

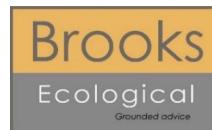
Arboricultural Impact Assessment

Plus Tree Survey

North Bierley WWTW Phase 2

Report reference: AR-5528-02
May 2021

Report Title:	Arboricultural Impact Assessment North Bierley WWTW Phase 2.
Report Reference:	AR-5528-02
Written by:	Tom Benson FdSc Arb Trainee Arboricultural Consultant
Technical review:	Victoria Black FdSc Arb Principal Arboricultural Consultant
QA review:	Victoria Black FdSc Arb Principal Arboricultural Consultant
Approved for issue:	Victoria Black FdSc Arb Principal Arboricultural Consultant
Date:	25.05.2021



Unit A, 1 Station Road, Guiseley, Leeds, LS20 8BX
Phone: **01943 884451**
01943 879129
Email: admin@brooks-ecological.co.uk
www.brooks-ecological.co.uk
Registered in England Number 5351418



Contents

CONTENTS.....	3
SUMMARY STATEMENT.....	3
INTRODUCTION.....	4
IMPACT SCHEDULE	4
IMPLICATIONS FOR RETAINED TREES.....	5
TREES TO BE REMOVED.....	7
TREE SURVEY.....	8

Tree Survey including Tree Constraints Plan DR-5528-01
Tree Protection Plan DR-5528-02

Summary Statement

The site is located in the Bierley area of Bradford, to the south of the city. The existing site consists of a parcel of green space/ scrubland surrounding a derelict former waste water treatment works.

The application site is located in a semi-urban area surrounded by a combination of greenspace/farmland, commercial units and the infrastructure associated with the M62/M606. The Woodlands area of the town of Oakenshaw lies to the north. To the east lies a pocket of woodland and farmland, the south is bordered by the M62 and the M606 borders the west of the site.

The tree survey revealed a total of ten individual trees and five groups of trees. Of these, all trees/groups were identified as retention category 'C'. There were no retention category 'A', 'B' or 'U' trees identified.

This report should be read in conjunction with the attached Tree Constraints Plan Ref: DR-5528-01 and Tree Survey AR-5528-01.

The proposals consist of a planning application an industrial unit with associated parking areas. Further to this a new access road is proposed.

A plan has been provided by the client to enable an impact assessment of the proposed works on the existing relevant trees within the Site.

Introduction

Purpose of the report

1. This report has been commissioned to provide professional independent, detailed arboricultural advice on relevant trees present at North Bierley WWTW, Bierley.
2. Plans have been provided by the architect/client to enable an impact assessment of the proposed works on the existing relevant trees within the Site.

Impact Schedule

The following schedule identifies the individual tree and its retention category with the main feature(s) of the proposed works likely to cause an impact. The tree references are shown on the tree constraints plan and the tree protection plan. Any mitigation measures are noted.

Tree ref.	Species	Retention category	Proposal feature	Impact	Mitigation
G1	Hawthorn, Sycamore, Field Maple, Ash, Elder	C2	None	None	Tree protection barrier to BS5837: 2012.

Tree ref.	Species	Retention category	Proposal feature	Impact	Mitigation
G2	Hawthorn	C2	None	None	Tree protection barrier to BS5837: 2012.
G3	Goat Willow, Ash, Sycamore	C2	None	None	No fencing required
T4	Hawthorn	C2	None	None	Tree protection barrier to BS5837: 2012.
G5	Ash, Hawthorn, Sycamore, Elder, Alder, Hazel, Willow	C2	None	None	No fencing required
G6	Hawthorn, Elder	C2	Proposed car park	Remove	Mitigation planting on site
T7	Elder	C2	Proposed car park	Remove	Mitigation planting on site
T8	Elder	C2	Proposed car park	Remove	Mitigation planting on site
T9	Goat Willow	C2	Proposed road	Remove	Mitigation planting on site
T10	Elder	C2	Proposed road	Remove	Mitigation planting on site
T11	Elder	C2	Proposed road	Remove	Mitigation planting on site
T12	Elder	C2	Proposed road	Remove	Mitigation planting on site
T13	Hawthorn	C2	Proposed road	Remove	Mitigation planting on site
T14	Elder	C2	Proposed road	Remove	Mitigation planting on site
T15	Elder	C2	Proposed unit to close	Remove	Mitigation planting on site

Implications for retained trees

Tree protection

3. Trees and tree groups should be protected from unwanted damage during construction works with temporary tree protection barriers. The barriers should be erected to the outer edge of the tree canopy or the edge of the RPA, whichever is the furthest away from the tree, unless otherwise indicated on the Tree Protection Plan.

4. Tree protection barriers should be the default specification for protective barrier, Figure 2, BS 5837: 2012 Trees in relation to design, demolition and constructions – Recommendations. Where Site circumstances prevent the use of the default barrier, an alternative specification would be recommended by the project arboriculturist with agreement of the local planning authority. The recommended locations for tree protective barriers are shown in Tree Protection Plan.
5. All-weather notices should be attached to the barrier with words such as: “Construction exclusion zone – no access”.
6. Where facilitation access is authorised within the RPA temporary ground protection should be installed prior to work starting on Site. The temporary ground protection should be capable of supporting the weight of any traffic/machinery using the Site without being distorted or causing compaction to the ground. It is recommended that the ground of the possible Site compound/storage area is covered in temporary ground protection to minimise soil damage by compaction and conserve soil health through to post-construction planting in this area.

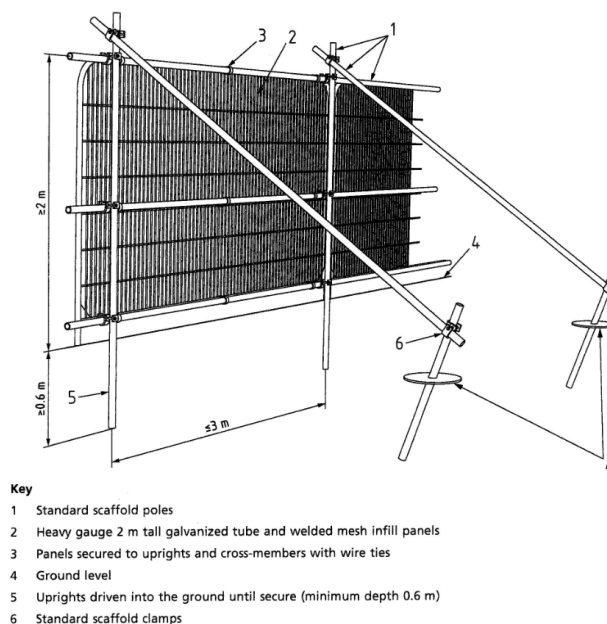


Figure 1

Tree work

7. Where pruning work is necessary and authorised to roots or branches of retained trees to enable facilitation works, it should be carried out by a competent contractor in accordance with BS 3998: 2010 Tree Works – Recommendations.

Drainage and utilities

8. Drainage and utilities are expected to be included within the proposed Site works and should not involve digging or trenching within RPA's.

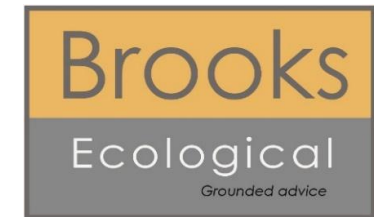
Ground level changes

9. It is our understanding that no ground level changes are required within the root protection area of any tree on this site.

Trees to be removed

10. One group and nine individual trees are expected to be removed to facilitate the development.

Tree Survey

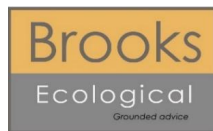


Tree Survey

North Bierley WWTW, Bierley

Report reference: AR-5528-01
May 2021

Report Title:	Tree Survey North Bierley WWTW, Bierley
Report Reference:	AR-5528-01
Written by:	Tom Benson FdSc Arb Trainee Arboricultural Consultant
Technical review:	Victoria Black FdSc Arb Principal Arboricultural Consultant
QA review:	Victoria Black FdSc Arb Principal Arboricultural Consultant
Approved for issue:	Victoria Black FdSc Arb Principal Arboricultural Consultant
Date:	25.05.21



Unit A, 1 Station Road, Guiseley, Leeds, LS20 8BX
Phone: **01943 884451**
01943 879129
Email: admin@brooks-ecological.co.uk
www.brooks-ecological.co.uk
Registered in England Number 5351418



Contents

CONTENTS.....	10
SUMMARY STATEMENT.....	10
INTRODUCTION.....	11
TREE DATA ABBREVIATIONS AND SURVEY METHODOLOGY.....	12
TREE DATA.....	15
FINDINGS.....	18
APPENDIX 1: DR-5528-01 TREE CONSTRAINTS PLAN	

Summary Statement

The site is located in the Bierley area of Bradford, to the south of the city. The existing site consists of a parcel of green space/ scrubland surrounding a derelict former waste water treatment works.

The application site is located in a semi-urban area surrounded by a combination of greenspace/farmland, commercial units and the infrastructure associated with the M62/M606. The Woodlands area of the town of Oakenshaw lies to the north. To the east lies a pocket of woodland and farmland, the south is bordered by the M62 and the M606 borders the west of the site.

The tree survey revealed a total of ten individual trees and five groups of trees. Of these, all trees/groups were identified as retention category 'C'. There were no retention category 'A', 'B' or 'U' trees identified.

This report should be read in conjunction with the attached Tree Constraints Plan Ref: DR-5528-01.

Introduction

Purpose of the report

11. This report has been commissioned to provide professional independent, detailed arboricultural advice on all relevant trees present at North Bierley WWTW, Bierley.
12. This report has been undertaken in accordance with BS 5837:2012 Trees in relation to construction – Recommendations.
13. The client has provided a topographical plan.
14. All findings and recommendations are based on visual observations conducted from ground level during the Site visit only. No other diagnostic procedures were used to establish any extent of internal decay nor was a climbing inspection undertaken.
15. All measurements were obtained with the use of a clinometer and an electronic distometer. On occasion it is not viable to provide accurate measurements due to restricted access or other mitigating circumstances on site, and the data may be estimated.

Legal implications of work to trees

16. Due to the potentially large penalties for illegally carrying out work to protected trees, it is recommended that a check with the local planning authority is carried out prior to any tree works being undertaken and any required consents such as for work to trees with Tree Preservation Orders and/or Conservation Areas are obtained before work to trees on site. Additionally, work to trees at certain times of the year may contravene sections of the Wildlife and Countryside Act regarding nesting and roosting of protected species.
17. Every tree owner has a general duty of care to ensure their tree(s) does not pose an unacceptable risk to other people on or adjacent to their land. The landowner will only be liable for injury or damage caused by trees if they are found to be negligent.

18. There is no legal obligation for a tree owner to cut back growth from a neighbouring property. However, under Common law of tort of nuisance, an affected neighbour has the right to cut back roots or branches that encroach onto a neighbouring property back to the boundary of the land owned by the person abating the nuisance without the neighbour's consent (with the exception of TPO's or CA's). The person abating the nuisance has a duty to exercise reasonable care in carrying out work as a failure to do so may lead to liability in negligence (for example where removal of roots makes a tree unstable).

Site description

19. The site is located in the Bierley area of Bradford, to the south of the city. The existing site consists of a parcel of green space/ scrubland surrounding a derelict former waste water treatment works.
20. The application site is located in a semi-urban area surrounded by a combination of greenspace/farmland, commercial units and the infrastructure associated with the M62/M606. The Woodlands area of the town of Oakenshaw lies to the north. To the east lies a pocket of woodland and farmland, the south is bordered by the M62 and the M606 borders the west of the site.
21. The wider landscape is dominated by residential and commercial development associated with the city of Bradford.

Survey conditions

22. The trees were surveyed in cool, alternately overcast and bright conditions on 25th May 2021.

Tree data abbreviations and survey methodology

T	Tree	GL	Ground level
G	Tree group	MS	Multi-stemmed
H	Hedge	AFP	Access facilitation pruning
OSB	Outside Site boundary	Ave	Average dimension
#/est	Estimated dimension	Typ	Typical dimension
N	North	E	South
S	South	W	West

Min adj	Minimum Adjacent	Lwr Ht	Lower Height
------------	---------------------	-----------	-----------------

23. The trees were assessed visually from ground level.
24. Where access to a tree is restricted this is noted in the schedule.
25. The tree reference numbers refer to the attached Tree Constraints Plan (TCP) references. The trees were not tagged for this survey.
26. The tree species is listed by common name in the schedules, with a key to scientific names below:

Common name	Botanical name	Common name	Botanical name
Alder (common)	<i>Alnus glutinosa</i>	Goat willow	<i>Salix caprea</i>
Alder (grey)	<i>Alnus incana</i>	Hawthorn	<i>Crataegus monogyna</i>
Apple	<i>Malus domestica</i>	Hazel	<i>Corylus avellana</i>
Aspen	<i>Populus tremula</i>	Holly	<i>Ilex aquifolium</i>
Ash	<i>Fraxinus excelsior</i>	Hornbeam	<i>Carpinus betulus</i>
Beech	<i>Fagus sylvatica</i>	Larch	<i>Larix decidua</i>
Birch (silver)	<i>Betula pendula</i>	Lime (common)	<i>Tilia x europaea</i>
Birch (downy)	<i>Betula pubescens</i>	Lime (small-leaved)	<i>Tilia cordata</i>
Chestnut (sweet)	<i>Castanea sativa</i>	Maple (field)	<i>Acer campestre</i>
Chestnut (horse)	<i>Aesculus hippocastanum</i>	Maple (Norway)	<i>Acer platanoides</i>
Cherry (wild)	<i>Prunus avium</i>	Poplar (black)	<i>Populus nigra</i>
Cherry (bird)	<i>Prunus padus</i>	Oak (sessile)	<i>Quercus petraea</i>
Cherry (Japanese)	<i>Prunus serrulata</i>	Oak (pendunculate)	<i>Quercus robur</i>
Leyland Cypress	<i>X Cupressocyparis leylandii</i>	Rowan/mountain ash	<i>Sorbus aucuparia</i>
Elm (English)	<i>Ulmus procera</i>	Sycamore	<i>Acer pseudoplatanus</i>
Elm (wych)	<i>Ulmus glabra</i>	Weeping willow	<i>Salix chrysocoma</i>
		Whitebeam (Swedish)	<i>Sorbus intermedia</i>

27. Measurement of the existing height above ground level of the first significant branch and the direction of growth and the height of the canopy. This informs ground clearance, crown/stem ratio and shading.
28. The stem/trunk diameter is measured with a diameter tape at 1.5m from ground level around the stem for single stem trees and for multi-stemmed trees and other variants in accordance with Annex C of the British Standard. Where access restricts measurement of the tree, an estimate has been made, denoted by '#'.
29. Canopy spread is measured with an electronic distometer. The close-spacing of some of the trees impeded measurements of canopy spread and height and estimates were made.
30. The age of the tree is based on the typical longevity of the particular tree species. The age classes are: young (Y), semi-mature (SM), early mature (EM), mature (M), over-mature (OM) and veteran (V).
31. The physiological condition of the tree is an assessment of its likely health, vigour and stress. The classes for physiological condition are: good, fair, poor and dead.
32. Structural condition includes tree form, visible defects, irregularities and influencing factors.
33. Preliminary management recommendations note work (with prior approval where necessary) to promote the health and longevity of the tree and/or improve safety and/or increase habitat potential.
34. The life expectancy (life exp.) is the estimated remaining contribution in years, (<10, 10+, 20+, 40+).
35. The retention category (ret cat) for each tree is assessed in accordance with BS 5837: 2012 Table 1, summarised as below:

Category A	Trees of high quality with an estimated remaining life expectancy (ERC) of at least 40 years. Green canopy outline on plan.
Category B	Trees of moderate quality with an estimated ERC of at least 20 years. Blue canopy outline on plan.
Category C	Trees of low quality with an ERC of at least 10 years, OR young trees with a stem diameter below 150mm. Grey canopy outline on plan.

Category U

Trees 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 unsuitable for retention. Dark red canopy outline on plan.

36. Sub- categories of 1, 2 or 3 are included in the tree data tables and are defined as follows:

Sub-category 1 trees are those with 'mainly arboricultural value'

Sub-category 2 trees are those with 'mainly landscape value'

Sub-category 3 trees are those with 'mainly cultural or conservation value'.

37. The root protection area (RPA) in m² is for layout purposed and indicates the 'minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority'. The RPA is calculated in accordance with BS 5837: 2012 Annex D. Where Site features are likely to have distorted the typical RPA, a polygon of the same area is estimated on plan to reflect a more realistic shape, in accordance with the British standard.

Tree data

38. The following schedule contains the tree data obtained on site:

Ref	Species	Life stage	Ht (m)	Can Ht (m)	Stem diam (mm)	Canopy spread (m)	Physio logical	Structural condition	Recommendations	Life exp. (yrs)	Ret cat
G1	Hawthorn, Sycamore, Field Maple, Ash, Elder	Y-EM	>12	0+	>200	See plan	F	Buffer/screening group of single and multi-stemmed trees. Situated on adjacent land. No major visible defects.	No action required.	20+	C2
G2	Hawthorn	SM	>6	0	# >100	See plan	F	Sporadic hedging along wooden fence line. No major visible defects.	No action required.	10+	C2
G3	Goat Willow, Ash, Sycamore	SM	>16	0+	# >240	See plan	F	Buffer/screening group of single and multi-stemmed trees. Situated on adjacent land. No major visible defects.	No action required.	10+	C2
T4	Hawthorn	M	8	0	# 400 Below union	N 6 E 6 S 6 W 6	F	Single vertical stem with a balanced canopy. Multi-stemmed at 1.5M. Cavities throughout. Typical of species.	No action required.	10+	C2
G5	Ash, Hawthorn, Sycamore, Elder, Alder, Hazel, Willow	M	>18	0+	# >320	See plan	F	No close access due to location. Woodland group with dense understorey located on adjacent land.	No action required.	10+	C2
G6	Hawthorn, Elder	OM	>6	0+	# >180	See plan	F	Scrappy trees growing on banking, significant decline throughout.	Remove/monitor	10+	C2
T7	Elder	M	4	1	9 @ ave 80	N 2.4 E 2.4 S 2.4 W 2.4	F	Multi-stemmed at base with a balanced canopy. Self-sown scrappy tree. Deadwood and stubs noted.	No action required.	10+	C2

Ref	Species	Life stage	Ht (m)	Can Ht (m)	Stem diam (mm)	Canopy spread (m)	Physio logical	Structural condition	Recommendations	Life exp. (yrs)	Ret cat
T8	Elder	M	4.5	1	1 @ ave 90	N 3 E 3 S 3 W 3	F	Multi-stemmed at base with a balanced canopy. Self-sown scrappy tree. Deadwood and stubs noted.	No action required.	10+	C2
T9	Goat Willow	M	9	1	# 300 Below union	# N 4 E 4 S 4 W 4	F	Fair. Multi-stemmed at 1M with a balanced canopy. Typ. of species. No close access due to location. No major visible defects.	No action required.	10+	C2
T10	Elder	EM	4.5	0+	# 10 @ ave 80	N 3 E 3 S 3 W 3	F	Fair. Multi-stemmed at base with a balanced canopy. Typ. of species. No close access due to location. No major visible defects.	No action required.	10+	C2
T11	Elder	EM	4	0.5	# 8 @ ave 70	N 2 E 2 S 2 W 2	F	Multi-stemmed at base with a balanced canopy. Included wire fence, growing against steel fenced compound.	No action required.	10+	C2
T12	Elder	EM	3	1	# 90 70	N 1.3 E 1.3 S 1.3 W 1.3	F	Twin stemmed at base with a balanced canopy. Surrounded by dense vegetation. Included wire fence, growing against steel fenced compound. No major visible defects.	No action required.	10+	C2
T13	Hawthorn	EM	5	0.5	# 4 @ 90	N 2.75 E 2.75 S 2.75 W 2.75	F	Multi-stemmed at base with a balanced canopy. Surrounded by dense vegetation. Included wire fence, growing against steel fenced compound.	No action required.	10+	C2

Ref	Species	Life stage	Ht (m)	Can Ht (m)	Stem diam (mm)	Canopy spread (m)	Physiological	Structural condition	Recommendations	Life exp. (yrs)	Ret cat
T14	Elder	EM	4	0.5	# 4 @ 90	N 2.1 E 2.1 S 2.1 W 2.1	F	Multi-stemmed at base with a balanced canopy. Surrounded by dense vegetation. Included wire fence, growing against steel fenced compound.	No action required.	10+	C2
T15	Elder	EM	4	0+	# 10 @ ave 70	N 1.5 E 1.5 S 1.5 W 1.5	F	Fair. Typ. of species. Multi-stemmed at base with a balanced canopy. Surrounded by dense vegetation. No major visible defects.	No action required.	10+	C2

Findings

Tree descriptions and recommendations

39. The tree survey revealed a total of ten individual trees and five groups of trees. Of these, all trees/groups were identified as retention category 'C'. There were no retention category 'A', 'B' or 'U' trees identified. Please refer above for retention category and definition criteria.
40. No works were recommended.
41. Those trees which overhang the public footpaths or public highways, shall require future maintenance to maintain clearance heights for vehicular or pedestrian traffic. These heights should be 5.6m above a road and 2.5m above a footpath.



Figure 1: Looking south-west at G1, a linear group screening the site from the M606.

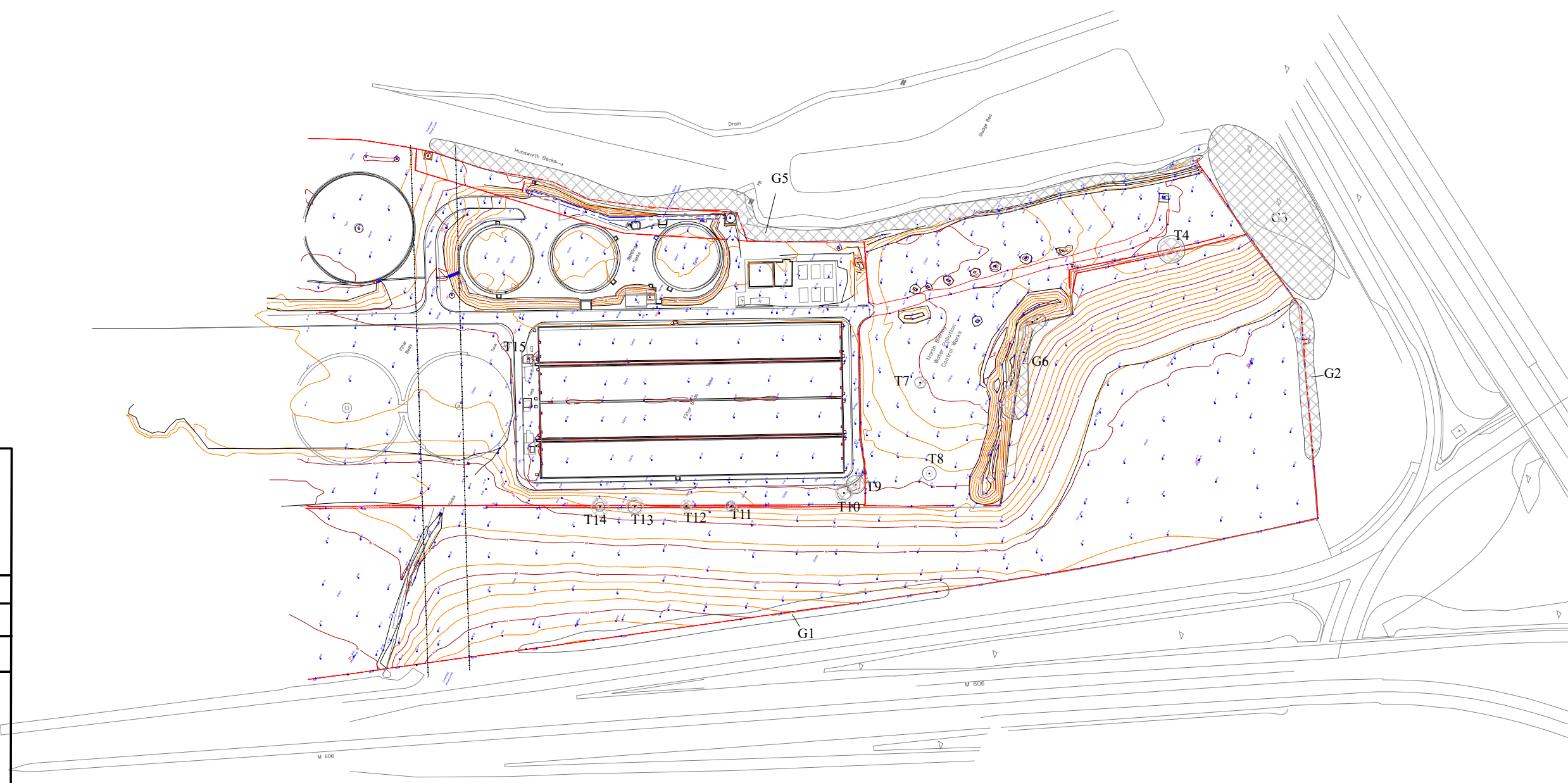
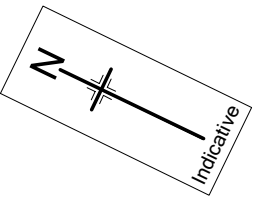


Figure 2: Looking south east at G2 in the foreground and G3 which provides screening from the M62.



Figure 3: G5, a mixed woodland group bordering the west of the site.

DR-5528-01 Tree Constraints Plan



Email: vb@brooks-ecological.co.uk
Tel No: 01943 884 451
www.brooks-ecological.co.uk

DR-5528-01 TREE CONSTRAINTS PLAN

Site: North Bierley WWTW, Bierley.

Paper Size: A1 **Scale:** 1:1000

BS 5837: 2012 Retention Categories

	CATEGORY A
	CATEGORY B
	CATEGORY C
	CATEGORY U

	ROOT PROTECTION AREA
	TREE STEM

Please note:
The plan is for guidance only
and should not be scaled from.

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



DR-5528-02 Tree Protection Plan

Email: vb@brooks-ecological.co.uk
Tel No: 01943 884 451
www.brooks-ecological.co.uk

DR-5528-02 TREE PROTECTION PLAN

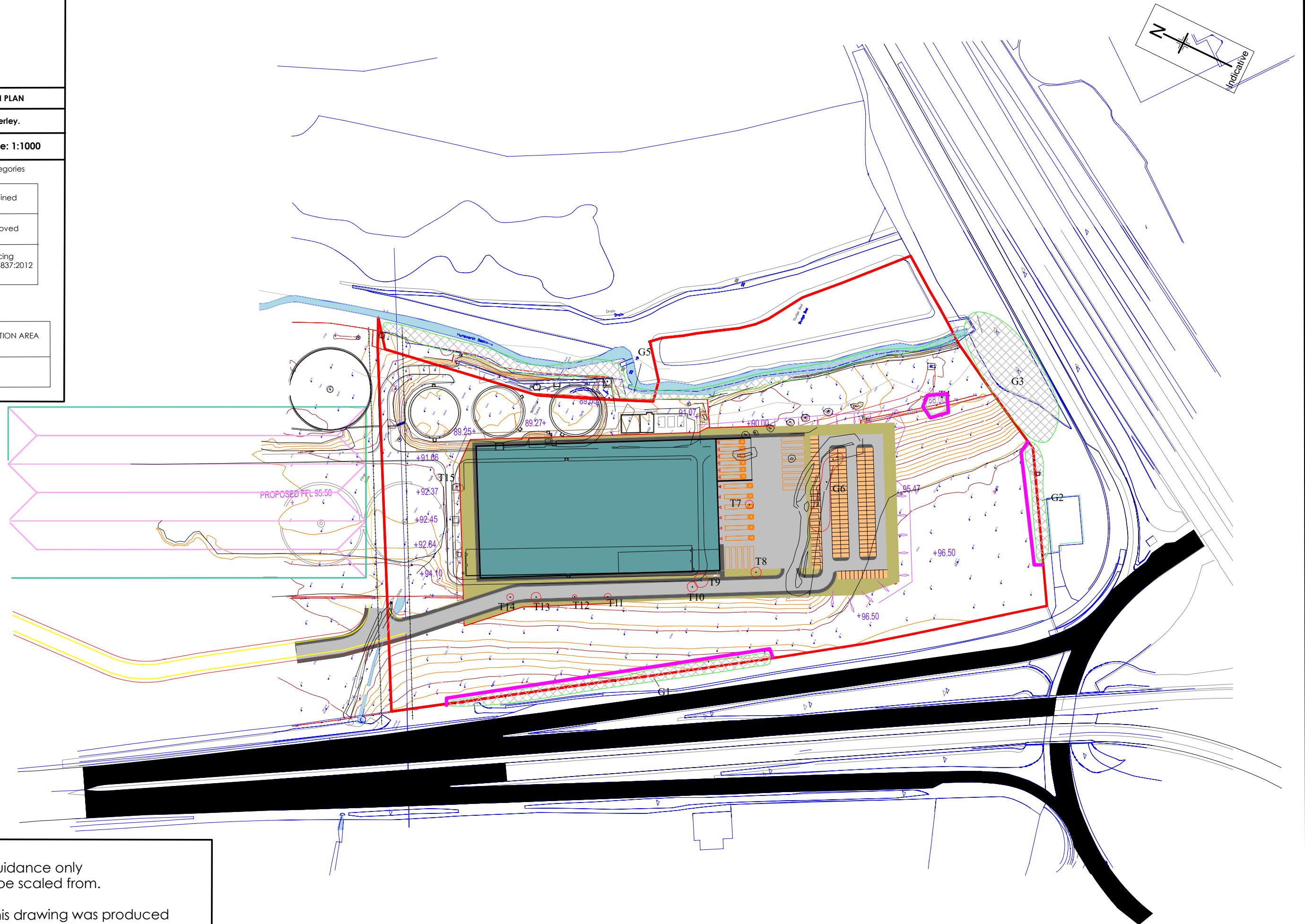
Site: North Bierley WWTW, Bierley.

Paper Size: A1 **Scale:** 1:1000

BS 5837: 2012 Retention Categories

	Tree to be retained
	Tree to be removed
	Protective fencing in line with BS 5837:2012

	ROOT PROTECTION AREA
	TREE STEM



Please note:
The plan is for guidance only
and should not be scaled from.

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