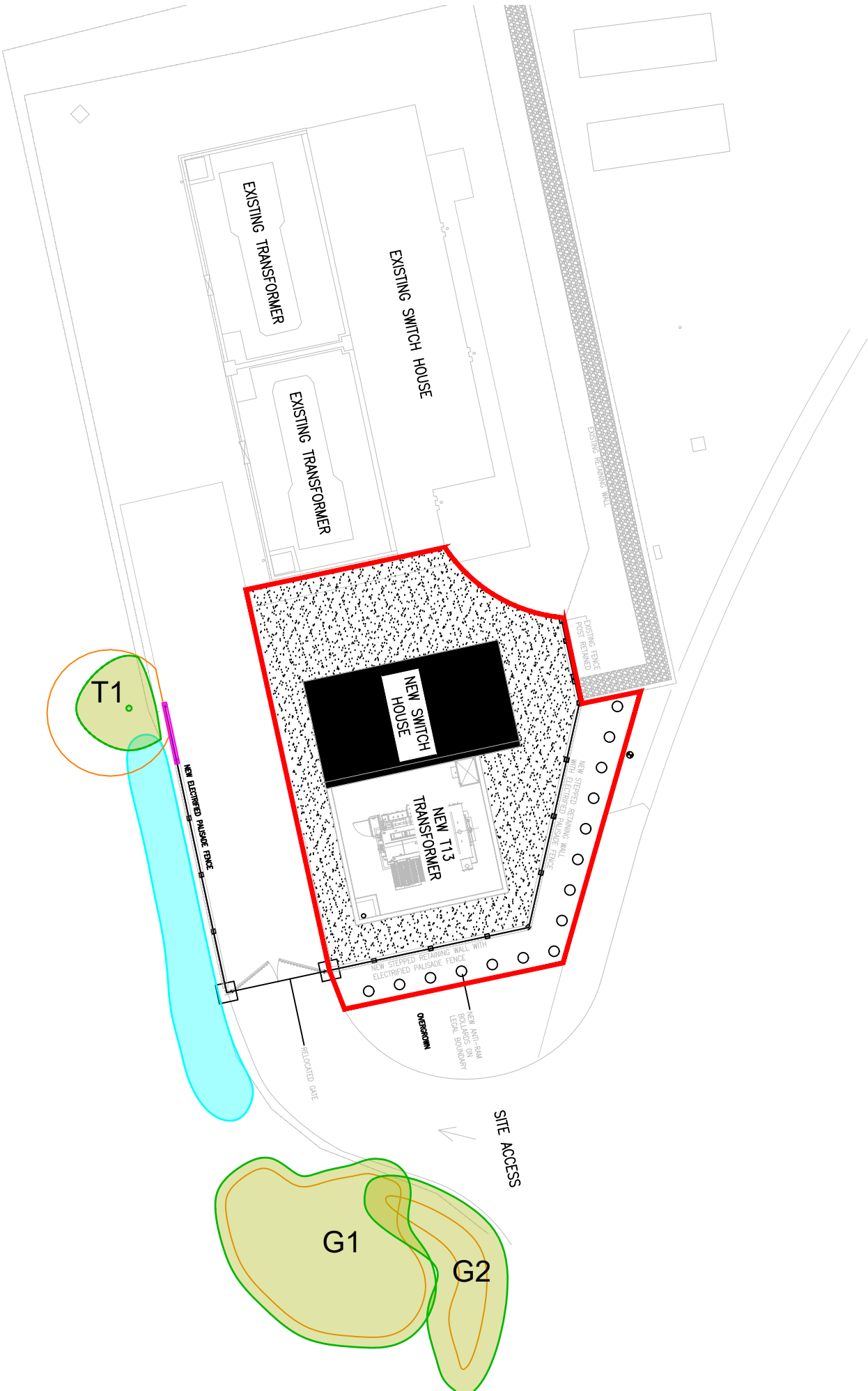
D9560.002

Drawn HEE	Checked AAB	Approved JGS	Scale 1:250 @ A3	Date 10/08/2022
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Arboricultural Impact Assessment

4.0 Mitigation

- 4.1. This drawing describes mitigation measures that are incorporated within the proposed development and would be secured by the grant of planning permission. It also outlines recommended measures, which are not proposed but which could be secured by planning condition or agreement and therefore relied upon to draw conclusions regarding overall effects in planning terms.
- 4.2. This information is presented in the format of a method statement, which describes actions to be completed by the site manager in chronological order.
- Proposed measures**
- 4.3. The site manager and all contractors must observe and implement everything in this section to avoid a breach of planning.
- Pre-start**
- 4.4. The site manager will read, understand and retain responsibility for implementing this document.
- 4.5. A copy of this document in colour and at A3 will be made available for inspection on site and introduced to all relevant contractors.
- 4.6. Arboriculturist and author of this document, Heather Eilbeck, can be contacted on 07767167503, if required to assist with the correct interpretation of this document and/or inspect tree works and tree protection measures.
- 4.7. An Arboricultural Contractor will be appointed to undertake tree works.
- 4.8. The alignment of temporary tree protection measures shown opposite will be marked out accurately.
- 4.9. Tree works shown on drawing D9560.002 will be completed in accordance with BS3998: 2010 Tree work - Recommendations.
- 4.10. Existing boundary fencing will act in lieu of tree protection fencing.
- During construction**
- 4.11. Works will proceed in a careful and logical manner, to prevent accidental damage from cranes, booms and other plant/vehicles.
- 4.12. If major roots (>25mm diameter) are uncovered during construction, works liable to damage them will cease, they will be loosely covered, and arboricultural advice will be sought.
- 4.13. When removing the kerbstones along the existing access road to make way for the proposed electric fencing, any kerbs within the area shown by a **magenta hatch** on the plan opposite will be removed in accordance with the following methodology:
- 4.13.1. Excavation will be undertaken on the nearside (furthest from the tree) within the existing tarmac.
- 4.13.2. Kerbstones will be pulled into the created hole and lifted by hand, thereby leaving soil volumes that are adjacent to the tree relatively undisturbed.
- 4.13.3. Should any significant roots (over 15mm diameter) be found whilst removing kerbstones in this area, works will immediately cease and advice of the Arboriculturist sought.
- 4.14. Any new fence posts to be installed within the **magenta area** will be lined within a non-permeable membrane in order to prevent chemical leaching between the soil and cementitious products.



KEY

[This drawing must be reproduced in colour]

- T1/G1 Retained Trees and Groups
- Root Protection Area (RPA)
- Approximate Site Boundary
- Brambles and Undergrowth (Approximate location and extents)
- Kerb removal and fence post installation restrictions



Rev	Description	Drawn	Approved	Date
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Project
Eastlands Primary Substation Extension, Manchester

Title
Arboricultural Impact Assessment [MITIGATION]

Drawing Number
D9560.003

Drawn	Checked	Approved	Scale	Date
HEE	AAB	JGS	1:250 @ A3	10/08/2022



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APPENDIX A: Arboricultural Data Sheets



Surveyor Heather Eilbeck
Survey Date 02.08.2022
Site Eastlands Primary Substation Extension, Manchester
Drawing Ref D9560.001

Italicised Feature Ref: Inspection of this feature was restricted
Italicised Values: Feature value was estimated

APPENDIX A: Arboricultural Survey Data Sheets

Ref	Species	Height	Canopy Ground Clearance	Stem Diameter (or range)	No. of stems/ individuals	Crown Spread North	Crown Spread South	Crown Spread East	Crown Spread West	Lowest Branch Height	Lowest Branch Direction	Maturity	Condition	Comments on form, condition, health and significant defects	Management recommendations in current context	BS 5837 Quality Category	Estimated Remaining Contribution
		(m)	(m)	(mm)	arising below 1.5m	(m)	(m)	(m)	(m)	(m)	(N,S,E,W)	Young, Middle Age, Mature	Good, Fair, Poor, Veteran			A,B,C,U (1,2,3)	Long, Medium, Short, Very Short
Trees																	
T1	Goat willow	6.0	2.0	250	1	2.5	2.0	2.5	2.5	2.5	SW	Middle Age	Good	Tree on overgrown railway bank immediately adjacent to fence line. Canopy touching electric access gate. No major defects noted. Inspection restricted by access.	Reduce eastern canopy by c. 1.5m back to boundary to prevent encroachment onto access gate.	C ,1	Long
Groups																	
G1	Common alder, Silver birch, Goat willow	3 to 13	0.0	75 to 250	10							Middle Age	Fair	Cluster of trees on railway embankment. Inspection restricted by access. Some leaning stems and dieback evident. Tall, narrow forms.		C ,2	Medium
G2	Common alder, Butterfly bush species, Common dogwood	3 to 4	0.0	40 to 75	30							Middle Age	Good	Cluster of largely dogwood immediately adjacent to fence outside of site.		C ,3	Short



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APPENDIX B: Survey Method

APPENDIX B: Survey Method

The survey of trees is conducted from ground level only. The nature of the soils on site is not assessed.

Trees are dynamic living organisms with a constantly changing structure; even trees in good condition can suffer from damage or stress. The information recorded is presented as being correct at the time of survey.

The following features of each tree, group of trees or wood may have been recorded in the Arboricultural Survey Data Sheets at Appendix 1.

Species	The common name is given. The Latin name may also be given if further clarification is required.	
Height	Top height of tree recorded in metres.	
Stem Diameter	For single-stemmed trees the measurement is taken at 1.5 metres above ground level and recorded in millimetres. For multi-stemmed trees an average all stems measured at 1.5m above ground level is used. For tree groups a range from minimum to maximum diameters is provided based on measurements taken using one of the aforementioned methods.	
No. of Stems	A count of stems arising below a height of 1.5 metres.	
Crown Spread	The N, S, E and W branch spreads are recorded in metres to provide a representative crown shape.	
Height of Lowest Branch	Crown clearance above ground level recorded in metres.	
Direction of Lowest Branch	The direction of growth of the first significant branch from the point of attachment.	
Maturity	Young	Trees that can reasonably be relocated or replaced like for like, without undue cost;
	Middle Age	Trees in the established growth stage of their life with the potential to continue increasing in size;
	Mature	Trees that have reached their ultimate size, given their location and surroundings;
Condition	Good, Fair, Poor. An overall assessment of a tree's physiological and structural state in which factors that may increase its susceptibility to the effects of development are taken into account. Veteran. Trees that are in such a condition as to significantly increase their biological, cultural or aesthetic value. This is characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned.	
Comments	A brief evaluation and description of the tree with comments on form, vitality, health and any significant defects or symptoms of ill-health.	

BS 5837 Tree Quality Assessment

The tree quality assessment is based on Table 1 of BS 5837:2012 (See below). Four categories (A, B, C and U) are used to denote tree quality (A= High, B = Moderate, C = Low, U= Unsuitable for retention). Subcategories (1-3) denote the specific function value of the trees and the reasoning behind the allocation of a specific category (the subcategories may be used in combination but do not accumulate collective weight).

Root Protection Area (RPA)

The RPA is allocated to ensure that a sufficient area is left undisturbed during development. It is provided as an area (m²) and as the radius of a circle (m) typically plotted from the centre of the stem.

The RPA is calculated using a mathematical equation included in BS 5837:2012 (Section 4.6 and Table D.1) and is based on a tree's stem diameter. In some cases the RPA may need to be adapted to best reflect the likely area and position of roots required to ensure survival; this may be based on criteria such as the tree's condition, species, crown spread and any barriers to growth. Any alteration must be justifiable but is made at the Arboricultural Consultants discretion.

Recommendations

Recommendations for arboricultural works, etc. are based on the **current** land use, and take into account the tree or group attributes without bias to the proposed development.

Estimated Remaining Contribution

An estimation of the life expectancy as healthy functioning tree. This will be influenced by species and the condition of the tree at the time of survey.

Long	> 40 years
Medium	20 – 40 years
Short	less than 20 years

APPENDIX B: Survey Method

Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	- Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) - Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline - Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality <i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i>			See Table 2
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
Trees to be considered for retention				
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	See Table 2
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	See Table 2
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	See Table 2

British Standards Institute (2012) BS5837:2012 Trees in relation to design, demolition and construction – Recommendations.
p.9

NOTES:

All young trees are assessed as quality category 'C' but this does not preclude their retention within a development.

For hedges the height, canopy spread and number of stems is recorded but they are not assigned a quality category.

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