



Broadway Malyan

ROCHDALE STATION SQUARE

Arboricultural Impact Assessment Report





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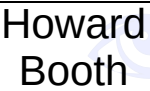
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EXECUTIVE SUMMARY

The Proposed Development, situated between the Rochdale train station and tram stop, is an urban public realm scheme which centres on construction of a new station square. Proposed works within the station square include installation of new public infrastructure, new hard landscaping (such as new pedestrianised areas) and new soft landscaping inclusive of new tree plantings of trees and green spaces.

An arboricultural survey was undertaken on 13 October 2022. Details on surveyed trees are provided in the Arboricultural Survey Schedule presented in Appendix B. A total of 30 arboricultural features were surveyed, consisting of 25 individual trees and five tree groups. Two arboricultural features are assessed to be moderate quality and 28 features are low quality. Indicative locations of arboricultural features are shown on the Tree Removals and Protection Plan of Appendix C.

The Proposed Development requires the removal of 11 low quality trees which are T1, T2, T3, T8, T15, T16, T17, T18, T20, T22 and T24.

Retained trees within the station square and on the margins of the Planning Application Boundary are to be protected through special protection measures. Principles for tree protection are set out in the outline Arboricultural Method Statement provided in Appendix D. Tree protection measures, to be agreed pre-construction, shall confirm extents of Construction Exclusion Zones and precautionary working methods. This should include the need for existing hard surfacing to remain in-situ (currently covering indicative root protection areas), installation of protective fencing or ground protection and Arboricultural Clerk of Works site supervision.

1 INTRODUCTION

1.1 PROJECT BACKGROUND

- 1.1.1. WSP has been commissioned by Broadway Malyan to provide arboricultural support for a planning application for developments at Rochdale Station Square (hereafter referred to as the 'Proposed Development'). The Proposed development includes the installation of new public infrastructure, new hard landscaping (such as new pedestrianised areas) and new soft landscaping inclusive of new tree plantings and green spaces.

1.2 SCOPE OF REPORT

- 1.2.1. The purpose of this report is to identify all trees which may be affected by the Proposed Development, to assess the impact of the Proposed Development upon those trees and to recommend such protection measures as are necessary to ensure the health of retained trees.
- 1.2.2. The scope and level of detail included within this report is commensurate with that required for the adequate consideration of arboricultural features as part of the Proposed Development.
- 1.2.3. Information provided complies with the requirements of British Standard BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations (BS 5857), and includes reference to the following:
- results of a BS 5837 walkover survey;
 - an Arboricultural Impact Assessment (AIA); and
 - an outline Arboricultural Method Statement (AMS).
- 1.2.4. Impacts should be defined as an assessment of tree loss, tree works or identification of matters to be addressed within an AMS.

1.3 LIMITATIONS

- 1.3.1. Provisional Tree Preservation Orders (TPOs) may be made whenever a local planning authority deems it appropriate with only those persons interested in the land served with a copy of the Order. Because of this, any reference to the presence of TPOs is only valid on the date at which the desk study search was undertaken. In instances where works unspecified in this report are to be undertaken, and which may impact trees, a further search for the presence of TPOs should be carried out prior to commencement.
- 1.3.2. Trees are dynamic organisms which are influenced by a variety of environmental variables and whose health and condition can rapidly change. Because of this, any recommendations made within this report are valid for a period of 24 months from the date of survey, when any site conditions change or pruning or other works unspecified in the report are carried out to, or affecting, the subject trees, whichever is the sooner.

- 1.3.3. This report does not constitute a health and safety survey. Where concerns for tree health and safety exist then necessary and appropriate tree inspections should be carried out.

1.4 RELEVANT LEGISLATION, POLICY AND GUIDANCE

- 1.4.1. This report has been compiled with reference to the following legislation, policy and guidance:

LEGISLATION

- *The Town and Country Planning Act 1990*

POLICY

- *National Planning Policy Framework (NPPF) (revised 20 July 2021)*
- *Rochdale Core Strategy, Section 10.35 (adopted October 2016)*¹

GUIDANCE

- *British Standards Institute. BS 5837: 2012 Trees in relation to design, demolition and construction – Recommendations. London: BSI*

1.5 ABBREVIATIONS OF TERMS USED

Table 1-1 – List of abbreviations used within this report

Acronym	Definition
ACoW	Arboricultural Clerk of Works
AIA	Arboricultural Impact Assessment
AMS	Arboricultural Method Statement - A methodology for the implementation of any aspect of development which is within the root protection area, or has the capacity to adversely affect, any retained tree.
BS 5837	British Standard BS 5837:2012 'Trees in relation to design, demolition and construction – Recommendations'. This standard ' <i>gives recommendations and guidance on the relationship between trees and the design, demolition and construction process. It sets out the principles and procedures to be applied to achieve a harmonious and sustainable relationship between trees and structures</i> '.
CEZ	Construction Exclusion Zone - An area within which all site clearance and construction activities, access and storage of materials are prohibited.

¹ Rochdale Borough Council, Core Strategy Document [online]. Available at: <https://www.rochdale.gov.uk/downloads/file/405/core-strategy> [Accessed 12/10/2022]

Acronym	Definition
RPA	Root Protection Area - Layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's vitality.
TRPP	Tree Removals and Protection Plan
TPO	Tree Preservation Orders - An order made by the Local Planning Authority to protect specific trees, groups of trees or woodlands in the interests of amenity.

2 METHODS

2.1 STUDY AREA

- 2.1.1. The spatial scope of arboricultural surveys (hereafter referred to as the study area) is presented on the Tree Removals and Protection Plan (TRPP) of Appendix C.
- 2.1.2. The study area has been informed by the red outlined planning application boundary indicated on the TRPP. The study area includes trees up to 15m from this boundary. The purpose of this 15m buffer is to ensure compliance with BS 5837 which recommends that all arboricultural features whose Root Protection Areas (RPAs) may be impacted are identified and surveyed. The British Standard caps RPAs to a maximum radius of 15m, hence the extent of the buffer.

2.2 BASELINE DATA COLLECTION

- 2.2.1. Baseline data collection has been undertaken with reference to BS 5837 and has been undertaken using the following data sources:
 - An arboricultural desk study; and
 - A walkover survey of arboricultural features within the study area.

2.3 DESK STUDY

- 2.3.1. A desk study was undertaken on 12 October 2022 to identify specific statutory and non-statutory arboricultural constraints which may apply to arboricultural features within the study area. The desk study review, as outlined in Appendix A, was undertaken to establish the following statutory and non-statutory arboricultural constraints:
 - Tree Preservation Orders;
 - Conservation Areas;
 - Ancient Woodland; and
 - Ancient or Veteran trees.

2.4 WALKOVER SURVEY

- 2.4.1. A walkover survey of trees was completed on 13 October 2022. The survey was undertaken to comply with BS 5837 and details of the method used are presented in Appendix A.
- 2.4.2. Where access to vegetation was restricted, stem diameter dimensions have been estimated as indicated by references within the 'Tree Condition Notes & Observations' column of Appendix B's Arboricultural Survey Schedule.
- 2.4.3. Topographical survey information indicating tree stem locations for T1, T2, T3, T15, T18 and T20 was available for the site. All other tree stem locations have been indicatively plotted using other reference points within the topographical survey, GPS locations and open-source aerial imagery.

2.5 PROVIDED DESIGN INFORMATION

2.5.1. The following information has been viewed and used to prepare this report and arboricultural assessment:

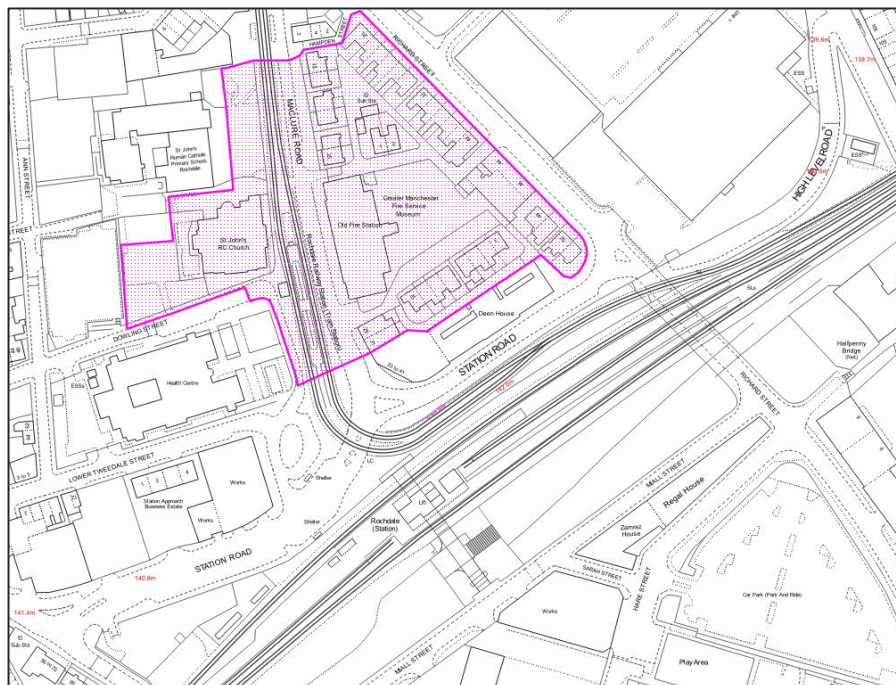
- Topographical information as provided in .DWG format entitled '56653 TOPO 2D RevA (24-02-22)'.
- Proposed Masterplan layout figures as provided in pp24-26 of the 'Rochdale Station Square - Public Realm Design Statement' (July 2022).
- Design information provided as .DWGs entitled 'xref - site masterplan-arb' and 'BM36072-C-L-100 Bind'.

3 ARBORICULTURAL SURVEY FINDINGS

3.1 DESK STUDY FINDINGS

- 3.1.1. The desk study found no records of ancient or veteran trees nor ancient woodland and the walkover survey verified the absence of such trees. Correspondence with Rochdale Borough Council (dated 12 October 2022) also confirms the absence of TPOs within the study area.
- 3.1.2. The desk study confirms the presence of Maclure Road Conservation Area within the study area (see Figure 3-1).

Figure 3-1 – Location of ‘Maclure Road Conservation area’ pink outlined (Source: Rochdale Borough Council, Available at: <https://www.rochdale.gov.uk/downloads/download/191/list-of-conservation-areas-maps-and-appraisals>)



3.2 SITE DESCRIPTION AND WALKOVER SURVEY FINDINGS

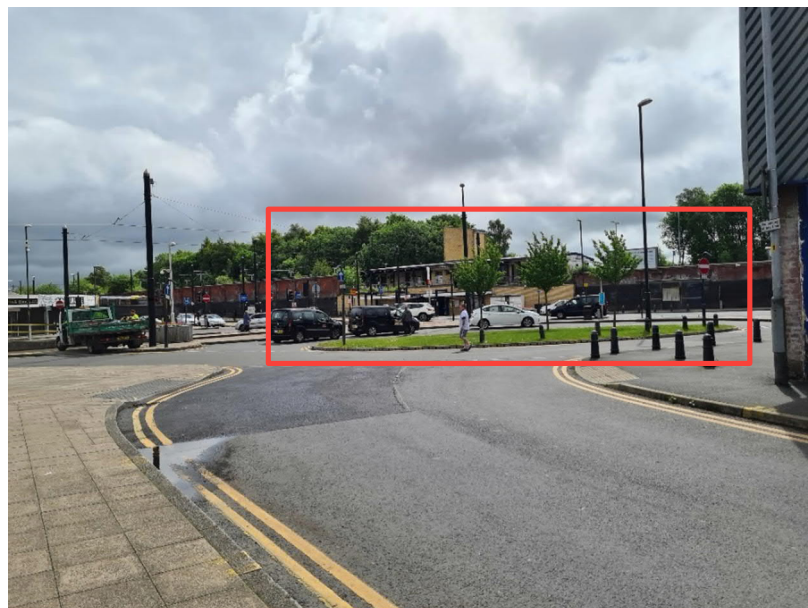
- 3.2.1. The Proposed Development is centred on Ordnance Survey (OS) National Grid Reference: SD 89899 12678 and is located near Rochdale railway station and tram stop.
- 3.2.2. The study area is predominantly hard surfaced. The majority of surveyed trees are in front of the Nye Bevan building opposite the tram stop and are planted in a small grassy verge bordered in shrubbery surrounding a covered bike storage unit. These features are recorded as T8 through T25 within the schedule (Figure 3-2).

Figure 3-2 – Photo of Rochdale square tree (T8-T25)



- 3.2.3. Three young cherry trees are located on a grassed roundabout and were planted around the time of completion of the tramway upgrades circa 2013/2014 (Figure 3-3).

Figure 3-3 – Photo of T1-T3 located on grass roundabout



- 3.2.4. Tree cover predominantly consists of young or semi mature street trees. The exception to this are two groups of early mature broadleaved trees within the boundary of St John the Baptist Church recorded as G4 and G5.

3.2.5. Table 3-1 summarises the number of trees surveyed and their tree quality categories. Locations of arboricultural features are indicated on the TRPP of Appendix C.

Table 3-1 – Summary of tree quality categories

BS5837 Category	Quality	Individual Tree	Group	Totals
Category B	Moderate	0	2	2
Category C	Low	25	3	28
Totals		25	5	30

4 ARBORICULTURAL IMPACT ASSESSMENT

4.1 SCOPE OF ASSESSMENT

- 4.1.1. The scope of this assessment has been established with reference to BS 5837. The scope of assessment is to evaluate the effects of the Proposed Development on arboricultural features and where necessary recommend mitigation.
- 4.1.2. The assessment includes specific reference to the effects of tree loss and other potentially damaging activities which could foreseeably occur in the vicinity of retained trees. Further reference is made concerning recommendations for mitigation, including those matters which require inclusion within an AMS.

4.2 ASSUMPTIONS AND LIMITATIONS

- 4.2.1. This AIA report has been compiled on the basis of the following assumptions:
- All construction and demolition activities will be confined to the planning application boundary of the Proposed Development as identified on the TRPP.
 - The extents of the ground level changes associated with new hard and soft landscaping proposals for station square are unknown at the time of report writing. It is assumed that the existing trees within the station square (T9, T10, T11, T12, T13, T14, T19, T21, T23 and T25) will be retained subject to a combination of special protection measures to be confirmed pre-construction within a detailed AMS.
 - Extensive hard surfacing fully covers the RPAs of G1, G2, G4, G5, T4, T5 and T6. It is assumed that no excavation will be required within RPA. It is also assumed that existing hard surfacing will remain in-situ to ensure retained tree RPAs are protected from the Proposed Development.
- 4.2.2. The following limitations apply to this AIA report:
- Enabling works (such as the installation or diversion of services by statutory undertakers) or drainage proposals within the study area have not been considered.
 - Most arboricultural features subject to assessment have been indicatively plotted using OS base mapping, open-source aerial imagery and on-site GPS coordinates. The accompanying TRPP therefore have features plotted with approximate locations only.

4.3 ARBORICULTURAL FEATURES TO BE REMOVED

- 4.3.1. The Proposed Development will result in the removal of 11 low quality trees which are T1, T2, T3, T8, T15, T16, T17, T18, T20, T22 and T24. Trees T1, T2 and T3 are small, low quality cherries on a grassed roundabout which will be regraded and hard surfaced. The other eight features are all in front of the Nye Bevan House which will undergo extensive resurfacing and new soft landscaping.

4.4 ARBORICULTURAL FEATURES TO BE PRUNED

- 4.4.1. The design information received indicates that none of the trees in the study area require pruning for the Proposed Development. If any tree works are required, these should comply with British Standard 3998:2010 – Tree Work Recommendations as carried out by skilled tree surgery contractors.

4.5 OTHER ARBORICULTURAL IMPACTS

- 4.5.1. Other identified arboricultural impacts associated with the demolition and construction work for the Proposed Development are recorded in Table 4-1. These arboricultural impacts are activities which have the potential, if uncontrolled, to cause damage to arboricultural features which are retained.
- 4.5.2. Table 4-1 also provides details of the arboricultural features which are at risk of damage, the likely cause of damage and the mitigatory measures which are required. Implementation of the recommended mitigation measures will be sufficient to ensure that arboricultural features can be retained without significant loss of value or a notable reduction in health or longevity.

Table 4-1 – Other identified arboricultural impacts, proposed mitigation and likely effects

Features	Cause of Impact (construction of)	Potential Impact	Mitigation Measures
All retained features	General contractor spatial working requirements during demolition and construction (below ground impact).	Soil compaction and root damage for contractor spatial working requirements. Loss of vitality and decline in health. Reduction in quality of trees / potential death of trees.	Establishment of CEZs around retained tree RPAs for duration of demolition and construction set out in a detailed AMS. Mitigation to consider combined use of ground protection, no ground level changes within the RPAs of retained trees, tree protection fencing and ACoW supervision.

Features	Cause of Impact (construction of)	Potential Impact	Mitigation Measures
All retained features	General contractor spatial working requirements during demolition and construction (above ground impact).	Injurious contact with above ground elements of retained trees. Loss of vitality and decline in health. Reduction in quality of trees / potential death of trees.	Establishment of CEZs around retained tree canopies for duration of demolition and construction as outlined in an AMS. Pruning to be determined prior to commencing all activities and undertaken in compliance with British Standard 3998:2010 – ‘Tree Work Recommendations.

- 4.5.3. The indicative RPAs used for design are based on a symmetrical circle and are shown in the TRPP of Appendix C. The shape of RPAs can be adjusted to ensure that sufficient area, and therefore soil volume is protected.
- 4.5.4. Details of the mitigation measures set out in this report are identified on the TRPP and should be viewed in conjunction with the outline AMS.
- 4.5.5. Through implementing appropriate tree protection measures, all retained trees can be kept without detrimental impact on them.

4.6 MITIGATION PLANTING

- 4.6.1. The design received has multiple trees being planted across the development to mitigate the losses of the trees outlined in this report. This approach is in line with the Rochdale Borough Council's strategy of trees being removed in urban developments to be replaced at a ratio of 2:1.

4.7 ARBORICULTURAL METHOD STATEMENT

- 4.7.1. An outline AMS is included in Appendix D. The AMS adopts a precautionary approach to tree protection and addresses activities which have the potential to cause damage to retained trees.
- 4.7.2. The AMS addresses, in principle, the following matters which are of relevance to the Proposed Development:
- arboricultural monitoring;
 - tree protection fencing;
 - ground protection; and
 - tree pruning.
- 4.7.3. It is recommended that this AMS be viewed as a ‘living document’. It should therefore be reviewed, and if necessary updated as and when required. It is anticipated that a pre-



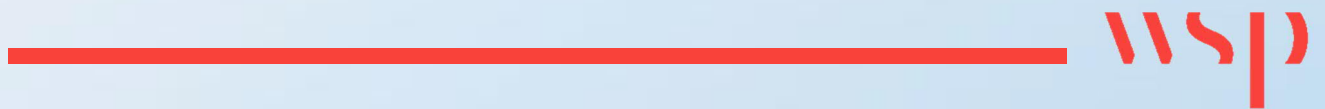
commencement site meeting would be required with the Local Planning Authority Tree Officer to confirm tree protection measures.

5 SUMMARY AND CONCLUSIONS

- 5.1.1. A walkover survey of arboricultural features within the study area was undertaken on 13 October 2022. The arboricultural survey was undertaken in accordance with BS 5837 and tree features plotted using GPS, topographical survey information and aerial imagery.
- 5.1.2. One statutory constraint was found in the study area, and that is the Maclure Road Conservation Area (Figure 3-1).
- 5.1.3. A total of 30 arboricultural features were surveyed, consisting of 25 individual trees, and five tree groups. Two arboricultural features are assessed to be moderate quality and 28 features are low quality.
- 5.1.4. Indicative locations of arboricultural features are shown on the Tree Removals and Protection Plan of Appendix C. The Proposed Development will require the removal of 11 low quality trees (T1, T2, T3, T8, T15, T16, T17, T18, T20, T22 and T24). Mitigation for the tree removal is designed in the Proposed Development with new tree planting.
- 5.1.5. Retained trees within the station square and on the margins of the Planning Application Boundary are to be protected through special protection measures that should be confirmed within a detailed Arboricultural Method Statement. Principles for tree protection are set out in the outline Arboricultural Method Statement provided in Appendix D.

Appendix A

ARBORICULTURAL SURVEY METHOD



SURVEY METHOD

METHOD OF BASELINE DATA COLLECTION

Baseline data collection has been undertaken with reference to BS 5837 and uses the following data sources:

- An environmental desk study, and;
- A walkover survey of all arboricultural features within the study area.

DESK STUDY

The arboricultural desk study for the study area was undertaken on 12 October 2022. A desktop review of publicly available information on ancient woodland² and ancient/veteran trees³ confirms the absence within the study area.

Rochdale Borough Council's website⁴ confirms the presence of a Maclure Road Conservation Area within and adjacent to the study area. Telephone/email correspondence with Rochdale Borough Council's planning and development team on 12 October 2022 confirmed the absence of Tree Preservation Orders (TPOs) within the study area.

WALKOVER SURVEY

A walkover survey was undertaken on 13 October 2022 and in accordance with the following criteria:

- Arboricultural features have been recorded as individual trees or tree groups where this has been deemed appropriate. Tree groups have been recorded on the basis that they form distinct arboricultural features either aerodynamically, visually or because they collectively contain trees of similar size or value.
- The trees have been visually inspected from ground level only.
- No tissue samples were taken nor was any internal investigation of the subject trees undertaken.
- Tree heights and crown spreads have been estimated.
- Notes have been recorded where they relate to the quality of the arboricultural feature.
- Management recommendations have been provided where work is necessary for the abatement of a hazard which presents a high level of risk to persons or property.

² Natural England, 2022. *Multi-Agency Geographic Information for the Countryside (MAGIC) database* [online]. Available at: <https://magic.defra.gov.uk/MagicMap.aspx> [Accessed 12 October 2022]

³ Ancient Tree Inventory, 2022. *Ancient Tree Inventory* [online] Available at: < <https://ati.woodlandtrust.org.uk> [Accessed 12 October 2022]

⁴ Rochdale Borough Council, Online list of Conservation areas within Rochdale area [online]. Available at: <https://www.rochdale.gov.uk/downloads/download/191/list-of-conservation-areas-maps-and-appraisals> [Accessed 12 October 2022]

Stem diameters have been measured in accordance with Annex C of BS 5837. By default, Root Protection Areas (RPAs) are calculated as an area equivalent to a circle with a radius 12 times the stem diameter.

Diameters of single stem trees on level ground have been measured at 1.5m above ground level unless specified in the Arboricultural Survey Schedule. The diameters of other commonly encountered stems have been measured as per BS 5837 guidance. The combined stem diameters for multi-stemmed trees have been calculated in accordance with BS 5837 paragraph 4.6.1. For tree groups, the largest visible stem near the outer margins of each feature was measured unless stated in the Arboricultural Survey Schedule.

QUALITY ASSESSMENT

The quality of arboricultural features has been determined in accordance with BS 5837 Table 1 as provided in Figure A-1. The purpose of the quality assessment is to enable informed decisions to be made regarding the removal and retention of arboricultural features in the context of development. For an arboricultural feature to be included within a particular quality category it should accord with the description provided.

The quality of each arboricultural feature is defined based on its sub-category. Sub-categories carry equal weight, do not influence retention priority and are simply included to indicate the primary value associated with each surveyed item. Sub-categories 1, 2 and 3 are intended to reflect arboricultural, landscape and cultural values, respectively.

The quality and sub-category assigned to each arboricultural feature are identified within the Arboricultural Survey Schedule included in Appendix B of this report.

Figure A-1 - BS 5837 Table 1 - Cascade Chart for Tree Quality Assessment

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

NOTES AND LIMITATIONS

Arboricultural survey data is of a preliminary nature and has been collected based on a walkover survey.

Only defects visible from the ground have been noted and each individual feature may not have been inspected closely due to access difficulties, the presence of dense ivy, other vegetation or safety constraints. Safety related features have not been recorded on the basis that the arboricultural features will be subject to a normal programme of tree hazard assessment and only those features which materially affect the quality of the feature or pose a real and immediate safety concern have been recorded.

Arboricultural survey data is typically valid for a period of two years unless otherwise stated. Significant environmental events (such as extreme weather conditions) or changes within the study area may render it invalid within a shorter timescale.

Whilst arboricultural surveys are not seasonally limited it is the case that certain pests and diseases may be more or less evident at different times of the year. This is especially true of certain wood decaying fungi such as the Giant Polypore (*Meripilus giganteus*) where fruiting bodies are short-lived, and the early stages of root decay may not result in other identifiable



symptoms. Walkover survey data is therefore based upon observations made at the time of the site visit and may be subject to change should further or more detailed inspections be undertaken.

The survey has only been undertaken from public land.

Appendix B

ARBORICULTURAL SURVEY SCHEDULE



KEY - ARBORICULTURAL SURVEY SCHEDULE

REFERENCE ABBREVIATIONS

- G – Tree Group
- T – Individual tree

MEASUREMENTS

Height is estimated to provide a relative indication of tree size.

Stem Diameter measurements are reported in accordance with BS 5837.

Crown spread for individual trees was estimated for each of the four cardinal points. Crown spread for tree groups is provided according to the greatest single lateral crown spread found for the feature.

LCH is the lowest canopy height. It is an estimate of the lowest point of foliage above ground level of the tree indicating the clearance below the tree.

LBH is the lowest branch height and is the height above ground level of the first branch union.

ASSESSMENTS

Life stage:

- Y – Young – planted within the last three years (unless heavy/extra heavy standard)
- SM – Semi-mature – <25% estimated life expectancy
- EM – Early Mature – < 50% estimated life expectancy
- M – Mature – >50% estimated life expectancy

Physiological condition:

- G – Good
- F – Fair
- P – Poor
- D – Dead

Structural condition:

- G – Good
- F – Fair
- P – Poor

ERC – Estimated Remaining Contribution - <10 years, 10+ years, 20+ years or 40+ years.

BS 5837 Category – A, B, C or U with a single sub-category recorded as 1, 2 or 3.

ROOT PROTECTION AREA

RPA is the radius of a circular Root Protection Area associated with an individual tree as drawn from the stem/tree line location.

The RPA for tree group features is based upon the largest individual margin tree surveyed and is drawn externally from the canopy extents of the feature unless stated.

Tree Ref.	Species	Height (m)	Stem Dia. (mm)	Crown Spread N-E-S-W	LCH (m)	LBH (m)	Life Stage	Physiological Condition	Structural Condition	Tree Condition Notes & Observations	RPA Rad. (m)	ERC	BS5837 Category
T1	Cherry species	4	75	1 - 1 - 1 - 1	2.5	2	Y	G	G	Tree planted on grass verge.	0.9	20+	C1
T2	Cherry species	4	80	1 - 1 - 1 - 1	2.5	2	Y	G	G	Tree planted on grass verge.	0.9	20+	C1
T3	Cherry species	4	80	1 - 1 - 1 - 1	2.5	2	Y	G	G	Tree planted on grass verge.	0.9	20+	C1
T4	Common ash	8	200	2 - 2 - 2 - 2	1	2	Y	F	F	Inaccessible tree located circa 1m set back from highways boundary fencing.	2.4	10+	C2
T5	Common ash	8	190	2.5 - 2.5 - 2.5 - 2.5	2	2	Y	F	F	Inaccessible tree located circa 1m set back from highways boundary fencing.	2.3	10+	C2
T6	Common ash	4	150	1 - 1 - 1 - 1	2	2	Y	F	F	Inaccessible tree located circa 1m set back from highways boundary fencing.	1.8	10+	C2
T7	Pear species	5	90	0.5 - 0.5 - 0.5 - 0.5	3	1	Y	F	G	Tree in metal grate tree pit. Stem encircled by protective cage.	0.9	10+	C1
T8	Common ash	6	120	1 - 1 - 1 - 1	1	1.5	Y	P	F	Inaccessible tree located in shrub bed. Displays poor vigour with tip dieback.	1.4	10+	C1
T9	Whitebeam	7	120	2 - 2 - 1.5 - 2	2	2	SM	G	G	Part of landscape planting within Rochdale Square. Circa 0.3m from adjacent CCTV pole. Located in shrub bed.	1.4	20+	C2
T10	Whitebeam	7	110	2 - 2 - 2 - 2	2	2	SM	F	G	Part of landscape planting within Rochdale Square. Located within shrub bed.	1.4	20+	C2
T11	Whitebeam	7	150	2 - 2 - 2 - 2	2	2	SM	G	G	Part of landscape planting within Rochdale Square. Circa. 0.3m from adjacent CCTV pole. Located in shrub bed.	1.8	20+	C2
T12	Whitebeam	7	150	2.5 - 2.5 - 2.5 - 2.5	2	2	SM	G	G	Part of landscape planting within Rochdale Square. Circa 2m from adjacent lamp post column. Located in shrub bed.	1.8	20+	C2
T13	Pear species	7	120	1 - 1 - 1 - 1	2.5	2.5	SM	G	G	Part of landscape planting within Rochdale Square. Circa 0.3m setback from boundary feature. Located in shrub bed.	1.4	20+	C2
T14	Pear species	7	120	1 - 1 - 1 - 1	2.5	2.5	SM	G	G	Part of landscape planting within Rochdale Square. Circa. 0.3m setback from boundary feature. Located in shrub bed.	1.4	20+	C2
T15	Pear species	8	110	1 - 1 - 1 - 1	2.5	2.5	SM	G	G	Part of landscape planting within Rochdale Square. Circa 0.3m setback from boundary feature. Located in shrub bed.	1.3	20+	C2
T16	Pear species	7	100	1 - 1 - 1 - 1	2.5	2.5	SM	G	G	Part of landscape planting within Rochdale Square. Circa 0.3m setback from boundary feature. Located in shrub bed.	1.3	20+	C2

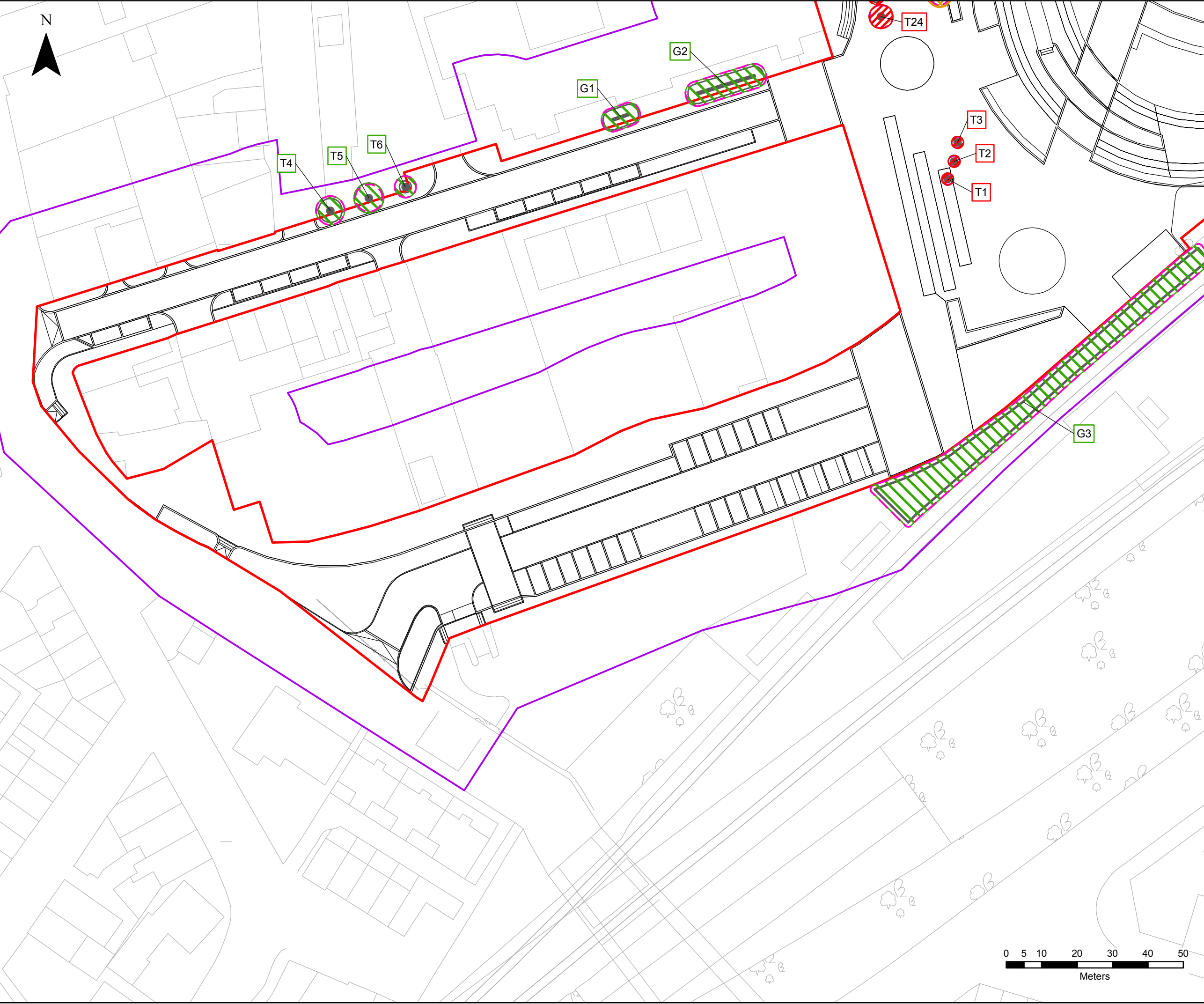
Tree Ref.	Species	Height (m)	Stem Dia. (mm)	Crown Spread N-E-S-W	LCH (m)	LBH (m)	Life Stage	Physiological Condition	Structural Condition	Tree Condition Notes & Observations	RPA Rad. (m)	ERC	BS5837 Category
T17	Pear species	7	130	1 - 1 - 1 - 1	2.5	2.5	SM	G	G	Part of landscape planting within Rochdale Square. Circa 0.3m setback from boundary feature. Located in shrub bed.	1.5	20+	C2
T18	Pear species	7	110	1 - 1 - 1 - 1	2.5	2.5	SM	G	G	Part of landscape planting within Rochdale Square. Circa 0.3m setback from boundary feature. Located in shrub bed.	1.3	20+	C2
T19	Pear species	7	150	1 - 1 - 1 - 1	2.5	2.5	SM	G	G	Part of landscape planting within Rochdale Square. Circa 0.3m setback from boundary feature. Located in shrub bed.	1.8	20+	C2
T20	Pear species	7	90	1 - 1 - 1 - 1	2.5	2	SM	F	G	Part of landscape planting within Rochdale Square. Part of landscape planting within Rochdale Square. Located on grass verge.	1.0	20+	C2
T21	Whitebeam	7	130	2 - 2 - 2 - 2	2.5	2.5	SM	G	G	Part of landscape planting within Rochdale Square. Circa 1.5m setback from boundary feature. Located in shrub bed.	1.6	20+	C2
T22	Pear species	7	110	1 - 1 - 1 - 1	2.5	2	SM	G	G	Part of landscape planting within Rochdale Square. Circa 0.3m setback from boundary feature. Located in shrub bed.	1.3	20+	C2
T23	Whitebeam	7	130	1.5 - 1.5 - 1.5 - 1.5	2.5	2.5	SM	G	G	Part of landscape planting within Rochdale Square. Circa 0.3m setback from boundary feature. Located in shrub bed.	1.5	20+	C2
T24	Whitebeam	7	160	2 - 2 - 2 - 2	2.5	2	SM	G	G	Part of landscape planting within Rochdale Square. Located in shrub bed.	1.9	20+	C2
T25	Whitebeam	7	140	2 - 2 - 2 - 2	2.5	2.5	SM	G	G	Part of landscape planting within Rochdale Square. Located in shrub bed.	1.7	20+	C2
G1	Pear species	9	150	1.5 - 1.5 - 1.5 - 1.5	3	3	SM	F	F	Two inaccessible trees set back circa 1m from boundary fence. 3m spacings.	1.8	20+	C2
G2	Pear species	9	160	1.5 - 1.5 - 1.5 - 1.5	2	2	SM	F	F	4 inaccessible trees set back c.1m from boundary fence. 2m spacings.	1.9	20+	C2
G3	Silver birch, buddleia	2	100	1 - 1 - 1 - 1	1	1	Y	F	F	Managed trackside scrub trees located atop >5m tall retaining structure. Inaccessible. looks to contain some buddleia.	1.2	10+	C2
G4	Sycamore, common hawthorn	14	450	4 - 4 - 4 - 4	2	2	EM	F	G	Inaccessible trees located with shrub bed to west of stone boundary wall. Maximum stem diameter and average crown spread reported.	5.4	20+	B2

Tree Ref.	Species	Height (m)	Stem Dia. (mm)	Crown Spread N-E-S-W	LCH (m)	LBH (m)	Life Stage	Physiological Condition	Structural Condition	Tree Condition Notes & Observations	RPA Rad. (m)	ERC	BS5837 Category
G5	Silver birch, common ash, cherry laurel, goat willow, lime species, wych elm	15	600	4 - 4 - 4 - 4	2	2	EM	G	F	Located north of stone boundary wall. Continuous cover group intersected by vehicular access track. Maximum stem diameter reported. Contains rhododendron and some ash dieback.	7.2	20+	B2

Appendix C

TREE REMOVALS AND PROTECTION PLAN





LEGEND:

Planning Application Boundary

Proposed Scheme

Arboricultural Study Area

Indicative Root Protection Area (RPA)

Arboricultural Feature Removed

Special Protection Measures required

Construction Exclusion Zone (RPA below hard surfacing/soft landscaping to remain in situ)

Indicative Tree Stem Locations

C - Low Quality Tree Stems

B - Moderate Quality Group Stems

C - Low Quality Group Stems

Indicative Tree Crown Locations

B - Moderate Quality Feature

C - Low Quality Feature

Label Symbology

Label for Feature Removed

Label for Special Protection Measures

Label for Construction Exclusion Zone

Prefix

G - Group

T - Tree

STATUS:

FOR INFORMATION ONLY

CLIENT:

Broadway Malyan

PROJECT:

Rochdale Station Square

TITLE:

TREE REMOVALS AND PROTECTION PLAN
Page 1 of 2

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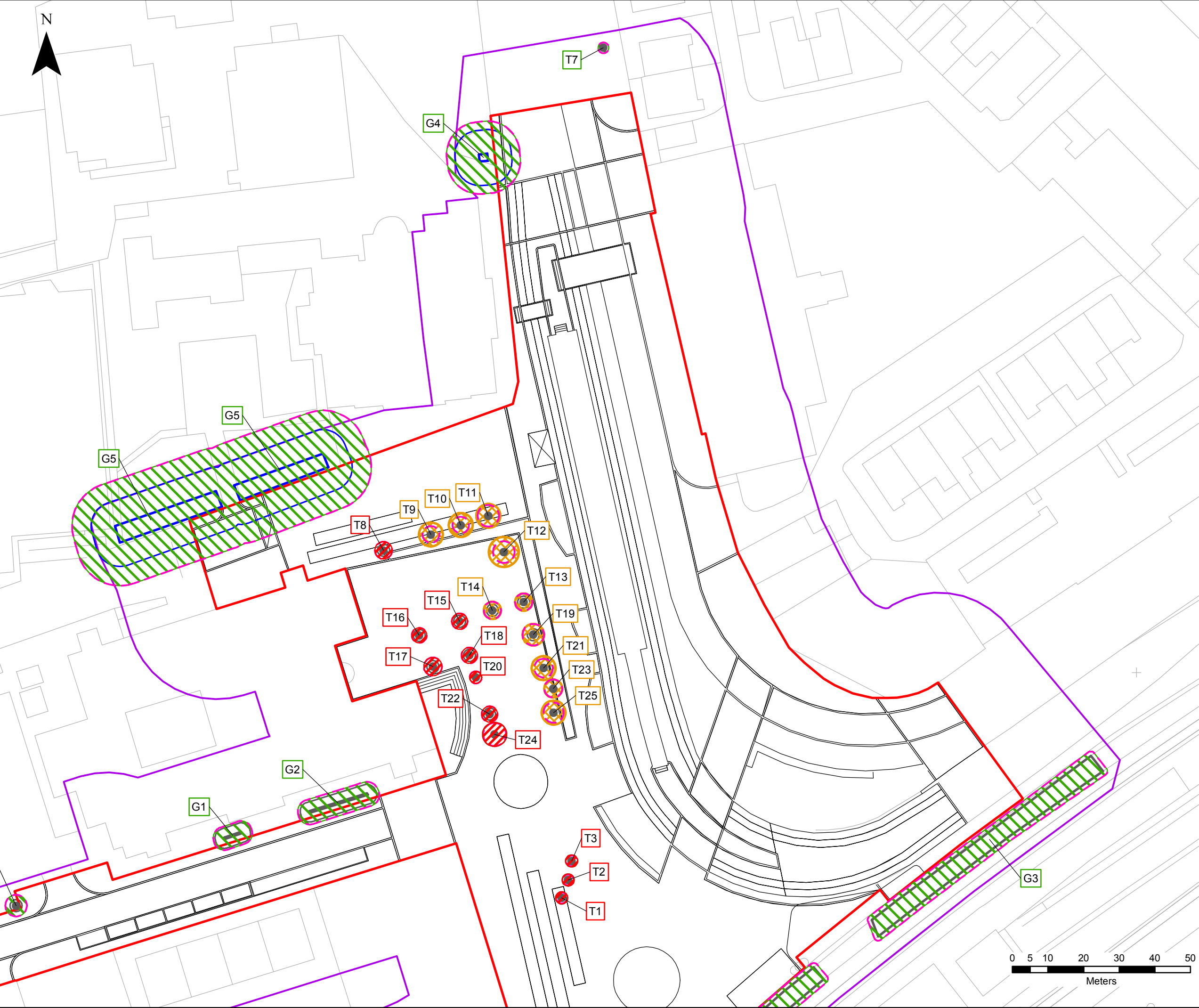
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PROJECT No:

70097916

DRAWING NUMBER:

70097916-WSP-001



LEGEND:

Planning Application Boundary

Proposed Scheme

Arboricultural Study Area

Indicative Root Protection Area (RPA)

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Label Symbology

Label for Feature Removed

Label for Special Protection Measures

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Prefix

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STATUS:

FOR INFORMATION ONLY

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Broadway Malyan

PROJECT:

Rochdale Station Square

TITLE:

TREE REMOVALS AND PROTECTION PLAN

Page 2 of 2

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PROJECT No:

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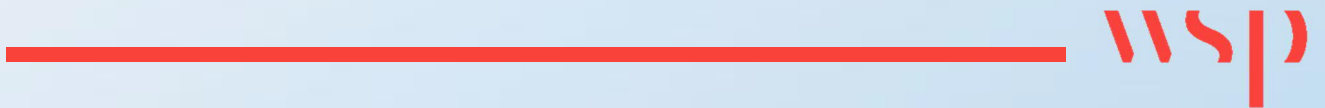
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Appendix D

ARBORICULTURAL METHOD STATEMENT



INTRODUCTION

The Arboricultural Method Statement (AMS) is designed to provide guidance to the Principal Contractor to ensure appropriate protection is given to retained trees during the demolition and construction phases of the project.

The AMS should be considered as a working document and be modified appropriately with input from the Site Manager and the appointed project arboriculturist acting as an Arboricultural Clerk of Works (ACoW).

PHASING

Detailed below is the phasing programme which should be followed by the contractor throughout the life of the Proposed Development to ensure that trees are protected in accordance with the Arboricultural Method Statement.

Phase 1 – Pre-development

- Pre-commencement site meeting with client, contractor, Local Planning Authority, engineer and appointed arboriculturist;
- Pegging out of construction areas;
- With reference to project plans and in consultation with client, contractor, LPA and scheme arboriculturist confirm trees to be removed and trees to be retained;
- Install protective fencing; and
- Carry out tree removal.

Phase 2 – Scheme development/construction

- Establish site compounds - location for cabins, car park and the storage of materials;
- Carry out initial ground works and services installations; and
- Undertake main development.

Phase 3 – post-development

- Carry out soft landscaping;
- Remove protective fencing; and
- Remove ground protection.

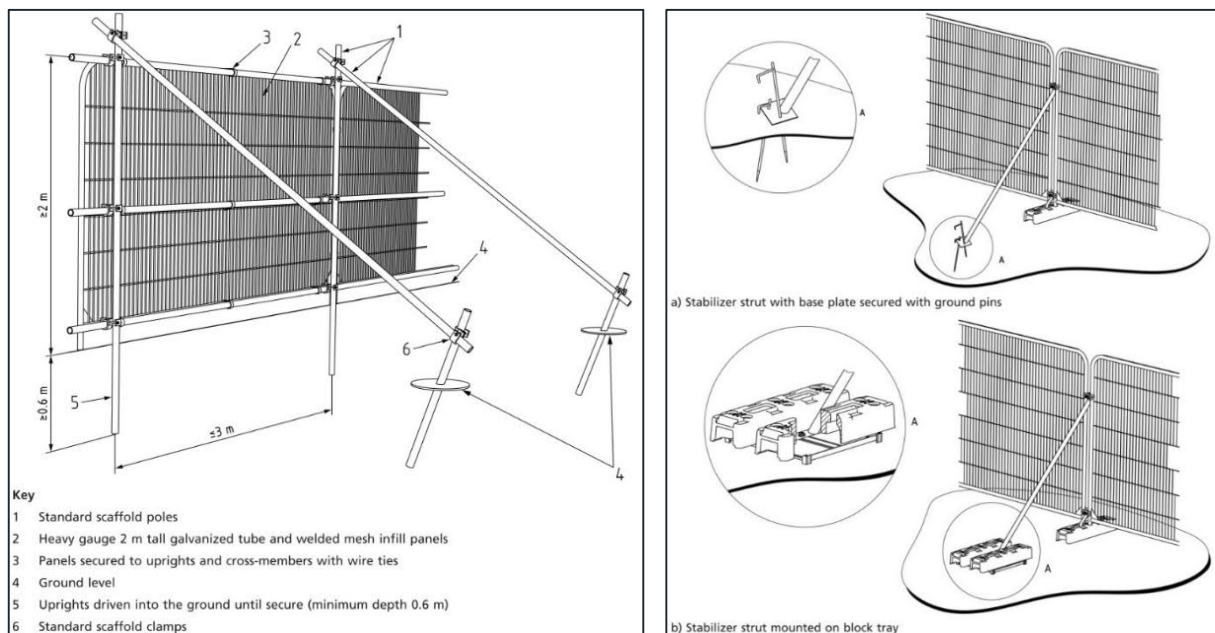
TREE PROTECTION FENCING

Effective tree protection can only be achieved by adherence to a logical sequence of works combined with effective arboricultural monitoring. Tree protection fencing (and ground protection) in accordance with BS5837 (or similar and approved) shall be erected prior to the commencement of any of the following activities:

- The delivery of any plant or materials;
- Demolition;
- Soil stripping;
- Construction works;
- Installation of utilities; and
- Landscape works.

The protective fencing will be erected to protect retained trees with positioning agreed on site with the ACoW. CEZs presented on the TRPP (of Appendix C) should indicate positioning of fencing and should be used as a guide. Typical examples of the type of tree protection fencing are included in Figure D-1.

Figure D-1 - Tree Protection Fencing (Extracts taken from BS 5837:2012 - Trees in relation to design, demolition and construction – Recommendations)



All weather notices should be attached to the tree protection fencing at suitable intervals and positioned at eye level. These notices should include suitably sized informative text containing the following statement:

**“TREE PROTECTION FENCING
CONSTRUCTION EXCLUSION ZONE – NO ACCESS”**

Once erected these areas should be regarded as sacrosanct, and, once installed, barriers should not be removed or altered without prior recommendation by the project arboriculturist and, where necessary, approval from the Local Planning Authority (LPA).

This fencing is to remain in place until completion of all construction works on site.

The areas covered by the tree protection fencing are known as the Construction Exclusion Zones (CEZ) and should not be compromised. The following shall apply within these areas:

- No mechanical excavations;
- No excavations by other means without the agreement of the project arboriculturist;
- No change in levels (except removal of grass sward using hand tools);
- No storage of plant or materials;
- No storage or handling of any chemicals including cement washings; and
- No vehicular access.

GROUND PROTECTION

Suitable ground protection with the objective of avoiding soil compaction should be installed where the Root Protection Areas (RPAs) for retained trees exceeds the perimeter of the tree protection fencing. To accord with British Standard BS5837:2012 ground protection shall comply with the following specification:

Areas of Unmade Ground

- For pedestrian only, access ground protection measures shall include a single thickness of scaffold boards placed on top of 100mm depth of compression resistant material (e.g. woodchip) laid onto a geotextile membrane.
- For pedestrian activities and plant up to 2 tons in weight proprietary interlinked ground protection boards will be used and placed on top of 150mm depth of compression resistant material (e.g. woodchip) laid onto a geotextile membrane.
- For wheeled or tracked equipment exceeding 2 tons in weight a structural engineer will design an alternative system. This may include the use of temporary cellular confinement systems, reinforced concrete slabs or track board systems details of which are to be approved before construction commences.

Areas of Existing Hard Surfacing

- Areas of existing hard surfacing identified for use as ground protection shall not be removed during site clearance and shall be retained throughout the construction period.
- Areas of existing hard surfacing shall be assessed by an engineer to ensure that they are sufficient to prevent damage or disturbance to the underlying soil. A precautionary approach to any anticipated loadings should be adopted.

In instances where the engineer identifies existing surfacing as inadequate then a specification for additional protection must be provided and any requirements actioned onsite.

On completion of all works the above systems shall be removed only with the consent of the LPA. Surface de-compaction and root zone enhancement measures may then be undertaken. This may include spiking, aeration and/or injection of rhizobium inoculants.

ADDITIONAL PRECAUTIONS OUTSIDE THE CEZ

Care should be taken when planning site operations to ensure that wide or tall loads or plant with booms, jibs and counterweights can operate without coming into contact with retained trees. Such contact can result in serious damage to them and might make their safe retention impossible. Consequently, any transit or traverse of plant in close proximity to trees should be conducted under the supervision of a banksman to ensure that adequate clearance from trees is maintained at all times. In some circumstances it may be impossible to maintain adequate clearance thus necessitating access facilitation pruning in consultation with the project arboriculturist. Notice boards, telephone cables or any other services shall not be attached to any part of a tree to be retained.

SITE HUTS, STORAGE OF MATERIALS AND SPOIL

Temporary site compounds, including mobile WCs and all their service connections, are to be positioned clear of the RPAs of retained trees.

The delivery, storage, mixing and discharge of concrete and all other cement-based materials shall be carried out so that there is no run-off and spillage near the RPAs of retained trees. No substances that are potentially injurious to plant tissue (including diesel, bitumen, concrete, mortar and other phyto-toxic materials) shall be stored, discharged, prepared or used, where direct contact, infiltration or run-off might reasonably be considered liable to harmfully affect existing root growth or other parts of retained trees. Where chemicals are stored it is now standard practice to have emergency spillage kits available to minimise the impacts of any accidental spillages to the local environment. All cement mixing, vehicle washing or any other activity where toxic chemicals are used shall have the provision to contain any accidental spillage. This can be achieved using suitable soil bunding or using a supporting timber framework sealed with heavy duty plastic sheeting.

No building materials shall be stored within RPAs of retained trees. Spoil from any site activity, including demolition and any materials from the project designated for re-use, shall either be

removed from site; or, if kept on site, shall be stored or piled well clear of RPAs of retained trees.

INSTALLATION OF UNDERGROUND SERVICES

All underground services should be routed well outside the RPAs of all retained trees as mechanical trenching severs any root present and can adversely affect the local soil hydrology. Where this is not feasible then it is preferable to keep all apparatus in common ducts to minimise disturbance. Contractor to adopt precautionary working methods in line with National Joint Utility Group (NJUG) Volume 4.

Provided that roots can be retained and suitably protected (i.e. exposed roots are immediately wrapped or covered to prevent desiccation and rapid temperature change and all wrappings removed prior to backfilling) excavation with hand tools may be acceptable for shallow service runs under the supervision of the project arboriculturist.

Where services are to pass within the RPA then plans showing the proposed route should be drawn up with input from the project arboriculturist. Trenchless insertion methods should be used with the entry and exit pits situated outside the RPAs.

Demolition of existing structures in close proximity to retained trees should be carried out under the supervision of the project arboriculturist as necessary and should be undertaken from within the footprint of the building or structure using the “top down, pull back” method. Great care must be exercised to ensure that no parts of the adjacent trees are damaged during this process.

SOFT LANDSCAPING

For all soft landscape works, excavations and ground preparation within these areas is to be carried out using hand tools only in a sensitive manner to ensure root damage is kept to a minimum. At no time shall a rotavator be used within any of the protected areas to prepare the soil.

Removal of existing vegetation and turf will be carried out by hand only. Any herbicide used during the development works shall be appropriate for the type of vegetation to be killed and all instructions, warnings and other relevant information from manufacturers should be strictly observed and followed. Care should be taken to avoid any damaging effects upon existing plants and trees to be retained.

Care should be taken to avoid changes in ground levels within the RPAs and no changes in ground levels shall occur within CEZs of all retained trees.

No works shall be carried out within the RPAs if the soil moisture levels are high enough to allow compaction to occur. If compaction of the ground has occurred then decompaction measures should be undertaken, these may include forking, spiking, soil augering and tilled radial trenching.

Final grading to marry in new levels with existing ground will be achieved by importing good quality topsoil and spreading it using hand tools only. Areas of proposed grass shall then be raked to a fine tilth and will be grass seeded or turfed as necessary by hand.

All new tree planting should be undertaken in accordance with *BS8545:2014 Trees: from nursery to independence in the landscape. Recommendations*. Planting pits for shrubs or trees must be hand excavated taking care to avoid damage to existing tree roots. If substantial roots are discovered then the planting pit should be relocated if possible in order to retain them. Hedging plants if bare root shall be notch planted and no trench planting shall take place within the RPAs. If fertiliser is to be incorporated into the planting pits it should be a slow release type such as 'Enmag' or other similar approved and should be applied in accordance with the manufacturer's recommendations.

Roots shall be retained and carefully worked around, wherever practicable. No root greater than 25mm dia. shall be cut without confirmation from the project ACoW. If damage does occur to a root greater than 25mm dia, then advice must be sought from the project ACoW. Where it is essential to sever roots they shall be cleanly cut, using an appropriate, sharp bladed hand-tool.

If in the course of operations, roots, that are to be retained, are unearthed, they shall not be left unduly exposed, but shall be covered with hessian, or similar, to protect from desiccation. Prior to backfilling, any hessian wrapping should be removed and retained roots should be surrounded with sharp sand, or other loose granular fill before soil or other material is replaced.

Where materials or plants are to be brought into or removed from the RPAs they should be transported in wheelbarrows and must be moved across existing hard surfacing or temporary ground protection in accordance with BS5837 in a way that prevents compaction of the soil.

Mulch should be applied to open soils and shrub planting areas to inhibit weed growth, reduce groundwater evaporation, resist and mitigate soil compaction and reduce maintenance requirements. Material that may be used shall include well composted wood chip, pulverised bark, leaf mould or green waste conforming to PAS 100. The depth of mulch should not exceed 100mm, taking particular care not to lay excessive mulch around new plants and should be avoided in areas of established tree growth.

MONITORING

Once the protective fencing and ground protection measures have been installed but prior to the commencement of the development a site inspection should be undertaken by the project ACoW. This is to confirm that all protection measures have been installed in accordance with the TRPP and AMS.

Regular monitoring visits should be carried out as necessary during the development.

On completion of the development a general survey of the trees is recommended to identify any remedial action necessary as a result of the works. Note that permission for any additional



tree works not included in the original development consent may need to be obtained through application to the LPA.

If any arboricultural issues arise during the development, then the site manager should immediately contact the project ACoW for advice on how to proceed.



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