

CALEDON TREE SURVEYS



BS5837:2012 Tree Survey

Land at Coylton Substation Coylton East Ayrshire KA18 2RN

October 2023

T. 0141 427 0427 | M. 07778 233 703
info@caledontreesurveys.com
www.caledontreesurveys.com
56 Aytoun Road, Glasgow G41 5HE

Abstract

Site: Land at Coylton Substation, Coylton, East Ayrshire, KA18 2RN

Grid Reference: NS 46467 19525

Client: TNEI

Report Date: October 2023

Survey Reference: BS_050623

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Section A Report Overview

1 Structure of Report

The report comprises the following sections:

- This **Overview:** a guide to navigating the Report and a summary of the survey findings
- **Preliminaries**: background information about our commission and how we approached the project
- **Tree Survey:** the essential data about the trees and some more detailed interpretation of our findings; also a note of any works which might need done to make the trees safe
- Appendices: Photographs, maps and keys to the survey terminology

2 Executive Summary

2.1 The subject of this study is the tree canopy within and on the peripheries of an area of open agricultural land in East Ayrshire .

2.2 The most significant arboriculture feature is a mature hedgerow extending throughout the site which contains a number of substantial broadleaf specimens. There are also more minor tree groups, hedges and occasional individual specimens, generally of more modest stature.

2.3 The overall condition of the trees reflects the exposed location, and the survey records numerous specimens featuring a range of structural defects. There are however a significant number of reasonably well-structured mature Beech specimens within the hedgerow offering a substantial safe/useful life expectancy (SULE) and which constitute a significant landscape feature.

2.4 No interventions are currently recommended with respect to the duty of care owed by the owner or occupier of the property.



Section B Preliminaries

3 Terms of Reference

3.1 Title

3.1.1 BS5837 Tree Survey: Coylton Substation Coylton, East Ayrshire KA18 2RN.

3.2 Definition of survey area

3.2.1 As indicated on Site Layout drawing supplied by the client within the scope of the project briefing: *Coylton Greener Grid Park Site Layout* Drg ref: 15627-015 by TNEI, dated 30 Jan 2023. Survey area defined by red-line boundary (RLB) of application area. Figure A2.1 at Appendix 2, below refers

3.2.2 The figure *Proposed Site Plan -Parameters*, issued by the client subsequent to the completion of the survey field study, is attached for reference as figure A2.2 at Appendix 2, below.

3.3 Authority

3.3.1 The survey was instructed by TNEI on behalf of Statkraft UK Ltd ('the Applicant').

3.4 Survey team

3.4.1 David Gallacher, Graeme Millar, Gillian Kyle.

3.4.2 David Gallacher is a Lantra qualified Professional Tree Surveyor and Inspector and is a member of the Arboricultural Association and The Consulting Arborists Society.

3.4.3 Graeme Millar is a Technician Member of the Arboricultural Association. Caledon Tree Consultants was established in 1995.

3.4.4 Gillian Kyle holds masters degrees in disciplines unrelated to the context of this study, and is engaged on the project as a trainee arboricultural surveyor.

3.4.5 Caledon Tree Consultants was established in 1995.

3.5 Date(s) of inspection

3.5.1 09 06 2023.

3.6 Purpose of survey

3.6.1 The objective of the survey was to provide an assessment of and report on the nature and essential characteristics of the tree canopy on land which is being considered for development. This report is provided in support of a planning application to East Ayrshire Council.

3.7 Scope of survey

3.7.1 The scope of the survey is defined as a *Stage 1 Visual Tree Assessment* (Mattheck & Breloer, 1995) and the report is compliant with *British Standard Specification No 5837*:2012. All comments on specimen condition are made with reference only to the status-quo position of the site. Unless specified, the survey excludes any reference to underground services.

3.8 Limitations

3.8.1 This report is the property of and for the sole use of the clients cited above and should under no circumstances be relied upon by third parties. The findings contained herein are strictly related to the condition of trees and the pattern of usage of surrounding land evident at the time of the inspection.

3.9 Note on hazard and risk in relation to trees

3.9.1 Trees are complex living organisms subject to biotic and abiotic influences and the unpredictable forces of nature. In addition, latent defects both above and below ground which may impinge on the health and structural stability of a tree can be present without physical evidence being available to the naked eye. As noted by the Hon Mr Justice Mackay in a recent landmark ruling relating to the issue of tree safety: *"Both experts in the case agree...that there is no such thing as an entirely safe tree"* ¹.



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3.9.2 The issue of safety surrounding a tree comprises a balance between Hazard (defined as the potential to cause harm) and Risk (the level of likelihood that a hazardous tree will cause damage). It is part of the purpose of this document, within the specified limitations, to note defects and other conditions within and surrounding the trees which constitute a hazard.

3.9.3 Assessment of the level of risk associated with any recorded hazard has been made on the basis of current manifest evidence (*eg* proximity of roads, footpaths etc) but it is the responsibility of the client to take account of any alterations to surrounding conditions or pattern of land-use.

¹ Bowen (A Child) & Ors v The National Trust [2011] EWHC 1992 (QB) (27 July 2011)

4 Site Characteristics

4.1 Location

4.1.1 This survey studies the tree canopy within and on the peripheries of a defined area of land to the east and south of the Scottish Power Energy Network Coylton substation.

4.1.2 The survey area has been extended to include trees lying outwith the defined application boundary in accordance with the provisions of BS5837:2012.

4.1.3 The perimeters of the survey field, as defined by the application area redline boundary (RLB) issued in the context of our project briefing (see figure A2.1 at Appendix 2, below), is bounded as:

- North Edge of A70 carriageway, and profiled as indicated in the application area RLB
- East Unmarked boundary within agricultural field(s), as indicated in the application area RLB
- South Unmarked boundary within agricultural field(s), as indicated in the application area RLB
- West Field hedgerow, and profiled as indicated in the application area RLB

4.2 Elevation

4.2.1 125-145m above sea level.

4.3 Topography

4.3.1 The site is gradually inclined from south to north and features a range of natural and engineered embankments.

4.4 Surrounding landscape

4.4.1 Generally inclined from north to south.



4.5 Wind exposure

4.5.1 Substantial. The canopy is notably exposed to prevailing winds from the south-west.

4.6 Environment

4.6.1 Soil analysis was not carried out but soil quality is taken to provide an adequate growing medium for the trees.

4.6.2 Drainage as it affects the trees appears at the time of the survey to be generally effective.

5 Survey Methodology

5.1 Basis of recording

- 5.1.1 The canopy is recorded and assessed under the following headings:
 - Trees No 7904-7958: individually recorded tree specimens
 - Tree groups G1-G5 & CA1
 - Hedges H1-H2

5.1.2 Where directly accessible at the time of the survey, trees external to the application area have been tagged and recorded under their tag number. Trees on inaccessible land have been recorded as external specimens and measurements estimated.

6 Statutory Framework

6.1 Tree protections

6.1.1 Our briefing indicates that there are currently no statutory protections on trees within the survey area in terms of Tree Preservation Orders or designated Conservation Areas.

6.1.2 Development works are proposed within the context of the current planning application area and it is likely that trees on site will be the subject of condtion(s) on any planning consents issued by the local planning authority (LPA).

6.1.3 Under the terms of such planning conditions it may be prohibited to cause or permit interference, damage or destruction to any tree, group of trees or woodland specified in the condition without the express permission of the relevant local authority department.



Section C Tree Survey

7 Commentary

7.1 Overview

7.1.1 The subject of this study is the tree canopy sited within and on the peripheries of a greenfield site extending to approximately 13.1ha to the south of the A70 (Ayr Road) in a rural location in East Ayrshire.

7.1.2 The principal canopy feature on site is a mature broadleaf hedgerow extending southwards from the Coylton substation and service compound. For the purpose of analysis the hedgerow line has been divided into a number of broadly homogeneous sectors, as groups G2-G5 inclusive. The survey also captures a smaller linear group of shrubs and minor trees to the south of the site compound (G1), formally maintained field hedges H1 & H2 and an open area colonised by scrub vegetation (CA1).

7.1.3 Composition is of a narrow range of broadleaf tree species, with Common Beech and Hawthorn predominating. Virtually all specimens are in mid-maturity.

7.1.4 The overall condition of the assessed trees is considerably varied, with a high incidence of historical mechanical damage reflecting the exposed location, and a number of specimens indicating poor physiological health, possibly associated with long-term environmental factors.

7.1.5 Despite the limitations outlined above, the canopy includes a significant quantity of substantial mature and reasonably healthy specimens offering an extensive safe/useful life expectancy (SULE) and graded in the survey at BS5837 Retention Category B2.

7.2 North sector of site: tree groups G1 & G2

7.2.1 Comprising outgrown hedging/screening lines, these groups of modest specimens are stable and reasonably well functioning. G1 is graded in the survey and Retention Category C2, whilst G2 is graded at B2. Both feature a substantial

proportion of Scottish native species, and make a significant contribution to the ecological profile of the area. See Image No 01 at Appendix 1, below.

7.3 Central sector of site: tree groups G3 & G4 and trees No 7905-7919

7.3.1 G3 is an integrated and well-functioning screening line of Hawthorn, Elder & Gorse, with a single substantial Beech specimen (No 7905) featured. The group is in reasonably good condition and is graded in the survey and Retention Category B2, as are all of the individually recorded constituent specimens (Nos 7905–7910). See Image No 02 at Appendix 1, below.

7.3.2 Group G4 comprises a linear group of mature Beech specimens in (relatively) formal profile. Despite a significant incidence of structural impairments associated with the exposed location, most of these trees are in reasonably good overall condition and are recorded in the survey at Retention Category B2, as is the group as a whole. See Image No 03 at Appendix 1, below.

7.4 South sector of site: tree group G5 and trees No 7920-7954

7.4.1 Effectively an extension of G4 to the south, the mature Beech (and occasional Hawthorn) in this group indicate significantly poorer overall condition and there is evidence of numerous historic failures from within the group. See Image No 05 & 07 at Appendix 4, below.

7.4.2 The current composition of G5 includes several standing dead and severely defective specimens, although no evident hazard to safety is presented, and the ecological value of such trees is significant.

7.4.3 Individual trees within G5 are variously graded in the survey at Retention Categories B2, C2 and U, whilst the group as a whole is graded at the Category B2 in reflection of its ecological profile.

7.5 Hedges H1 & H2

7.5.1 H1 is a mixed-species broadleaf hedge, maintained to formal profile and in good overall condition, graded at Retention Category B2. See Image No 07 at Appendix 1, below. It is anticipated that a section of this hedge will be removed to facilitate the construction of an access road into the application area, and will be lost to the proposed development.



7.5.2 H2 is composed entirely of Hawthorn. It features a number of gaps in the central sector, but is otherwise reasonably well-functioning and graded at Retention Category B2. See Image No 08 at Appendix 1, below.

7.6 Canopy area CA1

7.6.1 CA1 defines an area of Willow scrub to the south of the substation. Constituent trees are of modest proportions and the area is graded at Retention Category C2, although the ecological value of this scrubland is reasonably high. See Image No 09 at Appendix 1, below.

8 Summary of Recommendations

8.1 General

8.1.1 Within the scope of *Preliminary Management Recommendations* emerging from this study and as defined by BS5837:2012, no interventions are currently recommended in order to meet the owner's or occupier's Duty of Care to users of the site.

8.2 Re-Inspection of Canopy

8.2.1 The canopy should be re-inspected by a qualified arboricultural consultant and this report updated within a period of three years of the date of issue of this report.



Section D Tree Survey Appendices

Appendix 1. Site Photographs



BS_050623 Coylton Substation Image No 01

Tree group G1



BS_050623 Coylton Substation Image No 02

Tree group G3



BS_050623 Coylton Substation Image No 03

Tree group G4





BS_050623 Coylton Substation Image No 04

Tree group G5



BS_050623 Coylton Substation Image No 05 Stem cavity in tree No 7916 colonised by with Kretzschmaria deusta fungus



Coylton Greener Grid Park

BS_050623 Coylton Substation Image No 06 Tree No 7942 -example of specimens in group G5 featuring major structural defects





BS_050623 Coylton Substation Image No 07

Hedge H1



BS_050623 Coylton Substation Image No 08 Hedge H2 showing gaps in central sector



BS_050623 Coylton Substation Image No 09 Canopy area CA1 featuring scrub Willow



Appendix 2. Mapping Figures

A2.1 Briefing figure issued by client showing tree survey extents as defined by red-line boundary (RLB) of application area







A2.2 Proposed Site Layout Plan –Parameters



	LEGEND
	APPLICATION SITE BOUNDARY LAND WITHIN THE CONTROL OF THE
	APPLICANT INDICATIVE GRID CABLE ROUTE 0.32 km NOISE ATTENUATION / SECURITY
	FENCING AT 4.5m HIGH EXISTING OVERHEAD LINE (33 kV) EXISTING OVERHEAD LINE (33 kV) TO BE DIVERTED
	UNDERGROUNDING OF 33 kV CABLE EXISTING DITCH
Trac	EXISTING INDICATIVE DITCH ALIGNMENT HV YARD INTERNAL SECURITY
	FENCING AT 3.4m HIGH ————————————————————————————————————
$\left \right $	EXISTING SCOTTISH WATER FOUL DRAINAGE PIPE EXTENDED EXISTING SCOTTISH WATER
	FOUL DRAINAGE PIPE EXISTING SCOTTISH WATER FOUL DRAINAGE PIPE FROM DRAINAGE PIPE FROM PIPEFROM
	PROPOSED REINFORCEMENT OF SURFACING TO PROTECT PIPE
	COMMS HOUSE 5.63 m (H) x 14.20 m (L) x 18.80 m (W)
	AUX TRANSFORMER 2.50 (H) x2.60 m (L) x 1.60m (W)
/	2.40 m (W) OFFICES 3.60 m (H) x 9.80 m (L) x 3.1 m
	(W) POROUS CRUSHED AGGREGATE HARD SUPEACING
	A.5 m HIGH GATE (CLOSE BOARDED)
	 3.4 m PALISADE GATE CCTV / LIGHTING POLE (6m High)
	PROPOSED SuDS ATTENUATION FEATURE (DETENTION BASIN / SOAKAWAY)
	PROPOSED CULVERT - DETAILS TO BE PROVIDED BY WAY OF A CONDITION
	EXISTING TREES - TO BE RETAINED
	EXISTING HEDGEROW - RETAINED
	REINSTATED PROPOSED NATIVE TREE (SELECT STANDARD)
	PROPOSED NATIVE TREE (PEATHER)
	PROPOSED NATIVE MIXED HEDGEROW PROPOSED NATIVE WILDFLOWER MEADOW
	PROPOSED WET WILDFLOWER MIX (SudS AREA) BATTERY CONTAINER AND HV YARD KEY:
	INDICATIVE BATTERY BLOCK
	HV EQUIPMENT 8 m (H) x 28.1 m (L) x 14.4 m (W)
	HV YARD 40.42 m (L) x 20.78 m (W)
	10 23/10/23 FOR INFORMATION TS RL RL
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A2.3 Tree Survey Mapping – NW Sector







A2.4 Tree Survey Mapping – NE Sector







A2.5 Tree Survey Mapping – S Sector





A2.4 Tree Constraints Plan – Below Ground – NW Sector





A2.5 Tree Constraints Plan – Below Ground – NW Sector





A2.6 Tree Constraints Plan – Below Ground – S Sector





A2.7 Tree Constraints Plan – Above Ground with Current Shading Profile – NW Sector











A2.9 Tree Constraints Plan – Above Ground with Current Shading Profile – S Sector







A2.10 Tree Constraints Plan – Above Ground with Projected Future Shading Profile – NW Sector







A2.11 Tree Constraints Plan – Above Ground with Projected Future Shading Profile – NE Sector





A2.12 Tree Constraints Plan – Above Ground with Projected Future Shading Profile – S Sector







Appendix 3. Survey Schedule

Tree Reference Number	Grid Reference	Species <i>, Taxa</i>	Age Class	Height (m)	Stem Diameter (mm)	Constituent Stem Diameter of Multistem sps (mm)	Crown Spread (m)	Height (m) and Direction of Lowest Branch	Crown Clearance (m)	Root Protection Area	Physiological Condition	Structural Condition	Condition Notes	Preliminary Management Recommendations	Timeframe for Recommended Works	Estimated Remaining Contribution	BS5837 Retention Category	Photo Reference
7904	NS 46452.99 19650.53	Common Hawthorn, Crataegus monogyna	Mature	5	180	_	N:2 E:2 S:1 W:2	0.5(S)	0.5	Radius: 2.2m. Area: 15 sq m.	Good	Fair to Good	Isolated specimen sited within application area at site perimeter fence	_	_	20+ Years	B2	
7905	NS 46439.02 19646.08	Common Beech, Fagus sylvatica	Mature	15	780	_	N:8 E:8 S:6 W:8	2(E)	2	Radius: 9.4m. Area: 278 sq m.	Good	Good	Well-structured specimen sited on top of W-facing watercourse embankment	_	_	20+ Years	B2	_
7906	NS 46444.28 19633.72	Elder, Sambucus nigra	Mature	3	_	130, 110	N:2 E:2 S:2 W:2	1(NE)	1.5	Radius: 2.0m. Area: 13 sq m.	Good	Fair to Good	Minor tree sited in application area at site perimeter fence	_	_	20+ Years	B2	
7907	NS 46443.16 19625.34	Elder, Sambucus nigra	Mature	3	180	_	N:3 E:3 S:3 W:3	1(E)	1	Radius: 2.2m. Area: 15 sq m.	Good	Fair to Good	Sited atop W-facing watercourse embankment outside site perimeter fence	_	_	20+ Years	B2	_
7908	NS 46444.30 19619.28	Common Hawthorn, Crataegus monogyna	Mature	3.5	130		N:2 E:2 S:2 W:2	0.5(E)	0.5	Radius: 1.6m. Area: 8 sq m.	Fair to Good	Fair to Good	Sited at top of W-facing water course embankment beyond site perimeter fence	_		20+ Years	B2	
7909	NS 46445.36 19602.91	Common Hawthorn, Crataegus monogyna	Mature	4	_	180, 120	N:3 E:3 S:3 W:3	1(E)	1	Radius: 2.6m. Area: 21 sq m.	Good	Fair to Good	Sited at top of W-facing watercourse embankment beyond site perimeter fence 2 co-dominant stems from 0.2m via compression union	_	_	20+ Years	B2	_
7910	NS 46447.91 19597.12	Common Hawthorn, Crataegus monogyna	Mature	3		160, 120	N:2 E:3 S:3 W:3	0.5(E)	0.5	Radius: 2.4m. Area: 18 sq m.	Good	Fair to Good	Sited at top of W-facing watercourse embankment beyond site perimeter fence Crown development slightly suppressed from N 2 co-dominant stems from ground level via compression union	_	_	20+ Years	B2	
7911	NS 46451.77 19589.21	Common Beech, Fagus sylvatica	Mature	11	_	500, 340, 200	N:7 E:6 S:6 W:8	2(E)	2	Radius: 7.6m. Area: 181 sq m.	Fair	Fair	Sited at top of W-facing watercourse embankment beyond site perimeter fence 3 co-dominant stems from 0.5m via compression union Some stagheading / lionstailing in upper crown Minor deadwoods	_	_	20+ Years	B2	_
7912	NS 46452.36 19579.92	Common Beech, Fagus sylvatica	Dead	4	580	_	N:0 E:0 S:0 W:0	0(N)	0	N/A: Retention Category U	Dead	Decaying	Standing dead specimen at top of W-facing watercourse embankment beyond site perimeter fence Main stem failure at 4.0m	_	_	0 Years	U	
7913	NS 46452.42 19574.11	Common Beech, Fagus sylvatica	Mature	15	660	_	N:5 E:5 S:2 W:5	2(E)	2	Radius: 7.9m. Area: 196 sq m.	Good	Good	Reasonably well-structured specimen sited atop W- facing watercourse embankment Crown development suppressed from S 3 co-dominant stems from 6.0m via compression union	_	_	20+ Years	B2	_
7914	NS 46452.57 19569.89	Common Beech, Fagus sylvatica	Mature	16	640	_	N:3 E:6 S:4 W:6	2(W)	2	Radius: 7.7m. Area: 186 sq m.	Good	Good	Sited at top of W-facing watercourse embankment beyond site perimeter fence Crown development slightly suppressed from N and S 2 co-dominant stems from 10.0m via compression union	_	_	20+ Years	B2	_



Tree Reference Number	Grid Reference	Species <i>, Taxa</i>	Age Class	Height (m)	Stem Diameter (mm)	Constituent Stem Diameter of Multistem sps (mm)	Crown Spread (m)	Height (m) and Direction of Lowest Branch	Crown Clearance (m)	Root Protection Area	Physiological Condition	Structural Condition	Condition Notes	Preliminary Management Recommendations	Timeframe for Recommended Works	Estimated Remaining Contribution	BS5837 Retention Category	Photo Reference
7915	NS 46454.41 19562.65	Common Beech, Fagus sylvatica	Mature	15	790	_	N:4 E:7 S:5 W:7	2.5(NE)	2	Radius: 9.5m. Area: 284 sq m.	Fair	Fair	Sited at top of W-facing watercourse embankment beyond site perimeter fence Crown development slightly suppressed from N 2 co-dominant stems from 2.0m via compression union Basal epicormic growths	_	_	20+ Years	B2	_
7916	NS 46455.99 19554.76	Common Beech, Fagus sylvatica	Mature	15	750	_	N:5 E:5 S:4 W:5	9(E)	9	N/A: Retention Category U	Poor	Poor	Sited at top of W-facing watercourse embankment specimen presenting stress symptoms with crown density reduced 2 co-dominant stems from 2.5m via compression union Branch fracture point on NW co-leader with associated internal decay column Trunk wound in NW sector from 0.3 to 0.8m with <i>Kretzschmaria deusta</i> fungus colonising wound	_	_	0 Years	U	lmage No 05
7917	NS 46456.67 19547.58	Common Beech, Fagus sylvatica	Mature	14	I	420, 350	N:4 E:6 S:3 W:5	3.5(E)	2	Radius: 6.6m. Area: 137 sq m.	Fair to Good	Fair to Good	Sited at top of W-facing watercourse embankment beyond site perimeter fence 2 co-dominant stems from 1.5m via compression union Minor branch fracture points with adequate wound- wood developing Minor deadwoods	_		20+ Years	B2	_
7918	NS 46457.35 19541.85	Common Beech, Fagus sylvatica	Mature	14	650	_	N:5 E:6 S:4 W:5	2(E)	2	Radius: 7.8m. Area: 191 sq m.	Fair	Fair	Sited at top of W-facing watercourse embankment beyond site perimeter fence Crown density reduced in upper crown Area of bark necrosis on lower bole from 0.5m to 1.5m with no wound-wood developing Basal epicormic growths	_		10+ Years	C2	_
7919	NS 46458.21 19538.32	Common Beech, Fagus sylvatica	Mature	14	760	_	N:5 E:7 S:6 W:5	2.5(W)	1.5	Radius: 9.1m. Area: 260 sq m.	Fair to Good	Fair to Poor	Sited at top of W-facing watercourse embankment beyond site perimeter fence Substantial trunk wound from 0.3m to 3.0m in NW sector with extensive decay column and some wound- wood developing Specimen otherwise presenting normal vigour	_	_	10+ Years	C2	_
7920	NS 46462.83 19529.23	Common Hawthorn, Crataegus monogyna	Mature	4	_	180, 120	N:2 E:3 S:2 W:1	2(SW)	2	Radius: 2.6m. Area: 21 sq m.	Fair to Poor	Fair to Poor	Specimen presenting reduced vigour with minor deadwoods and crown density reduced Enveloping site perimeter fence	_	_	10+ Years	C2	_
7921	NS 46461.32 19524.50	Common Beech, Fagus sylvatica	Mature	12	_	510, 500	N:4 E:3 S:2 W:2	1.5(E)	1.5	Radius: 8.6m. Area: 232 sq m.	Poor	Poor	Specimen in poor condition with W co-leader failed at 4.0m and remaining crown with reduced density and small leaf dimensions 2 co-dominant stems from 0.5m via compression union	_	_	<10 Years	C2	
7922	NS 46463.34 19513.74	Common Beech, Fagus sylvatica	Dead	5	410	_	N:1 E:1 S:1 W:1	1(N)	1	N/A: Retention Category U	Dead	Decaying	Standing dead specimen	_	_	0 Years	U	_
7923	NS 46464.16 19510.57	Common Beech, Fagus sylvatica	Dead	12	460	_	N:3 E:5 S:3 W:5	4(NW)	4	N/A: Retention Category U	Dead	Decaying	Standing dead specimen	_	_	0 Years	U	_
7924	NS 46464.33 19505.52	Common Beech, Fagus sylvatica	Early Mature	11	300		N:3 E:3 S:3 W:3	0.5(W)	0.5	Radius: 3.6m. Area: 41 sq m.	Poor	Poor	Moribund specimen with entire upper crown dead and lower crown presenting reduced vigour	_	_	<10 Years	C2	



Tree Reference Number	Grid Reference	Species, Taxa	Age Class	Height (m)	Stem Diameter (mm)	Constituent Stem Diameter of Multistem sps (mm)	Crown Spread (m)	Height (m) and Direction of Lowest Branch	Crown Clearance (m)	Root Protection Area	Physiological Condition	Structural Condition	Condition Notes	Preliminary Management Recommendations	Timeframe for Recommended Works	Estimated Remaining Contribution	BS5837 Retention Category	Photo Reference
7925	NS 46466.28 19500.59	Common Beech, Fagus sylvatica	Early Mature	11	380	_	N:3 E:3 S:3 W:5	0.5(NW)	0.5	Radius: 4.6m. Area: 66 sq m.	Poor	Poor	Moribund specimen with entire upper crown dead and lower crown presenting reduced vigour	_	_	<10 Years	C2	_
7926	NS 46466.20 19498.54	Common Beech, Fagus sylvatica	Early Mature	11	250		N:5 E:4 S:2 W:2	0.5(N)	0.5	Radius: 3.0m. Area: 28 sq m.	Poor	Poor	Moribund specimen with entire upper crown dead and lower crown presenting reduced vigour	_		<10 Years	C2	_
7927	NS 46467.45 19492.68	Common Beech, Fagus sylvatica	Mature	15	670	_	N:5 E:6 S:4 W:5	0(W)	0.5	Radius: 8.0m. Area: 201 sq m.	Fair to Poor	Fair to Good	Specimen indicating reduced vigour Central sector of crown sparse with minor snags, deadwoods and branch fracture points Basal epicormic growths	_	_	10+ Years	C2	_
7928	NS 46470.37 19478.58	Common Beech, Fagus sylvatica	Mature	10	440		N:3 E:3 S:1 W:3	2(SW)	2	Radius: 5.3m. Area: 88 sq m.	Poor	Poor	Moribund specimen	_	_	<10 Years	C2	_
7929	NS 46470.79 19474.66	Common Beech, Fagus sylvatica	Mature	11	490	_	N:2 E:5 S:4 W:5	2(NW)	2	Radius: 5.9m. Area: 109 sq m.	Poor	Poor	Moribund specimen	_		<10 Years	C2	
7930	NS 46471.65 19470.93	Common Beech, Fagus sylvatica	Mature	9	750	_	N:4 E:4 S:4 W:4	2(E)	2	Radius: 9.0m. Area: 254 sq m.	Poor	Poor	Moribund specimen	_	_	<10 Years	C2	
7931	NS 46473.25 19463.41	Common Beech, Fagus sylvatica	Mature	12	_	520, 480	N:5 E:7 S:2 W:5	0.5(SE)	2	Radius: 8.5m. Area: 227 sq m.	Fair to Poor	Poor	Crown development substantially suppressed from S 2 co-dominant stems from 0.7m via compression union W co-leader failed leaving substantial tear wound from 0.5m to 12.0m with associated internal decay column and inadequate wound-wood developing	_	_	<10 Years	C2	_
7932	NS 46474.28 19455.73	Common Beech, Fagus sylvatica	Mature	11	_	450, 290, 210	N:5 E:5 S:4 W:4	2(W)	1.5	Radius: 6.9m. Area: 150 sq m.	Fair to Poor	Fair	3 co-dominant stems from ground level via tension unions Presenting depleted vigour with apical dieback in upper crown	_	_	10+ Years	C2	_
7933	NS 46476.89 19441.22	Common Beech, Fagus sylvatica	Mature	12	460	_	N:6 E:6 S:3 W:5	2.5(N)	2.5	Radius: 5.5m. Area: 95 sq m.	Fair	Good	Crown development slightly suppressed from S Presenting slightly depleted vigour with reduced crown density	_		10+ Years	C2	
7934	NS 46477.76 19438.10	Common Beech, Fagus sylvatica	Mature	10	390	_	N:1 E:2 S:4 W:4	2.5(E)	2.5	Radius: 4.7m. Area: 69 sq m.	Fair to Poor	Fair to Good	Crown development suppressed from N Presenting slightly depleted vigour with crown density reduced	_		10+ Years	C2	
7935	NS 46479.09 19428.48	Common Beech, Fagus sylvatica	Mature	10	_	310, 230	N:6 E:6 S:2 W:5	2.5(E)	2.5	Radius: 4.6m. Area: 66 sq m.	Fair to Good	Fair to Good	Crown development suppressed from S 2 co-dominant stems from 0.7m via compression union	_		20+ Years	B2	
7936	NS 46479.72 19425.89	Common Beech, Fagus sylvatica	Mature	11	_	380, 190	N:2 E:5 S:3 W:5	2(SW)	2	Radius: 5.1m. Area: 82 sq m.	Fair to Good	Fair to Good	Crown development suppressed from N and S 2 co-dominant stems from 0.5m via tension union	_	_	20+ Years	B2	



Tree Reference Number	Grid Reference	Species, Taxa	Age Class	Height (m)	Stem Diameter (mm)	Constituent Stem Diameter of Multistem sps (mm)	Crown Spread (m)	Height (m) and Direction of Lowest Branch	Crown Clearance (m)	Root Protection Area	Physiological Condition	Structural Condition	Condition Notes	Preliminary Management Recommendations	Timeframe for Recommended Works	Estimated Remaining Contribution	BS5837 Retention Category	Photo Reference
7937	NS 46480.39 19422.84	Common Beech, Fagus sylvatica	Mature	5	_	190, 160	N:1 E:3 S:2 W:1	2.5(SE)	2.5	Radius: 3.0m. Area: 28 sq m.	Fair to Poor	Poor	2 co-dominant stems from 0.5m via compression union Both co-leaders featuring substantial fracture points with extensive decay cavities on co-leaders and main stem	_	_	<10 Years	C2	_
7938	NS 46483.78 19415.13	Common Beech, Fagus sylvatica	Mature	10	-	570, 330, 240, 180	N:6 E:4 S:5 W:4	2(E)	2	Radius: 8.7m. Area: 238 sq m.	Fair to Poor	Poor	Multistemmed from 0.5m via complex compression unions Central co-leader failed at 4.0m with bark tear to 0.3m and inadequate wound-wood developing Remaining crown presenting depleted vigour with reduced crown density	_	_	<10 Years	C2	_
7939	NS 46482.73 19410.80	Common Beech, Fagus sylvatica	Mature	7	480	_	N:3 E:4 S:3 W:2	1.5(S)	1.5	Radius: 5.8m. Area: 106 sq m.	Fair	Fair	2 co-dominant stems from 1.5m via compression union with associated bark inclusion Specimen presenting reduced vigour with small leaf dimensions	_	_	10+ Years	C2	_
7940	NS 46485.13 19397.29	Common Beech, Fagus sylvatica	Mature	9	_	370, 240, 140	N:3 E:5 S:5 W:5	2.5(W)	2.5	Radius: 5.6m. Area: 99 sq m.	Fair	Fair	Crown development slightly suppressed from N 3 co-dominant stems from 1.0m via compression union Central co-leader failed at 7.0m with associated internal decay column SW co-leader featuring site of mechanical damage and associated decay column with adequate wound- wood developing			10+ Years	C2	_
7941	NS 46486.85 19386.12	Common Beech, Fagus sylvatica	Early Mature	9	230	_	N:4 E:4 S:2 W:2	3(N)	3	Radius: 2.8m. Area: 25 sq m.	Fair to Good	Good	Reasonably well-structured minor specimen	_	_	10+ Years	C2	_
7942	NS 46487.58 19381.57	Common Beech, Fagus sylvatica	Mature	10	390		N:5 E:1 S:0 W:2	9(NW)	9	Radius: 4.7m. Area: 69 sq m.	Poor	Poor	Moribund specimen with stem having failed leaving extensive decay column from 5.0m to ground level	_	_	<10 Years	C2	
7943	NS 46488.27 19377.87	Common Beech, Fagus sylvatica	Mature	13	Ι	490, 190	N:5 E:6 S:5 W:6	2.5(E)	2.5	Radius: 6.3m. Area: 125 sq m.	Fair to Good	Fair to Good	Centre of crown slightly sparse 2 co-dominant stems from 0.5m via compression union	_	_	20+ Years	B2	_
7944	NS 46492.24 19359.22	Common Beech, Fagus sylvatica	Mature	12	700		N:5 E:7 S:4 W:5	2.5(SE)	2	Radius: 8.4m. Area: 222 sq m.	Fair to Poor	Fair	Large bark wound from branch tearout in S sector with some wound-wood developing Specimen presenting depleted vigour with sparse crown and apical dieback of branch extensions	_	_	10+ Years	C2	_
7945	NS 46494.15 19347.55	Common Beech, Fagus sylvatica	Mature	7	540		N:2 E:2 S:3 W:1	2(E)	2	Radius: 6.5m. Area: 133 sq m.	Poor	Poor	Main stem failed with extensive associated bark damage and decay column with inadequate wound- wood developing	_	_	<10 Years	C2	_
7946	NS 46494.31 19345.26	Common Beech, Fagus sylvatica	Mature	11	380	_	N:2 E:5 S:1 W:1	3.5(E)	4	Radius: 4.6m. Area: 66 sq m.	Poor	Poor	Mechanical bark wound to W sector of lower bole from ground level to 1.3m with associated decay ascension Multiple deadwoods and branch fracture points Remaining crown heavily offset to E	_	_	<10 Years	C2	_
7947	NS 46494.78 19342.91	Common Beech, Fagus sylvatica	Mature	10	290		N:2 E:2 S:2 W:2	3(SE)	3	Radius: 3.5m. Area: 38 sq m.	Poor	Fair to Poor	Specimen presenting depleted vigour with sparse crown and reduced leaf dimensions	_		10+ Years	C2	Image No 06
7948	NS 46496.75 19331.63	Common Beech, Fagus sylvatica	Mature	11	460		N:4 E:5 S:5 W:4	2(SE)	1.5	Radius: 5.5m. Area: 95 sq m.	Fair to Poor	Fair	Specimen presenting depleted vigour with sparse crown	_	_	10+ Years	C2	



Tree Reference Number	Grid Reference	Species, <i>Taxa</i>	Age Class	Height (m)	Stem Diameter (mm)	Constituent Stem Diameter of Multistem sps (mm)	Crown Spread (m)	Height (m) and Direction of Lowest Branch	Crown Clearance (m)	Root Protection Area	Physiological Condition	Structural Condition	Condition Notes	Preliminary Management Recommendations	Timeframe for Recommended Works	Estimated Remaining Contribution	BS5837 Retention Category	Photo Reference
7949	NS 46498.48 19321.06	Common Beech, Fagus sylvatica	Mature	10	500	_	N:5 E:5 S:1 W:5	2(E)	2	Radius: 6.0m. Area: 113 sq m.	Fair to Poor	Fair	Crown development suppressed from S Presenting depleted vigour with sparse crown structure and apical dieback of branch extensions Minor deadwoods	_	_	10+ Years	C2	_
7950	NS 46499.07 19318.19	Common Beech, Fagus sylvatica	Mature	9	390	_	N:1 E:4 S:3 W:2	1.5(E)	1.5	Radius: 4.7m. Area: 69 sq m.	Fair to Poor	Fair	Specimen presenting depleted vigour with sparse crown and apical dieback of branch extensions	_		<10 Years	C2	_
7951	NS 46500.72 19310.03	Common Beech, Fagus sylvatica	Mature	9	440	_	N:4 E:6 S:1 W:5	3(E)	3	Radius: 5.3m. Area: 88 sq m.	Fair to Poor	Fair to Poor	Presenting depleted vigour with sparse crown and apical dieback of branch extensions Multiple deadwoods	_		<10 Years	C2	_
7952	NS 46501.64 19305.13	Common Beech, Fagus sylvatica	Dead	3.5	350	_	N:0 E:0 S:0 W:0	1(N)	1	N/A: Retention Category U	Dead	Decaying	Standing dead Main stem failed at 3.5m	_		0 Years	U	
7953	NS 46501.29 19300.75	Common Beech, Fagus sylvatica	Mature	10	410	_	N:2 E:5 S:2 W:3	4(E)	4	Radius: 4.9m. Area: 75 sq m.	Fair to Poor	Fair	Presenting depleted vigour with sparse crown structure and reduced leaf dimensions	_	_	<10 Years	C2	_
7954	NS 46504.25 19296.09	Common Hawthorn, Crataegus monogyna	Mature	4	200	_	N:3 E:3 S:3 W:3	0.5(E)	0.5	Radius: 2.4m. Area: 18 sq m.	Fair	Fair	Multi-stemmed minor specimen sited beyond site perimeter fence	_	_	10+ Years	C2	_
7955	NS 46480.71 19557.91	Common Hawthorn, Crataegus monogyna	Mature	4	150	_	N:3 E:3 S:3 W:3	0(N)	0.5	Radius: 1.8m. Area: 10 sq m.	Fair to Good	Fair to Good	Isolated Hawthorn specimen sited on N-facing embankment of drainage ditch	_	_	20+ Years	B2	_
External Trees																		
E1	NS 46520.98 19662.18	Common Hawthorn, Crataegus monogyna	Mature	3.5	180	_	_		_	Radius: 2.2m. Area: 15 sq m.	Good	Fair	Isolated specimen sited at perimeter fence external to application area	_		20+ Years	B2	_
E2	NS 46499.15 19660.18	Common Hawthorn, Crataegus monogyna	Mature	4	200	_		_		Radius: 2.4m. Area: 18 sq m.	Good	Fair	Isolated specimen sited at perimeter fence external to application area	_		20+ Years	B2	_
E3	NS 46432.03 19670.83	Common Beech, Fagus sylvatica	Mature	15	400	_	_		_	Radius: 4.8m. Area: 72 sq m.	Good	Fair to Good	Substantial specimen in good condition cited atop west-facing watercourse embankment Multi-stemmed from 2.0m	_		20+ Years	B2	
External Tree Groups																		
CA1	NS 46363.64 19629.20	Goat Willow, Salix caprea	Early Mature	<2	<100	_			_	Area: 8237 sq m.	Fair	Fair	Sporadic Willow scrub colonising open ground		_	20+ Years	C2	lmage No 09



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Tree Reference Number	Grid Reference	Species <i>, Taxa</i>	Age Class	Height (m)	Stem Diameter (mm)	Constituent Stem Diameter of Multistem	Crown Spread (m)	Height (m) and Direction of Lowest Branch	Crown Clearance (m)	Root Protection Area	Physiological Condition	Structural Condition	Condition Notes	Preliminary Management Recommendations	Timeframe for Recommended Works	Estimated Remaining Contribution	BS5837 Retention Category	Photo Reference
EG1	NS 46461.53 19655.62	Common Hawthorn, Crataegus monogyna Gorse, Ulex europaeus	Mature	<2.5	<100		_		_	Area: 226 sq m.	Fair to Good	Fair	Linear shrub group on N boundary of application area beyond site perimeter fence Composition of Gorse and Hawthorn at approx 50/50 Gap maintained to accommodate power line but otherwise relatively dense	_	_	20+ Years	C2	lmage No 01
EG2	NS 46431.35 19687.75	Common Hawthorn, Crataegus monogyna Common Beech, Fagus sylvatica	Mature	<14	<200	_	_	_	_	Area: 755 sq m.	Good	Good	Linear grouping predominantly of Hawthorn with occasional minor Beech external to application area Beech E3 individually recorded as most substantial example in group	_	_	20+ Years	B2	_
EG3	NS 46443.11 19624.55	Common Hawthorn, Crataegus monogyna Gorse, Ulex europaeus Elder, Sambucus nigra Common Beech, Fagus sylvatica	Mature	<4	<100	_	_	_	_	Area: 695 sq m.	Good	Fair to Good	Dense linear tree and shrub group sited on top of west-facing watercourse embankment Most specimens in reasonably good condition Trees No 7905-7910 individually recorded to define root protection area of group		_	20+ Years	B2	lmage No 02
EG4	NS 46454.25 19567.51	Common Beech, Fagus sylvatica	Mature	<16	<780	_	_	_	_	Area: 899 sq m.	Fair to Good	Fair to Good	Formal linear grouping of mature Beech on site boundary, all sited atop a west-facing water course embankment Most specimens in reasonably good condition with occasional poorly-performing examples Trees No 7911-7919 individually recorded to define root protection area of group	_	_	20+ Years	B2	lmage No 03
EG5	NS 46480.98 19419.52	Common Beech, Fagus sylvatica Gorse, Ulex europaeus Common Hawthorn, Crataegus monogyna	Mature	<15	<500		_	_		Area: 2737 sq m.	Fair	Fair	Formal linear grouping of mature Beech trees sited on W perimeter beyond post and wire fence Most specimens in poor condition with occasional standing dead specimen High incidence of stem failure, reduced leaf dimensions, apical crown dieback and instances of branch fracture points Includes multiple moribund specimens Group includes occasional underperforming Hawthorn specimen in N and S sectors Trees No 7920-7954 individually recorded to define root protection area of group		_	20+ Years	В2	Image No 04
Hedges																		
H1	NS 46620.30 19815.09	Common Beech, Fagus sylvatica Common Hawthorn, Crataegus monogyna European Ash, Fraxinus excelsior	Mature	<2	<50	_	_	_	_	Area: 402 sq m.	Good	Good	Formal mixed-species boundary hedge maintained at 2.0m on northern perimeter of site In good overall condition and well-integrated throughout with no gaps	_	_	40+ Years	B2	lmage No 07
H2	NS 46598.57 19589.25	Common Hawthorn, Crataegus monogyna	Mature	<2	<50		_			Area: 863 sq m.	Fair to Good	Fair to Good	Linear maintained Hawthorn hedge running W to E Locally dense in E and W sectors with central sector featuring substantial gaps	_	_	20+ Years	B2	Image No 08



Appendix 4. BS5837:2012 Tree Retention Categories

Table 1 Cascade chart for tree quality assessment

Category and definition	inition Criteria (including subcategories where appropriate)										
Trees unsuitable for retention	(see Note)			_							
Category U	Trees that have a serious, irremediab	le, structural defect, such that their early loss	is expected due to collapse,	ALC: N							
Those in such a condition that they cannot realistically	including those that will become un reason, the loss of companion shelte	viable after removal of other category U trees r cannot be mitigated by pruning)	(e.g. where, for whatever								
be retained as living trees in	 Trees that are dead or are showing s 	igns of significant, immediate, and irreversibl	e overall decline								
the context of the current land use for longer than	 Trees infected with pathogens of sig quality trees suppressing adjacent trees 	nificance to the health and/or safety of other ees of better quality	trees nearby, or very low								
to years	NOTE Category U trees can have existing see 4.5.7.	NOTE Category U trees can have existing or potential conservation value which it might be desirable to preser see 4.5.7.									
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation								
Trees to be considered for rete	ention										
Category A	Trees that are particularly good	Trees, groups or woodlands of particular	Trees, groups or woodlands								
Trees of high quality with an estimated remaining life expectancy of at least 40 years	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)	visual importance as arboricultural and/or landscape features	of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)								
Category B	Trees that might be included in	Trees present in numbers, usually growing	Trees with material	1000							
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	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	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	conservation or other cultural value								
Category C	Unremarkable trees of very limited	Trees present in groups or woodlands, but	Trees with no material								
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		without this conterring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	conservation or other cultural value								

Coylton Greener Grid Park

Identification on plan See Table 2

See Table 2

See Table 2

See Table 2

BS 5837:2012



Appendix 5. Key to Survey Spreadsheets

A5.1 Tree No

Represented on survey tags fixed to bole of tree at approximately 2.0m.

A5.2 Species

Both formal and common nomenclature are given, where appropriate. Where precise species identification is in doubt, genus is given, followed by suffix "spp".

Specimen Height, Crown Spread, Height of First Significant Branch and Height of Canopy

Given in metres. These are measured accurate to a tolerance of 0.5m for values up to 10m and of 1m for values over 10m.

A5.3 Crown Spread

Given on each of the North, East, South and West axes respectively, measured in metres.

A5.4 Stem Diameter

Measured at 1.5m above ground level. Where this is impractical the measurement is taken at the closest appropriate point in line with the guidance outlined in BS5837 (2012). This is taken to be the Effective Stem Diameter for the purpose of calculating the Root Protection Radius.

In instances where more than one stem is present at 1.5m these are recorded as Constituent Stem Diameters. In such cases the Effective Stem Diameter is calculated using the formulae provided by BS5837 (2012). Where accurate measurement of stem diameter is impractical (for example due to the presence if Ivy or dense epicormic growths) the value is estimated and the figure recorded with the suffix *e*.

A5.5 RPA (Root protection Area)

BS 5837 (2012) provides for the identification of a Root Protection Area around trees to be maintained during and after construction works on site. This is calculated –principally as a function of the bole diameter of the specimen- and given in the survey schedule as the radius of a circle around each tree which should be secured and left undisturbed during site operations. The RPA may additionally be represented graphically on topographical drawings of the site, if available.

A5.6 Age Classification

- SM Semi-Mature
- EM Early maturity
- M Mature
- OM Overmature

A5.7 Physiological and Structural Condition

G	Good
F-G	Fair-Good
F	Fair
F-P	Fair-Poor
Р	Poor

A5.8 Preliminary Management Recommendations

Action required in the short term in reflection of health and safety considerations, or on any specific criteria outlined in the Terms of Reference (see s1 above). Note that this section is not intended to give comprehensive guidance as to the appropriate long-term management of each specimen.

A5.9 Life Expectancy Classification (Estimated Remaining Contribution)

<10 years 10+ years 20+ years 40+ years

A5.10 British Standard 5837 (2012) Tree Retention Categories

See specification at Appendix 4 (above).





T. 0141 427 0427 | M. 07778 233 703 info@caledontreesurveys.com www.caledontreesurveys.com 56 Aytoun Road, Glasgow G41 5HE