

July 2014

TREE SURVEY REPORT

Scarborough, GCHQ, Omega 2 Development

Submitted to:
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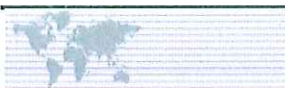
REPORT



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Distribution:

Morgan Sindall PLC - 1 PDF
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TREE SURVEY REPORT

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Drawing GCHQ-02-LA-0500-REV1



TREE SURVEY REPORT

1.0 INTRODUCTION

Golder Associates (UK) Ltd was instructed on behalf of Morgan Sindall to undertake a survey of trees at GCHQ Scarborough in the area of the Omega 2 development.

The aim of the survey was to record the details of tree species within and around the proposed site boundary to help inform the potential development proposals for the site. The survey was carried out in warm sunny weather conditions on 22 July 2014.

2.0 METHODOLOGY

The survey was undertaken using the principles set out in British Standard 5837:2012 Trees in Relation to Construction, including the following parameters: record of species, age class, height, crown spread, stem diameter (Diameter at Breast Height – DBH), crown height, physiological condition (visual assessment, from ground level only), structural condition (visual assessment from ground level only), estimated remaining contribution in years and category grading for individual tree specimens. Details of parameters can be found in the appended glossary of terms, see Appendix B.

Measurements for height and spread and some stem diameters (recorded within survey schedule as approx.) are estimates only. Inspections were undertaken from ground level and core samples were not taken, therefore the assessment of condition should only be regarded as an approximate indication of tree health. The condition of trees within this report has been recorded as accurately as possible. Where good/fair condition and/or no significant defects have been recorded this does not constitute as a guarantee of safety. It is possible for even apparently safe and healthy trees to fall as a result of climatic conditions or other unforeseen circumstances and events. The remaining survey parameters, including stem diameter (where possible) and crown height, were measured and recorded in appropriate metric units.

A topographical survey base was provided which located the majority of the trees on site. This base was used to manually record the positions of any additional surveyed trees. It should be noted that actual tree canopy spreads were estimated on site and plotted onto Golder Associates Drawing GCHQ-O2-LA-0500, contained within the appendices of this report. The extent of scrub areas/immature trees have also been identified and shown on the same drawing: they were not however, included within the tree survey.

The tabulated results include a recommendation for category grading of tree specimens based on the principles from the methodology outlined in BS 5837:2012. There are 4 main categories and sub categories, as follows:

Category R

Trees that are in such a condition that any existing value would be lost within 10 years and which should be removed for reasons of sound arboricultural management.

Category A

Trees of high quality and value: in such a condition as to be able to make a substantial contribution.

Category B

Trees of moderate quality and value: those in such a condition as to make a significant contribution.

Category C

Trees of low quality and value but currently in adequate condition.



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The sub categories are as follows:

A: Those of High Quality and Value

These trees are of high quality and value, in such a condition as to be able to make a substantial contribution with a good life expectancy. They may be further sub-divided as follows:

- A1) Mainly arboriculture value – Particularly good examples: perhaps rare or unusual species or forming an essential part of arboricultural features e.g. avenues;
- A2) Mainly landscape value – Trees or groups of trees having a significant landscape impact or with excellent screening properties, or these softening the effect of existing structures; or
- A3) Mainly cultural values including conservation – Those having significant conservation or historical value.

B: Those of Moderate Quality and Value

These trees are of moderate quality and value with a good life expectancy. They may be further sub-divided as follows:

- B1) Mainly arboriculture value - Trees that might be included in the high category but because of their numbers or slightly impaired condition, are downgraded in favour of the better individuals;
- B2) Mainly landscape value - Groups of trees forming distinct landscape features, thereby attractive a higher collective rating than they might as individuals; or
- B3) Mainly cultural values including conservation - Trees with clearly identifiable conservation or other cultural benefits.

C: Those of Low Quality and Value

These trees are of low quality and value, and are in adequate condition to remain until new planting could be established. They may be further sub-divided as follows:

- C1) Mainly arboriculture value - Trees not qualifying in higher categories;
- C2) Mainly landscape value - Groups of trees which do not form a distinct landscape feature; or
- C3) Mainly cultural values including conservation - Trees with very limited conservation or other cultural benefits.

Note: Whilst C category trees will usually not be retained where they would impose a significant constraint to on the development, young trees with a stem diameter of less than 150 mm at breast height should be considered for relocation.

3.0 CAVEATS

The findings within this report are only valid for one year from the date of survey.

4.0 THE SITE

The site is located to the south west of Scarborough GCHQ within an open grass scrub area that borders the secure compound. The site borders a private caravan park to the south and Irton Moor Lane to the west.

In terms of the wider geographical setting of the site, it is located within an area of open farmland. Topographically, the site is located within a gently sloping area at an approximate level of 140 m Above Ordnance Datum (AOD).



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5.0 PROPOSED DEVELOPMENT

It is proposed that a new visitor reception centre is to be built to the south western corner of the existing secure compound. In addition to the visitor reception a 212 space staff car park and 40 space visitor car park are to be constructed along the southern boundary to the site, with a loading area for deliveries proposed for the north eastern corner of the survey area. As part of the proposed works the existing secure fence line will be relocated to facilitate the new proposals. To access to the car park it is proposed to remove a section of the existing hedgerow and trees along Irton Moor Lane. This will allow the construction of a new vehicular access and improve the visibility required for security associated with a sensitive MOD site. It is proposed that additional hedgerow and tree planting is to be undertaken along the southern boundary to improve the existing screening.

6.0 RESULTS

At the time of this report being written we are unaware of any trees within the survey area being covered by a Tree protection Order (TPO). Scarborough Borough Council has been contacted in relation to any TPO's within the survey area but due to the 28 day response period no formal response has yet been received. If the proposed development achieves planning approval any removal of trees identified on the plans would be acceptable without the requirement to submit an application to carry out works subject to a TPO.

A total of 37 species were recorded as part of the survey, details of which are listed in the appended tree survey forms (refer to Appendix A). Several groups of tree were also recorded within the survey, the large of which lies on the site boundary, running along Irton Moor lane. The trees recorded can be broken into 3 main areas:

- i) **Southern Site Boundary** - Trees 0101 – 0111 are situated just to the south of the site boundary and create a screen between the southern part of the site and the neighbouring properties. 4 large Beech trees (0101 – 0104) are located to the south east corner of the site. All four trees show signs of recent pruning works and are assessed as moderate quality. Tree 0104 leans in a south western direction into the canopy of tree 0103. This tree will require monitoring to avoid any damage to tree 0103. The remaining trees within the section combine with tree groups G1, G2 and G3 to create an area of screen planting that screens the site from the neighbouring properties to the south.
- ii) **Irton Moor Lane Boundary** - Trees 0112 – 0127 are located within group G4 and act as a buffer between the western boundary of the site and Irton Moor Lane. Within this group 15 trees have been recorded as part of this survey but there are also approximately a further 40 - 60 smaller trees within the overall group. This group predominately forms a large hedgerow screening the site from the adjacent road. There are 3 large Sycamore trees within this group (Trees 0115, 0118 and 0120) and an Oriental Hazel that are the key trees within this group that have been assessed as moderate quality. Tree 0120 may require monitoring as there is some damage to its base (possibly due to vehicle collision).
- iii) **Within Secure Compound** - Trees 0128 – 0137 are situated within the secure compound and are more formally pruned ornamental trees. The trees within the compound are a mixture of Sorbus, Sycamore and Whitebeam, all of which have been well maintained and show signs of regular pruning. All trees are upright in form and clear of any deadwood. With the regular pruning taking place, these trees have produced dense crown growth, and it is recommended that the trees are monitored for potential damage caused by crossing branches. Some crown thinning may be required in the future. Trees 0131, 0135 and 0137 should have any basal stems removed and the crowns lifted to approximately 1.5 m above ground level.



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7.0 CONCLUSIONS

Overall, there are few trees within the surveyed area. Most of the trees identified within this survey are either outside the site area or creating a screen along its edge.

As the majority of the trees contribute to the screening to the site it is recommended that, where possible, and in line with security requirements, all trees are retained. Overall the trees are considered to be fair with some good specimens with one tree identified for removal.

Where possible the trees to be retained and their root protection areas should be protected from any proposed development in accordance with BS5837:2012 Trees in Relation to Construction.

Arboricultural works/tree pruning operations should be undertaken by an approved arboriculturist between October and February to avoid disturbing nesting birds. It is an offence to disturb nesting birds or their habitats as stated within the Wildlife and Countryside Act 1981 and as amended under The Countryside and Rights of Way Act 2000. Outside this time, it is recommended that the trees for removal are inspected by an approved Ecologist to ascertain the presence of nesting birds prior to any works being undertaken.

Prior to any potential pruning or felling operations, trees should be visually inspected for signs of roosting bats. If, during the course of arboricultural works, bats are discovered, English Nature should be consulted with regard to the appropriate course of action.

It is recommended that any tree works are discussed with Scarborough Borough Council prior to being undertaken.

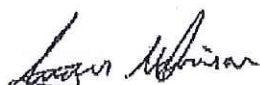
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Report Signature Page

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30 July 2014

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TREE SURVEY REPORT

APPENDIX A

Omega 2 Tree Report Survey Schedules

APPENDIX A

Scarborough, GCHQ, Omega2 Tree Report Survey Schedules

Scarborough GCHQ												
Project	Morgan Sindall											
Client	22 nd July 2014											
Date of Inspection	Sun, clear skies											
R Woods (Golder Associates (UK) Ltd)												
Ref.	TPO Ref.	Species	Age Class	Height (m)	Canopy NESW (m)	Stem Girth (cm)	Crown Clearance Height (m)	Physiological Condition	Structural Condition	Est. Remaining Contribution (years)	Category	Recommendations
0101	n/a	Fagus sylvatica (Beech)	M	12.0	N: 5 E:4 S:5 W: 6	300 (approx)	1.5	Fair	Fair, lean to SW, recent pruning works undertaken, rotten limb removed, some scarring.	40 +	B2	Retain if not affected by proposals.
0102	n/a	Fagus sylvatica (Beech)	M	12.0	N: 5 E: 5 S: 5 W: 5	300 (approx)	3.0	Fair	Fair, recent pruning works undertaken	40 +	B2	Retain if not affected by proposals.
0103	n/a	Fagus sylvatica (Beech)	M	12.0	N: 5 E: 5 S: 5 W: 5	150 (x2) (approx)	3.0	Fair	Fair, recent pruning works undertaken	40 +	B2	Retain if not affected by proposals.
0104	n/a	Fagus sylvatica (Beech)	SM	10.0	N: 1 E: 1 S: 2 W: 2	100 (approx)	3.0	Fair/Poor	Fair/Poor, Single stem, leaning to SE into tree 0103.	<10	C1	Retain if not affected by proposals. Monitor effect on tree 0103.
0105	n/a	Fraxinus excelsior (Ash)	SM	10.0	N: 1 E: 1 S: 2 W: 2	100 (approx)	1.5	Fair	Fair	10-20	C1	Retain if not affected by proposals.
0106	n/a	Fraxinus excelsior (Ash)	SM	10.0	N: 1 E: 1 S: 2 W: 2	100 (approx)	1.2	Fair	Fair	10-20	C1	Retain if not affected by proposals.
0107	n/a	Fraxinus excelsior (Ash)	SM	12	N: 3 E: 1 S: 2 W: 2	160 (approx)	1.2	Fair	Fair, main stem leaning to NW	10-20	C1	Retain if not affected by proposals. May require future topping to avoid overhead phone lines.
0108	n/a	Crataegus monogyna (Hawthorn)	SM	3.5	N: 1 E: 2 S: 1 W: 2	30 (approx)	1.0	Fair	Fair	10-20	B2	Retain if not affected by proposals. Crown lift may be required to help create fuller canopy.
0109	n/a	Crataegus monogyna	SM	3.5	N: 1.5 E: 1.5 S: 1.5	30 (approx)	1.0	Fair	Fair	10-20	B2	Retain if not affected by proposals. Crown lift

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Scarborough GCHQ													
Project	Morgan Sindall												
Client	22 nd July 2014												
Date of Inspection	R Woods (Golder Associates (UK) Ltd)												
Ref.	TPO Ref.	Species	Age Class	Height (m)	Canopy NESW (m)	Weather			Sun, clear skies				
						Inspected by			Stem Girth (cm)	Crown Clearance Height (m)	Physiological Condition	Structural Condition	Est. Remaining Contribution (years)
		(Hawthorn)			W: 1.5								
0110	n/a	Crataegus monogyna (Hawthorn)	SM	3.5	N: 1 E: 1 S: 1 W: 1	50 (approx)	1.0	Fair	Fair	10-20	B2	Retain if not affected by proposals. Crown lift may be required to help create fuller canopy.	
0111	n/a	Crataegus monogyna (Hawthorn)	SM	3.5	N: 1 E: 1 S: 1 W: 1	50 (approx)	1.0	Fair	Fair	10-20	B2	Retain if not affected by proposals. Crown lift may be required to help create fuller canopy.	
0112	n/a	Crataegus monogyna (Hawthorn)	SM	6.5	N: 1 E: 1 S: 1 W: 1	45 (approx)	0.0	Fair	Fair	10-20	C2	Located within group G4. Retain if not affected by proposals.	
0113	n/a	Crataegus monogyna (Hawthorn)	SM	6.5	N: 1 E: 1 S: 1 W: 1	45 (approx)	0.0	Fair	Fair	10-20	C2	Located within group G4. Retain if not affected by proposals.	
0114	n/a	Crataegus monogyna (Hawthorn)	SM	6.5	N: 1 E: 1 S: 1 W: 1	45 (approx)	0.0	Fair	Fair	10-20	C2	Located within group G4. Retain if not affected by proposals.	
0115	n/a	Acer pseudoplatanus (Sycamore)	SM	8.5	N: 2 E: 2 S: 1 W: 1	50 (approx)	1.2	Fair	Fair	10-20	B2	Located within group G4. Retain if not affected by proposals.	

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Scarborough, GCHQ, Omega2 Tree Report Survey Schedules

Scarborough GCHQ												
Project	Morgan Sindall											
Client	22 nd July 2014											
Date of Inspection	R Woods (Golder Associates (UK) Ltd)											
Ref.	TPO Ref.	Species	Age Class	Height (m)	Canopy NESW (m)	Stem Girth (cm)	Crown Clearance Height (m)	Physiological Condition	Structural Condition	Est. Remaining Contribution (years)	Category	Recommendations
0116	n/a	Crataegus monogyna (Hawthorn)	SM	7.0	N: 2 E: 1 S: 1 W: 1	30 (x3) (approx)	1.0	Fair	Fair	10-20	C2	Located within group G4. Retain if not affected by proposals.
0117	n/a	Acer pseudoplatanus (Sycamore)	SM	10	N: 2 E: 3 S: 1 W: 1	60 (approx)	1.2	Fair	Fair	10-20	B2	Located within group G4. Retain if not affected by proposals.
0118	n/a	Acer pseudoplatanus (Sycamore)	SM	10	N: 2 E: 3 S: 2 W: 1	60 (approx)	1.2	Fair	Fair	10-20	B2	Located within group G4. Retain if not affected by proposals.
0119	n/a	Acer pseudoplatanus (Sycamore)	SM	8	N: 3 E: 2 S: 1 W: 1	60 (approx)	1.0	Fair	Fair	10-20	B2	Located within group G4. Retain if not affected by proposals.
0120	n/a	Acer pseudoplatanus (Sycamore)	SM	12	N: 2 E: 1 S: 2 W: 2	110 (approx)	1.8	Fair	Fair, some damage to basal shoots (possibly due to car collision or flail mower)	10-20	B2	Located within group G4. Retain if not affected by proposals. Clear basal growth and monitor damage.
0121	n/a	Fagus orientalis (Oriental Beech)	SM	9	N: 3 E: 3 S: 2 W: 1	90 (approx)	1.6	Fair	Fair	10-20	B2	Located within group G4. Retain if not affected by proposals.

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Scarborough GCHQ												
Project	Morgan Sindall											
Client	22 nd July 2014											
Date of Inspection	Sun, clear skies											
Ref.	TPO Ref.	Species	Age Class	Height (m)	Canopy NESW (m)	Weather		R Woods (Golder Associates (UK) Ltd)				
						Inspected by	Stem Girth (cm)	Crown Clearance Height (m)	Physiological Condition	Structural Condition	Est. Remaining Contribution (years)	Category
0122	n/a	Acer pseudoplatanus (Sycamore)	SM	8	N: 2 E: 2 S: 2 W: 2	50 (approx)	1.2	Fair	Fair	10-20	C2	Located within group G4. Retain if not affected by proposals.
0123	n/a	Fraxinus excelsior (Ash)	SM	9	N: 2 E: 2 S: 2 W: 2	45 (approx)	1.0	Fair	Fair/Poor, located close between trees 0122 and 0124.	<10	C2	Located within group G4. Retain if not affected by proposals. Monitor any possible damage to neighbouring trees.
0124	n/a	Fraxinus excelsior (Ash)	SM	9	N: 2 E: 2 S: 2 W: 2	50 (approx)	1.2	Fair	Fair	10-20	C2	Located within group G4. Retain if not affected by proposals.
0125	n/a	Fraxinus excelsior (Ash)	SM	12	N: 2 E: 2 S: 2 W: 2	80 (approx)	0.8	Fair	Fair	10-20	C2	Located within group G4. Retain if not affected by proposals. Remove deadwood in canopy.
0126	n/a	Crataegus monogyna (Hawthorn)	SM	6	N: 2 E: 1 S: 1 W: 1	60 (approx)	0.8	Poor	Poor, extensive deadwood, leaning to NE	<10	R	Remove due to poor physiological/structural condition.
0127	n/a	Fraxinus excelsior (Ash)	SM	10	N: 2 E: 2 S: 1 W: 1	50 (approx)	1.0	Poor	Poor, extensive deadwood, leaning to NE	<10	R	Remove due to poor physiological/structural condition.

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Scarborough GCHQ												
Project	Scarborough GCHQ											
Client	Morgan Sindall											
Date of Inspection	22 nd July 2014											
Ref.	TPO Ref.	Species	Age Class	Height (m)	Canopy NESW (m)	Weather			Sun, clear skies			
						Stem Girth (cm)	Crown Clearance Height (m)	Inspected by	R Woods (Golder Associates (UK) Ltd)			
0128	n/a	Sorbus sp	SM	7	N: 2 E: 2 S: 2 W: 2	110	2.0	Good	Fair, close pruning has produced dense canopy	20-40	B2	Retain if not affected by proposals. Canopy may benefit from some future thinning.
0129	n/a	Sorbus sp	SM	8	N: 2 E: 2 S: 2 W: 2	120	2.0	Good	Fair, close pruning has produced dense canopy	20-40	B2	Retain if not affected by proposals. Canopy may benefit from some future thinning.
0130	n/a	Acer pseudoplatanus (Sycamore)	SM	10	N: 3 E: 3 S: 3 W: 3	130	1.0	Good	Fair	20-40	B2	Retain if not affected by proposals. Canopy may benefit from some future thinning.
0131	n/a	Acer pseudoplatanus (Sycamore)	SM	10	N: 3 E: 3 S: 3 W: 3	130	0.0	Good	Fair	20-40	B2	Retain if not affected by proposals. Canopy may benefit from some future thinning. Crown Lift
0132	n/a	Sorbus aria (Whitebeam)	SM	6	N: 1 E: 1 S: 1 W: 1	50	0.3	Good	Fair	20-40	B2	Retain if not affected by proposals. Canopy may benefit from some future thinning.
0133	n/a	Sorbus sp	SM	7	N: 1 E: 1 S: 1 W: 1	1.1	1.8	Good	Fair, close pruning has produced dense canopy	20-40	B2	Retain if not affected by proposals. Canopy may benefit from some

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Scarborough, GCHQ, Omega2 Tree Report Survey Schedules

Scarborough GCHQ												
Project	Scarborough GCHQ											
Client	Morgan Sindall											
Date of Inspection	22 nd July 2014											
Ref.	TPO Ref.	Species	Age Class	Height (m)	Canopy NESW (m)	Weather			Sun, clear skies			
						Stem Girth (cm)	Crown Clearance Height (m)	Physiological Condition	Structural Condition	Est. Remaining Contribution (years)	Category	Recommendations
0134	n/a	Sorbus sp	SM	8	N: 1 E: 1 S: 1 W: 1	1.0	1.8	Good	Fair, close pruning has produced dense canopy	20-40	B2	future thinning. Retain if not affected by proposals. Canopy may benefit from some future thinning.
0135	n/a	Acer pseudoplatanus (Sycamore)	SM	8	N: 1 E: 1 S: 1 W: 1	90	0.3	Good	Fair	20-40	B2	Retain if not affected by proposals. Crown lift
0136	n/a	Acer pseudoplatanus (Sycamore)	SM	8	N: 1 E: 1 S: 1 W: 1	70	1.8	Good	Fair, some prominent scarring from earlier limb removal, close pruning has produced dense canopy	20-40	B2	Retain if not affected by proposals. Canopy may benefit from some future thinning.
0137	n/a	Sorbus aria (Whitebeam)	SM	7	N: 1.2 E: 1.5 S: 1.5 W: 1.5	60	0.3	Good	Fair, some prominent scarring from earlier limb removal, close pruning has produced dense canopy	20-40	B2	Retain if not affected by proposals. Canopy may benefit from some future thinning. Crown lift.
G1	n/a	Alnus glutinosa (Alder) (2 No.)/ Crataegus monogyna (Hawthorn) (3 No.)	Y - SM	4 - 6	Refer to drawing	Varies	Varies	Fair	Fair	Varies	C2	Retain if not affected by proposals.
G2	n/a	Alnus glutinosa (Alder) (approx. 6 No.)/ Crataegus	Y - SM	4 - 6	Refer to drawing	Varies	Varies	Fair	Fair	Varies	C2	Retain if not affected by proposals.

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Scarborough, GCHQ, Omega2 Tree Report Survey Schedules

Scarborough GCHQ												
Project	Scarborough GCHQ											
Client	Morgan Sindall					Weather			Sun, clear skies			
Date of Inspection	22 nd July 2014					Inspected by			R Woods (Golder Associates (UK) Ltd)			
Ref.	TPO Ref.	Species	Age Class	Height (m)	Canopy NESW (m)	Stem Girth (cm)	Crown Clearance Height (m)	Physiological Condition	Structural Condition	Est. Remaining Contribution (years)	Category	Recommendations
		monogyna (Hawthorn) (approx. 10 No.)										
G3	n/a	Cupressus x leylandii (approx. 15 No.)	SM	10 -12	Refer to drawing	Varies	Approx 1.8	Fair	Fair	Varies	C2	Retain if not affected by proposals.
G4	n/a	Crataegus monogyna (Hawthorn)/ Fraxinus excelsior (Ash)/ Acer pseudoplatanus (Sycamore)/Prunus spinosa (Blackthorn)/Malus sylvestrus (Crab Apple) (approx. 40-60 specimens)	Y - SM	4 -10	Refer to drawing	Varies	Varies	Poor - Fair	Poor - Fair	Varies	C2	Retain if not affected by proposals. May benefit from some thinning throughout. Remove all standing dead wood.



TREE SURVEY REPORT

APPENDIX B

Glossary of Terms

**APPENDIX B****Golder Associates Tree/Vegetation Survey Glossary of Terms**

Bole	: Main stem of tree or 'trunk'.
Basal Cavity	: Cavity at base of bole where main stem meets ground level.
Break Out Cavity	: Cavity left by branches breaking off main stem or major branches. Vulnerable to decay.
Buttress	: Additional growth around base of bole connected to main roots. Reaction to environmental conditions e.g. swaying in wind.
Crown Dieback	: Branches/foliage show signs of death, usually at tip of branches. Leaves can be smaller than type, sparse or pale. Unseasonal leaf drop. Indicates root damage/decay.
Crown Lifting	: Removal of lower branches to increase clear stem height.
Deadwood	: Presence of dead/dying branches in crown. May be detached and 'Hanging' with safety implications.
Epicormic Shoots	: Leafy branches that grow in groups around base of bole, generally indicates stress.
Formative Pruning	: Pruning to remove potentially weak/uncharacteristic branches and shoots.
Fungal Fruit Bodies	: Fungal growth evident on stem and/or base of bole; may be evidence of internal decay.
Loose Bark	: Bark parting from bole; may indicate decay beneath.



TREE SURVEY REPORT

APPENDIX C

Survey Methodology



APPENDIX C

Golder Associate Tree/Vegetation Survey: Survey Methodology

Inspection Methodology	:	Visual inspection only, conducted at ground level. No climbing, digging or sampling was undertaken.
Species	:	Common and Latin names are given where relevant.
Age Class	:	Five category scale: Young (Y), Semi-Mature (SM), Early Mature (EM), Mature (M), Over Mature (OM). The age of a tree is based upon an assessment of its growth characteristics at the time of inspection in relation to the anticipated life span of a particular species. Consideration is also given to the influence of location.
Height	:	Assessment of overall height (approximate) in metres from ground level.
Crown Spread	:	Assessment of maximum spread, in metres (approximate) to the four cardinal points (north, south, east and west) to record the maximum canopy spread.
Stem Diameter	:	Diameter of main stem, in millimetres, measured at Diameter Breast Height (DBH) or above root fare or at main stem for multi stem trees.
Crown Height	:	Height above immediate ground level, in metres, at which crown begins. Also indicates clear stem height.
Physiological Condition	:	Four category scale: Good (G), Fair (F), Poor (P), Dead (R) Condition is based on the appearance of a specimen in relation to its anticipated characteristics including shape, vigour, evidence of disease/dead wood.
Structural Condition	:	Notes on any physical defects, decay, collapsing, cavities etc.
Estimated Remaining Contribution	:	Measured in years. Taking into account species age and condition.
Category Grading	:	Four category scale based on the principals set out in BS 5837 methodology. Category A -Trees of high quality and value: in such a condition as to be able to make a substantial contribution. Category B -Trees of moderate quality and value: those in



APPENDIX C

Golder Associate Tree/Vegetation Survey: Survey Methodology

such a condition as to make a significant contribution.

Category C -Trees of low quality and value, but currently in adequate condition.

Category R -Trees that are in such a condition that any existing value would be lost within 10 years and which should be removed for reasons of sound arboricultural management.

Sub Category Grading

A: Those of High Quality and Value

These trees are of high quality and value, in such a condition as to be able to make a substantial contribution with a good life expectancy. They may be further sub-divided as follows:

- A1) Mainly arboriculture value – Particularly good examples: perhaps rare or unusual species or forming an essential part of arboricultural features e.g. avenues;
- A2) Mainly landscape value – Trees or groups of trees having a significant landscape impact or with excellent screening properties, or these softening the effect of existing structures; or
- A3) Mainly cultural values including conservation – Those having significant conservation or historical value.

B: Those of Moderate Quality and Value

These trees are of moderate quality and value with a good life expectancy. They may be further sub-divided as follows:

- B1) Mainly arboriculture value - Trees that might be included in the high category but because of their numbers or slightly impaired condition, are downgraded in favour of the better individuals;
- B2) Mainly landscape value - Groups of trees forming distinct landscape features, thereby attractive a higher collective rating than they might as individuals; or
- B3) Mainly cultural values including conservation - Trees with clearly identifiable conservation or other cultural benefits.

C: Those of Low Quality and Value

These trees are of low quality and value, and are in adequate condition to remain until new planting could be established. They may be further sub-divided as follows:

- C1) Mainly arboriculture value - Trees not qualifying in higher categories;
- C2) Mainly landscape value - Groups of trees which do not form a distinct landscape feature; or
- C3) Mainly cultural values including conservation - Trees with very limited conservation or other cultural benefits.



APPENDIX C

Golder Associate Tree/Vegetation Survey: Survey Methodology

Note: Whilst C category trees will usually not be retained where they would impose a significant constraint to on the development, young trees with a stem diameter of less than 150 mm at breast height should be considered for relocation.

Comments

: Includes recommendations for more detailed investigations, pruning and tree surgery.



TREE SURVEY REPORT

APPENDIX D

Drawing GCHQ-02-LA-0500-REV1

As a global, employee-owned organisation with over 50 years of experience, Golder Associates is driven by our purpose to engineer earth's development while preserving earth's integrity. We deliver solutions that help our clients achieve their sustainable development goals by providing a wide range of independent consulting, design and construction services in our specialist areas of earth, environment and energy.

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