BS 5837:2012 Arboricultural Impact Assessment

Ollerton Depot Workshop Area Access

Presented to: J. Murphy & Sons Limited

Issued: January 2024

Delta-Simons Project No: 87854 603995

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Report Details

Client	J. Murphy & Sons Limited
Report Title	BS 5837:2012 Arboricultural Impact Assessment
Site Address	Ollerton Depot, Newark Road, New Ollerton, NG22 9PZ
Project No.	87854 603995
Delta-Simons Contact	Pete Morrell [redacted]

Quality Assurance

Issue No.	Status	Issue Date	Comments	Author	Technical Review	Authorised
1	Final	30th January 2024		[redacted]	[redacted]	[redacted]
				Peter Morrell Principal Arboriculturist	Charlotte Sanderson-Lewis Associate Director	Charlotte Sanderson-Lewis Associate Director

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1.0 Introduction

1.1 Purpose and Scope of the Survey

Delta-Simons Limited was instructed by J. Murphy & Sons Limited (the 'Client') to produce an Arboricultural Impact Assessment (AIA) to British Standard (BS) 5837:2012. The AIA was undertaken of an area of land at Ollerton Depot, Newark Road, New Ollerton (hereafter referred to as 'the Site'). The assessment was undertaken in order to inform a planning application for the creation of both vehicle and pedestrian access to the new Workshop area to the northwest of the main Site.

The aims of the AIA were to:

Detail foreseeable tree related issues within this Report to inform the Local Planning Authority (LPA);

Provide an initial analysis of the impacts that the proposed development is projected to have on trees both within the Site and, where considered pertinent and where practicable, on land immediately adjacent to its boundaries; and

Provide guidance on suitable retained tree management and mitigation for projected losses, along with advice on appropriate tree protection measures in the context of the proposed development in accordance with current guidance.

1.2 Site Description

The Site is centred at Ordnance Survey (OS) grid reference SK 67090 67074 south of New Ollerton in Nottinghamshire. The Site covers an area of 24 ha and is a construction and engineering company in the west, comprising predominantly hardstanding and buildings with a large patch of both ephemerals/ perennials and scattered scrub, whilst in the centre and east is improved grassland in the northern and arable in the southern area, separated from the hardstanding by a combination of woodland and dense scrub A woodland belt runs along the southern extent of the Site with a length of hedgerow inside. A stream runs from the northern boundary in a westerly direction to the western boundary.

The Survey area comprises a disused railway embankment running on a curve from the north to south across the centre of the wider Site. It is characterised by broadleaved trees with an understory of tree sapling, scrub and ruderals.

The Site is situated in New Ollerton and is in a predominantly rural area, surrounded by blocks of woodland on all aspects except the west where residential dwellings are located.

The Site layout and area surveyed is shown in Figure 1.

1.3 Proposed Development

It is understood that a vehicle access is to be created by cutting through the embankment to the south, with a pedestrian access created using steps over the embankment in the north.

1.4 Site Visit, Data Collection and Tree Plans

Further to the completion of a Tree Survey of the Site by Delta Simons, which took place in November 2023, all tree data collected from the Site is set out in the attached tabulated Tree Survey Schedule (TSS) at Appendix B and shown on the Tree Constraints Plan (TCP) (Figure 1).

The survey identified 17 individual trees (prefix 'T') and four groups of trees ('TG'). The surveyed vegetation has been numbered accordingly on the TCP and Tree Impact Plan (TIP), as appended (see Figure 1 and Figure 2, respectively). The TCP details the existing Site with the readily definable tree constraints, whilst the TIP also has an overlay of the development proposals along with associated projected tree related impacts. The plans are based on topographical survey of the existing and proposed Site plans that were provided in electronic format by the Client, and for the purpose of this Report, it is assumed that these are accurate.

The results of the desk search undertaken on http://www.newark-sherwooddc.gov.uk on 1st December 2023 indicate that no trees on-Site or immediately adjacent to the Site are covered by Tree Preservation Orders (TPOs) or are within a Conservation Area.

2.0 Legislation

2.1 Tree Preservation Orders and Conservation Area Designations

The Town & Country Planning Act (1990) (the Act) and associated Regulations empower LPAs to protect trees in the interests of amenity by making TPOs. The Act also affords protection for trees of over 75 mm diameter that stand within the curtilage of a CA. Subject to certain exemptions, an application must be made to the LPA in question to carry out works upon or remove trees that are subject to a TPO, whilst six weeks' notice of intention must be given to carryout works upon or remove trees within a CA that are not protected by a TPO.

2.2 Protected Species

2.2.1 Nesting Birds

Nesting birds are afforded statutory protection under the Wildlife & Countryside Act (1981, as amended) and their potential presence should, therefore, be considered when trimming hedges, removing climbing plants and pruning and removing trees. The breeding period for nesting birds runs from March to late July, inclusive. Hedges provide valuable nesting sites for many birds and management should, therefore, be avoided during this period. Trees, hedges and ivy should be inspected for nests by a suitably qualified ecologist prior to pruning or removal, and any work likely to destroy or disturb active nests should be avoided until the young have fledged.

2.2.2 Bats

All bats and their roosts are protected under Section 9 of the WCA 1981 (as amended) and Annex IV of the Habitats and Species Regulations 2017.

It is an offence, either deliberately or recklessly, to destroy, damage or obstruct access to any bat roost, or to disturb a bat using such a place. It should be noted that a roost is protected whether or not bats are present and any activity or works affecting a roost, even when bats are absent, are likely to require a Natural England European Protected Species Licence.

2.3 Felling Licences

Subject to certain exemptions the Forestry Act (1967) requires that a 'Felling Licence' be obtained to remove growing trees amounting to more than five cubic metres of timber in a calendar quarter. Felling Licences are administered by the Forestry Commission and contravention of the associated controls can incur substantial penalties. A Felling Licence is, however, not required where tree removals are required for the purpose of implementing a development authorised by detailed (i.e. full) planning permission granted under the Act (1990).

3.0 The Tree Population

The Site is described in Section 1.0 of this Report.

As noted previously, 17 individual trees and four groups of trees were surveyed for the purpose of this appraisal. The trees and groups were limited to being randomly dispersed on both slopes of the former railway embankment. Numerous self-set saplings are also interspersed throughout the Site with occasional open areas supporting bramble scrub also present.

Pedunculate oak was the dominant species with sycamore, silver birch, hawthorn and goat willow present in multiple numbers. A single apple was also present.

The majority of trees, whilst not of a great height are by their positions along the slopes of the railway embankment, are highly visible when viewed from the north and east and their prominence is enhanced by the height of the embankment. The canopy cover is just about continuous for the length of the embankment and contributes significantly to the semi-rural scene. However, the western extent of the embankment is less prominent, being screened by containers and buildings present within the main depot.

The majority of trees present within the Site are semi-mature with a single mature goat willow and a young sycamore also present. Numerous saplings intersperse the trees and are present on the top of the embankment along the former railway bed where older trees are not present. None of the trees within the Site boundary show signs of past management. The greater part of on-Site trees appear to be in fair to good condition. A mature goat willow supports collapsed stems, while several of the trees within tree groups display phototropic growth and supressed canopies.

In respect to the TSS, it should be noted that tree quality is categorised within the existing Site context without taking any development proposals into account. However, recommendations for works included in the TSS takes both current Site usage into consideration and the proposed Site development where there are definable development related issues with regards to specific trees.

The TSS includes a column (‘Cat. Grade’) listing the trees’ respective retention values, where they are rated either ‘A’, ‘B’, ‘C’ or ‘U’, as per BS5837:2012 Table 1 (Appendix B). ‘A’ category trees are those considered to be of ‘high quality’ and, accordingly, the most suitable for retention, whilst ‘B’ category trees are those considered to be of ‘moderate quality’. As detailed in Table 1 (below), no trees were categorised as high quality (‘A’), ten trees and a tree group were categorised as moderate quality (‘B’), and seven trees and three tree groups were assessed as being of low quality (‘C’). No trees were categorised as being of poor quality (‘U’).

Table 1: BS5837-2012 Retention Categories of the Surveyed Trees

Tree Quality	Ret. Cats.	Tree/Group Numbers	Totals
Those of a moderate or high quality that should be afforded appropriate consideration in the context of development	‘A’	-	-
	‘B’	TG1, T2, T5, T8, T10, T12, T16, T17, T18, T20, T21	10 Trees 1 Tree Group
Those of a low quality that should not be considered a material constraint to development	‘C’	TG3, TG4, T6, TG7, T9, T11, T13, T14, T15, T19	7 Trees 3 Tree Groups

Those that should be removed for management reasons regardless of site proposals	'U'	-	-
Totals			17 Trees 4 Tree Groups

It is understood that a vehicle access is to be created by cutting through the embankment to the south, with a pedestrian access created using steps over the embankment in the north (Drawings 1 and 2).

Accordingly, the TCP has been overlaid on the development plan provided by the Client in order to appraise the projected impacts that the development will potentially have on the Site vegetation, as detailed on the TIP.

3.1 Projected Arboricultural Losses Relating to the Proposal

As detailed in Table 2, below, and on the TIP, implementation of the proposed development as it stands is projected to require the removal of three trees of moderate quality and six trees of low quality. The remainder of on-Site trees are to be retained.

Table 2: Arboricultural Impacts of Proposed Development and Other Tree Removal Proposals

Tree Quality	Ret. Cats.	Removals Necessary to Implement Development	Removals Suggested for Non-Development Related Reasons	Total Number of Tree Removals
Those of a moderate or high quality that should be afforded appropriate consideration in the context of development	'A'	-	-	0 Trees
	'B'	T2, T8, T20	-	3 Trees
Those of a low quality that should not be considered a material constraint to development	'C'	TG3 (1 tree), TG7 (3 trees), T9, T19	-	6 Trees
Those that should be removed for management reasons regardless of Site proposals	'U'	-	-	0 Tree
Totals				9 Trees

3.2 Mitigation for Projected Tree Losses as Part of Site Landscaping

New tree planting as part of the Site landscaping plans (Drawing 3) is proposed within the Site. The proposals include provision for tree planting throughout the wider Site within both formal landscaped areas and informal naturalised areas, which are projected to mitigate for the necessary development related tree losses.

4.0 Summary and Conclusions

The Site is located at Ollerton Depot, Newark Road, New Ollerton. A total of 17 trees and four tree groups were surveyed in respect of the proposed development of the two access routes. The proposals are to create a vehicle access by cutting through the embankment to the south, with a pedestrian access created using steps over the embankment in the north. New tree planting is proposed throughout the Site and tree and vegetation cover is to be retained either side of the proposed works, with tree removals kept to a minimum to facilitate the proposed development.

No trees were categorised as having high retention values, all 17 trees and four groups of trees surveyed comprised low to medium value individual trees and were considered as medium value when considered as single group.

An evaluation of the proposed development in the context of the existing Site has indicated that it will be necessary to remove three trees of moderate retention value, and six trees of low retention value. However, the provision of new tree planting within the development's landscaping is projected to mitigate for the necessary development related tree losses.

In consideration of the above findings, it is concluded that, from the details provided to date, the Site in question can be developed as proposed, whilst retaining the majority of trees located on the former railway embankment and in turn, providing new tree planting within the Site, predominantly around the centre and along the northern and southern boundaries. This should provide a varied age range within the tree stock within the wider Site. However, in order to ensure successful existing tree preservation, it is essential that the retained trees are protected in strict accordance with current Government guidance and the recommendations included herein.

5.0 Recommendations for Successful Tree Retention in the Context of Development

5.1 Root Protection Areas and Construction Exclusion Zones

Adequate protection of the Root Protection Areas (RPAs) of retained trees during construction is essential to ensure their long-term viability. RPAs, which are calculated through a method provided in BS5837:2012, are ground areas that must be protected by temporary protective fencing (Specification given in Appendix C) as Construction Exclusion Zones (CEZs) throughout the development process, thereby keeping the trees' root zones free from disturbance, including compaction. Consequently, the RPA distances, as detailed in the TSS, and included on the TCP and TIP indicate the likely on-Site below-ground constraints in respect of tree roots, whilst assisting in planning for appropriate tree retention in relation to feasible development. In certain situations, such as at this Site, there is a limited degree of flexibility in the CEZ positioning, as discussed below.

The TSS includes two columns listing the RPAs of the individually surveyed trees and, where applicable, the largest of the trees in any surveyed groups as overall areas in square metres and as radial distances. The radial RPAs are indicated as blue coloured circles on the TCP and TIP. With regard to CEZs, the design, materials and construction of the fencing should be appropriate for the intensity and type of site construction works and should conform to at least section 6.2 of BS5837:2012, and should be secured by the imposition of a suitably worded planning condition. A default Temporary Protective Fencing Specification is included at Appendix C.

5.2 Underground Utilities

The installation of underground utilities in close proximity to trees can cause serious damage to their roots. As such, it is essential that utilities be routed outside RPAs unless there is no other available option, and specifics regarding these routes should be included as part of a detailed planning application. Where RPAs cannot be avoided then guidelines set out in the National Joint Utilities Group publication '*Volume 4: NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (Issue 2) – Operatives Handbook*' should be followed (e.g. trenches of a very limited width to be hand dug or the use of directional drilling).

5.3 Arboricultural Method Statement and Tree Protection Plan

Government guidance recommends that, where considered practical by the LPA, an Arboricultural Method Statement (AMS) and a Tree Protection Plan (TPP) be prepared detailing mitigation for trees during the construction process. Essentially, the AMS and TPP describe and detail the procedures, working methods and protective measures to be used in relation to retained trees in order to ensure that they are adequately protected during the construction process.

6.0 Other Recommendations

6.1 Non-Development Related Tree Works and Recommendations

Any general management pruning works for retained trees that are stated to be non-development related, as detailed in the TSS, are recommended in accordance with prudent arboricultural management and should, therefore, be carried out regardless of any development proposals and potential changes in land usage associated with the Site. All tree works should be carried out in accordance with BS3998:2010 - Tree Work –Recommendations.

6.2 Tree Work Related Consents

No tree pruning nor removal works should commence on-Site until necessary consents have been obtained from the LPA.

6.3 Arboricultural Contractors

All tree works should be carried out by suitably qualified and experienced arboricultural contractors carrying appropriate public liability insurance cover and be implemented to the minimum current UK industry standards and in accordance with industry codes of practice. Only certificated personnel should, in accordance with The Control of Pesticides Regulations, apply any pesticides.

6.4 Contractors and Subsequently Identified Tree Defects

Tree contractors should be made aware that, should any significant tree defects become apparent during operations that would not have been immediately obvious to the surveyor, then such defects should be notified immediately to the Client and subsequently confirmed to the consultant within five working days.

6.5 New Tree Planting

All tree planting at the Site should be carried out in accordance with BS4428:1989 - Code of Practice for General Landscape Operations, BS3936-1:1992, Nursery Stock –Part 1: Specification for Trees and Shrubs and BS4043:1989, Transplanting Root-Balled Trees where applicable, or any ensuing superseding guidance where applicable.

6.6 Retained Tree Management

Any tree risk management appraisals and subsequent recommendations made in this report were based on observations and Site circumstances at the time of the survey. It should be noted that trees are dynamic living organisms with constantly changing structures, and even those evidently in good condition can succumb to damage and/or environmental stress. In this respect, it should be noted that, under the Occupiers' Liability Act (1957 & 1984), Site occupants have a duty of care to take reasonable steps to prevent or minimise the risk of personal injury and/or damage to property from any tree located within the curtilage of the land they occupy. It is accepted that these steps should normally include commissioning a qualified and experienced arboriculturist to survey their trees in order to identify any risk of harm to persons or damage to property that they may present and, where unacceptable risks are identified, taking suitable remedial action to negate those risks.

7.0 Limitations of the Arboricultural Impact Assessment

The recommendations contained in this Report represent Delta-Simons' professional opinions, based upon the information referred to in Section 1.0 of this Report, exercising the duty of care required of an experienced Environmental Consultant.

This Report was prepared by Delta-Simons for the sole and exclusive use of the Client and for the specific purpose for which Delta-Simons was instructed as defined in Section 1.1 of this Report. Nothing contained in this Report shall be construed to give any rights or benefits to anyone other than the Client and Delta-Simons, and all duties and responsibilities undertaken are for the sole and exclusive benefit of the Client and not for the benefit of any other party. In particular, Delta-Simons does not intend, without its written consent, for this Report to be disseminated to anyone other than the Client or to be used or relied upon by anyone other than the Client. Use of the Report by any other person is unauthorised and such use is at the sole risk of the user. Anyone using or relying upon this Report, other than the Client, agrees by virtue of its use to indemnify and hold harmless Delta-Simons from and against all claims, losses and damages (of whatsoever nature and howsoever or whensoever arising), arising out of or resulting from the performance of the work by the Consultant.

Figure A –CEZ Warning Sign

CEZ Warning Sign

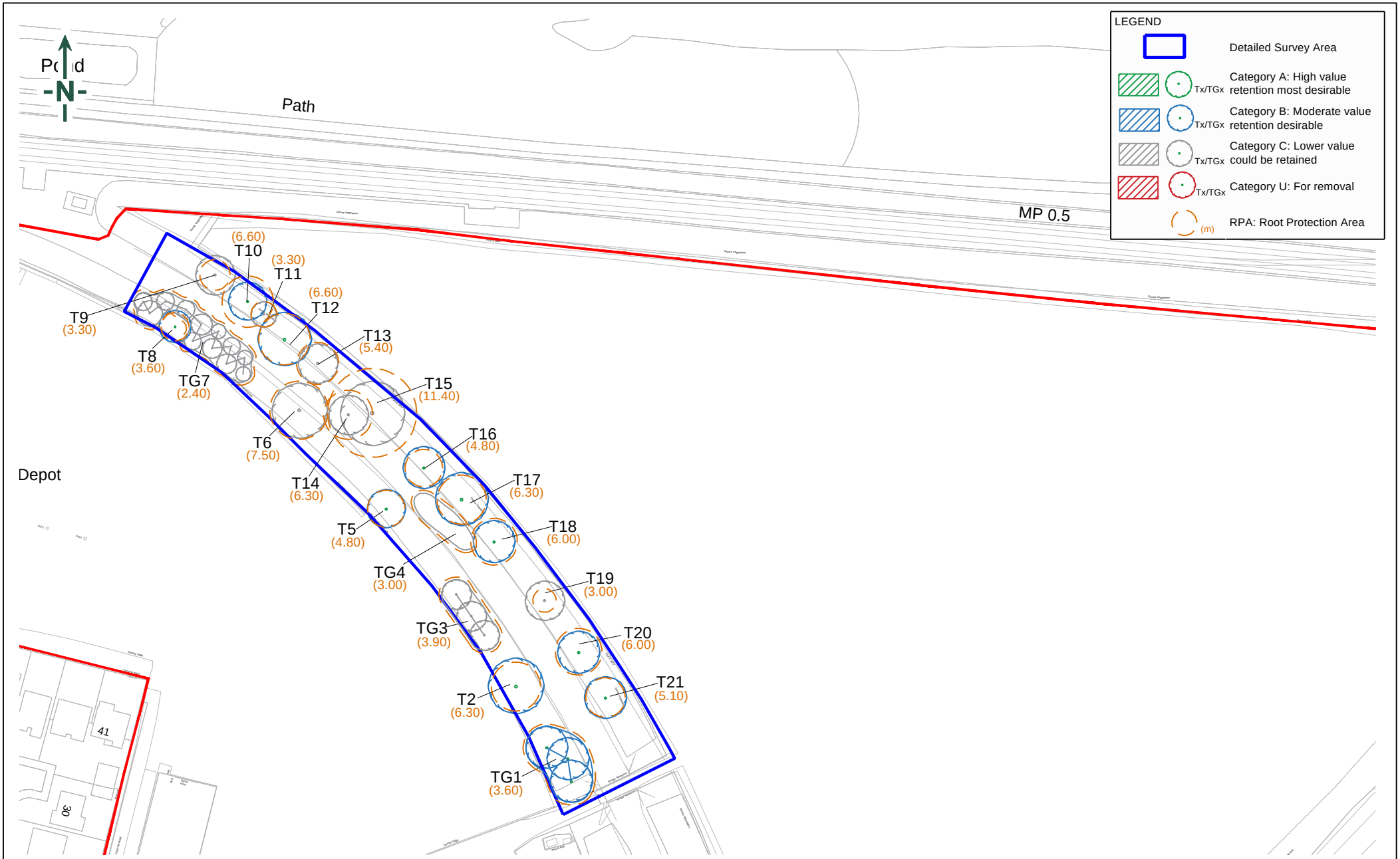
– TREE PROTECTION AREA –
KEEP OUT!

(TOWN & COUNTRY PLANNING ACT 1990)
THE TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS, THE CONTRAVENTION OF WHICH MAY LEAD TO CRIMINAL PROSECUTION.
THE FOLLOWING MUST BE OBSERVED BY ALL PERSONNEL:

THE PROTECTIVE FENCING MUST NOT BE MOVED
NO PERSON SHALL ENTER THE CONSTRUCTION EXCLUSION ZONE
NO MACHINE, PLANT OR VEHICLES SHALL ENTER THE EXCLUSION ZONE
NO MATERIALS SHALL BE STORED IN THE EXCLUSION ZONE
NO SPOIL SHALL BE DEPOSITED IN THE EXCLUSION ZONE
NO EXCAVATION SHALL OCCUR IN THE EXCLUSION ZONE
NO FIRES SHALL BE LIT IN THE EXCLUSION ZONE

ANY INCURSION INTO THE EXCLUSION ZONE MUST BE WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY

Figure 1 –Tree Constraints Plan



Site Plan Provided by Client

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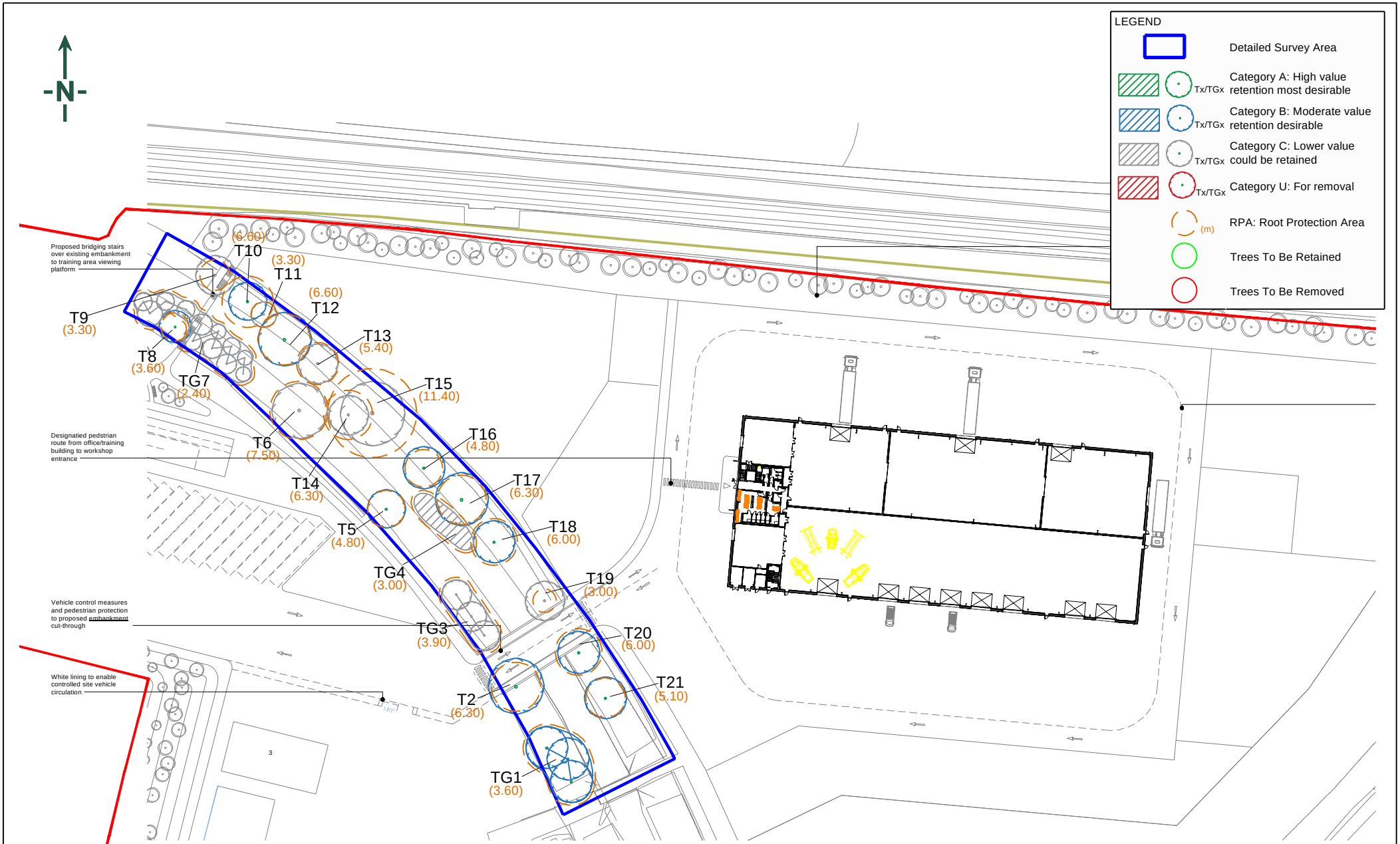
TITLE:
Tree Constraints Plan
Ollerton Depot, Newark Road

DRAWN BY: GC	SCALE: Not to Scale	PROJECT NO: 87854.603995	
CHECKED BY: PM	REVISION: 1	FIGURE NO: 1	
DATE: 06 December 2023			

Figure 2 –Tree Impact Plan



Site Plan Provided by Client

DeltaSimons
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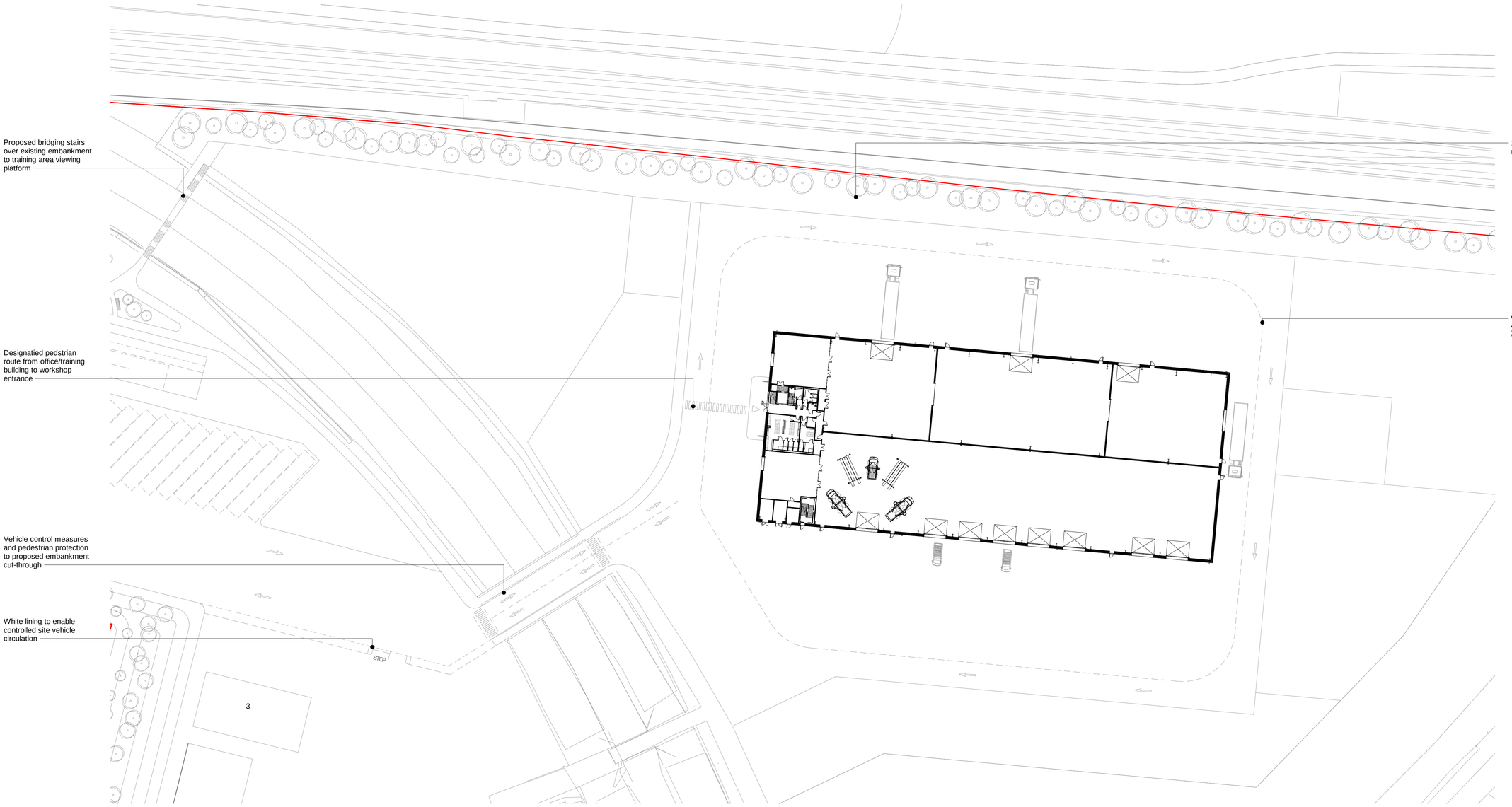
TITLE:
Tree Impact Plan
Ollerton Depot, Newark Road

DRAWN BY: GC	SCALE: Not to Scale	PROJECT NO: 87854.603995
CHECKED BY: PM	REVISION: 1	FIGURE NO: 2
DATE: 06 December 2023		

Drawing 1 –Proposed Development Plan –Vehicle Access

Zone: 04

Status: S0



1 Proposed Workshop Area

1 : 500

The contractor must check dimensions on site. Only figured dimensions to be worked from.

Any discrepancies must be reported to the architect before proceeding

DRAWING CONVENTIONS:

For ease of reading,View Tags (Elevation, Section markers etc.) indicate last 4 digits of Document no. only

Drawing based on survey drawing ref. LBU0171_Ollerton Plant Depot_Rev 3 and X61-06-JMS-DWG-XX-001 Ollerton Elevations provided by Murphy

NOTES:

N

-5 0 5 10 15 20 25

SCALE 1:500 m

DRAFT 07/11/2023

REVISIONS

Rev.	Description	Date	Checked

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PROJECT TITLE: Ollerton Project

Newark Rd, New Ollerton, Newark NG22 9QG

DOCUMENT TITLE: Site Plan - Proposed Workshop Area

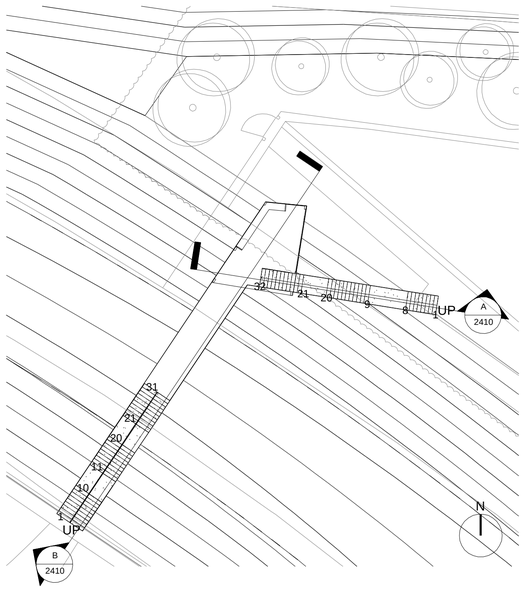
DOCUMENT NO:	STATUS:	REVISION:	SCALE @ A1:	SCALE @ A3:
117-GTH-04-ZZ-DR-A-1102	S0		1:500	1:1000

CURRENT ISSUE DATE:

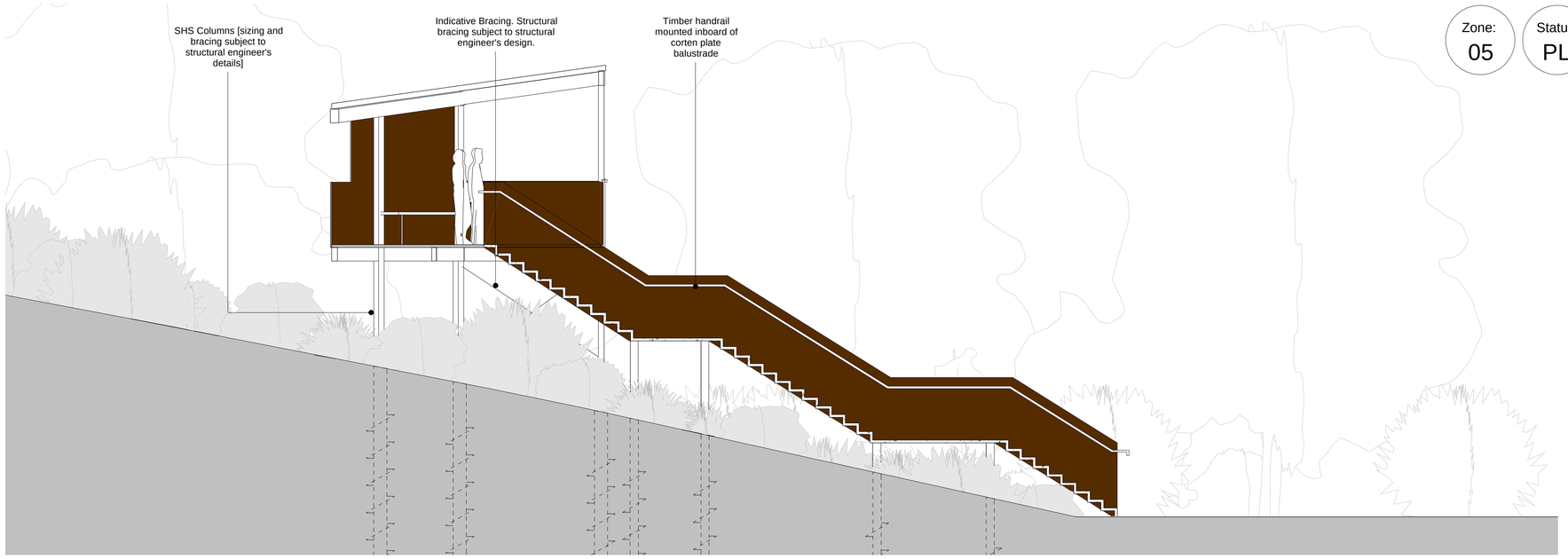
Drawing 2 –Proposed Development Plan –Pedestrian Access

Zone: 05

Status: PL



1 Section Key Plan



A Section A

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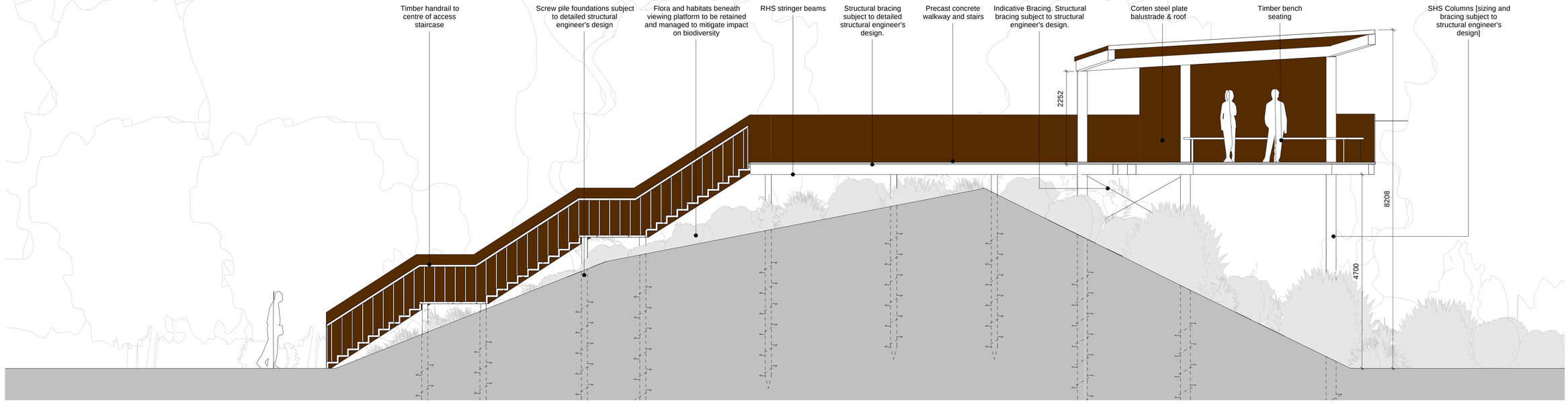

B Section B

1 : 50

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SCALE 1:50 m

The contractor must check dimensions on site. Only figured dimensions to be worked from.

Any discrepancies must be reported to the architect before proceeding

DRAWING CONVENTIONS:

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NOTES:

Note: Design intent only, subject to structural engineer's specifications

REVISIONS

Rev.	Description	Date	Checked
-	Planning Issue	22.12.2023	GTH

GTH / architects

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PROJECT TITLE:
Ollerton Training Viewing Area

Newark Rd, New Ollerton, Newark NG22 9QG

DOCUMENT TITLE:
Sections

DOCUMENT NO:	STATUS:	REVISION:	SCALE @ A1:	SCALE @ A3:
117-GTH-05-ZZ-DR-A-2410	PL	-	1:50	1:100

CURRENT ISSUE DATE:
22.12.2023

Drawing 3 –Proposed Landscaping Plan

A1 File Reference D3296-FAB-00-XX-DR-L-5000.dwg Plot Date 29-Nov-23

Revision	Date	Reason	Drawn	Checked
PL01	01.12.23	First Issue	sw	sg

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2. Do not scale from this drawing. Only figured dimensions are to be taken from this drawing.
3. All contractors must visit site and be responsible for taking and checking all dimensions related to the works shown on the drawing prior to fabrication or setting out.
4. This drawing uses coloured lines. Please do not rely on a monochrome copy.

External References:
-

0 10 20 30 50 75 100 150 200m

1:2,000

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Project: The One Murphy Ollerton Hub
Client: J.Murphy
Drawing Title: Illustrative Landscape Masterplan

Purpose of Issue	Drawn By	Checked By	Drawn Scale	Date of First Issue
ISSUED FOR PLANNING APPROVAL	sw	sg	1:2,000 @ A1	dec | 2023

Project Number	Origin	Zone	Level	File Type	Role	Number	Revision
D3296	FAB	00	XX	DR	L	5000	PL01

Appendix A –References

References

BS4428:1989 - Code of Practice for General Landscape Operations. BSI British Standards, London.

BS3936-1:1992, Nursery Stock –Part 1: Specification for Trees and Shrubs. BSI British Standards, London.

BS3998:2010 - Tree Work - Recommendations. BSI British Standards, London.

BS4043:1989 - Transplanting Root-Balled Trees. BSI British Standards, London.

BS5837:2012 - Trees in Relation to Design, Demolition and Construction –Recommendations. BSI, London.

National House Building Council (2008). NHBC Standards Chapter 4.2 - Building Near Trees. NHBC, Amersham.

National Joint Utilities Group (2007). Volume 4: NJUG Guidelines for the Planning.

Installation and Maintenance of Utility Apparatus in Proximity to Trees (Issue 2) –Operatives Handbook.

Appendix B –BS5837:2012 Tree Schedule

Table 1 –BS 5837:2012 Tree Schedule

Tree No.	Species Name	Botanical Name	Ht (m)	Stem dia (mm)	No of Stems	Crown Spread				Crown Clearance (m)	Life Stage	Physiological Condition	Structural Condition	Comment	Cat Grading	Estimated remaining contribution (yrs)	Radius of RPA (m)	Recommendations
						N	E	S	W									
TG1	Pedunculate oak Silver birch	*Quercus robur* *Betula pendula*	Av 15	Av 300	3	6	6	6	6	0	SM	Good	Good		B2	40 +	3.6	
T2	Hawthorn Pedunculate oak	*Crataegus monogyna* *Quercus robur*	16	300 400 350	3	9	6	8	9	0	SM	Good	Good	Trifurcated at 1 m	B2	40 +	6.3	
TG3	Pedunculate oak	*Quercus robur*	9	5 x 150	MS	4	4	4	4	0	SM	Fair	Moderate		C1	20 +	3.9	
TG4	Silver birch	*Betula pendula*	15	Av 250	5	4	4	4	4	14	SM	Fair	Moderate		C2	20 +	3.0	
T5	Pedunculate oak	*Quercus robur*	14	350 175	2	7	0	7	7	1	SM	Good	Moderate		B2	40 +	4.8	
T6	Sycamore	*Acer pseudoplatanus*	16	10 x 200	10	7	7	7	7	1	SM	Fair	Moderate	Multi-stemmed from base	C2	20 +	7.5	
TG7	Silver birch Goat willow	*Betula pendula* *Salix caprea*	Av 14	Av 200	MS	3	3	3	3	0	SM	Fair	Moderate		C2	20 +	2.4	
T8	Pedunculate oak	*Quercus robur*	13	300	1	7	7	7	7	1	SM	Good	Good		B2	40 +	3.6	
T9	Hawthorn	*Crataegus monogyna*	9	275	1	6	6	6	6	0	SM	Fair	Moderate		C2	20 +	3.3	
T10	Pedunculate oak	*Quercus robur*	13	550	1	9	9	9	9	1	SM	Good	Moderate		B2	40 +	6.6	
T11	Sycamore	*Acer pseudoplatanus*	12	275	1	4	4	4	4	0	Y	Fair	Moderate		C1	20 +	3.3	
T12	Pedunculate oak	*Quercus robur*	11	550	1	7	7	7	7	0	SM	Good	Good		B2	40 +	6.6	
T13	Apple	*Malus x domestica*	9	300 350	1	5	5	5	5	0	SM	Fair	Moderate		C1	20 +	5.4	
T14	Pedunculate oak	*Quercus robur*	14	525	1	10	4	0	4	0	SM	Fair	Moderate	Canopy impacted by T15	C1	20 +	6.3	
T15	Goat willow	*Salix caprea*	13	700 500 400	3	9	9	9	14	0	M	Fair	Poor	Collapsed stems	C	20 +	11.4	
T16	Pedunculate oak	*Quercus robur*	11	400	1	6	6	6	6	1	SM	Good	Good		B	40 +	4.8	
T17	Pedunculate oak	*Quercus robur*	15	525	1	8	8	8	8	0	SM	Good	Good		B	40 +	6.3	
T18	Pedunculate oak	*Quercus robur*	14	500	1	8	8	8	4	0	SM	Good	Good		B	40 +	6.0	
T19	Hawthorn	*Crataegus monogyna*	8	250	2	2	4	4	4	0	SM	Fair	Moderate		C	20 +	3.0	
T20	Pedunculate oak	*Quercus robur*	14	500	1	8	8	8	8	0	SM	Good	Good		B	40 +	6.0	
T21	Pedunculate oak	*Quercus robur*	14	425	1	8	6	8	8	0	SM	Good	Good		B	40 +	5.1	

Table 2 –Key to Tree Schedule

BS 5837: 2012 Tree Survey Key to Terminology		
Term	**Explanation**	**Notes**
Tree Ref.	Sequential reference number for individual tree distinct tree in hedgerow	The measurement conventions are as follows. Height, crown spread, and crown clearance are recorded to the neare half metre (crown spread is rounded up) for dimensions up to 10 m ar the nearest whole metre for dimensions over 10 m Stem diameter is recorded in millimetres, rounded to the nearest 5 mm Estimated dimensions (e.g. for off-site or otherwise inaccessible tree where accurate data cannot be recovered) should be clearly identif as such (e.g.suffixed with a "#") RPAr – Radius of nominal circle of Root Protection Area in metres fr centre of tree stem. Figures used originate from Annex D BS5837: 201 (p.40). Provided as a minimum distance and calculated in accorda with section 4.6 BS5837: 2012 (p.10) RPAm2 –Extent of root protection area * signifies dimensions have not been recorded
Common Name	Tree species listed by common name	
Height	Overall tree height measured in metres (m)	
Branch Spread	Taken as a minimum at the four cardinal p (North, South, East & West) to derive a representation of the crow spread	
Stem Diameter	Diameter of single stem trees on level g measured at 1.5m above ground level. Diameters o other commonly encountered tree stems should b measured in accordance with Annex C (BS 2012 p39)	
Existing Height Above Ground Level –FSB/DG	Height of first significant branch (FSB) direction of growth (DG) identified as he metres and direction of growth (e.g. 2.4-N)	Measurements taken to provide information relating clearance, crown/stem ratio and shading of site
Life Stage	Young (Y)	Tree within the first one quarter of life expectancy
	Semi mature (SM)	Tree in second quarter of life expectancy
	Early mature (EM)	Tree in third quarter of life expectancy
	Mature (M)	Tree in final quarter of life expectancy

	Over mature (OM)	Tree having reached the anticipated maximum height and typical for its species and setting and which has entered a per stasis where physiological processes maintain a functional status quo.
	Veteran tree (V)	Tree that, by recognized criteria, shows features of biological, cult or aesthetic value that are characteristic of, but not excl individuals surviving beyond the typical age range for the species concerned. NOTE: These characteristics might typically include a large girth, sig of crown retrenchment and hollowing of the stem. Veteran trees may b subject to a tree preservation order (TPO). Clients are responsible determining whether a TPO is present.

General Observations	To provide information on the structural and/or physiological condition (e.g. the presence of any dec physical defects), and/or preliminary management recommendations	
Physiological Condition - An assessment of the physiological condition (i.e. health/vitality) of the tree	GOOD FAIR POOR DEAD	Tree in a healthy condition with no significant problems Tree generally in good health with some problems that can be remediated Tree in poor health with significant problems that can't be remediated Tree without sufficient live material to sustain life
Structural Condition - An assessment of the structural/safe condition of the tree	GOOD MODERATE POOR	Tree in a sound condition with no significant defects Tree in a sound condition at present but with defects or with significant defects that can remediated Tree with significant defects that can't be remediated
Notes related to both physiological and structural conditi follow the categorisation in order support		the statement and give greater detail on the true quality and value of the tree
Preliminary Management Recommendations	These may include further investigations for the presence or extent of decay or climbed inspections, ivy removal or pruning works when access is a nonmoveable aspect etc. (NB this is not intended to be a specificatic	

	tree work and further advice maybe required prior to implementation). Trees assessed as being in appar immediately hazardous condition will be notified to the client separately as soon as practicable	
Estimated remaining contribution (yrs)	An estimate of the remainin contribution in years that the tree c group of trees is expected to ha based on species, condition on th site in its current context	<10 - Tree is dead or dying and unlikely to contribute beyond 10 years 10+ - Tree is assessed as being able to contribute to the site for 10+ year 20+ - Tree is assessed as being able to contribute to the site for 20+ year 40+ - Tree is assessed as being able to contribute to the site for 40+ year
Category grading	Category of tree in accordance wit BS5837 2012 Cascade Chart (Source BS5837 2012 p9)	'U' Unsuitable for retention, within the context of the current land user 'A' Trees of high quality with 40yr remaining lifespan 'B' Trees of moderate quality and remaining lifespan of at least 20yrs 'C' Trees of low quality with an estimated remaining lifespan of at least 1 yrs or young trees with a stem diameter below 150mm Categories A-C are further classified as 1 (mainly arboricultural qualities 2 (mainly landscape qualities), 3 (mainly cultural values, i conservation). For further details refer to Cascade Chart in BS 5837 201 p. 9

Appendix C –Temporary Protective Fencing Specification

Temporary Protective Fencing Specification

Temporary Protective Fencing Specification

Construction Exclusion Zones (CEZs), enclosed by **Temporary Protective Fencing**, as detailed below and to be agreed with the Local Planning Authority (LPA), shall:

Be retained in place throughout the development process, as specified in the 'Temporary Protective Fencing Construction' section below and detailed in BS5837:2012 ;

Be sited in the area(s) defined by the Root Protection Areas or, if applicable, the CEZ, as detailed on the associated Tree Plan;

Be erected prior to any construction, demolition or excavation works and remain in place for the duration of the project;

Preclude any delivery of site accommodation and/or materials and/or plant machinery;

Preclude all construction related activity, with the sole exception of specified arboricultural works and any other works to be carried out under supervision that have been agreed by all parties; and

Preclude the storage of all development related materials and substances including fuels, oils, additives, cement and/or any other deleterious substance. Any incursion into CEZs must be by prior arrangement, following consultation with the LPA.

Temporary Protective Fencing Construction

Temporary protective fencing panels shall be weldmesh "Heras" panels of at least 2.0 m in height;

The panels shall butt together and be securely fixed to a scaffold framework, as per 3 to 5 below;

The scaffold framework shall comprise of upright poles of at least 3.0 m in length driven no less than 0.6 m into the ground at maximum 3.0 m centres with horizontal and diagonal poles fixed to the uprights, as per 4 to 5 below;

The two horizontal rail poles shall be attached to the uprights at heights of 0.6 and 1.8 m with 3 no. clamps to each joint;

The diagonal scaffold pole struts be clamped to the top rail of the scaffold framework at a 45º angle and extend back into the CEZ and clamped to a 0.7 m length of scaffold tube that shall be driven no less than 0.5 m into the ground;

No fixing shall be made to any tree and all possible precautions shall be taken to prevent damage to tree roots when locating posts;

A 600 mm x 300 mm warning sign reading "TREE PROTECTION AREA KEEP OUT" (see Figure A, below) shall be fixed to every 10 m length of protective fencing; and

On completion and prior to any demolition or construction works, site preparation, excavation or delivery of plant and materials, the LPA shall inspect and approve the Temporary Protective Fencing.